Official Draft Public Notice Version **April 24th, 2026**
The findings, determinations, and assertions contained in this document are not final and subject to change following the public comment period.

FACT SHEET
CENTRAL UTAH WATER CONSERVANCY DISTRICT
DUCHESNE VALLEY WATER TREATMENT PLANT
RENEWAL DISCHARGE PERMIT
UPDES PERMIT NUMBER: UT0025801
MINOR INDUSTRIAL FACILITY

FACILITY CONTACT INFORMATION

Owner/Operator Name: Central Utah Water Conservancy District

Contact person Name: Jesse Hyde
Position: Plant Manager

Contact Person Name: Mike Rau
Position: Finished Water Operations Manager

Permittee Name: Central Utah Water Conservancy District

Facility Name: Duchesne Valley Water Treatment Plant

Facility Address: 23419 West State Park Road
Duchesne, UT 84021

Mailing Address: Same as above

Phone Number: (435) 738-5725

DESCRIPTION OF FACILITY

Central Utah Water Conservancy District (Permittee) owns and operates the Duchesne Valley Water Treatment Plant (DVWTP) located on the east side of the Starvation Reservoir in Duchesne, Utah. The DVWTP is a conventional drinking water treatment plant constructed in the early 1980's and is designed to discharge an annual average of 0.65 million gallons per day (MGD). It falls under Standard Industrial Category #4941 for Water Supply. The DVWTP process starts with pumping raw water from Starvation Reservoir up to the treatment plant where primary coagulant (aluminum sulfate (alum), ferric chloride, or ferric sulfate) and cationic polymer is then rapidly mixed with the raw water (coagulation) to neutralize the surface charge of particles found in the raw water. The water is then mechanically mixed (flocculation) to form larger particles, which can then be removed by a sedimentation process. After sedimentation, remaining particles are removed in the dual media filtration process. After filtration and disinfection, the high-quality treated drinking water then enters finished water storage reservoirs to await delivery to the consumer.

Regarding DVWTP effluent discharges, when the filtration process has collected or filtered a pre-determined amount of material from the water, the filtration process is stopped, and clean drinking water is pumped in the reverse direction through the filter media to wash out all the collected particles within the filter. This (backwash) water then flows to one of four 1.1-million-gallon capacity drying/settling basins, where the backwash particles in the water settle out in the basin, and the clarified decant water is pumped, at a selected rate, from the top water level in the basin and then flows back to Starvation Reservoir via pipeline to Outfall 001 located at latitude 40° 11' 45" & longitude 110° 26' 10".

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

There are two proposed changes in the renewal of this UPDES Permit (Permit). First, the Whole Effluent Toxicity (WET) testing has been changed from Chronic WET quarterly testing to Acute WET semi-annual testing as discussed further in the Biomonitoring Requirements section of this Fact Sheet. The second change is the additional monitoring for both temperature and dissolved oxygen, as discussed further in the Total Maximum Daily Load (TMDL) Requirements section of this Fact Sheet. All other Permit conditions remained unchanged.

DISCHARGE INFORMATION

DESCRIPTION OF DISCHARGE

DVWTP has been reporting self-monitoring results on Discharge Monitoring Report (DMR) forms on a monthly basis via NetDMR as required. There have been no Permit violations during the past five-year Permit cycle. The discharge outfall is described in the Permit as follows:

Outfall	Description of Discharge Point
001	Located at latitude 40° 11' 45" and longitude 110° 26' 10". The discharge gravity flows through a 10-inch diameter pipe leading from the solids settling basin to Starvation Reservoir.

RECEIVING WATERS AND STREAM CLASSIFICATION

The discharge flows into Starvation Reservoir. Starvation Reservoir is classified as follows according to Utah Administrative Code (UAC) R317-2-13:

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

Class 2A -- Protected for frequent primary contact recreation where there is a high likelihood of ingestion of water or a high degree of bodily contact with the water. Examples include, but are not limited to, swimming, rafting, kayaking, diving, and water skiing.

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

According to the Utah 2024 303(d) Water Quality Assessment Report, the receiving water for the discharge;

Starvation Reservoir (UT-L-14060004-006_00) is impaired for dissolved oxygen and temperature. Although a TMDL study has not been completed to address these impairments, instantaneous sampling for both dissolved oxygen and temperature has been added to the Permit monitoring requirements to support any future study efforts.

BASIS FOR EFFLUENT LIMITATIONS

In accordance with regulations promulgated in 40 Code of Federal Regulations 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 made by the permit writer based upon precedent, prevailing regulatory standards, or other relevant information.

Permit limits can also be derived from the WLA, which incorporates Secondary Treatment Standards, Water Quality Standards, including any applicable TMDL impairments as appropriate, Antidegradation Reviews (ADR), and designated uses into a water quality model that projects the effects of discharge concentrations on receiving water quality. Effluent limitations are those that the model demonstrates are sufficient to meet State water quality standards in the receiving waters. During this UPDES renewal Permit development, a WLA and an ADR were completed as appropriate, and it was determined that this discharge will not cause a violation of water quality standards. An ADR Level I review was performed and concluded that an ADR Level II review was not required at this time since water quality will not be further lowered by the proposed activity, as per UAC R317-2-3.5.b.1.(b). The WLA indicates that the effluent limitations will be sufficiently protective of water quality, in order to meet State water quality standards in the receiving waters. The WLA with ADR information is attached to this Fact Sheet.

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

1) Daily minimum and daily maximum limitations for pH are derived from Utah Water Quality Standards in UAC R317-2-14.

2) Limitations for Total Dissolved Solids (TDS) are based on the State Water Quality Standard for concentrations, authorized in UAC R317-2-14, as well as the Colorado River Basin Salinity Control Forum (CRBSCF) for loading, as authorized in UAC R317-2-4. Discharges from the Permittee eventually reach the Colorado River, which places it under the guidance of the CRBSCF. TDS are limited in loading by the CRBSCF and in February 1977 produced the "Policy For Implementation of Colorado River Salinity Standards Through the NPDES Permit Program" (Policy). This Policy is still in effect, as last updated in October 2023. Therefore, following CRBSCF Policy discharges from DVWTP will be limited to a maximum discharge of 1-ton per day TDS or 366 tons per year if the 1-ton/day limitation cannot be met.

3) Limitations on Iron and Aluminum for both concentration and loading remain unchanged and are water quality based as derived from a previous Permit development and 2016 WLA, which are more stringent than the limitations for those parameters as derived from the current 2026 WLA. Since DVWTP has consistently met all previous Permit limitations, as well as to avoid EPA's Anti-Backsliding Policy for any potential increase in effluent limitations, the more stringent limitations from the previous Permit will once again remain in the Permit based upon BPJ of the permitting authority.

The parameters of concern (POCs) are the same as previous Permits and are based upon the DVWTP process utilizing either aluminum sulfate, ferric chloride, or ferric sulfate to treat the raw water of Starvation Reservoir as mentioned previously. Therefore, aluminum and iron, along with TDS and pH as mentioned above, are once again the primary POCs for this renewal Permit. Also, a limitation on Effluent Flow has not been included once again in the Permit, which is not required since both concentration and loading limitations are included for the applicable POCs.

Reasonable Potential Analysis
Since January 1, 2016, the Utah Division of Water Quality (DWQ) has conducted reasonable potential (RP) analysis 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.

A qualitative RP analysis was performed on the metals parameters to determine if there was reasonable potential for the discharge to exceed the applicable Water Quality Standards. Based on the RP analysis, a closer look at the metals parameters was not necessary, and it was determined not to include any additional effluent limits in this renewal Permit. This is because all the data points reviewed did not exceed the applicable Water Quality Standards and/or laboratory method detection limits. Therefore, no RP currently exists at the facility for the identified metals parameters, and a more quantitative RP analysis using the RP Model was not required at this time. The RP result is Outcome C: No new effluent limitation. Routine monitoring requirements are maintained as they are in the Permit. A copy of the RP summary is included at the end of this Fact Sheet.

The Permit limitations are as follows:

Parameter, Units	Effluent Limitations *a			
	Maximum Monthly Avg	Annual Maximum	Daily Minimum	Daily Maximum
Total Flow, MGD *b	Report	--	--	Report
pH, Standard Units (SU)	--	--	6.5	9.0
Aluminum, mg/L *c	3.9	--	--	7.24
Aluminum, lbs/day *c	3.2	--	--	6.0
Iron, mg/L *d	--	--	--	0.17
Iron, lbs/day *d	--	--	--	0.14
TDS, mg/L *e	--	--	--	1200
TDS, tons/day *e	--	--	--	1.0/Report
TDS, tons/yr *e	--	366	--	--
Turbidity, NTU *f	--	--	--	Report
Temperature, °C	--	--	--	Report
Dissolved Oxygen, mg/L	--	--	Report	--
WET, Acute Biomonitoring *g	--	--	--	LC_{50} > 100% effluent

SELF-MONITORING AND REPORTING REQUIREMENTS
The following self-monitoring requirements are similar to the previous Permit with minor changes and mentioned previously. The Permit requires reports to be submitted monthly and semi-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	Continuous	Recorder	MGD
pH	Weekly	Grab	SU
Aluminum *c	Monthly	Grab	mg/L
Iron *d	Monthly	Grab	mg/L
Total Dissolved Solids *e	Monthly	Grab	mg/L
Turbidity *f	Monthly	Grab	NTU
Temperature	Monthly	Grab	°C
Dissolved Oxygen	Monthly	Grab	mg/L
WET – Biomonitoring *g Ceriodaphnia dubia - Acute Fathead Minnows - Acute	 1st Semi-annual 2nd Semi-annual	 Grab/Composite Grab/Composite	 Pass/Fail Pass/Fail

*a See Definitions, 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. If the flow rate of discharge is controlled, the rate and duration of discharge shall be reported.

*c Aluminum monitoring is not required if no Alum is used in the treatment process.

*d Iron monitoring is not required if no Iron-based coagulant is used in the treatment process.

*e In addition to the TDS effluent concentration limitation, TDS effluent loading is limited to one-ton/day. If the one-ton/day effluent loading limitation cannot be met, then the Permittee is limited to 366-tons/year total TDS effluent loading from the facility. If the concentration of TDS is 500 mg/L or less, no loading limitation is required for that monitoring period (i.e., month). Only months when the TDS concentration is greater than 500 mg/L shall the one-ton/day loading limitation apply. It is the responsibility of the Permittee to maintain annual TDS loading information and upon request the Permittee shall submit to the Director the annual TDS loading information.

*f Turbidity monitoring shall be conducted monthly whenever possible from the discharge to ensure that there is not an increase of more than 10 NTU over the receiving waters, when applicable.

*g Acute Biomonitoring of the effluent shall be conducted semi-annually (twice per year) with alternating species as detailed in the Permit. The Acute Ceriodaphnia dubia shall be tested during the 1st semi-annual period and the Acute fathead minnows shall be tested during the

2nd semi-annual period.

BIOSOLIDS

The State of Utah has adopted the 40 C.F.R. § 503 federal regulations for the disposal of sewage sludge (biosolids) by reference. However, this facility does not receive, generate, treat or dispose of biosolids. Therefore 40 C.F.R. § 503 shall not apply.

STORM WATER

Separate UPDES storm water permits may be required based on the types of activities occurring on site. The facility's SIC code is 4941: Water Supply, which there is no bulk storage of any contaminants at the facility. Therefore, separate storm water UPDES permit coverage under the Multi Sector General Permit (MSGP) for Storm Water Discharges from Industrial Activities is not required.

Permit coverage under the UPDES Construction General Storm Water Permit (CGP) is required for any construction at the facility which disturbs 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

There is no discharge of process wastewater to any municipal wastewater treatment facility. Any process wastewater that the facility may discharge to the public sanitary sewer, either as direct discharge or as a hauled waste, is subject to federal, state and local pretreatment regulations. Pursuant to section 307 of the Clean Water Act, the Permittee shall comply with all applicable Federal General Pretreatment Regulations promulgated in 40 CFR Section 403, the State Pretreatment Requirements found in UAC R317-8-8, and any specific local discharge limitations developed by the Publicly Owned Treatment Works (POTW) accepting the waste.

In addition, in accordance with 40 CFR 403.12(p)(1), the Permittee must notify the POTW, the EPA Regional Waste Management Director, and the State hazardous waste authorities, in writing, if they discharge any substance into a POTW which if otherwise disposed of would be considered a hazardous waste under 40 CFR 261. This notification must include the name of the hazardous waste, the EPA hazardous waste number, and the type of discharge (continuous or batch).

BIOMONITORING REQUIREMENTS

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

The renewal Permit will once again require WET testing. While Chronic WET testing was previously conducted during the past 5-year Permit period, Acute WET testing is the recommended test method

derived from the DWQ WET Policy based upon the effluent dilution ratio being >20:1 into the receiving waters of Starvation Reservoir, and has been requested by the Permittee as the preferred test method going forward. The Permittee previously performed both Acute and Chronic WET testing for the initial 5-year permit cycle (2011-2016) and after no WET failures, requested a reduction to Chronic WET testing only and with alternating the test species. WET testing has previously been on a quarterly basis, alternating between Ceriodaphnia dubia and Pimephales promelas (fathead minnows) species, as detailed in the Permit. However, since there have no WET testing failures during the past 5-year Permit cycle, the Permittee has requested a reduction in WET testing from quarterly to semi-annually following provisions as detailed in the Permit. Alternating the testing species have been previously granted to the Permittee and will continue in this Permit renewal once again as requested by the Permittee. The changes in WET testing are based upon the absence of toxicity as confirmed through testing over the previous 15 years of biomonitoring.

The Permit will once again contain the standard requirements for accelerated testing frequency, as well as a Toxicity Reduction Evaluation (TRE) as necessary. The Permit will also contain a toxicity limitation re-opener provision. This provision allows for modification of the Permit at any time to include WET limitations and/or increased WET monitoring, should additional information indicate the presence of toxicity in the discharge.

PERMIT DURATION

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

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 Protection
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 will 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 Summary

Duchesne Valley Water Plant Effluent Monitoring Data Summary (2021-2025)

Parameter (Units)	Discharge Flow (MGD)		pH (SU)		Aluminum (mg/L)	Iron (mg/L)		TDS (mg/L)	
	Avg	Max	Min	Max	Max	Avg	Max	Avg	Max
Outfall 001	0.1178	0.605	7.8	8.7	NA	0.02	0.13	348	704

Notes:
NA = Not Applicable. Monitoring for Aluminum not required. Alum was not used for treatment.

All other monitoring data are summarized in the following RP Analysis in Attachment 3.

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ATTACHMENT 2

Wasteload Analysis Information
(DWQ-2026-001071 & DWQ-2026-001095)

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

Date: **March 2, 2026**

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

Facility: **Duchesne Valley Water Treatment Plant,**
UPDES Permit No. UT0025801

Receiving water: **Starvation Reservoir (1C, 2A, 3A, 4)**

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

Discharge

001	Duchesne Valley Water Treatment Plant	0.65 MGD

Facility Operation Drinking water treatment facility that treats water from Starvation Reservoir and provides potable water to a portion of Duchesne county.

Receiving Water

Per UAC R317-2-13.2.g, the designated beneficial uses of the Starvation Reservoir are 1C, 2A, 3A, 4.

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

- *Class 2A - Protected for frequent primary contact recreation where there is a high likelihood of ingestion of water or a high degree of bodily contact with the water. Examples include, but are not limited to, swimming, rafting, kayaking, diving, and water skiing.*

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

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

Flow

Typically, the critical flow for the wasteload analysis is considered the lowest stream flow for seven consecutive days with a ten year return frequency (7Q10). The lagoon effluent discharges to Starvation Reservoir, therefore seasonal critical values were not calculated for this waste load analysis, and the design flow (0.65 MGD) was used.

Ambient receiving water quality

Receiving water quality was characterized by using data from DWQ Monitoring Stations # 4936050 STARVATION RES AB DAM 01 for the period 2016-2026.

Assessment Category and Total Maximum Daily Load (TMDL)

According to the Utah's 2024 303(d) Water Quality Assessment Report, the receiving water for the discharge; Starvation Reservoir (UT-L-14060004-006_00) is impaired for dissolved oxygen, and temperature.

Parameters of Concern

Based on a discussion with the writer, the potential parameters of concern for the discharge were identified as metals (specifically Aluminum and Iron) and total dissolved solids (TDS).

Protection of Downstream Uses

Per UAC R317-2-8, all actions to control waste discharges under these rules shall be modified as necessary to protect downstream designated uses. For this discharge, 3A numeric aquatic life use criteria are presumed sufficient to protect Starvation Reservoir.

Mixing Zone

The maximum allowable mixing zone is 15 minutes of travel time for acute conditions, not to exceed 50% of stream width, and for chronic conditions, per UAC R317-2-5. Water quality standards must be met at the end of the mixing zone. The mixing zone model showed complete mixing within 2,500 feet for chronic conditions. Acute limits were calculated using 50% of the seasonal critical low flow.

WET Limits

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

IC25 WET limits for Outfall 001 should be based on 1.47 % effluent (Table 1).

Table 1.WET Limits for IC25

Outfall	Percent Effluent
Outfall 001	1.47%

Wasteload Allocation Methods

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

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

Models and supporting documentation are available for review upon request.

Antidegradation Level I Review

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

Antidegradation Level II Review

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

Documents:

WLA Document *:*
Duchesne Valley_WTP_WLA_2026.docx

Wasteload Analysis and Addendums:
Duchesne Valley_WTP_WLA_2026.xlsm
Duchesne Valley_WTP_WLA_SOB_2026.pdf

References:

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

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

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.

WASTELOAD ANALYSIS [WLA]
Addendum: Statement of Basis
SUMMARY

Discharging Facility:	**Duchesne Valley Water Treatment Plant**		
UPDES No:	0025801		
Current Flow:	0.65	MGD	Design Flow
Design Flow	0.65	MGD	

Receiving Water:	**Starvation Reservoir**	
Lake Classification:	1C, 2A, 3A, 4	
TDS (mg/l)	360.30	Average
Hardness (mg/l)	220.00	Average
pH	8.31	Average
Temp (C)	13.5	Average

Selected Effluent Limit Summary:				**WQ Standard:**
Flow, MGD:	0.65	MGD	Design Flow	
BOD, mg/l:	25.0	All Seasons	5	Indicator
Dissolved Oxygen, mg/l:	5.00	All Seasons	6.50	30 Day Average
TNH3, Acute, mg/l:	14.90	All Seasons	Varies	Function of pH and Temperature
TDS, mg/l:	1200.00	All Seasons	1200	Receiving water is impaired for TDS
Zinc, ug/l	2637.15	All Seasons	Varies	Function of Hardness
Copper, ug/l	321.09	All Seasons	Varies	Function of Hardness

Modeling Parameters:

Acute Dilution Ratio	11.90	to 1
Chronic Dilution Ratio:	67.97	to 1

Level 1 Antidegradation Level Completed: Level II Review not required -
No increase over in concentration or load of pollutants over previous permit

Wasteload Analysis - Total Maximum Daily Load (Lake TMDL)

3/3/2026 15:23

Facility: **Duchesne Valley Water Treatment Plant** **UPDES No: UT- 0025801**
Discharging to: **Starvation Reservoir**

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 lake water quality. The wasteload analysis does not take 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 water quality parameters of concern may include metals (as a function of hardness), total dissolved solids (TDS), total residual chlorine (TRC), unionized 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 water quality response to point source discharges. Models aid in the effort of anticipating water quality at future effluent flows at critical environmental conditions (e.g., high temperature, high pH, etc).

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

II. Receiving Water and Lake / Reservoir Classification

Starvation Reservoir	1C, 2A, 3A, 4

III. Numeric Water Quality Standards for Protection of Aquatic Wildlife

Total Ammonia (TNH3)	Function of Temperature and pH	pH	Temp
	1.45 mg/l as N (4 Day Average)	8.33	12.8
	2.98 mg/l as N (1 Hour Average)	8.33	12.8
Chronic Total Residual Chlorine (TRC)	0.011 mg/l (4 Day Average)		
	0.019 mg/l (1 Hour Average)		
Chronic Dissolved Oxygen (DO)	6.50 mg/l (30 Day Average)		
	5.00 mg/l (7Day Average)		
	4.00 mg/l (1 Day Average		
Maximum Total Dissolved Solids [Class 4 Ag]	1200 mg/l		
Maximum Boron [Class 4 Ag]	750 mg/l		

Acute and Chronic Heavy Metals (Dissolved)

Parameter	4 Day Average (Chronic) Standard Concentration		1 Hour Average (Acute) Standard Concentration	
Aluminum	87.000	ug/l	750	ug/l
Antimony		ug/l		ug/l
Arsenic	190.000	ug/l	360.00	ug/l
Asbestos		ug/l		ug/l
Barium		ug/l	1000.00	ug/l
Beryllium		ug/l		ug/l
Cadmium	0.482	ug/l	4.71	ug/l
Chromium III	162.973	ug/l	3409.72	ug/l
ChromiumVI	11.000	ug/l	16.00	ug/l
Copper	18.136	ug/l	29.14	ug/l
Cyanide	5.200	ug/l	22.00	ug/l
Iron		ug/l	1000.00	ug/l
Lead	8.565	ug/l	219.80	ug/l
Mercury	0.012	ug/l	2.40	ug/l
Nickel	170.40	ug/l	906.08	ug/l
Selenium	5.000	ug/l	20.00	ug/l
Silver		ug/l	14.43	ug/l
Thallium				
Zinc	231.627	ug/l	231.63	ug/l
Based upon a Hardness of 217.7 mg/l as CaCO3			Based upon 217.87 mg/l as CaCO3	

Organics [Pesticides]

Parameter	4 Day Average (Chronic) Standard Concentration		1 Hour Average (Acute) Standard Concentration	
Aldrin			1.500	ug/l
Chlordane	0.0043	ug/l	1.200	ug/l
DDT, DDE	0.001	ug/l	0.550	ug/l
Dieldrin	0.0056	ug/l	0.240	ug/l
Endosulfan, a & b	0.056	ug/l	0.110	ug/l
Endrin	0.036	ug/l	0.086	ug/l
Guthion				
Heptachlor & H. epoxide	0.0038	ug/l	0.260	ug/l
Lindane	0.08	ug/l	1.000	ug/l
Methoxychlor			0.030	ug/l
Mirex			0.001	ug/l
Parathion	0.0130	ug/l	0.066	ug/l
PCB's	0.014	ug/l		
Pentachlorophenol	15.00	ug/l	19.000	ug/l
Toxephene	0.0002	ug/l	0.730	ug/l

IV. Numeric Water Quality Standards for Protection of Agriculture

	1 Hour Average (Acute) Standard Concentration	
TDS	1200	mg/l
Arsenic	100	ug/l
Boron	750	ug/l
Cadmium	10	ug/l
Chromium	100	ug/l
Copper	200	ug/l
Lead	100	ug/l
Selenium	50	ug/l

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

Metals	1 Hour Average (Acute) Standard Concentration	
Arsenic	10	ug/l
Barium	1000	ug/l
Cadmium	10	ug/l
Chromium	50	ug/l
Lead	15	ug/l
Mercury	2	ug/l
Selenium	50	ug/l
Silver	50	ug/l
Fluoride (3)	1400	ug/l
to	2400	ug/l
Nitrates as N	10000	ug/l
Chlorophenoxy Herbicides		
2,4-D	0	ug/l
2,4,5-TP	0	ug/l
Methoxychlor	0	ug/l

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

	Maximum Conc., ug/l - Acute Standards	
	Class 1C	**Class 3A, 3B, 3C, 3D**
	[2 Liters/Day for 70 Kg Person over 70 Yr.	[6.5 g for 70 Kg Person over 70 Yr.]
Antimony	5.6 ug/l	640 ug/l
Arsenic	A	A
Beryllium	C	C
Cadmium	C	C
Chromium III	C	C
Chromium VI	C	C
Copper	1,300 ug/l	
Lead	C	C
Mercury	A	A
Nickel	100 ug/l	4,600 ug/l
Selenium	A	4,200 ug/l
Silver		
Thallium	0.24 ug/l	6.3 ug/l
Zinc	7400 ug/l	26,000 ug/l
Cyanide	140 ug/l	220,000 ug/l
Asbestos	7.00E+06 Fibers/L	
2,3,7,8-TCDD Dioxin	5.0 E-9 ug/l	5.1 E-9 ug/l
Acrolein	190 ug/l	290 ug/l
Acrylonitrile	0.051 ug/l	0.25 ug/l
Alachlor	2 ug/l	
Benzene	2.2 ug/l	51 B ug/l
Bromoform	4.3 ug/l	140.00 ug/l
Carbofuran	40	
Carbon Tetrachloride	0.23 ug/l	1.60 ug/l
Chlorobenzene	100 ug/l	21,000 ug/l
Chlorodibromomethane	0.4 ug/l	13.00 ug/l
Chloroethane		
2-Chloroethylvinyl Ether		
Chloroform	5.7 ug/l	470.00 ug/l
Dalapon	200 ug/l	
Di(2ethylhexl)adipate	400 ug/l	
Dichlorobromopropane	0.2	
Dichlorobromomethane	0.55 ug/l	17.00 ug/l
1,1-Dichloroethane		
1,2-Dichloroethane	0.38 ug/l	37.00 ug/l

1,1-Dichloroethylene	7	ug/l		3.20	ug/l
Dichloroethylene (cis-1,2)	70				
Dinoseb	7				
Diquat	20				
1,2-Dichloropropane	0.5	ug/l		15.00	ug/l
1,3-Dichloropropene	0.34	ug/l		1,700	ug/l
Endothall	100				
Ethylbenzene	530	ug/l		29,000	ug/l
Ethyldibromide	0.05	ug/l			
Glyphosate	700	ug/l			
Haloacetic acids	60	ug/l	E		
Methyl Bromide	47	ug/l		1,500	ug/l
Methyl Chloride		F			F
Methylene Chloride	4.6	ug/l		590.00	ug/l
Ocamyl (vidate)	200	ug/l			
Picloram	500	ug/l			
Simazine	4	ug/l			
Styrene	100	ug/l			
1,1,2,2-Tetrachloroethane	0.17	ug/l		4.00	ug/l
Tetrachloroethylene	0.69	ug/l		3.30	ug/l
Toluene	1000	ug/l		200,000	ug/l
1,2 -Trans-Dichloroethylene	100	ug/l		140,000	ug/l
1,1,1-Trichloroethane	200	ug/l			F
1,1,2-Trichloroethane	0.59	ug/l		16.00	ug/l
Trichloroethylene	2.5	ug/l		30.00	ug/l
Vinyl Chloride	0.025	ug/l		530.00	ug/l
Xylenes	10000	ug/l			
2-Chlorophenol	81	ug/l		150	ug/l
2,4-Dichlorophenol	77	ug/l		290	ug/l
2,4-Dimethylphenol	380	ug/l		850	ug/l
2-Methyl-4,6-Dinitrophenol	13	ug/l		280	ug/l
2,4-Dinitrophenol	69	ug/l		5,300	ug/l
2-Nitrophenol					
4-Nitrophenol					
3-Methyl-4-Chlorophenol					
Penetachlorophenol	0.27	ug/l		3.00	ug/l
Phenol	21000	ug/l		1,700,000	ug/l
2,4,6-Trichlorophenol	1.4	ug/l		2.40	ug/l
Acenaphthene	670	ug/l		990	ug/l
Acenaphthylene		ug/l			ug/l
Anthracene	8300	ug/l		40,000	ug/l
Benzidine	0.000086	ug/l	B	0.00	ug/l
BenzoaAnthracene	0.0038	ug/l		0.02	ug/l
BenzoaPyrene	0.0038	ug/l		0.02	ug/l
BenzobFluoranthene	0.0038	ug/l		0.02	ug/l
BenzoghiPerylene		ug/l			
BenzokFluoranthene	0.0038	ug/l		0.02	ug/l
Bis2-ChloroethoxyMethane		ug/l			
Bis2-ChloroethylEther	0.03	ug/l		0.53	ug/l
Bis2-Chloroisopropy1Ether	1400	ug/l		65,000	ug/l
Bis2-EthylbexylPhthalate	1.2	ug/l		2.20	ug/l
4-Bromophenyl Phenyl Ether		ug/l			
Butylbenzyl Phthalate	1500	ug/l		1,900	ug/l
2-Chloronaphthalene	1000	ug/l		1,600	ug/l
4-Chlorophenyl Phenyl Ether		ug/l			
Chrysene	0.0038	ug/l		0.02	ug/l
Dibenzoa, hAnthracene	0.0038	ug/l		0.02	ug/l
1,2-Dichlorobenzene	420	ug/l		17,000	ug/l
1,3-Dichlorobenzene	320	ug/l		960	ug/l
1,4-Dichlorobenzene	63	ug/l		2,600	ug/l
3,3-Dichlorobenzidine	0.021	ug/l		0.03	ug/l
Diethyl Phthalate	17000	ug/l		44,000	ug/l
Dimethyl Phthalate	270000	ug/l		1,100,000	ug/l

Di-n-Butyl Phthalate	2000 ug/l		4,500 ug/l
2,4-Dinitrotoluene	0.11 ug/l		3.40 ug/l
2,6-Dinitrotoluene	ug/l		
Di-n-Octyl Phthalate	ug/l		
1,2-Diphenylhydrazine	0.036 ug/l		0.20 ug/l
Fluoranthene	130 ug/l		140.00 ug/l
Fluorene	1100 ug/l		5,300 ug/l
Hexachlorobenzene	0.00028 ug/l		0.00029 B ug/l
Hexachlorobutedine	0.44 ug/l		18.00 ug/l
Hexachloroethane	1.4 ug/l		3.30 ug/l
Hexachlorocyclopentadiene	40 ug/l		17,000 ug/l
Ideno 1,2,3-cdPyrene	0.0038 ug/l		0.02 ug/l
Isophorone	35 ug/l	B	960.00 ug/l
Naphthalene			
Nitrobenzene	17 ug/l		690 ug/l
N-Nitrosodimethylamine	0.00069 ug/l		3.00 ug/l
N-Nitrosodi-n-Propylamine	0.005 ug/l		0.51 ug/l
N-Nitrosodiphenylamine	3.3 ug/l		6.00 ug/l
Phenanthrene			
Pyrene	830 ug/l		4,000 ug/l
1,2,4-Trichlorobenzene	260 ug/l		940 ug/l
Aldrin	0.000049 ug/l		0.000050 ug/l
alpha-BHC	0.0026 ug/l		0.00 ug/l
beta-BHC	0.0091 ug/l		0.02 ug/l
gamma-BHC (Lindane)	0.2 ug/l		0.06 ug/l
delta-BHC			
Chlordane	0.0008 ug/l		0.00 ug/l
4,4-DDT	0.00022 ug/l		0.00 ug/l
4,4-DDE	0.00022 ug/l		0.00 ug/l
4,4-DDD	0.00031 ug/l		0.00 ug/l
Dieldrin	0.000052 ug/l	B	0.000054 ug/l
alpha-Endosulfan	62 ug/l		89 ug/l
beta-Endosulfan	62 ug/l		89 ug/l
Endosulfan Sulfate	62 ug/l		89 ug/l
Endrin	0.059 ug/l		0.81 ug/l
Endrin Aldehyde	0.29 ug/l		0.30 ug/l
Heptachlor	0.000079 ug/l	B	0.000079 ug/l
Heptachlor Epoxide	0.000039 ug/l	B	0.000039 ug/l
Polychlorinated Biphenyls	0.000064 ug/l	B,D	0.000064 ug/l
Toxaphene	0.00028 ug/l		0.00028 ug/l

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 Water Quality 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) 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.

The Utah Reservoir and Lake Model is a simple round jet model which was received from EPA Region 8. It assumes a discharge expands into the receiving water as a 1/2 cone from the point of discharge with the appropriate dilution.

The dilution ratios for this wasteload analysis are as follows:

Acute Dilution Ratio:	**11.9 to 1**
Chronic Dilution Ration:	**68.0 to 1**

VIII. Modeling Information

The required information for the model may include the following information for both the lake and effluent conditions:

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
D.O. mg/l	

Other Conditions

In addition to the lake 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

Lake Information	Temp. Deg. C	pH	T-NH3 mg/l as N	BOD mg/l	DO mg/l	TRC mg/l	TDS mg/l	Metals ug/l
	12.8	8.3	0.00	N/A	N/A	0.00	360.3	0.0

	Season	Flow, MGD	Temp.
Discharge Information	All Seasons	0.7	13.5

IX. Effluent Limitations based upon Water Quality Standards

Effluent Limitation for Flow

All Seasons			
Not to Exceed:	0.65	MGD	Daily Average
	1.01	cfs	Daily Average
WET Requirements	As determined by the UPDES Individual Permitting Section		

Effluent Limitation for Biological Oxygen Demand (BOD)

	Concentration	
30 Day Average	25.0	mg/l as BOD5
30 Day Average	20.0	mg/l as CBOD5

Effluent Limitation for Dissolved Oxygen (DO)

	Concentration 1 Day Average (Acute)	
30 Day Average	5.00	mg/l

Effluent Limitation for Total Ammonia

	4 Day Average [Chronic] Concentration		Load	
All Seasons	202.94	mg/l as N	1099.9	lbs/day

	1 Hour Average [Acute] Concentration		Load	
	14.9	mg/l as N	80.8	lbs/day

Effluent Limitation for Total Residual Chlorine

	4 Day Average [Chronic] Concentration	Load
All Seasons	0.748 mg/l	4.1 lbs/day

	1 Hour Average [Acute] Concentration	Load
	0.226 mg/l	1.2 lbs/day

Effluent Limitations for Metals

	4 Day Average (Chronic) Concentration	Load	1 Hour Average (Acute) Concentration	Load
Aluminum	4127.58 ug/l*	22.4 lbs/day	8631.09 ug/l	46.8 lbs/day
Arsenic	9953.08 ug/l	53.9 lbs/day	4004.94 ug/l*	21.7 lbs/day
Barium			11895.56 ug/l	64.5 lbs/day
Cadmium	21.99 ug/l*	0.1 lbs/day	49.95 ug/l	0.3 lbs/day
Chromium III	6798.38 ug/l*	36.8 lbs/day	12381.05 ug/l	67.1 lbs/day
ChromiumVI	661.32 ug/l	3.6 lbs/day	176.27 ug/l*	1.0 lbs/day
Copper	1110.47 ug/l	6.0 lbs/day	321.09 ug/l*	1.7 lbs/day
Cyanide	61.86		261.70	
Iron			259.02 ug/l	1.4 lbs/day
Lead	342.91 ug/l*	1.9 lbs/day	1764.82 ug/l	9.6 lbs/day
Mercury	0.01 ug/l*	0.000 lbs/day	28.42 ug/l	0.2 lbs/day
Nickel	6660.40 ug/l*	36.1 lbs/day	10736.47 ug/l	58.2 lbs/day
Selenium	284.55 ug/l	1.5 lbs/day	214.30 ug/l*	1.2 lbs/day
Silver			143.21 ug/l	0.8 lbs/day
Zinc	112013.33 ug/l	607.1 lbs/day	2637.15 ug/l*	14.3

* Most stringent between Chronic & Acute Effluent Limitations

Effluent Limitations for Organics [Pesticides]

Pesticide	4 Day Average Concentration	Load	1 Hour Average Concentration	Load
Aldrin			17.8433 ug/l	0.097 lbs/day
Chlordane	0.2923 ug/l*	0.002 lbs/day	14.2747 ug/l	0.077 lbs/day
DDT, DDE	0.0680 ug/l*	0.000 lbs/day	6.5426 ug/l	0.035 lbs/day
Dieldrin	0.3807 ug/l*	0.002 lbs/day	2.8549 ug/l	0.015 lbs/day
Endosulfan	3.8066 ug/l	0.021 lbs/day	1.3085 ug/l*	0.007 lbs/day
Endrin	2.4471 ug/l	0.013 lbs/day	1.0230 ug/l*	0.006 lbs/day
Guthion			0.0000 ug/l	0.000 lbs/day
Heptachlor	0.2583 ug/l*	0.001 lbs/day	3.0928 ug/l	0.017 lbs/day
Lindane	5.4380 ug/l*	0.029 lbs/day	11.8956 ug/l	0.064 lbs/day
Methoxychlor			0.3569 ug/l	0.002 lbs/day
Mirex			0.0119 ug/l	0.000 lbs/day
Parathion			0.7851 ug/l	0.004 lbs/day
PCB's	0.9516 ug/l	0.005 lbs/day	0.0000 ug/l*	0.000 lbs/day
Pentachlorophenol	1019.6197 ug/l	5.526 lbs/day	226.0157 ug/l*	1.225 lbs/day
Toxephene	0.0136 ug/l*	0.000 lbs/day	8.6838 ug/l	0.047 lbs/day

Effluent Limitations for Protection of Human Health (Class 1C Waters)

Metals	1 Hour Average (Acute) Standard Concentration	Load
Arsenic	0.00 ug/l	0.00 lbs/day
Barium	0.00 ug/l	0.00 lbs/day
Cadmium	0.00 ug/l	0.00 lbs/day
Chromium	0.00 ug/l	0.00 lbs/day
Lead	0.00 ug/l	0.00 lbs/day
Mercury	0.00 ug/l	0.00 lbs/day
Selenium	0.00 ug/l	0.00 lbs/day
Silver	0.00 ug/l	0.00 lbs/day
Fluoride	0.00 ug/l	0.00 lbs/day
to	0.00 ug/l	0.00 lbs/day
Nitrates as N	0.00 ug/l	0.00 lbs/day
Pesticides		
2,4-D	0.00 ug/l	0.00 lbs/day
2,4,5-TP	0.00 ug/l	0.00 lbs/day
Methoxychlor	0.00 ug/l	0.00 lbs/day

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

	Maximum Conc., ug/l - Acute Standards			
	Class 1C		Class 3A, 3B	
Toxics Rule Parameters	[2 Liters/Day for 70 Kg Person over 70 Yr.		[6.5 g for 70 Kg Person over 70 Yr. Period]	
Antimony	0.00 ug/l	0.00 lbs/day	66.62 ug/l	0.4 lbs/day
Arsenic				
Beryllium				
Cadmium				
Chromium III				
Chromium VI				
Copper	0.00 ug/l	0.00 lbs/day	15464.23 ug/l	83.8 lbs/day
Lead				
Mercury		lbs/day	1189.56 ug/l	6.4 lbs/day
Nickel	0.00 ug/l	0.00 lbs/day		
Selenium			88027.17 ug/l	477.1 lbs/day
Silver			1665.38 ug/l	9.0 lbs/day
Thallium	0.00 ug/l	0.00 lbs/day		
Zinc	0.00 ug/l	0.00 lbs/day	2260.16 ug/l	12.2 lbs/day
Cyanide	0.00 ug/l	0.00 lbs/day	0.61 ug/l	0.0 lbs/day
Asbestos	0.00 ug/l	0.00E+00 lbs/day	51.15 ug/l	0.3 lbs/day
0	0.00 ug/l	0.00 lbs/day		
2,3,7,8-TCDD Dioxin	0.00 ug/l	0.00 lbs/day	1189.56 ug/l	6.4 lbs/day
Acrolein	0.00 ug/l	0.00 lbs/day	4.76 ug/l	0.0 lbs/day
Acrylonitrile	0.00 ug/l	0.00 lbs/day		
Benzene	0.00 ug/l	0.00 lbs/day		
Bromoform	0.00 ug/l	0.00 lbs/day	67.80 ug/l	0.4 lbs/day
Carbon Tetrachloride	0.00 ug/l	0.00 lbs/day		
Chlorobenzene	0.00 ug/l	0.00 lbs/day		
Chlorodibromomethane	0.00 ug/l	0.00 lbs/day	4.52 ug/l	0.0 lbs/day
Chloroethane	0.00 ug/l	0.00 lbs/day	83.27 ug/l	0.5 lbs/day
2-Chloroethylvinyl Ether	0.00 ug/l	0.00 lbs/day	5.95 ug/l	0.0 lbs/day
Chloroform	0.00 ug/l	0.00 lbs/day	4.04 ug/l	0.0 lbs/day
Dichlorobromomethane	0.00 ug/l	0.00 lbs/day	559.09 ug/l	3.0 lbs/day
1,1-Dichloroethane	0.00 ug/l	0.00 lbs/day		
1,2-Dichloroethane	0.00 ug/l	0.00 lbs/day	54.72 ug/l	0.3 lbs/day
1,1-Dichloroethylene	0.00 ug/l	0.00 lbs/day	2.02 ug/l	0.0 lbs/day
1,2-Dichloropropane	0.00 ug/l	0.00 lbs/day	11895.56 ug/l	64.5 lbs/day

1,3-Dichloropropene	0.00 ug/l	0.00 lbs/day	7.02 ug/l	0.0 lbs/day
Ethylbenzene	0.00 ug/l	0.00 lbs/day	29.74 ug/l	0.2 lbs/day
Methyl Bromide	0.00 ug/l	0.00 lbs/day	0.30 ug/l	0.0 lbs/day
Methyl Chloride	0.00 ug/l	0.00 lbs/day	963.54 ug/l	5.2 lbs/day
Methylene Chloride	0.00 ug/l	0.00 lbs/day	915.96 ug/l	5.0 lbs/day
1,1,2,2-Tetrachloroethane	0.00 ug/l	0.00 lbs/day	4520.31 ug/l	24.5 lbs/day
Tetrachloroethylene	0.00 ug/l	0.00 lbs/day	154.64 ug/l	0.8 lbs/day
Toluene	0.00 ug/l	0.00 lbs/day		
1,2 -Trans-Dichloroethylene	0.00 ug/l	0.00 lbs/day		
1,1,1-Trichloroethane	0.00 ug/l	0.00 lbs/day	3.21 ug/l	0.0 lbs/day
1,1,2-Trichloroethane	0.00 ug/l	0.00 lbs/day	249806.83 ug/l	1353.9 lbs/day
Trichloroethylene	0.00 ug/l	0.00 lbs/day	16.65 ug/l	0.1 lbs/day
Vinyl Chloride	0.00 ug/l	0.00 lbs/day	7970.03 ug/l	43.2 lbs/day
2-Chlorophenol	0.00 ug/l	0.00 lbs/day		
2,4-Dichlorophenol	0.00 ug/l	0.00 lbs/day	98733.18 ug/l	535.1 lbs/day
2,4-Dimethylphenol	0.00 ug/l	0.00 lbs/day		
2-Methyl-4,6-Dinitrophenol	0.00 ug/l	0.00 lbs/day	0.05 ug/l	0.0 lbs/day
2,4-Dinitrophenol	0.00 ug/l	0.00 lbs/day	0.05 ug/l	0.0 lbs/day
2-Nitrophenol	0.00 ug/l	0.00 lbs/day	0.05 ug/l	0.0 lbs/day
4-Nitrophenol	0.0000 ug/l	0.0000 lbs/day		
3-Methyl-4-Chlorophenol	0.0000 ug/l	0.0000 lbs/day	0.05 ug/l	0.000 lbs/day
Penetachlorophenol	0.0000 ug/l	0.0000 lbs/day		
Phenol	0.0000 ug/l	0.00E+00 lbs/day	0.36 ug/l	0.002 lbs/day
2,4,6-Trichlorophenol	0.0000 ug/l	0.0000 lbs/day	16653.79 ug/l	90.262 lbs/day
Acenaphthene	0.00 ug/l	0.00 lbs/day		
Acenaphthylene	0.00 ug/l	0.00 lbs/day	17843.35 ug/l	96.7 lbs/day
Anthracene	0.00 ug/l	0.00 lbs/day	11895.56 ug/l	64.5 lbs/day
Benzidine	0.00 ug/l	0.00 lbs/day		
BenzoaAnthracene	0.00 ug/l	0.00 lbs/day	0.05 ug/l	0.0 lbs/day
BenzoaPyrene	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.0 lbs/day
BenzobFluoranthene	0.00 ug/l	0.00 lbs/day	4996.14 ug/l	27.1 lbs/day
BenzoghiPerylene	0.00 ug/l	0.00 lbs/day	3806.58 ug/l	20.6 lbs/day
BenzokFluoranthene				
Bis2-ChloroethoxyMethane				
Bis2-ChloroethylEther	0.0000 ug/l	0.00000 lbs/day	2.02E+05 ug/l	1.10E+03 lbs/day
Bis2-Chloroisopropy1Ether	0.0000 ug/l	0.00E+00 lbs/day	3.21E+06 ug/l	1.74E+04 lbs/day
Bis2-EthylbexylPhthalate	0.0000 ug/l	0.00000 lbs/day	######### ug/l	128.94587 lbs/day
4-Bromophenyl Phenyl Ether	0.0000 ug/l	0.00000 lbs/day	1.30851 ug/l	0.00709 lbs/day
Butylbenzyl Phthalate	0.0000 ug/l	0.00E+00 lbs/day		
2-Chloronaphthalene	0.0000 ug/l	0.00000 lbs/day		
4-Chlorophenyl Phenyl Ether	0.0000 ug/l	0.00000 lbs/day	0.42824 ug/l	0.00232 lbs/day
Chrysene	0.0000 ug/l	0.00000 lbs/day	######### ug/l	8.38148 lbs/day
Dibenzoa, hAnthracene	0.0000 ug/l	0.00000 lbs/day	######### ug/l	70.92023 lbs/day
1,2-Dichlorobenzene	0.0000 ug/l	0.00000 lbs/day	0.00333 ug/l	0.00002 lbs/day
1,3-Dichlorobenzene	0.0000 ug/l	0.00000 lbs/day	5.23405 ug/l	0.02837 lbs/day
1,4-Dichlorobenzene	0.0000 ug/l	0.00000 lbs/day	16.65379 ug/l	0.09026 lbs/day
3,3-Dichlorobenzidine				
Diethyl Phthalate				
Dimethyl Phthalate				
Di-n-Butyl Phthalate	0.00000 ug/l	0.00000 lbs/day		
2,4-Dinitrotoluene	0.00000 ug/l	0.00000 lbs/day	######### ug/l	1.096040 lbs/day
2,6-Dinitrotoluene	0.00000 ug/l	0.00000 lbs/day	0.008208 ug/l	0.000044 lbs/day
Di-n-Octyl Phthalate	0.00000 ug/l	0.00000 lbs/day	0.059478 ug/l	0.000322 lbs/day
1,2-Diphenylhydrazine	0.00000 ug/l	0.00000 lbs/day	39.255360 ug/l	0.212761 lbs/day
Fluoranthene	0.00000 ug/l	0.00000 lbs/day		
Fluorene	0.00000 ug/l	0.00000 lbs/day	9.87E+03 ug/l	5.35E+01 lbs/day
Hexachlorobenzene				
Hexachlorobutedine				
Hexachloroethane	0.00 ug/l	0.00 lbs/day		
Hexachlorocyclopentadiene				
Ideno 1,2,3-cdPyrene				
Isophorone	0.00 ug/l	0.00 lbs/day		
Naphthalene				

Nitrobenzene				
N-Nitrosodimethylamine	0.00 ug/l	0.00 lbs/day		
N-Nitrosodi-n-Propylamine	0.00 ug/l	0.00 lbs/day	0.00 ug/l	0.0 lbs/day
N-Nitrosodiphenylamine	0.00E+00 ug/l	0.00E+00 lbs/day		
Phenanthrene	0.00 ug/l	0.00 lbs/day	737.52 ug/l	4.0 lbs/day
Pyrene	0.00 ug/l	0.00 lbs/day		
1,2,4-Trichlorobenzene			737.52 ug/l	4.0 lbs/day
Aldrin			0.70 ug/l	0.0 lbs/day
alpha-BHC	0.00000000 ug/l	0.000000 lbs/day		
beta-BHC	0.00000000 ug/l	0.000000 lbs/day		
gamma-BHC (Lindane)	0.00000000 ug/l	0.000000 lbs/day		
delta-BHC		0.000000 lbs/day		
Chlordane	0.00000000 ug/l	0.000000 lbs/day		
4,4-DDT	0.00000000 ug/l	0.000000 lbs/day		
4,4-DDE	0.00000000 ug/l	0.000000 lbs/day		
4,4-DDD	0.00000000 ug/l	0.000000 lbs/day		
Dieldrin		0.000000 lbs/day		
alpha-Endosulfan	0.00 ug/l	0.000 lbs/day		
beta-Endosulfan	0.00 ug/l	0.000 lbs/day		
Endosulfan Sulfate	0.00 ug/l	0.000 lbs/day		
Endrin	0.00000000 ug/l	0.000 lbs/day		
Endrin Aldehyde	0.00000000 ug/l	0.000 lbs/day		
Heptachlor		lbs/day		
Heptachlor Epoxide		lbs/day		
Polychlorinated Biphenyls		lbs/day		
0	0.00000000 ug/l	0.000000 lbs/day		
Toxaphene	0.00000000 ug/l	0.000000 lbs/day		
Specific Parameter: TDS	0 ug/l	0.000000 lbs/day	1595.62 mg/l	8.6 tons / day

Effluent Limitations for the Protection of Agriculture

	1 Hour Average (Acute) Standard Concentration	Load
Arsenic	1189.56 ug/l	6.45 lbs / day
Boron	8921.67 ug/l	48.35 lbs / day
Cadmium	118.96 ug/l	0.64 lbs / day
Chromium	1189.56 ug/l	6.45 lbs / day
Copper	594.78 ug/l	3.22 lbs / day
Lead	1189.56 ug/l	6.45 lbs / day
Selenium	594.78 ug/l	3.22 lbs / day

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

	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		8631.09				8631.09	4127.58
Antimony			0.00			0.00	
Arsenic	1189.56	4004.94			10.00	10.00	9953.08
Asbestos							
Barium		11895.56			1000.00	1000.00	
Boron							
Cadmium	118.96	49.95			0.00	0.00	21.99
Chromium (III)		12381.1			50.00	50.00	6798.38
Chromium (VI)	1189.56	176.27				176.27	661.32
Copper	594.78	321.09				321.09	1110.47
Cyanide		261.70		0.00		0.00	61.86
Iron		259.02				259.02	
Lead	1189.56	1764.82			15.00	15.00	342.91
Mercury		28.4186			0.00	0.00	0.0120
Nickel		10736.47		0.00		0.00	6660.40
Selenium	594.78	214.30			50.00	50.00	284.55
Silver		143.21			0.00	0.00	
Thallium				0.00		0.00	
Zinc		2637.15				2637.15	112013.33

Summary Effluent Limitations for Metals [Wasteload Allocation, TMDL]

	Acute		Chronic	
	ug/l	lbs/day	ug/l	lbs/day
Aluminum	8631.09	46.8	4127.58	22.4
Antimony				
Arsenic	10.00	0.1	9953.08	53.9
Asbestos				
Cadmium	0.00	0.0	21.99	0.1
Chromium (III)	50.00	0.3	6798.38	36.8
Chromium (VI)	176.27	1.0	661.32	3.6
Copper	321.09	1.7	1110.47	6.0
Cyanide	0.00	0.0	61.86	0.3
Iron	259.02	1.4		
Lead	15.00	0.1	342.91	1.9
Mercury	0.00	0.0	0.01	0.0
Nickel	0.00	0.0	6660.40	36.1
Selenium	50.00	0.3	284.55	1.5
Silver	0.00	0.0		
Zinc	2637.15	14.3	112013.33	607.1

Effluent Indicators / Targets for Pollution Indicators

Water quality targets for pollution Indicators will be met with an effluent limit as follows:

	Indicator / Target mg/l	Target mg/l	Target lbs/day
Gross Beta (pCi/l)	50.0 pCi/L		
BOD	5.0	59.48	21791.68
Nitrates as N	4.0	47.58	17433.35
Total Phosphorus as P	0.05	0.59	217.92
Total Suspended Solids	90.0	1070.60	392250.28

Other Effluent Limitations are based upon R317-1.

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 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 interfer with existing water users.

Category III waters fall under special rules for the determination of effluent limits. These rules allow more stringent effluent limitations based upon additional factors, including: "blue-ribbon" fisheries, special recreation areas, and drinking water sources.

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 shown that this is not attainable. Refer to the Forum's Guidelines for additional information. This doesn't apply to facilities that do not discharge to the Colorado River Basin.

The permit writers may utilize other information to adjust these limits and/or to determine other limits based upon best available technology and other considerations.

XII. Summary Comments

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

The permit writers may utilize other information to adjust these limits or to determine other limite based upon best available technology and other considerations. Under no circumstances however, may those alterations allow for the violation of water quality standards by the permitee.

XIII. Notice of UPDES Requirement

This Addendum to the Statement of Basis does not authorize any entity or party to discharge to the waters of the State of Utah. That authority is granted through a UPDES permit issued by the Utah Division of Water Quality. The numbers presented here may be changed as a function of other factors. Dischargers are strongly urged to contact the Permits Section for further information.

XIV. Notice of Availability of Information

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

Prepared by:
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Utah Division of Water Quality
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Duchesne Valley _WTP_WLA_2026

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ATTACHMENT 3

Reasonable Potential Analysis

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REASONABLE POTENTIAL ANALYSIS

Water Quality has worked to improve our reasonable potential (RP) analysis for the inclusion of limits for parameters in the permit by using an EPA provided model. As a result of the model, more parameters may be included in the renewal permit. A Copy of the Reasonable Potential Analysis Guidance (RP Guide) is available at water Quality. There are four outcomes for the RP Analysis[1]. They are;

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

Initial screening for the Permit parameters and metals values that were submitted through the discharge monitoring reports and Permit application information showed that a closer look is not needed. The Initial RP Screening Table is included below for the metals parameters. Note that the full RP analysis model was not utilized at this time due to the results of the initial screening results below.

RP Initial Screening Table for DVWTP (UT0025801)
2021-2025 Data Summary Results & RP Analysis (Outfall 001)

Parameter	MEC* mg/L	Water Quality Standards (WQS) MAC**		Result
		WQS/WLA Acute mg/L	WQS/WLA Chronic mg/L	
Aluminum, Total	NA	8.63	4.13	MEC ≤ MAC***
Iron, Total	0.13	0.259	NA	MEC ≤ MAC
Iron, Dissolved	0.04	1.00	NA	MEC ≤ MAC
Arsenic, Total	0.0008	0.01	9.95	MEC ≤ MAC
Barium, Total	0.078	1.00	NA	MEC ≤ MAC
Chromium, Total	<0.0005	0.05	0.661	MEC ≤ MAC
Cadmium, Total	<0.0005	0.001	0.022	MEC ≤ MAC
Mercury, Total	<0.00001	0.001	0.000012	MEC ≤ MAC
Nickel, Total	<0.0005	0.001	6.66	MEC ≤ MAC
Selenium, Total	0.0006	0.05	0.285	MEC ≤ MAC
Antimony, Total	<0.0005	NA	NA	NA

Notes:
NA = Not Applicable. No data or WQS available.

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

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

***MEC less than or equal (≤) to MAC, no additional Acute or Chronic limits required.

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

MEC > MAC = RP identified, include appropriate limits, when applicable.

Summary: A qualitative RP analysis was performed on the metals parameters to determine if there was reasonable potential for the discharge to exceed the applicable Water Quality Standards. Based on the RP analysis, a closer look at the metals parameters was not necessary and it was determined not to include any additional effluent limits in this renewal Permit. This is because all the data points reviewed did not exceed the applicable Water Quality Standards and/or laboratory method detection limits. Therefore, no RP currently exists at the facility for the identified metals parameters and a more quantitative RP analysis using the RP Model was not required at this time.

Result: From the table above, the RP analysis result is: MEC ≤ MAC, Therefore no additional Acute or Chronic limits required. This equates to RP Outcome C: No new effluent limitation. Routine monitoring requirements maintained as they are in the permit.