

Official Draft Public Notice Version **July 11th, 2025**

The findings, determinations, and assertions contained in this document are not final and subject to change following the public comment period.

**FACT SHEET
CASTLE VALLEY SPECIAL SERVICE DISTRICT
FERRON LAGOONS
RENEWAL PERMIT: DISCHARGE
UPDES PERMIT NUMBER: UT0020052
MINOR MUNICIPAL**

FACILITY CONTACTS

Operator Name:	Castle Valley Special Service District
Contact:	Jacob Sharp, P.E.
Position:	District Manager
Phone Number:	(435) 381-5333
Permittee Name:	Castle Valley Special Service District
Facility Name:	Ferron Lagoons
Mailing Address:	Castle Valley Special Service District P.O. Box 877 20 South 100 East, Castle Dale, Utah 84513
Telephone:	(435) 381-5333
Actual Address:	~5 miles east along 500 South Street off Hwy 10 in Emery County

DESCRIPTION OF FACILITY

The City of Ferron and the Castle Valley Special Service District (CVSSD) constructed a new lagoon system in 2005 to handle domestic sewage for the City of Ferron. The Ferron Lagoons system is located approximately 2.25 miles east of the City of Ferron off Highway 10 in Emery County, Utah. The Ferron Lagoons consists of four cells totaling 33 acres in area with a chlorination pond for disinfection and also provides for the addition of a future cell if needed. To date there has been no discharge from this facility and none are anticipated for at least the next five years. The Ferron Lagoons have a design flow of 0.5 million gallons per day (MGD) with a single discharge point of Outfall 001, which is located at north latitude of 39° 04' 43.75" and west longitude of 111° 03' 42.61".

For the renewal in 2018, a new model was used by the Utah Division of Water Quality (DWQ) to develop a waste load allocation for dischargers to Waters of the State. Also, there had been more data gathered on the receiving stream and discharge since the Permit was first issued. This resulted in changes to the possible water quality based effluent limits (WQBEL) in the wasteload analysis (WLA). As a result of the new WLA, the ammonia limits increased and the total residual chlorine (TRC) decreased. The increase in the acute ammonia limits was due to the pH used to calculate the criteria. In the previous permit, due to a lack of data in the receiving water, the maximum pH for each season was used.

For this Permit renewal, with the additional data for the receiving water, the 80th percentile of the pH for each season was used per standard procedure. There is no proposed change in operation of the Ferron Lagoons, and there has not been a discharge from the Ferron Lagoon system to establish the loading conditions.

TBPEL Rule:

Water Quality adopted Utah Administrative Code (UAC) R317-1-3.3, Technology-Based Phosphorus Effluent Limit (TBPEL) Rule on December 16, 2014. No TBPEL was instituted for discharging treatment lagoons. Instead, each discharging lagoon was evaluated to determine the current annual average total phosphorus load measured in pounds per year based on monthly average flow rates and concentrations. Absent field data to determine these loads, and in case of intermittent discharging lagoons, the phosphorus load cap will be estimated by the DWQ Director.

A cap of 125% of the current annual total phosphorus load was to be established and referred to as the phosphorus loading cap. It is the intent of UAC R317-3.3.B. to provide capacity for growth within the facility's service area by setting the loading cap at 125 percent of the current annual total phosphorus load. The phosphorus loading cap went into effect July 1, 2018. A discharge from the Ferron Lagoons has not occurred during the time frame that the loading cap would be developed. As a result, no cap could be implemented. To address this, when a discharge does become consistent and data can be obtained, the loading cap will be calculated and implemented. Currently, there is no estimate on when this might happen. Once the lagoon's phosphorus loading cap has been reached, the owner of the facility will have five years to construct treatment processes or implement treatment alternatives to prevent the total phosphorus loading cap from being exceeded.

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

Monitoring Frequency Changes:

DWQ updated the Monitoring Frequency Guidance Document used in determining the minimum monitoring frequency for Permit Compliance. Due to this, some monitoring frequency was changed to match the guidance. Specifically, Flow monitoring has been changed to Monthly and a Grab sample. Previously the flow monitoring was continuous, and by a recorder. The flow monitoring at the lagoons has been by a Siemens OCM III, which is manual read, and has never had a data recorder attached. This change will make the requirements of the Permit consistent with our guidance and the capabilities of the lagoons.

Total Dissolved Solids (TDS):

The TDS limits and monitoring requirements are being updated to be more consistent with the Colorado River Basin Salinity Control Forum requirements (CRBSCF) and other similar UPDES Permits subject to the CRBSCF. The loading limit was indicated as 1 ton/day as a maximum, but the requirement is that over the year the average should not be greater than 1 ton/day, also, the annual loading cap of 366 tons is being added to the Permit as a limit, as discussed further in the **BASIS FOR EFFLUENT LIMITATIONS** section of this Fact Sheet.

DISCHARGE

DESCRIPTION OF DISCHARGE

The Permittee has been reporting self-monitoring results on Discharge Monitoring Reports on a monthly basis. Ferron Lagoons have not discharged since they were first completed and permitted.

Outfall	Description of Discharge Point
001	Located at latitude 39°04'43.75" and longitude 111°13'42.61" from the final cell through a sand filter to the Ferron Creek.

RECEIVING WATERS AND STREAM CLASSIFICATION

If a discharge were to occur, it would be to Ferron Creek, which is a Class 2B, 3C, 4 according to UAC R317-2-13:

- Class 2B -- Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.
- Class 3C -- Protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain.
- Class 4 -- Protected for agricultural uses including irrigation of crops and stock watering.

TOTAL MAXIMUM DAILY LOAD (TMDL) REQUIREMENTS

According to the 303(d) list in Utah's 2024 Integrated Report, the receiving water body for the discharge, Ferron Creek Lower (Ferron Creek and tributaries from confluence with San Rafael River to Millsite Reservoir, UT14060009-012_00) supports all designated uses.

SITE SPECIFIC TOTAL DISSOLVED SOLIDS CRITERION

Per UAC R317-2-14, Ferron Creek has a site-specific criterion for TDS concentration of 3,500 mg/L that is based upon the EPA approved TMDL "Price River, San Rafael River, and Muddy Creek TMDLs for Total Dissolved Solids, West Colorado Watershed Management Unit, Utah" (MFG Inc. 2004).

BASIS FOR EFFLUENT LIMITATIONS

Limitations on total suspended solids (TSS), biochemical oxygen demand (BOD5), *E. coli*, pH and percent removal for BOD5 and TSS are based on current Utah Secondary Treatment Standards, UAC R317-1-3.2. The alternative effluent limits and percent removal requirements for TSS and BOD5 were previously requested by CVSSD and subsequently granted by the Utah Water Quality Board in 2001 and remains unchanged. TRC, and dissolved oxygen (DO), are water quality based, and were derived by the WLA attached to this Fact Sheet. Flow limitations were developed from information included in the Permit application. Ammonia limits were maintained from the previous permit in accordance with UAC R317-8-4.2(11).

The TDS concentration limit of 3500 mg/L is based upon the approved TMDL study for the San Rafael River watershed (which includes Cottonwood Creek), in which a site-specific criterion was developed for TDS and can be found in Table A-12 of the document titled, "Price River, San Rafael River, and Muddy Creek TMDLs for Total Dissolved Solids, West Colorado Watershed Management Unit, Utah" (MFG Inc., 2004).

The TDS mass loading limitations are based upon the CRBSCF Policy for mass loading values when applicable as authorized in UAC R317-2-4. CRBSCF has established a Policy for the reasonable increase of salinity for municipal discharges to any portion of the Colorado River stream system that has an impact on the lower main stem. The CRBSCF Policy titled "NPDES Permit Program Policy for Implementation

of Colorado River Salinity Standards” (Policy), with the most current version dated October 2023, states that the incremental increase in salinity shall be 400 mg/L or less, which is considered to be a reasonable incremental increase above the flow weighted average salinity of the intake water supply, unless a demonstration is made and upon request for an alternative requirement. The Permittee previously requested an alternative salt loading (TDS) of 1 ton/day average, or 366 tons/year in lieu of the requirement that the effluent not exceeding the culinary source water intake by more than 400 mg/L of TDS, which is in allowable under CRBSCF Policy and is consistent with other similar permits in Utah.

Attached is a WLA for this discharge into Ferron Creek. It has been determined that this discharge will not cause a violation of water quality standards. An Antidegradation Level II review is not required since the Level I review shows that water quality impacts are minimal. The Permittee is expected to be able to comply with these limitations.

Reasonable Potential Analysis

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

A qualitative RP check was performed on the pollutants of concern to determine if there was enough data to perform a reasonable potential analysis on the outfall. The Ferron Lagoons did not discharge during the term of the expiring Permit and as a result no monitoring results were submitted. This results in no changes to the monitoring requirements in the Permit. A copy of the RP analysis is included at the end of this Fact Sheet.

The Permit limitations are:

Parameter	Effluent Limitations ¹				
	Maximum Monthly Avg	Maximum Weekly Avg	Yearly Average	Daily Minimum	Daily Maximum
Total Flow, MGD	0.5	-	-	-	-
BOD ₅ , mg/L	45	65	-	-	-
BOD ₅ Min. % Removal	65	-	-	-	-
TSS, mg/L	45	65	-	-	-
TSS Min. % Removal	65	-	-	-	-
Dissolved Oxygen, mg/L	-	-	-	5.0	-
Total Ammonia (as N), mg/L					
Summer (Jul-Sep)	4.6	-	-	-	14.5
Fall (Oct-Dec)	8.9	-	-	-	14.0
Winter (Jan-Mar)	11.3	-	-	-	14.2
Spring (Apr-Jun)	3.9	-	-	-	6.1
TDS, mg/L	-	-	-	-	3500
TRC, mg/L ²	0.026	-	-	-	0.033
E. coli, No./100mL	126	157	-	-	-
pH, Standard Units	-	-	-	6.5	9
Mass Loading Limits					

Parameter	Annual Avg. Daily	Maximum Monthly Avg	Annual Max		
TDS, Ton/Day ³	1	Report	-	-	-
Tons/Year	-	-	366	-	-
1. See Definitions, Part VIII, for definition of terms.					
2. Analytical results less than 0.06 mg/l will not be considered out of compliance with the permit. For purposes of calculating averages and reporting on the Discharge Monitoring Report form, the following will apply:					
a. Analytical values less than 0.02 mg/L shall be considered zero; and					
b. Analytical values less than 0.06 mg/L and equal to or greater than 0.02 mg/L will be recorded as measured.					
3. The salt loading (TDS) limit is 1 ton/day, or 366 tons/year.					

SELF-MONITORING AND REPORTING REQUIREMENTS

The following self-monitoring requirements have been modified to be consistent with the updated Monitoring and Sampling Frequency Guidance Document and CRBSCF, as described above. The Permit requires reports to be submitted monthly and annually, as applicable, on Discharge Monitoring Report (DMR) forms due 28 days after the end of the monitoring period. Effective January 1, 2017, monitoring results 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 ¹			
Parameter	Frequency	Sample Type	Units
Total Flow ^{4, 5}	Monthly	Grab	MGD
BOD ₅ , Influent ⁶	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
TSS, Influent ⁶	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
E. coli	Monthly	Grab	No./100mL
pH	Monthly	Grab	SU
Total Ammonia (as N)	Monthly	Composite	mg/L
DO	Monthly	Grab	mg/L
TRC, mg/L, ⁷	Monthly	Grab	mg/L
TDS, mg/L	Monthly	Composite	mg/L
TDS, Average Daily Ton	Annually ⁸	Composite	mg/L
TDS, Total Tons	Annually ⁸	Composite	mg/L
Orthophosphate	Monthly	Composite	mg/L
Total Phosphorus (as P), ⁶			
Influent	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Total Kjeldahl Nitrogen TKN (as N), ⁶			
Influent	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Nitrate, NO ₃	Monthly	Composite	mg/L
Nitrite, NO ₂	Monthly	Composite	mg/L
1. See Definitions, Part VIII, for definition of terms.			

Self-Monitoring and Reporting Requirements ¹			
Parameter	Frequency	Sample Type	Units
4. 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			
5. If the rate of discharge is controlled, the rate and duration of discharge shall be reported			
6. In addition to monitoring the final discharge, influent samples shall be taken and analyzed for this constituent at the same frequency as required for this constituent in the discharge			
7. Total residual chlorine monitoring frequency is Daily, but only if the facility is chlorinating the effluent during monitoring period. If not chlorinating, a no data indicator (NODI) code of 9 (Conditional Monitoring -Not Required This Period)			
8. For clarification, annual and quarterly monitoring requirements and limits are based on the calendar year.			

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, since this facility is a lagoon, there is not any regular sludge production. Therefore 40 C.F.R. § 503 shall not apply at this time. In the future, if the sludge needs to be removed from the lagoons and is disposed in some way, the DWQ must be contacted prior to the removal of the sludge to ensure that all applicable state and federal regulations are met

STORM WATER

Multi Sector General Permit (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.

Because the design flow is less than 1.0 MGD a storm water UPDES Permit is not required. Therefore, storm water Permit provisions have not been included with the Permit renewal. However, at any time during the lifetime of this Permit it may be re-opened and modified, following proper administrative procedures as per UAC R317-8, to include any applicable storm water provisions and requirements.

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

PRETREATMENT REQUIREMENTS

CVSSD does not have an Approved POTW Pretreatment Program (Program). This is due to the flow through the plant being less than five (5) MGD and no known Significant Industrial Users.

CVSSD does not need to develop a Program; however, information regarding Industrial Users discharging to the Publicly Owned Treatment Works (POTW) must be submitted as stated in Part II of the permit. This information will assist in determining the needs of DWQ to assist CVSSD with implementing the Pretreatment Standards and Requirements. Updates must be submitted within 60 days of any changes occurring with an existing Industrial User or a new Industrial User that begins discharging to the POTW.

Any wastewater discharged to the POTW from an Industrial User is subject to Federal, State and local

regulations. Pursuant to Section 307 of the Clean Water Act, CVSSD and the Industrial Users discharging to the POTW shall comply with all applicable Federal General Pretreatment Regulations promulgated, found in 40 CFR 403, and the State Pretreatment Requirements found in UAC R317-8-8.

It is required that any Local Limits be submitted to DWQ for review. If Local Limits are developed, it is required that CVSSD perform an annual evaluation of the need to revise or develop technically based Local Limits for pollutants of concern to implement the general and specific prohibitions 40 CFR, Part 403.5(a) and Part 403.5(b). This evaluation may indicate that present Local Limits are sufficiently protective, need to be revised or should be developed.

BIOMONITORING REQUIREMENTS

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

The Permittee is a minor municipal facility that will be discharging an infrequent amount of effluent, in which toxicity is neither an existing concern, nor likely to be present. Based on these considerations, and the absence of receiving stream water quality monitoring data, there is no reasonable potential for toxicity in the permittee's discharge (per State of Utah Permitting and Enforcement Guidance Document for WET Control). As such, there will be no numerical WET limitations or WET monitoring requirements in this permit. However, the Permit will contain a toxicity limitation re-opener provision that allows for modification of the Permit should additional information indicate the presence of toxicity in the discharge.

PERMIT DURATION

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

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

PUBLIC NOTICE INFORMATION (to be updated after)

Began: July Day, 2025
Ended: August Day, 2025

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

Industrial Waste Survey

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Industrial Pretreatment Wastewater Survey



Do you periodically experience any of the following treatment works problems:

- foam, floaties or unusual colors
- plugged collection lines caused by grease, sand, flour, etc.
- discharging excessive suspended solids, even in the winter
- smells unusually bad
- waste treatment facility doesn't seem to be treating the waste right

Perhaps the solution to a problem like one of these may lie in investigating the types and amounts of wastewater entering the sewer system from industrial users.

An industrial user (IU) is defined as a non-domestic user discharging to the waste treatment facility which meets any of the following criteria:

1. **has a lot of process wastewater (5% of the flow at the waste treatment facility or more than 25,000 gallons per work day.)**

Examples: Food processor, dairy, slaughterhouse, industrial laundry.

2. **is subject to Federal Categorical Pretreatment Standards;**

Examples: metal plating, cleaning or coating of metals, blueing of metals, aluminum extruding, circuit board manufacturing, tanning animal skins, pesticide formulating or packaging, and pharmaceutical manufacturing or packaging,

3. **is a concern to the POTW.**

Examples: septage hauler, restaurant and food service, car wash, hospital, photo lab, carpet cleaner, commercial laundry.

All users of the water treatment facility are **prohibited** from making the following types of discharges:

1. A discharge which creates a fire or explosion hazard in the collection system.
2. A discharge which creates toxic gases, vapor or fumes in the collection system.
3. A discharge of solids or thick liquids which creates flow obstructions in the collection system.
4. An acidic discharge (low pH) which causes corrosive damage to the collection system.
5. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause problems in the collection system or at the waste treatment facility.
6. Waste haulers are prohibited from discharging without permission. (No midnight dumping!)

When the solution to a sewer system problem may be found by investigating the types and amounts of wastewater entering the sewer system discharged from IUs, it's appropriate to conduct an Industrial Waste Survey.

An Industrial Waste Survey consists of:

Step 1: Identify Industrial Users

Make a list of all the commercial and industrial sewer connections.

Sources for the list:

business license, building permits, water and wastewater billing, Chamber of Commerce, newspaper, telephone book, yellow pages.

Split the list into two groups:

domestic wastewater only--no further information needed
everyone else (IUs)

Step 2: Preliminary Inspection

Go visit each IU identified on the "everybody else" list.

Fill out the **Preliminary Inspection Form** during the site visit.

Step 3: Informing the State

Please fax or send a copy of the Preliminary inspection form (both sides) to:

Jennifer Robinson

Division of Water Quality
288 North 1460 West
P.O. Box 144870
Salt Lake City, UT 84114-4870

Phone: (801) 536-4383
Fax: (801) 536-4301
E-mail: jenrobinson@utah.gov

PRELIMINARY INSPECTION FORM

INSPECTION DATE ____ / ____ /

Name of Business _____

Person Contacted _____

Address _____

Phone Number _____

Description of Business _____

Principal product or service: _____

Raw Materials used: _____

Production process is: ☐ Batch ☐ Continuous ☐ Both

Is production subject to seasonal variation? ☐ yes ☐ no

If yes, briefly describe seasonal production cycle.

This facility generates the following types of wastes (check all that apply):

- | | |
|---|--|
| 1. <input type="checkbox"/> Domestic wastes | (Restrooms, employee showers, etc.) |
| 2. <input type="checkbox"/> Cooling water, non-contact | 3. <input type="checkbox"/> Boiler/Tower blowdown |
| 4. <input type="checkbox"/> Cooling water, contact | 5. <input type="checkbox"/> Process |
| 6. <input type="checkbox"/> Equipment/Facility washdown | 7. <input type="checkbox"/> Air Pollution Control Unit |
| 8. <input type="checkbox"/> Storm water runoff to sewer | 9. <input type="checkbox"/> Other describe |

Wastes are discharged to (check all that apply):

- | | |
|---|---------------------------------------|
| <input type="checkbox"/> Sanitary sewer | <input type="checkbox"/> Storm sewer |
| <input type="checkbox"/> Surface water | <input type="checkbox"/> Ground water |
| <input type="checkbox"/> Waste haulers | <input type="checkbox"/> Evaporation |
| <input type="checkbox"/> Other (describe) | |

Name of waste hauler(s), if used _____

Is a grease trap installed? Yes No

Is it operational? Yes No

Does the business discharge a lot of process wastewater?

- | | | |
|---|-----|----|
| • More than 5% of the flow to the waste treatment facility? | Yes | No |
| • More than 25,000 gallons per work day? | Yes | No |

Does the business do any of the following:

- | | |
|---|--|
| <input type="checkbox"/> Adhesives | <input type="checkbox"/> Car Wash |
| <input type="checkbox"/> Aluminum Forming | <input type="checkbox"/> Carpet Cleaner |
| <input type="checkbox"/> Battery Manufacturing | <input type="checkbox"/> Dairy |
| <input type="checkbox"/> Copper Forming | <input type="checkbox"/> Food Processor |
| <input type="checkbox"/> Electric & Electronic Components | <input type="checkbox"/> Hospital |
| <input type="checkbox"/> Explosives Manufacturing | <input type="checkbox"/> Laundries |
| <input type="checkbox"/> Foundries | <input type="checkbox"/> Photo Lab |
| <input type="checkbox"/> Inorganic Chemicals Mfg. or Packaging | <input type="checkbox"/> Restaurant & Food Service |
| <input type="checkbox"/> Industrial Porcelain Ceramic Manufacturing | <input type="checkbox"/> Septage Hauler |
| <input type="checkbox"/> Iron & Steel | <input type="checkbox"/> Slaughter House |
| <input type="checkbox"/> Metal Finishing, Coating or Cleaning | |
| <input type="checkbox"/> Mining | |
| <input type="checkbox"/> Nonferrous Metals Manufacturing | |
| <input type="checkbox"/> Organic Chemicals Manufacturing or Packaging | |
| <input type="checkbox"/> Paint & Ink Manufacturing | |
| <input type="checkbox"/> Pesticides Formulating or Packaging | |
| <input type="checkbox"/> Petroleum Refining | |
| <input type="checkbox"/> Pharmaceuticals Manufacturing or Packaging | |
| <input type="checkbox"/> Plastics Manufacturing | |
| <input type="checkbox"/> Rubber Manufacturing | |
| <input type="checkbox"/> Soaps & Detergents Manufacturing | |
| <input type="checkbox"/> Steam Electric Generation | |
| <input type="checkbox"/> Tanning Animal Skins | |
| <input type="checkbox"/> Textile Mills | |

Are any process changes or expansions planned during the next three years? Yes No
If yes, attach a separate sheet to this form describing the nature of planned changes or expansions.

Inspector

Waste Treatment Facility

Please send a copy of the preliminary inspection form (both sides) to:

**Jennifer Robinson
Division of Water Quality
P. O. Box 144870
Salt Lake City, Utah 84114-4870**

Phone: (801) 536-4383

Fax: (801) 536-4301

E-Mail: jenrobinson@utah.gov

	Industrial User	Jurisdiction	SIC Codes	Categorical Standard Number	Total Average Process Flow (gpd)	Total Average Facility Flow (gpd)	Facility Description
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							

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ATTACHMENT 2

Wasteload Analysis

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

Date: May 19, 2025

Prepared by: Suzan Tahir
Standards and Technical Services

Facility: Ferron Wastewater Treatment Facility Castle Valley Special Service
District
UPDES No. UT0020052

Receiving water: Ferron Creek (2B, 3C, 4)

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

Discharge

Outfall 001: Ferron Creek

The maximum daily design discharge is 0.5 MGD and the maximum monthly design discharge is 0.5 MGD for the facility.

Receiving Water

The receiving water for Outfall 001 is Ferron Creek, which is tributary to the San Rafael River, which drains to the Colorado River.

Per UAC R317-2-13.1(b), the designated beneficial uses for Ferron Creek and tributaries, from confluence with San Rafael River to Millsite Reservoir are 2B, 3C and 4.

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

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

Critical 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). Due to a limited of flow records for Ferron Creek for the period 2015-2025, the 20th percentile of flow measurements at 4930798 Ferron Ck ab New Ferron Lagoons 001 was used to calculate annual critical low flow in the receiving water (Table 1).

Table 1: Annual critical low flow for Ferron Creek above New Ferron lagoon outfall

Season	Count	Flow (cfs)
Annual	8	1.88

Receiving water quality

Receiving water quality data were obtained from monitoring sites 4930820 *Ferron Creek above Ferron Lagoons 001 at U10 Crossing* and 4930798 *Ferron Creek above New Ferron Lagoons 001*. The average seasonal value was calculated for each constituent with available data in the receiving water. Effluent parameters were characterized using data from monitoring site 4930796 *Ferron Lagoons New 001*.

Mixing Zone

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

The actual length of the mixing zone was not determined; however, it was presumed to remain within the maximum allowable mixing zone dimensions. Acute limits were calculated using 50% of the seasonal critical low flow.

Parameters of Concern

The potential parameters of concern identified for the discharge/receiving water were total suspended solids (TSS), dissolved oxygen (DO), BOD₅, total phosphorus (TP), total nitrogen (TN), total ammonia (TAN), E. coli, pH, and total residual chlorine (TRC) as determined in consultation with the UPDES Permit Writer.

TMDL

According to the 303(d) list in Utah's 2024 Integrated Report, the receiving water body for the discharge, Ferron Creek Lower (Ferron Creek and tributaries from confluence with San Rafael River to Millsite Reservoir, UT14060009-012_00 supports all designated uses.

Per UAC R317-2-14, Ferron Creek has a site-specific criterion for TDS concentration of 3,500 mg/L that is based upon the EPA approved Total Maximum Daily Load (TMDL) *Price River, San Rafael River, and Muddy Creek TMDLs for Total Dissolved Solids, West Colorado Watershed Management Unit, Utah* (MFG Inc. 2004).

WET Limits

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

Table 2: WET Limits for IC₂₅

Season	Percent Effluent
Annual	29%

Effluent Limits

Effluent limits were determined using a mass balance mixing analysis (UDWQ 2012). The mass balance analysis is summarized in Appendix A.

The water quality standard for chronic ammonia toxicity is dependent on temperature and pH, and the water quality standard for acute ammonia toxicity is dependent on pH. The seasonal average temperature and pH of Ferron Creek from the previous wasteload analysis were used to determine the chronic criteria, and the seasonal 80th percentile pH was used to determine the acute criteria. The water quality standards for ammonia are summarized in Appendix A.

The limits for total residual chlorine were determined assuming a decay rate of 20 /day (at 20 °C) and a travel time in the outlet ditch of 10 minutes (1,000 linear feet at 0.02 ft/ft slope) prior to discharge to Ferron Creek. The analysis for TRC is summarized in Appendix C.

Due to the lack of discharge since 2005, the effects of TP, TN, DO and BOD₅ in the effluent on the DO in the downstream receiving waters was not assessed. It is presumed that previous permit limits for these constituents, if applicable, would be sufficiently protective of the receiving water.

Model 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 Review II

A Level II Antidegradation Review (ADR) is not required for this discharge since the pollutant concentration and load is not increasing under this permit renewal.

Documents:

WLA Document: *ferron_potw_wla_2025.docx*
Wasteload Analysis: *ferron_potw_wla_2025.xlsm*

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*.

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

WASTELOAD ANALYSIS [WLA]

Date: 5/19/2025

Appendix A: Mass Balance Mixing Analysis for Conservative Constituents

Discharging Facility:	Ferron Lagoons		
UPDES No:	UT-0020052		
Permit Flow [MGD]:	0.50 Annual	Max. Daily	
	0.50 Annual	Max. Monthly	
Receiving Water:	Ferron Creek		
Stream Classification:	2B, 3C, 4		
Stream Flows [cfs]:	1.9 All Seasons	Critical Low Flow 20th %	
Fully Mixed:	NO		
Acute River Width:	50%		
Chronic River Width:	100%		

Modeling Information

A simple mixing analysis was used to determine the effluent limits.

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

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 reflect the environmental conditions expected at low stream flows.

Effluent Limitations for Protection of Recreation (Class 2B Waters)**Physical
Parameter****Maximum Concentration**

pH Minimum	6.5
pH Maximum	9.0
Turbidity Increase (NTU)	10.0

Bacteriological

E. coli (30 Day Geometric Mean)	206 (#/100 mL)
E. coli (Maximum)	668 (#/100 mL)

Effluent Limitations for Protection of Aquatic Wildlife (Assumed Class 3C Waters)

Temperature (deg C)	Maximum
Instantaneous	27.0
Change	4.0

Dissolved Oxygen (mg/L)	Minimum Concentration
Instantaneous	3.0
30-day Average	5.0

pH	Concentration
Minimum	6.5
Maximum	9.0

Inorganics	Chronic Standard (4 Day Average)	Acute Standard (1 Hour Average)
Parameter	Standard	Standard
Phenol (mg/L)		0.010
Hydrogen Sulfide (Undissociated) [mg/L]		0.002

Ammonia-Total (mg/L)

Season	Chronic (30-day ave)			Acute (1-hour ave)		
	Standard	Background	Limit	Standard	Background	Limit
Summer	2.3	0.030	7.8	9.6	0.030	21.2
Fall	4.4	0.030	15.0	9.2	0.030	20.4
Winter	5.6	0.030	19.1	9.4	0.030	20.8
Spring	2.0	0.030	6.6	4.0	0.030	8.9

Metals-Total Recoverable

Parameter	Chronic (4-day ave)			Acute (1-hour ave)		
	Standard ¹	Background	Limit	Standard ¹	Background	Limit
Aluminum (µg/L)	87.0	21.0	247.4	750.0	21.0	1635.9
Arsenic (µg/L)	150.0	2.7	508.0	340.0	2.7	749.9
Cadmium (µg/L)	0.6	0.48	1.1	7.7	0.48	16.6
Chromium VI (µg/L)	11.0	5.4	24.6	16.0	5.4	28.9
Chromium III (µg/L)	230.7	5.4	778.2	1773.3	5.4	3921.7
Copper (µg/L)	29.3	6.2	85.4	49.6	6.2	102.4
Cyanide (µg/L) ²	5.2	3.5	9.4	22.0	3.5	44.5
Iron (µg/L)				1000.0	23.0	2187.3
Lead (µg/L)	10.9	1.3	34.4	280.8	1.3	620.6
Mercury (µg/L) ²	0.012	0.008	0.022	2.4	0.008	5.3
Nickel (µg/L)	168.0	5.8	562.4	1512.9	5.8	3344.4
Selenium (µg/L)	4.6	2.1	10.7	18.4	2.1	38.2
Silver (µg/L)				34.9	1.1	76.0
Tributyltin (µg/L) ²	0.072	0.048	0.130	0.46	0.048	0.96
Zinc (µg/L)	382.4	24.0	1253.5	379.3	24.0	811.1

1: Based upon a Hardness of 400 mg/l as CaCO₃

2: Background concentration assumed 67% of chronic standard

Utah Division of Water Quality

Organics [Pesticides]

Parameter	Chronic (4-day ave)		Acute (1-hour ave)	
	Standard	Limit	Standard	Limit
Aldrin (µg/L)			1.5	1.5
Chlordane (µg/L)	0.0043	0.0043	1.2	1.2
DDT, DDE (µg/L)	0.001	0.001	0.55	0.55
Diazinon (µg/L)	0.17	0.17	0.17	0.17
Dieldrin (µg/L)	0.0056	0.0056	0.24	0.24
Endosulfan, a & b (µg/L)	0.056	0.056	0.11	0.11
Endrin (µg/L)	0.036	0.036	0.086	0.086
Heptachlor & H. epoxide (µg/L)	0.0038	0.0038	0.26	0.26
Lindane (µg/L)	0.08	0.08	1.0	1.0
Methoxychlor (µg/L)			0.03	0.03
Mirex (µg/L)			0.001	0.001
Nonylphenol (µg/L)	6.6	6.6	28.0	28.0
Parathion (µg/L)	0.0130	0.0130	0.066	0.066
PCB's (µg/L)	0.014	0.014		
Pentachlorophenol (µg/L)	15.0	15.0	19.0	19.0
Toxephene (µg/L)	0.0002	0.0002	0.73	0.73

Radiological

Parameter	Maximum Concentration Standard
Gross Alpha (pCi/L)	15

Effluent Limitation for Protection of Agriculture (Class 4 Waters)

Parameter	Maximum Concentration		
	Standard	Background	Limit
Total Dissolved Solids (mg/L)	3500		3500
Boron (mg/L)	0.75		0.8
Arsenic, Dissolved (µg/L)	100		100
Cadmium, Dissolved (µg/L)	10		10.0
Chromium, Dissolved (µg/L)	100		100
Copper, Dissolved (µg/L)	200		200
Lead, Dissolved (µg/L)	100		100
Selenium, Dissolved (µg/L)	50		50
Gross Alpha (pCi/L)	15		15.0

Utah Division of Water Quality

WASTELOAD ANALYSIS [WLA]
Appendix C: Total Residual Chlorine

Date: 5/19/2025

Discharging Facility: Ferron Lagoons
 UPDES No: UT-0020052

CHRONIC

								Decay Rate (/day)				
	Season	Receiving Water	Standard	Total Effluent	Mixing Zone Boundary	Effluent Limit Without Decay	Temperature (°C)	@ 20 deg C	@ T deg C	Travel Time (min)	Decay Coefficient	Effluent Limit
Discharge (cfs)	Annual	1.9		0.8	2.7							
TRC (mg/L)	Annual	0.000	0.011			0.038	20.0	20	20.0	10	0.87	0.043

ACUTE

								Decay Rate (/day)				
	Season	Receiving Water	Standard	Total Effluent	Mixing Zone Boundary	Effluent Limit Without Decay	Temperature (°C)	@ 20 °C	@ T °C	Travel Time (min)	Decay Coefficient	Effluent Limit
Discharge (cfs)	Annual	0.9		0.8	1.7							
TRC (mg/L)	Annual	0.000	0.019			0.042	20.0	20	20.0	10	0.87	0.048

ATTACHMENT 3

Reasonable Potential Analysis

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REASONABLE POTENTIAL ANALYSIS

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

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

Ferron is a minor discharger with no known industrial dischargers with a low reasonable potential for toxics to be in the effluent, therefore they are not required to monitor metals, and RP is not required to be run on their effluent at this time. If and when this changes, metals monitoring may be added to the permit.

¹ See Reasonable Potential Analysis Guidance for definitions of terms