

STATE OF UTAH
DIVISION OF WATER QUALITY
DEPARTMENT OF ENVIRONMENTAL QUALITY
SALT LAKE CITY, UTAH

UTAH POLLUTANT DISCHARGE ELIMINATION SYSTEM (UPDES) PERMITS

Minor Municipal Permit No. **UT0025984**

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

CITY OF EPHRAIM

is hereby authorized to discharge from

CITY OF EPHRAIM TREATMENT FACILITY

to receiving waters named **SAN PITCH RIVER,**

and to distribute effluent for reuse,

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

This permit shall become effective on October 1, 2023,

This permit expires at midnight on September 30, 2028.

Signed twelfth day of October 2023.



John K. Mackey, P.E.
Director

DWQ-2023-007985

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I. DISCHARGE LIMITATIONS AND REPORTING REQUIREMENTS

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

Outfall Number
001

Location of Discharge Outfall

Located at latitude 39°22'32.3" and longitude 111°37'48.2" Discharge travels through the lagoon overflow pipe and disinfection system to a ditch, then travels one mile to empty into the San Pitch River.

Outfall Number
001R

Location of Effluent Reuse Discharge Outfall and Description of Area for Use

Located at latitude 39°22'320.84" and longitude 111°37'5.51". The sample location is located in the treatment/ pump building. From there, is it carried via a pipe to the reuse field.

- B. Narrative Standard. It shall be unlawful, and a violation of this permit, for the permittee to discharge or place any waste or other substance in such a way as will be or may become offensive such as unnatural deposits, floating debris, oil, scum, or other nuisances such as color, odor or taste, or cause conditions which produce undesirable aquatic life or which produce objectionable tastes in edible aquatic organisms; or result in concentrations or combinations of substances which produce undesirable physiological responses in desirable resident fish, or other desirable aquatic life, or undesirable human health effects, as determined by a bioassay or other tests performed in accordance with standard procedures.

C. Specific Limitations and Self-Monitoring Requirements.

1. Effective immediately, and lasting through the life of this permit, there shall be no acute or chronic toxicity in Outfalls 001 and 001R as defined in *Part VIII*.
2.
 - a. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from Outfall 001 and 001R. Such discharges shall be limited and monitored by the permittee as specified below:

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Parameter	Effluent Limitations *a				
	Maximum Monthly Avg	Maximum Weekly Avg	Yearly Average	Daily Minimum	Daily Maximum
Total Flow, MGD					
Dec. 1 – Feb. 28	1.94	--	--	--	--
Mar. 1 – Nov. 30	0.0	--	--	--	--
BOD ₅ , mg/L	22	35	--	--	--
BOD ₅ Min. % Removal	85	--	--	--	--
TSS, mg/L	25	35	--	--	--
TSS Min. % Removal	85	--	--	--	--
Dissolved Oxygen, mg/L	--	--	--	4.0	--
Total Ammonia (as N), mg/L	--	--	--	--	15.3
TRC, mg/L	0.023	--	--	--	0.041
<i>E. coli</i> , No./100mL	126	157	--	--	--
Oil & Grease, mg/L	--	--	--	--	10.0
pH, Standard Units	--	--	--	6.5	9
TDS, mg/L	--	--	--	--	1,200
Mass Loading Limit					
Ammonia, lbs./ month	--	--	1,747	--	--

Parameter	Type II Reuse Outfall 001R Effluent Limitations *a				
	Max Monthly Average	Max Weekly Median	Max Daily Average	Minimum	Maximum
BOD ₅	25	--	--	--	--
TSS	25	35	--	-	--
<i>E. coli</i> , No/100mL	--	126	--	--	500
pH, Standard Units	--	--	--	6.0	9.0

Outfall 001 Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
Total Flow *b, *c	Continuous	Recorder	MGD
BOD ₅ , Influent *d	2 x Weekly	Composite	mg/L
Effluent	2 x Weekly	Composite	mg/L
TSS, Influent *d	2 x Weekly	Composite	mg/L
Effluent	2 x Weekly	Composite	mg/L
<i>E. coli</i>	2 x Weekly	Grab	No./100mL
pH	2 x Weekly	Grab	SU
Total Ammonia (as N)	2 x Weekly	Composite	mg/L
DO	2 x Weekly	Grab	mg/L
TRC, mg/L, *e	Daily	Grab	mg/L
Oil & Grease *f	When Sheen Observed	Grab	mg/L
Orthophosphate (as P), *g	Monthly	Composite	mg/L
Effluent			

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Total Phosphorus (as P), *g Influent Effluent	Monthly Monthly	Composite Composite	mg/L mg/L
Total Kjeldahl Nitrogen TKN (as N), *g Influent Effluent	Monthly Monthly	Composite Composite	mg/L mg/L
Nitrate, NO ₃ *g	Monthly	Composite	mg/L
Nitrite, NO ₂ *g	Monthly	Composite	mg/L
TDS, mg/L	Monthly	Composite	mg/L
Metals, Influent Effluent	2 x Yearly 2 x Yearly	Composite Composite	mg/L mg/L
Organic Toxics, Influent Effluent	2 nd and 4 th Year of the Permit Cycle	Grab	mg/L

Type II Reuse Outfall 001R Self-Monitoring and Reporting Requirements *a *h			
Parameter	Frequency	Sample Type	Units
Total Flow, *b, *c	Continuous	Recorder	MGD
BOD ₅	Weekly	Composite	mg/L
TSS	Daily	Composite	mg/L
<i>E. coli</i>	Daily	Grab	No./100mL
pH	Daily/ Continuous	Grab/Recorder	SU

- *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.
- *c If the rate of discharge is controlled, the rate and duration of discharge shall be reported.
- *d 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.
- *e 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:
- 1) analytical values less than 0.02 mg/L shall be considered zero; and
 - 2) analytical values less than 0.06 mg/L and equal to or greater than 0.02 mg/L will be recorded as measured.
- *f Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report NA.
- *g Pollutants are being sampled in support of the work being done for the TMDL currently underway for the San Pitch River. The Pollutants Of Concern (POC) will be monitored and reported (on a monthly basis by the facility on Discharge Monitoring Report, but will not have a limit associated with them /or at the end of each Calendar year of sampling for these POC's), Ephraim will report the results of all sampling done for the POC. If Ephraim decides to sample more frequently for these POC's, the additional data will be welcome.

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*h Reuse monitoring results obtained during the previous month for reuse discharges shall be summarized for each month and reported on a Monthly Operational Report, post-marked no later than the 28th day of the month following the completed reporting period.

b. Management Practices for Land Application of Treated Effluent:

- (1) The application of treated effluent to frozen, ice-covered, or snow covered land is prohibited.
- (2) No person shall apply treated effluent where the slope of the site exceeds 6 percent.
- (3) The use should not result in a surface water runoff.
- (4) The use must not result in the creation of an unhealthy or nuisance condition, as determined by the local health department.
- (5) Any irrigation with treated effluent must be at least 300 feet from a potable well.
- (6) For Type I reuse, any irrigation must be at least 50 feet from any potable water well.
- (7) For Type II reuse, any irrigation must be at least 300 feet from any potable water well.
- (8) For Type II reuse, spray irrigation must be at least 100 feet from areas intended for public access. This distance may be reduced or increased by the Director.
- (9) Impoundments of treated effluent, if not sealed, must be at least 500 feet from any potable well.
- (10) Public access to effluent storage and irrigation or disposal sites shall be restricted by a stock-tight fence or other comparable means which shall be posted and controlled to exclude the public (Compliance Schedule for a Particular Parameter if necessary)

D. Reporting of Monitoring Results.

1. Reporting of Wastewater Monitoring Results Monitoring results obtained during the previous month shall be summarized for each month and reported on a Discharge Monitoring Report Form (EPA No. 3320-1)* or by NetDMR, post-marked or entered into NetDMR no later than the 28th day of the month following the completed reporting period. The first report is due on November 28, 2023. If no discharge occurs during the reporting period, “no discharge” shall be reported. Legible copies of these, and all other reports including whole effluent toxicity (WET) test reports required herein, shall be signed and certified in accordance with the requirements of *Signatory Requirements (see Part VII.G)*, and submitted by NetDMR, or to the Division of Water Quality at the following address:

Department of Environmental Quality
Division of Water Quality
PO Box 144870
Salt Lake City, Utah 84114-4870

2. Reporting of Reuse Monitoring Results. Monitoring results obtained during the previous month shall be summarized for each month and reported on a Monthly Operational Report, post-marked no later than the 28th day of the month following the completed reporting period. The first report is due on November 28, 2023. If no reuse occurs during the reporting period, “no reuse” shall be reported for those applicable effluent parameters. Legible copies of these, and all other reports

* Starting January 1, 2017 monitoring results must be submitted using NetDMR unless the permittee has successfully petitioned for an exception.

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required herein, shall be signed and certified in accordance with the requirements of Signatory Requirements (see Part VII.G), and submitted to the Division of Water Quality at the following address:

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3. Annual Reporting of Wastewater Monitoring Results. Monitoring results obtained during the previous year shall be summarized and included in the Municipal Wastewater Planning Program (MWPP) submitted annually by April 1st. If no reuse occurs during the reporting period, “no reuse” shall be reported for those applicable effluent parameters. Legible copies of these, and all other reports required herein, shall be reported. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the requirements of Signatory Requirements (see Part VII.G), and submitted to the Division of Water Quality at the following address:

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II. INDUSTRIAL PRETREATMENT PROGRAM

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

1. *Indirect Discharge* means the introduction of pollutants into a publicly-owned treatment works (POTW) from any non-domestic source regulated under section 307 (b), (c) or (d) of the CWA.
2. *Interference* means a discharge which, alone or in conjunction with a discharge or discharges from other sources, both:
 - a. Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and
 - b. Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.
3. *Local Limit* is defined as a limit designed to prevent pass through and/or interference. And is developed in accordance with 40 CFR 403.5(c).
4. *Pass Through means* a Discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).
5. *Publicly Owned Treatment Works or POTW* means a treatment works as defined by section 212 of the CWA, which is owned by a State or municipality (as defined by section 502(4) of the CWA). This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW Treatment Plant. The term also means the municipality as defined in section 502(4) of the CWA, which has jurisdiction over the Indirect Discharges to and the discharges from such a treatment works.
6. *Significant Industrial User (SIU)* is defined as an Industrial User discharging to a POTW that satisfies any of the following:
 - a. Has a process wastewater flow of 25,000 gallons or more per average work day;
 - b. Has a flow greater than five percent of the flow carried by the municipal system receiving the waste;
 - c. Is subject to Categorical Pretreatment Standards, or

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

7. *User or Industrial User (IU)* means a source of Indirect Discharge

B. Pretreatment Monitoring and Reporting Requirements.

1. The design capacity of this municipal wastewater treatment facility is less than 5 MGD; therefore the permittee will not be required to develop an Approved POTW Pretreatment Program. However, in order to determine if development of an Approved POTW Pretreatment Program is warranted, the permittee shall conduct an **industrial waste survey**, as described in *Part II.C.1.*
2. Monitoring will not be required of the permittee for the pretreatment requirements at this time. If changes occur monitoring may be required for parameters not currently listed in the permit or current monitoring requirements may be required to be increased to determine the impact of an Industrial User or to investigate sources of pollutant loading. This could include but is not limited to sampling of the influent and effluent of the wastewater treatment plant and within the collection system.
3. For Local Limit parameters it is recommended that the most sensitive method be used for analysis. This will determine if the parameter is present and provide removal efficiencies based on actual data rather than literature values. If a parameter load is greater than the allowable head works load, for any pollutant listed in Part II.B.3. or a pollutant of concern listed in the Local Limit development document or determined by the Director, the permittee must report this information to the Pretreatment Coordinator for the Division of Water Quality. If the loading exceeds the allowable headworks load, increase sampling must occur based on the requirements given by the Pretreatment Coordinator for the Division of Water Quality. If needed sampling may need to occur to find the source(s) of the increase. This may include sampling of the collection system. Notification regarding the exceedances of the allowable headworks loading can be provided via email.

C. Industrial Wastes.

1. The "Industrial Waste Survey" or "IWS" as required by *Part II.B.1.* consists of;
 - a. Identifying each Industrial User (IU) and determining if the IU is a Significant Industrial User (SIU),
 - b. Determination of the qualitative and quantitative characteristics of each discharge, and
 - c. Appropriate production data.
2. The IWS must be maintained and updated with IU information as necessary, to ensure that all IUs are properly permitted or controlled at all times. Updates must be submitted to the Director sixty (60) days following a change to the IWS.
3. Notify all Significant Industrial Users of their obligation to comply with applicable requirements under *Subtitles C and D* of the *Resource Conservation and Recovery Act (RCRA)*.
4. The permittee must notify the Director of any new introductions by new or existing SIUs or any substantial change in pollutants from any major industrial source. Such notice must

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contain the information described in 1. above, and be forwarded no later than sixty (60) days following the introduction or change.

- D. General and Specific Prohibitions. The permittee must ensure that no IU violates any of the general or specific standards. If an IU is found violating a general or specific standard the permittee must notify the Director within 24 hours of the event. The general prohibitions and the specific prohibitions apply to each User introducing pollutants into a POTW whether or not the User is subject to other Pretreatment Standards or any national, State or local Pretreatment Requirements.
1. General prohibition Standards. A User may not introduce into a POTW any pollutant(s) which cause Pass Through or Interference.
 2. Specific Prohibited Standards. Developed pursuant to *Section 307 of The Water Quality Act of 1987* require that under no circumstances shall the permittee allow introduction of the following pollutants into the waste treatment system from any User (*40 CFR 403.5*):
 - a. Pollutants which create a fire or explosion hazard in the publicly owned treatment works (POTW), including, but not limited to, waste-streams with a closed cup flashpoint of less than 140°F (60°C);
 - b. Pollutants, which will cause corrosive structural damage to the POTW, but in no case, discharges with a pH lower than 5.0;
 - c. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in Interference;
 - d. Any pollutant, including oxygen demanding pollutants (BOD, etc.) released in a discharge at such volume or strength as to cause Interference in the POTW;
 - e. Heat in amounts, which will inhibit biological activity in the POTW, resulting in Interference, but in no case, heat in such quantities that the influent to the sewage treatment works exceeds 104°F (40°C);
 - f. Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause Interference or Pass Through;
 - g. Pollutants which result in the presence of toxic gases, vapor, or fumes within the POTW in a quantity that may cause worker health or safety problems; or,
 - h. Any trucked or hauled pollutants, except at discharge points designated by the POTW.
 - i. Any pollutant that causes Pass Through or Interference at the POTW.
 - j. Any prohibited standard which the permittee has adopted in an ordinance or rule to control IU discharge to the POTW.
 3. In addition to the general and specific limitations expressed above, more specific pretreatment limitations have been and will be promulgated for specific industrial categories under *Section 307 of the Water Quality Act of 1987 as amended (WQA)*. (See *40 CFR, Subchapter N, Parts 400 through 500*, for specific information).

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- E. Significant Industrial Users Discharging to the POTW. The permittee shall provide adequate notice to the Director and the Division of Water Quality Pretreatment Coordinator of;
1. Any new introduction of pollutants into the treatment works from an indirect discharger (i.e., Industrial User) which would be subject to *Sections 301 or 306* of the *WQA* if it were directly discharging those pollutants;
 2. Any substantial change in the volume or character of pollutants being introduced into the treatment works by a source introducing pollutants into the treatment works at the time of issuance of the permit; and
 3. For the purposes of this section, adequate notice shall include information on:
 - a. The quality and quantity of effluent to be introduced into such treatment works; and,
 - b. Any anticipated impact of the change on the quantity or quality of effluent to be discharged from such publicly owned treatment works.
 4. Any IU that must comply with applicable requirements under Subtitles C and D of the Resource Conservation and Recovery Act (RCRA).
- F. Change of Conditions. At such time as a specific pretreatment limitation becomes applicable to an Industrial User of the permittee, the Director may, as appropriate, do the following:
1. Amend the permittee's UPDES discharge permit to specify the additional pollutant(s) and corresponding effluent limitation(s) consistent with the applicable national pretreatment limitation;
 2. Require the permittee to specify, by ordinance, contract, or other enforceable means, the type of pollutant(s) and the maximum amount which may be discharged to the permittee's facility for treatment. Such requirement shall be imposed in a manner consistent with the POTW program development requirements of the *General Pretreatment Regulations* at *40 CFR 403*;
 3. Require the permittee to monitor its discharge for any pollutant, which may likely be discharged from the permittee's facility, should the Industrial User fail to properly pretreat its waste; and/or
 4. Require the permittee to develop an Approved POTW Pretreatment Program.
- G. Legal Action. The Director retains, at all times, the right to take legal action against the Industrial User or the treatment works, in those cases where a permit violation has occurred because of the failure of an Industrial User to discharge at an acceptable level. If the permittee has failed to properly delineate maximum acceptable industrial contributor levels, the Director will look primarily to the permittee as the responsible party.
- H. Local Limits. If Local Limits are developed per R317-8-8.5(4)(b) to protect the POTW from Pass Through or Interference, then the POTW must submit limits to DWQ for review and public notice, as required by R317-8-8.5(4)(c). Local Limits should be developed in accordance with the latest revision of the EPA Local Limits Development Guidance and per R317-8-8.5.

III. BIOSOLIDS REQUIREMENTS

The State of Utah has adopted the *40 CFR Part 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 CFR Part 503* does 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 Division of Water Quality must be contacted prior to the removal of the sludge to ensure that all applicable state and federal regulations are met.

PART IV
STORM WATER PERMIT

IV. STORM WATER REQUIREMENTS.

- A. Industrial Storm Water Permit. Based on the type of industrial activities occurring at the facility, the permittee is required to maintain separate coverage or an appropriate exclusion under the Multi-Sector General Permit (MSGP) for Storm Water Discharges Associated with Industrial Activities (UTR000000). If the facility is not already covered, the permittee has 30 days from when this permit is issued to submit the appropriate Notice of Intent (NOI) for the MSGP or exclusion documentation.

- B. Construction Storm Water Permit. Any construction at the facility that disturbs an acre or more of land, including less than an acre if it is part of a common plan of development or sale, is required to obtain coverage under the UPDES Construction General Storm Water Permit (UTRC00000). Permit coverage must be obtained prior to land disturbance. If the site qualifies, a Low Erosivity Waiver (LEW) Certification may be submitted instead of permit coverage.

V. MONITORING, RECORDING & GENERAL REPORTING REQUIREMENTS

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

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2. The following occurrences of noncompliance shall initially be reported by telephone to the DWQ via the 24-hour answering service as soon as possible but no later than 24 hours from the time the permittee becomes aware of the circumstances:
 - a. Any noncompliance which may endanger health or the environment;
 - b. Any unanticipated bypass, which exceeds any effluent limitation in the permit (See *Part VI.G, Bypass of Treatment Facilities.*);
 - c. Any upset which exceeds any effluent limitation in the permit (See *Part VI.H, Upset Conditions.*);
 - d. Violation of a daily discharge limitation for any of the pollutants listed in the permit. For other permit violations which will not endanger health or the environment, DWQ may otherwise be notified during business hours (801) 536-4300; or,
 - e. Violation of any of the Table 3 metals limits, the pathogen limits, the vector attraction reduction limits or the management practices for biosolids that have been sold or given away.
3. A written submission shall also be provided within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:
 - a. A description of the noncompliance and its cause;
 - b. The period of noncompliance, including exact dates and times;
 - c. The estimated time noncompliance is expected to continue if it has not been corrected;
 - d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and,
 - e. Steps taken, if any, to mitigate the adverse impacts on the environment and human health during the noncompliance period.
4. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Division of Water Quality, (801) 536-4300.
5. Reports shall be submitted to the addresses in *Part I.D, Reporting of Monitoring Results.*
- I. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for *Part I.D* are submitted. The reports shall contain the information listed in *Part V.H.3.*
- J. Inspection and Entry The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:
 1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
 2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

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

VI. COMPLIANCE RESPONSIBILITIES

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

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- (1) Bypass was unavoidable to prevent loss of human life, personal injury, or severe property damage;
 - (2) There were no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance, and
 - (3) The permittee submitted notices as required under *Part VI.G.3*.
- b. The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed in *Parts VI.G.2.a (1), (2) and (3)*.
3. Notice.
- a. *Anticipated bypass*. Except as provided above in *Part VI.G.2* and below in *Part VI.G.3.b*, if the permittee knows in advance of the need for a bypass, it shall submit prior notice, at least ninety days before the date of bypass. The prior notice shall include the following unless otherwise waived by the Director:
 - (1) Evaluation of alternative to bypass, including cost-benefit analysis containing an assessment of anticipated resource damages;
 - (2) A specific bypass plan describing the work to be performed including scheduled dates and times. The permittee must notify the Director in advance of any changes to the bypass schedule;
 - (3) Description of specific measures to be taken to minimize environmental and public health impacts;
 - (4) A notification plan sufficient to alert all downstream users, the public and others reasonably expected to be impacted by the bypass;
 - (5) A water quality assessment plan to include sufficient monitoring of the receiving water before, during and following the bypass to enable evaluation of public health risks and environmental impacts; and,
 - (6) Any additional information requested by the Director.
 - b. *Emergency Bypass*. Where ninety days advance notice is not possible, the permittee must notify the Director, and the Director of the Department of Natural Resources, as soon as it becomes aware of the need to bypass and provide to the Director the information in *Part VI.G.3.a.(1) through (6)* to the extent practicable.
 - c. *Unanticipated bypass*. The permittee shall submit notice of an unanticipated bypass to the Director as required under *Part V.H*, Twenty Four Hour Reporting. The permittee shall also immediately notify the Director of the Department of Natural

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Resources, the public and downstream users and shall implement measures to minimize impacts to public health and environment to the extent practicable.

H. Upset Conditions.

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

VII. GENERAL REQUIREMENTS

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

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representative may thus be either a named individual or any individual occupying a named position.

3. Changes to authorization. If an authorization under *paragraph VII.G.2* is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of *paragraph VII.G.2* must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.
4. Certification. Any person signing a document under this section shall make the following certification:

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

- H. Penalties for Falsification of Reports. The *Act* provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than \$10,000.00 per violation, or by imprisonment for not more than six months per violation, or by both.
- I. Availability of Reports. Except for data determined to be confidential under *UAC R317-8-3.2*, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the office of Director. As required by the *Act*, permit applications, permits and effluent data shall not be considered confidential.
- J. Oil and Hazardous Substance Liability. Nothing in this permit shall be construed to preclude the permittee of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under the *Act*.
- K. Property Rights. The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.
- L. Severability. The provisions of this permit are severable, and if any provisions of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.
- M. Transfers. This permit may be automatically transferred to a new permittee if:
 1. The current permittee notifies the Director at least 20 days in advance of the proposed transfer date;

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2. The notice includes a written agreement between the existing and new permittee's containing a specific date for transfer of permit responsibility, coverage, and liability between them; and,
 3. The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify, or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph 2 above.
- N. State or Federal Laws. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by *Sections 19-5-117* and *510* of the *Act* or any applicable Federal or State transportation regulations, such as but not limited to the Department of Transportation regulations.
- O. Water Quality - Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limitations and compliance schedule, if necessary, if one or more of the following events occurs:
1. Water Quality Standards for the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than contained in this permit.
 2. A final wasteload allocation is developed and approved by the State and/or EPA for incorporation in this permit.
 3. Revisions to the current CWA § 208 areawide treatment management plans or promulgations/revisions to TMDLs (40 CFR 130.7) approved by the EPA and adopted by DWQ which calls for different effluent limitations than contained in this permit.
- P. Biosolids – Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate biosolids limitations (and compliance schedule, if necessary), management practices, other appropriate requirements to protect public health and the environment, or if there have been substantial changes (or such changes are planned) in biosolids use or disposal practices; applicable management practices or numerical limitations for pollutants in biosolids have been promulgated which are more stringent than the requirements in this permit; and/or it has been determined that the permittees biosolids use or land application practices do not comply with existing applicable state or federal regulations.

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

VIII. DEFINITIONS

A. Wastewater.

1. The "7-day (and weekly) average", other than for *E. coli* bacteria, fecal coliform bacteria, and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. Geometric means shall be calculated for *E. coli* bacteria, fecal coliform bacteria, and total coliform bacteria. The 7-day and weekly averages are applicable only to those effluent characteristics for which there are 7-day average effluent limitations. The calendar week, which begins on Sunday and ends on Saturday, shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms. Weekly averages shall be calculated for all calendar weeks with Saturdays in the month. If a calendar week overlaps two months (i.e., the Sunday is in one month and the Saturday in the following month), the weekly average calculated for that calendar week shall be included in the data for the month that contains Saturday.
2. The "30-day (and monthly) average," other than for *E. coli* bacteria, fecal coliform bacteria and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 30-day period or calendar month, whichever is applicable. Geometric means shall be calculated for *E. coli* bacteria, fecal coliform bacteria and total coliform bacteria. The calendar month shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms.
3. "Act," means the *Utah Water Quality Act*.
4. "Acute toxicity" occurs when 50 percent or more mortality is observed for either test species at any effluent concentration (lethal concentration or "LC₅₀").
5. "Annual Loading Cap" is the highest allowable phosphorus loading discharged over a calendar year, calculated as the sum of all the monthly loading discharges measured during a calendar year divided by the number of monthly discharges measured during that year.
6. "Bypass," means the diversion of waste streams from any portion of a treatment facility.
7. "Chronic toxicity" occurs when the IC₂₅ < 45.5% effluent. The 45.5% effluent is the concentration of the effluent in the receiving water, at the end of the mixing zone expressed as per cent effluent.
8. "IC₂₅" is the concentration of toxicant (given in % effluent) that would cause a 25% reduction in mean young per female, or a 25% reduction in overall growth for the test population.
9. "Composite Samples" shall be flow proportioned. The composite sample shall, as a minimum, contain at least four (4) samples collected over the compositing period. Unless otherwise specified, the time between the collection of the first sample and the last sample shall not be less than six (6) hours nor more than 24 hours. Acceptable methods for preparation of composite samples are as follows:
 - a. Constant time interval between samples, sample volume proportional to flow rate at time of sampling;

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

**FACT SHEET AND STATEMENT OF BASIS
CITY OF EPHRAIM
EPHRAIM CITY TREATMENT FACILITY
RENEWAL PERMIT: DISCHARGE & REUSE
UPDES PERMIT NUMBER: UT0025984
MINOR MUNICIPAL**

FACILITY CONTACTS

Operator Name: Jeff Jensen
Position: Public Works Director
Phone Number: (435) 283-4631

Person Name: Bryan Kimball
Position: City Engineer
Phone Number: (435) 283-4631

Permitee Name: City of Ephraim
Facility Name: Ephraim City Treatment Facility
Mailing and Facility Address: 5 South Main
Ephraim City, Utah 84627
Telephone: 435-283-4631

DESCRIPTION OF FACILITY

The Ephraim City Treatment Facility (Ephraim) consists of an eight (8) cell lagoon system located west of Ephraim and east of the San Pitch River, which serves as the receiving stream during discharge periods. During non-discharge periods, if necessary, the facility will land apply effluent to isolated fields adjacent to the lagoons. Ephraim has installed a chlorine disinfection system at the outfall to properly disinfect the effluent before discharge. The lagoon system is located near 39°22'32.3" north latitude and 111°37'48.2" west longitude.

The Ephraim Lagoons were operated as total containment lagoons, but as a result of growth in the area and at Snow College, the facility could no longer guarantee total containment during colder and/or wetter years. Ephraim discharges to a segment of the San Pitch River that is 303(d) listed as impaired for total dissolved solids (TDS), ammonia and *E. coli*. A TMDL was completed for TDS and approved for the San Pitch River on November 18th 2003. The TMDL requirements apply during the critical season from March through September. As a result, Ephraim is only authorized to discharge to the San Pitch during the non-critical season. An anti-degradation review and facility plan completed for the facility indicated that the most feasible and economical alternative choice for Ephraim is a facility that land applies effluent from March through November and allows a discharge to the San Pitch from December through February.

SUMMARY OF CHANGES FROM THE PREVIOUS PERMIT

The facility produces Type II reuse water, which, when necessary, will be applied to a neighboring field. This land application activity was previously covered under Operating Permit No. UTOP00114, but now it will be included in this permit.

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

- 1) analytical values less than 0.02 mg/L shall be considered zero; and
- 2) analytical values less than .06 mg/L and equal to or greater than .02 mg/L will be recorded as measured.

DISCHARGE

DESCRIPTION OF DISCHARGE

The City of Ephraim has been reporting self-monitoring results on Discharge Monitoring Reports on a monthly basis. Ephraim did not discharge during the previous permit cycle.

<u>Outfall</u>	<u>Description of Discharge Point</u>
001	Located at latitude 39°22'32.3" and longitude 111°37'48.2". Discharge travels through the lagoon overflow pipe and disinfection system to a ditch, then travels one mile to empty into the San Pitch River.

<u>Outfall</u>	<u>Description of Reuse Water Discharge Point</u>
001R	Located at latitude 39°22'320.84" and longitude 111°37'5.51". The sample location is located in the treatment/ pump building. From there, is it carried via a pipe to the reuse field.

RECEIVING WATERS AND STREAM CLASSIFICATION

If a discharge were to occur, it would flow into an unnamed ditch that flows around the lagoons and travels a mile to the San Pitch River. The San Pitch River is classified 2B, 3C, 3D and 4 at this location according to *Utah Administrative Code (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 3D -- Protected for waterfowl, shore birds and other water-oriented wildlife not included in Classes 3A, 3B, or 3C, including the necessary aquatic organisms in their food chain.
- Class 4 -- Protected for agricultural uses including irrigation of crops and stock watering.

Beneficial Uses -- Protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain.

TOTAL MAXIMUM DAILY LOAD (TMDL) REQUIREMENTS

A TMDL was completed for TDS and approved for the San Pitch River on November 18, 2003. The TMDL requirements apply during the critical season from March through September. As a result, Ephraim is only authorized to discharge to the San Pitch during the non-critical season.

BASIS FOR EFFLUENT LIMITATIONS

Limitations on biochemical oxygen demand (BOD5), most total suspended solids (TSS) parameters, *E. coli*, pH and percent removal for BOD5 and TSS are based on current Utah Secondary Treatment Standards, UAC R317-1-3.2. Dissolved oxygen (DO), ammonia concentration, total suspended solids (TSS) maximum monthly average, total residual chlorine (TRC) and total dissolved solids (TDS) limits are based on the Wasteload Analysis, which is attached. The oil and grease is based on best professional judgment (BPJ).

Ammonia:

In reviewing the proposed new WQBEL for ammonia, it was determined that Ephraim would have trouble meeting the chronic WQBEL (3.6 mg/L) during the discharge months. Ephraim should not have trouble meeting the acute WQBEL (15.3 mg/L). The accepted solution is to issue the permit with a monthly effluent load limit for ammonia based on the average concentration and flow.

The mass loading limit is calculated as shown here;

$$\text{Mass Loading, } \frac{\text{lbs}}{\text{Mon}} = (\text{Flow, MGD}) * \left(\text{Concentration, } \frac{\text{mg}}{\text{L}} \right) * \left(8.34 \frac{\text{lbs}}{\text{gal}} \right) * \left(30 \frac{\text{days}}{\text{Mon}} \right)$$

$$\text{Mass Loading, } \frac{\text{lbs}}{\text{Mon}} = (1.94 \text{ MGD}) * \left(3.6, \frac{\text{mg}}{\text{L}} \right) * \left(8.34 \frac{\text{lbs}}{\text{gal}} \right) * \left(30 \frac{\text{days}}{\text{Mon}} \right)$$

$$\text{Mass Loading, } \frac{\text{lbs}}{\text{Mon}} = 1,747$$

If the concentration is higher, and the flow is lower, they can still discharge up to 1,747 lbs in a month. When they reach the loading limit, they may terminate the discharge flow for the month. The reported mass discharged is calculated as shown here;

$$\text{Mass Loading, lbs} = (\text{Ave Flow}) * (\text{Ave Concetration}) * \left(8.34 \frac{\text{lbs}}{\text{gal}} \right) * (\text{Days Discharged})$$

If Ephraim monitors the ammonia at the beginning of the discharge, and knows the flow they discharge at, they will easily be able to calculate how many days they may discharge without violating the monthly load limit.

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.

The permit limitations are:

Parameter	Effluent Limitations *a				
	Maximum Monthly Avg	Maximum Weekly Avg	Yearly Average	Daily Minimum	Daily Maximum
Total Flow, MGD					
Dec. 1 – Feb. 28	1.94	--	--	--	--
Mar. 1 – Nov. 30	0.0	--	--	--	--
BOD ₅ , mg/L	22	35	--	--	--
BOD ₅ Min. % Removal	85	--	--	--	--
TSS, mg/L	25	35	--	--	--
TSS Min. % Removal	85	--	--	--	--
Dissolved Oxygen, mg/L	--	--	--	4.0	--
Total Ammonia (as N), mg/L	--	--	--	--	15.3
TRC, mg/L	0.023	--	--	--	0.041
<i>E. coli</i> , No./100mL	126	157	--	--	--
Oil & Grease, mg/L	--	--	--	--	10.0
pH, Standard Units	--	--	--	6.5	9
TDS, mg/L	--	--	--	--	1,200
Mass Loading Limit					
Ammonia, lbs./ month	--	--	1,747	--	--

The permit limitations for Outfall (001R) (Reuse) are:

Parameter	Type II Reuse Outfall 001R Effluent Limitations *a				
	Max Monthly Average	Max Weekly Median	Max Daily Average	Minimum	Maximum
BOD ₅	25	--	--	--	--
TSS	25	35	--	-	--
<i>E. coli</i> , No/100mL	--	126	--	--	500
pH, Standard Units	--	--	--	6.0	9.0

SELF-MONITORING AND REPORTING REQUIREMENTS

The following self-monitoring requirements differ from the previous permit as now the permit includes Outfall 001R. Monitoring will only be required if facility discharges. The permit will require reports to be submitted monthly and annually, as applicable, on Discharge Monitoring Report (DMR) forms due 28 days after the end of the monitoring period. Effective January 1, 2017, monitoring results must be submitted using NetDMR unless the permittee has successfully petitioned for an exception. Lab sheets for biomonitoring must be attached to the biomonitoring DMR. Lab sheets for metals and toxic organics must be attached to the DMRs.

Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
Total Flow *b, *c	Continuous	Recorder	MGD
BOD ₅ , Influent *d	2 x Weekly	Composite	mg/L
Effluent	2 x Weekly	Composite	mg/L
TSS, Influent *d	2 x Weekly	Composite	mg/L
Effluent	2 x Weekly	Composite	mg/L
<i>E. coli</i>	2 x Weekly	Grab	No./100mL
pH	2 x Weekly	Grab	SU
Total Ammonia (as N)	2 x Weekly	Composite	mg/L
DO	2 x Weekly	Grab	mg/L
TRC, mg/L, *e	Daily	Grab	mg/L
Oil & Grease *f	When Sheen Observed	Grab	mg/L
Orthophosphate (as P), *g Effluent	Monthly	Composite	mg/L
Total Phosphorus (as P), *g Influent	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Total Kjeldahl Nitrogen TKN (as N), *g Influent	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Nitrate, NO ₃ *g	Monthly	Composite	mg/L
Nitrite, NO ₂ *g	Monthly	Composite	mg/L
TDS, mg/L	Monthly	Composite	mg/L
Metals, Influent	2 x Yearly	Composite	mg/L
Effluent	2 x Yearly	Composite	mg/L
Organic Toxics, Influent	2 nd and 4 th Year of the Permit		
Effluent	Cycle	Grab	mg/L

The following is a summary of the Type II reuse self-monitoring and reporting requirements.

Type II Reuse Outfall 001R Self-Monitoring and Reporting Requirements *a *h			
Parameter	Frequency	Sample Type	Units
Total Flow, *b, *c	Continuous	Recorder	MGD
BOD ₅	Weekly	Composite	mg/L
TSS	Daily	Composite	mg/L
<i>E. coli</i>	Daily	Grab	No./100mL
pH	Daily/ Continuous	Grab/Recorder	SU

*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.

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

- *d 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.
- *e 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:
 - 1) analytical values less than 0.02 mg/L shall be considered zero; and
 - 2) analytical values less than 0.06 mg/L and equal to or greater than 0.02 mg/L will be recorded as measured.
- *f Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report NA.
- *g Pollutants are being sampled in support of the work being done for the TMDL currently underway for the San Pitch River. The Pollutants Of Concern (POC) will be monitored and reported (on a monthly basis by the facility on Discharge Monitoring Report, but will not have a limit associated with them /or at the end of each Calendar year of sampling for these POC's), Ephraim will report the results of all sampling done for the POC. If Ephraim decides to sample more frequently for these POC's, the additional data will be welcome.
- *h Reuse monitoring results obtained during the previous month for reuse discharges shall be summarized for each month and reported on a Monthly Operational Report, post-marked no later than the 28th day of the month following the completed reporting period.

Management Practices for Land Application of Treated Effluent:

- (1) The application of treated effluent to frozen, ice-covered, or snow covered land is prohibited.
- (2) No person shall apply treated effluent where the slope of the site exceeds 6 percent.
- (3) The use should not result in a surface water runoff.
- (4) The use must not result in the creation of an unhealthy or nuisance condition, as determined by the local health department.
- (5) Any irrigation with treated effluent must be at least 300 feet from a potable well.
- (6) For Type I reuse, any irrigation must be at least 50 feet from any potable water well.
- (7) For Type II reuse, any irrigation must be at least 300 feet from any potable water well.
- (8) For Type II reuse, spray irrigation must be at least 100 feet from areas intended for public access. This distance may be reduced or increased by the Director.
- (9) Impoundments of treated effluent, if not sealed, must be at least 500 feet from any potable well.
- (10) Public access to effluent storage and irrigation or disposal sites shall be restricted by a stock-tight fence or other comparable means which shall be posted and controlled to exclude the public (Compliance Schedule for a Particular Parameter if necessary).

BIOSOLIDS

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

The State of Utah has adopted the 40 CFR 503 federal regulations for the disposal of sewage sludge (biosolids) by reference. However, since this facility is a lagoon, there is not any regular sludge production. Therefore 40 CFR 503 does 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 Division of Water Quality must be contacted prior to the removal of the sludge to ensure that all applicable state and federal regulations are met

STORM WATER

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

The permittee is required to maintain separate permit coverage, or an appropriate exclusion, under the Multi-Sector General Permit (MSGP) for Storm Water Discharges Associated with Industrial Activities (UTR000000). If the facility has not already done so, it has 30 days from when this permit is issued to submit the appropriate Notice of Intent (NOI) for the MSGP, or exclusion documentation. This can be accomplished online at: <https://deq.utah.gov/water-quality/general-multi-sector-industrial-storm-water-permit-updes-permits>.

Permit coverage under the Construction General Storm Water Permit (CGP) is required for any construction at the facility which disturb an acre or more, or is part of a common plan of development or sale that is an acre or greater. A Notice of Intent (NOI) is required to obtain a construction storm water permit prior to the period of construction.

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

PRETREATMENT REQUIREMENTS

Ephraim has not been designated for an Approved POTW Pretreatment Program because it does not meet the conditions that necessitate the program. The flow through the plant is less than five (5) MGD, no Significant Industrial Users are discharging to the treatment facility, and there is no indication of Pass Through with the operation of the treatment facility, such as violations of the UPDES permit limits.

Although Ephraim does not have to develop an Approved POTW Pretreatment Program, any wastewater discharges to the sanitary sewer are subject to Federal, State and local regulations. Pursuant to Section 307 of the Clean Water Act, Ephraim 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.

The Industrial Users discharging to the Publicly Owned Treatment Works (POTW) include commercial users, restaurants, auto facilities, a butcher, a small soap manufacturer and dental offices. There have been discussions of a facility that may discharge to the POTW that could contribute a flow or load that should be controlled. DWQ will determine the need to permit the Industrial User as a Significant Industrial User if this occurs.

As stated in Part II of the permit, an industrial waste survey (IWS) is required. The IWS is to assess the need for pretreatment assistance. If an Industrial User begins to discharge or an existing Industrial User changes their discharge, Ephraim must resubmit an IWS no later than sixty days following the introduction or change, as stated in Part II of the permit.

It is required that Ephraim submit for review any Local Limits that are developed to the Division of Water Quality for review. If Local Limits are developed, it is required that Ephraim 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, 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
Danielle Lenz, Discharge Permit Writer
Daniel Griffin, Biosolids
Jennifer Robinson, Pretreatment
Lonnie Shull, Biomonitoring
Carl Adams, Storm Water
Mike Allred, TMDL/Watershed
Danielle Lenz, Reasonable Potential Analysis
Suzan Tahir, Wasteload Analysis
Jennifer Berjikian, Reuse
Utah Division of Water Quality, (801) 536-4300

PUBLIC NOTICE

Began: August 9, 2023
Ended: September 11, 2023

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

The Public Noticed of the draft permit was published on the DWQ webpage.

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

ADDENDUM TO FSSOB

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

Responsiveness Summary

There were not comments received during the Public Notice comment period.

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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

Effluent Monitoring Data

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Effluent Monitoring Data.

There was no discharge to the San Pitch River during the previous permit cycle.

ATTACHMENT 3

Wasteload Analysis

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

Date: May 21, 2023

Prepared by: Suzan Tahir
Standards and Technical Services

Facility: Ephraim WW Lagoons
UPDES No. UT 0025984

Receiving water: Ditch => San Pitch River

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 Ephraim Lagoon discharge 1.94 MGD (3 cfs)

Receiving Water

Ephraim City's Lagoons discharge into a ditch that runs for approximately one mile before reaching the San Pitch River. As per R317-2-13.6(a), the designated beneficial uses of San Pitch River and tributaries, from confluence with Sevier River to Highway U-132 crossing (with tributary exceptions) are 2B, 3C, 3D, 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 3D - Protected for waterfowl, shore birds and other water-oriented wildlife not included in Classes 3A, 3B, or 3C, including the necessary aquatic organisms in their food chain.*

Utah Division of Water Quality
Wasteload Analysis
Ephraim City Lagoons
UPDES Permit UT0025984

- *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). Due to a lack of flow records, the 20th percentile of available flow measurements from DWQ Monitoring Station 4946450, *San Pitch River W of Manti AB Gunnison Res at CR Xing*, was calculated for the period 2003-2023 (December-February) to approximate the 7Q10 low flow condition.

The calculated critical low flow condition is 3.6 cfs.

The receiving water quality was characterized based on samples collected from the same station and season. Applicable Water Quality Standards are presented in the WLA Addendum.

TMDL

According to the Utah's 2022 303(d) Water Quality Assessment, the assessment unit for this section of the San Pitch River (San Pitch-3-1, UT16030004-005_01) was listed as impaired for E. coli, total ammonia, dissolved oxygen and total dissolved solids.

A TMDL was completed for total dissolved solids (TDS) on the Middle San Pitch River (HUC #16030004) on November 18th 2003 (UDWQ 2003). The TMDL identified a critical season of March 1 - September 30 where the loading capacity was exceeded and load limitations apply. As a result, Ephraim's discharge can only be allowed during the non-critical season (October-February).

The ammonia listing was based on samples collected at DEQ monitoring station #4946980, *San Pitch R. at Bridge BL Moroni WWTP* which is located at the top of the assessment unit. No ammonia impairments are noted at any of the 5 downstream DWQ monitoring stations. As a result, available assimilative capacity was assumed.

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.

Parameters of Concern

The potential parameters of concern identified for the discharge were E. coli, dissolved oxygen,

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Wasteload Analysis
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UPDES Permit UT0025984

TDS and ammonia as determined by the impairment status of the receiving water and review of the previous permit.

WET Limits

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

IC₂₅ WET limits for Outfall 001 45.5% effluent.

Wasteload Allocation Methods

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

The water quality standard for chronic ammonia toxicity is dependent on temperature and pH, and the water quality standard for acute ammonia toxicity is dependent on pH. 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.

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 existing permit is being requested.

Documents:

WLA Document: *Ephraim_WLADoc_2023.docx*

**Utah Division of Water Quality
Wasteload Analysis
Ephraim City Lagoons
UPDES Permit UT0025984**

Wasteload Analysis and Addendums: Ephraim_WLA_2023.xls

References:

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

Utah Division of Water Quality. 2003. Middle San Pitch River TMDL.

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

Utah Division of Water Quality
Salt Lake City, Utah

WASTELOAD ANALYSIS [WLA]
Addendum: Statement of Basis

22-May-23
4:00 PM

Facilities: Ephraim City Wastewater Lagoons
Discharging to: Ditch => San Pitch River

UPDES No: UT-25984

I. Introduction

Wasteload analyses are performed to determine point source effluent limitations necessary to maintain designated beneficial uses by evaluating projected effects of discharge concentrations on in-stream water quality. The wasteload analysis also takes into account downstream designated uses [R317-2-8, UAC]. Projected concentrations are compared to numeric water quality standards to determine acceptability. The anti-degradation policy and procedures are also considered. The primary in-stream parameters of concern may include metals (as a function of hardness), total dissolved solids (TDS), total residual chlorine (TRC), un-ionized ammonia (as a function of pH and temperature, measured and evaluated in terms of total ammonia), and dissolved oxygen.

Mathematical water quality modeling is employed to determine stream quality response to point source discharges. Models aid in the effort of anticipating stream quality at future effluent flows at critical environmental conditions (e.g., low stream flow, high temperature, high pH, etc).

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

II. Receiving Water and Stream Classification

Ditch => San Pitch River:	2B, 3C, 3D, 4
Antidegradation Review:	Level I review completed. Level II review not required.

III. Numeric Stream Standards for Protection of Aquatic Wildlife

Total Ammonia (TNH3)	Varies as a function of Temperature and pH Rebound. See Water Quality Standards
Chronic Total Residual Chlorine (TRC)	0.011 mg/l (4 Day Average) 0.019 mg/l (1 Hour Average)
Chronic Dissolved Oxygen (DO)	5.00 mg/l (30 Day Average) N/A mg/l (7Day Average) 3.00 mg/l (1 Day Average)
Maximum Total Dissolved Solids	1200.0 mg/l

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Salt Lake City, Utah**

Acute and Chronic Heavy Metals (Dissolved)

Parameter	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard		
	Concentration	Load*	Concentration		Load*
Aluminum	87.00 ug/l**	1.410 lbs/day	750.00	ug/l	12.156 lbs/day
Arsenic	190.00 ug/l	3.079 lbs/day	340.00	ug/l	5.511 lbs/day
Cadmium	0.67 ug/l	0.011 lbs/day	7.39	ug/l	0.120 lbs/day
Chromium III	234.53 ug/l	3.801 lbs/day	4906.78	ug/l	79.528 lbs/day
ChromiumVI	11.00 ug/l	0.178 lbs/day	16.00	ug/l	0.259 lbs/day
Copper	26.51 ug/l	0.430 lbs/day	44.29	ug/l	0.718 lbs/day
Iron			1000.00	ug/l	16.208 lbs/day
Lead	15.08 ug/l	0.244 lbs/day	387.03	ug/l	6.273 lbs/day
Mercury	0.0120 ug/l	0.000 lbs/day	2.40	ug/l	0.039 lbs/day
Nickel	146.72 ug/l	2.378 lbs/day	1319.65	ug/l	21.388 lbs/day
Selenium	4.60 ug/l	0.075 lbs/day	20.00	ug/l	0.324 lbs/day
Silver	N/A ug/l	N/A lbs/day	30.98	ug/l	0.502 lbs/day
Zinc	337.54 ug/l	5.471 lbs/day	337.54	ug/l	5.471 lbs/day

* Allowed below discharge

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

Metals Standards Based upon a Hardness of 339.53 mg/l as CaCO3

Organics [Pesticides]

Parameter	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard		
	Concentration	Load*	Concentration		Load*
Aldrin			1.500	ug/l	0.024 lbs/day
Chlordane	0.004 ug/l	0.153 lbs/day	1.200	ug/l	0.019 lbs/day
DDT, DDE	0.001 ug/l	0.036 lbs/day	0.550	ug/l	0.009 lbs/day
Dieldrin	0.002 ug/l	0.068 lbs/day	1.250	ug/l	0.020 lbs/day
Endosulfan	0.056 ug/l	1.993 lbs/day	0.110	ug/l	0.002 lbs/day
Endrin	0.002 ug/l	0.082 lbs/day	0.090	ug/l	0.001 lbs/day
Guthion			0.010	ug/l	0.000 lbs/day
Heptachlor	0.004 ug/l	0.135 lbs/day	0.260	ug/l	0.004 lbs/day
Lindane	0.080 ug/l	2.846 lbs/day	1.000	ug/l	0.016 lbs/day
Methoxychlor			0.030	ug/l	0.000 lbs/day
Mirex			0.010	ug/l	0.000 lbs/day
Parathion			0.040	ug/l	0.001 lbs/day
PCB's	0.014 ug/l	0.498 lbs/day	2.000	ug/l	0.032 lbs/day
Pentachlorophenol	13.00 ug/l	462.545 lbs/day	20.000	ug/l	0.324 lbs/day
Toxephene	0.0002 ug/l	0.007 lbs/day	0.7300	ug/l	0.012 lbs/day

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

IV. Numeric Stream Standards for Protection of Agriculture

	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Arsenic			100.0 ug/l	lbs/day
Boron			750.0 ug/l	lbs/day
Cadmium			10.0 ug/l	0.08 lbs/day
Chromium			100.0 ug/l	lbs/day
Copper			200.0 ug/l	lbs/day
Lead			100.0 ug/l	lbs/day
Selenium			50.0 ug/l	lbs/day
TDS, Summer			1200.0 mg/l	9.72 tons/day

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

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

Chlorophenoxy Herbicides

2,4-D	ug/l	lbs/day
2,4,5-TP	ug/l	lbs/day
Endrin	ug/l	lbs/day
cyclohexane (Lindane)	ug/l	lbs/day
Methoxychlor	ug/l	lbs/day
Toxaphene	ug/l	lbs/day

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

Toxic Organics	Maximum Conc., ug/l - Acute Standards			
	Class 1C		Class 3A, 3B	
	[2 Liters/Day for 70 Kg Person over 70 Yr.]		[6.5 g for 70 Kg Person over 70 Yr.]	
Acenaphthene	ug/l	lbs/day	2700.0 ug/l	96.07 lbs/day
Acrolein	ug/l	lbs/day	780.0 ug/l	27.75 lbs/day
Acrylonitrile	ug/l	lbs/day	0.7 ug/l	0.02 lbs/day
Benzene	ug/l	lbs/day	71.0 ug/l	2.53 lbs/day
Benzidine	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Carbon tetrachloride	ug/l	lbs/day	4.4 ug/l	0.16 lbs/day
Chlorobenzene	ug/l	lbs/day	21000.0 ug/l	747.19 lbs/day
1,2,4-Trichlorobenzene				
Hexachlorobenzene	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
1,2-Dichloroethane	ug/l	lbs/day	99.0 ug/l	3.52 lbs/day
1,1,1-Trichloroethane				
Hexachloroethane	ug/l	lbs/day	8.9 ug/l	0.32 lbs/day
1,1-Dichloroethane				
1,1,2-Trichloroethane	ug/l	lbs/day	42.0 ug/l	1.49 lbs/day

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1,1,2,2-Tetrachloroethane	ug/l	lbs/day	11.0 ug/l	0.39 lbs/day
Bis(2-chloroethyl) ether	ug/l	lbs/day	1.4 ug/l	0.05 lbs/day
2-Chloroethyl vinyl ether	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
2-Chloronaphthalene	ug/l	lbs/day	4300.0 ug/l	153.00 lbs/day
2,4,6-Trichlorophenol	ug/l	lbs/day	6.5 ug/l	0.23 lbs/day
p-Chloro-m-cresol			0.0 ug/l	0.00 lbs/day
Chloroform (HM)	ug/l	lbs/day	470.0 ug/l	16.72 lbs/day
2-Chlorophenol	ug/l	lbs/day	400.0 ug/l	14.23 lbs/day
1,2-Dichlorobenzene	ug/l	lbs/day	17000.0 ug/l	604.87 lbs/day
1,3-Dichlorobenzene	ug/l	lbs/day	2600.0 ug/l	92.51 lbs/day
1,4-Dichlorobenzene	ug/l	lbs/day	2600.0 ug/l	92.51 lbs/day
3,3'-Dichlorobenzidine	ug/l	lbs/day	0.1 ug/l	0.00 lbs/day
1,1-Dichloroethylene	ug/l	lbs/day	3.2 ug/l	0.11 lbs/day
1,2-trans-Dichloroethylene	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
2,4-Dichlorophenol	ug/l	lbs/day	790.0 ug/l	28.11 lbs/day
1,2-Dichloropropane	ug/l	lbs/day	39.0 ug/l	1.39 lbs/day
1,3-Dichloropropylene	ug/l	lbs/day	1700.0 ug/l	60.49 lbs/day
2,4-Dimethylphenol	ug/l	lbs/day	2300.0 ug/l	81.83 lbs/day
2,4-Dinitrotoluene	ug/l	lbs/day	9.1 ug/l	0.32 lbs/day
2,6-Dinitrotoluene	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
1,2-Diphenylhydrazine	ug/l	lbs/day	0.5 ug/l	0.02 lbs/day
Ethylbenzene	ug/l	lbs/day	29000.0 ug/l	1031.83 lbs/day
Fluoranthene	ug/l	lbs/day	370.0 ug/l	13.16 lbs/day
4-Chlorophenyl phenyl ether				
4-Bromophenyl phenyl ether				
Bis(2-chloroisopropyl) ether	ug/l	lbs/day	170000.0 ug/l	6048.66 lbs/day
Bis(2-chloroethoxy) methane	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Methylene chloride (HM)	ug/l	lbs/day	1600.0 ug/l	56.93 lbs/day
Methyl chloride (HM)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Methyl bromide (HM)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Bromoform (HM)	ug/l	lbs/day	360.0 ug/l	12.81 lbs/day
Dichlorobromomethane	ug/l	lbs/day	22.0 ug/l	0.78 lbs/day
Chlorodibromomethane	ug/l	lbs/day	34.0 ug/l	1.21 lbs/day
Hexachlorobutadiene(c)	ug/l	lbs/day	50.0 ug/l	1.78 lbs/day
Hexachlorocyclopentadiene	ug/l	lbs/day	17000.0 ug/l	604.87 lbs/day
Isophorone	ug/l	lbs/day	600.0 ug/l	21.35 lbs/day
Naphthalene				
Nitrobenzene	ug/l	lbs/day	1900.0 ug/l	67.60 lbs/day
2-Nitrophenol	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
4-Nitrophenol	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
2,4-Dinitrophenol	ug/l	lbs/day	14000.0 ug/l	498.13 lbs/day
4,6-Dinitro-o-cresol	ug/l	lbs/day	765.0 ug/l	27.22 lbs/day
N-Nitrosodimethylamine	ug/l	lbs/day	8.1 ug/l	0.29 lbs/day
N-Nitrosodiphenylamine	ug/l	lbs/day	16.0 ug/l	0.57 lbs/day
N-Nitrosodi-n-propylamine	ug/l	lbs/day	1.4 ug/l	0.05 lbs/day
Pentachlorophenol	ug/l	lbs/day	8.2 ug/l	0.29 lbs/day
Phenol	ug/l	lbs/day	4.6E+06 ug/l	1.64E+05 lbs/day
Bis(2-ethylhexyl)phthalate	ug/l	lbs/day	5.9 ug/l	0.21 lbs/day
Butyl benzyl phthalate	ug/l	lbs/day	5200.0 ug/l	185.02 lbs/day
Di-n-butyl phthalate	ug/l	lbs/day	12000.0 ug/l	426.96 lbs/day
Di-n-octyl phthalate				
Diethyl phthalate	ug/l	lbs/day	120000.0 ug/l	4269.64 lbs/day
Dimethyl phthalate	ug/l	lbs/day	2.9E+06 ug/l	1.03E+05 lbs/day
Benzo(a)anthracene (PAH)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(a)pyrene (PAH)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day

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Benzo(b)fluoranthene (F	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(k)fluoranthene (F	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Chrysene (PAH)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Acenaphthylene (PAH)				
Anthracene (PAH)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Dibenzo(a,h)anthracene	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Indeno(1,2,3-cd)pyrene	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Pyrene (PAH)	ug/l	lbs/day	11000.0 ug/l	391.38 lbs/day
Tetrachloroethylene	ug/l	lbs/day	8.9 ug/l	0.32 lbs/day
Toluene	ug/l	lbs/day	200000 ug/l	7116.07 lbs/day
Trichloroethylene	ug/l	lbs/day	81.0 ug/l	2.88 lbs/day
Vinyl chloride	ug/l	lbs/day	525.0 ug/l	18.68 lbs/day
				lbs/day
				lbs/day
Pesticides				
Aldrin	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Dieldrin	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Chlordane	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDT	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDE	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDD	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
alpha-Endosulfan	ug/l	lbs/day	2.0 ug/l	0.07 lbs/day
beta-Endosulfan	ug/l	lbs/day	2.0 ug/l	0.07 lbs/day
Endosulfan sulfate	ug/l	lbs/day	2.0 ug/l	0.07 lbs/day
Endrin	ug/l	lbs/day	0.8 ug/l	0.03 lbs/day
Endrin aldehyde	ug/l	lbs/day	0.8 ug/l	0.03 lbs/day
Heptachlor	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Heptachlor epoxide				
PCB's				
PCB 1242 (Arochlor 124	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1254 (Arochlor 125	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1221 (Arochlor 122	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1232 (Arochlor 123	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1248 (Arochlor 124	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1260 (Arochlor 126	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1016 (Arochlor 101	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Pesticide				
Toxaphene	ug/l		0.0 ug/l	0.00 lbs/day
Dioxin				
Dioxin (2,3,7,8-TCDD)	ug/l	lbs/day		
Metals				
Antimony	ug/l	lbs/day		
Arsenic	ug/l	lbs/day	4300.00 ug/l	153.00 lbs/day
Asbestos	ug/l	lbs/day		
Beryllium				
Cadmium				
Chromium (III)				
Chromium (VI)				
Copper				
Cyanide	ug/l	lbs/day	2.2E+05 ug/l	7827.68 lbs/day
Lead	ug/l	lbs/day		

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Mercury			0.15 ug/l	0.01 lbs/day
Nickel			4600.00 ug/l	163.67 lbs/day
Selenium	ug/l	lbs/day		
Silver	ug/l	lbs/day		
Thallium			6.30 ug/l	0.22 lbs/day
Zinc				

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

VII. Mathematical Modeling of Stream Quality

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

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

- (1) The Utah River Model, Utah Division of Water Quality, 1992. Based upon STREAMDO IV (Region VIII) and Supplemental Ammonia Toxicity Models; EPA Region VIII, Sept. 1990 and QUAL2E (EPA, Athens, GA).
- (2) Utah Ammonia/Chlorine Model, Utah Division of Water Quality, 1992.
- (3) AMMTOX Model, University of Colorado, Center of Limnology, and EPA Region 8
- (4) Principles of Surface Water Quality Modeling and Control. Robert V. Thomann, et.al. Harper Collins Publisher, Inc. 1987, pp. 644.

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

- (1) Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling. Environmental Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Athens Georgia. EPA/600/3-85/040 June 1985.
- (2) Principles of Surface Water Quality Modeling and Control. Robert V. Thomann, et.al. Harper Collins Publisher, Inc. 1987, pp. 644.

VIII. Modeling Information

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

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

Other Conditions

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

Model Inputs

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

Current Upstream Information

	Stream							
	Critical Low							
	Flow	Temp.	pH	T-NH3	BOD5	DO	TRC	TDS
	cfs	Deg. C		mg/l as N	mg/l	mg/l	mg/l	mg/l
Summer (Irrig. Season)	3.60	21.0	8.2	0.05	0.10	6.53	0.00	744.0
Fall	3.60	5.5	8.2	0.04	0.10	---	0.00	574.7
Winter	3.60	0.4	8.3	0.25	0.10	---	0.00	861.0
Spring	3.60	17.0	8.3	0.16	0.10	---	0.00	1494.3
Dissolved Metals	Al	As	Cd	CrIII	CrVI	Copper	Fe	Pb
	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
All Seasons	1.59*	0.53*	0.053*	0.53*	2.65*	0.53*	0.83*	0.53*
Dissolved Metals	Hg	Ni	Se	Ag	Zn	Boron		
	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l		
All Seasons	0.0000	0.53*	1.06*	0.1*	0.053*	10.0		* 1/2 MDL

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Projected Discharge Information

Season	Flow, MGD	Temp.
Winter (Dec-Mar)	1.94000	2.0

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

IX. Effluent Limitations

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

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

Effluent Limitation for Flow based upon Water Quality Standards

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

Season	Daily Average	
Winter	1.940 MGD	3.001 cfs

Flow Requirement or Loading Requirement

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

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

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

WET Requirements	LC50 >	EOP Effluent	[Acute]
	IC25 >	45.5% Effluent	[Chronic]

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

In-stream criteria of downstream segments for Dissolved Oxygen will be met with an effluent BOD limitation as follows:

Season	Concentration	
Summer	22.0 mg/l as BOD5	0.0 lbs/day
Fall	22.0 mg/l as BOD5	0.0 lbs/day
Winter	22.0 mg/l as BOD5	0.0 lbs/day
Spring	22.0 mg/l as BOD5	0.0 lbs/day

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

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

Season	Concentration
Winter	4.00

Effluent Limitation for Total Ammonia based upon Water Quality Standards

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

Season		Concentration	Load
Winter (Dec-Mar)	4 Day Avg. - Chronic	3.6 mg/l as N	57.5 lbs/day
	1 Hour Avg. - Acute	15.3 mg/l as N	247.1 lbs/day

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

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Effluent Limitation for Total Residual Chlorine based upon Water Quality Standards

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

Season		Concentration		Load	
Winter (Dec - Mar)	4 Day Avg. - Chronic	0.023	mg/l	0.37	lbs/day
	1 Hour Avg. - Acute	0.041	mg/l	0.66	lbs/day

Effluent Limitations for Total Dissolved Solids based upon Water Quality Standards

Season		Concentration		Load	
Winter (Dec - Mar)	Maximum, Acute	1606.6	mg/l	12.99	tons/day
	Colorado Salinity Forum Limits	Determined by Permitting Section			

Effluent Limitations for Total Recoverable Metals based upon Water Quality Standards

In-stream criteria of downstream segments for Dissolved Metals will be met with an effluent limitation as follows (based upon a hardness of 339.53 mg/l):

	4 Day Average		1 Hour Average		Load
	Concentration	Load	Concentration	Load	
Aluminum*	N/A	N/A	1,198.4	ug/l	19.4 lbs/day
Arsenic*	416.96 ug/l	4.4 lbs/day	543.4	ug/l	8.8 lbs/day
Cadmium	1.38 ug/l	0.0 lbs/day	11.8	ug/l	0.2 lbs/day
Chromium III	514.90 ug/l	5.4 lbs/day	7,849.2	ug/l	127.2 lbs/day
Chromium VI*	19.43 ug/l	0.2 lbs/day	23.2	ug/l	0.4 lbs/day
Copper	57.36 ug/l	0.6 lbs/day	70.4	ug/l	1.1 lbs/day
Iron*	N/A	N/A	1,599.0	ug/l	25.9 lbs/day
Lead	32.22 ug/l	0.3 lbs/day	618.7	ug/l	10.0 lbs/day
Mercury*	0.03 ug/l	0.0 lbs/day	3.8	ug/l	0.1 lbs/day
Nickel	321.76 ug/l	3.4 lbs/day	2,110.6	ug/l	34.2 lbs/day
Selenium*	8.21 ug/l	0.1 lbs/day	31.0	ug/l	0.5 lbs/day
Silver	N/A ug/l	N/A lbs/day	49.6	ug/l	0.8 lbs/day
Zinc	742.34 ug/l	7.8 lbs/day	539.9	ug/l	8.8 lbs/day
Cyanide*	11.44 ug/l	0.1 lbs/day	35.2	ug/l	0.6 lbs/day

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

Effluent Limitations for Heat/Temperature based upon Water Quality Standards

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Summer	25.4 Deg. C.	77.7 Deg. F
Fall	9.8 Deg. C.	49.7 Deg. F
Winter	4.7 Deg. C.	40.5 Deg. F
Spring	21.4 Deg. C.	70.5 Deg. F

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

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

	4 Day Average Concentration	Load	1 Hour Average Concentration		Load
Aldrin			1.5E+00	ug/l	3.76E-02 lbs/day
Chlordane	4.30E-03 ug/l	6.96E-02 lbs/day	1.2E+00	ug/l	3.01E-02 lbs/day
DDT, DDE	1.00E-03 ug/l	1.62E-02 lbs/day	5.5E-01	ug/l	1.38E-02 lbs/day
Dieldrin	1.90E-03 ug/l	3.07E-02 lbs/day	1.3E+00	ug/l	3.13E-02 lbs/day
Endosulfan	5.60E-02 ug/l	9.06E-01 lbs/day	1.1E-01	ug/l	2.76E-03 lbs/day
Endrin	2.30E-03 ug/l	3.72E-02 lbs/day	9.0E-02	ug/l	2.26E-03 lbs/day
Guthion	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l	2.51E-04 lbs/day
Heptachlor	3.80E-03 ug/l	6.15E-02 lbs/day	2.6E-01	ug/l	6.52E-03 lbs/day
Lindane	8.00E-02 ug/l	1.29E+00 lbs/day	1.0E+00	ug/l	2.51E-02 lbs/day
Methoxychlor	0.00E+00 ug/l	0.00E+00 lbs/day	3.0E-02	ug/l	7.52E-04 lbs/day
Mirex	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l	2.51E-04 lbs/day
Parathion	0.00E+00 ug/l	0.00E+00 lbs/day	4.0E-02	ug/l	1.00E-03 lbs/day
PCB's	1.40E-02 ug/l	2.26E-01 lbs/day	2.0E+00	ug/l	5.01E-02 lbs/day
Pentachlorophenol	1.30E+01 ug/l	2.10E+02 lbs/day	2.0E+01	ug/l	5.01E-01 lbs/day
Toxephene	2.00E-04 ug/l	3.24E-03 lbs/day	7.3E-01	ug/l	1.83E-02 lbs/day

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

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

	Maximum Concentration	
	Concentration	Load
Toxic Organics		
Acenaphthene	5.94E+03 ug/l	0.00E+00 lbs/day
Acrolein	1.72E+03 ug/l	0.00E+00 lbs/day
Acrylonitrile	1.45E+00 ug/l	0.00E+00 lbs/day
Benzene	1.56E+02 ug/l	0.00E+00 lbs/day
Benzidine	ug/l	lbs/day
Carbon tetrachloride	9.68E+00 ug/l	0.00E+00 lbs/day
Chlorobenzene	4.62E+04 ug/l	0.00E+00 lbs/day
1,2,4-Trichlorobenzene		
Hexachlorobenzene	1.69E-03 ug/l	0.00E+00 lbs/day
1,2-Dichloroethane	2.18E+02 ug/l	0.00E+00 lbs/day
1,1,1-Trichloroethane		
Hexachloroethane	1.96E+01 ug/l	0.00E+00 lbs/day
1,1-Dichloroethane		
1,1,2-Trichloroethane	9.24E+01 ug/l	0.00E+00 lbs/day
1,1,2,2-Tetrachloroethane	2.42E+01 ug/l	0.00E+00 lbs/day
Chloroethane		
Bis(2-chloroethyl) ether	3.08E+00 ug/l	0.00E+00 lbs/day
2-Chloroethyl vinyl ether		
2-Chloronaphthalene	9.46E+03 ug/l	0.00E+00 lbs/day
2,4,6-Trichlorophenol	1.43E+01 ug/l	0.00E+00 lbs/day
p-Chloro-m-cresol		
Chloroform (HM)	1.03E+03 ug/l	0.00E+00 lbs/day
2-Chlorophenol	8.80E+02 ug/l	0.00E+00 lbs/day
1,2-Dichlorobenzene	3.74E+04 ug/l	0.00E+00 lbs/day
1,3-Dichlorobenzene	5.72E+03 ug/l	0.00E+00 lbs/day
1,4-Dichlorobenzene	5.72E+03 ug/l	0.00E+00 lbs/day
3,3'-Dichlorobenzidine	1.69E-01 ug/l	0.00E+00 lbs/day
1,1-Dichloroethylene	7.04E+00 ug/l	0.00E+00 lbs/day
1,2-trans-Dichloroethylene ¹		
2,4-Dichlorophenol	1.74E+03 ug/l	0.00E+00 lbs/day
1,2-Dichloropropane	8.58E+01 ug/l	0.00E+00 lbs/day
1,3-Dichloropropylene	3.74E+03 ug/l	0.00E+00 lbs/day
2,4-Dimethylphenol	5.06E+03 ug/l	0.00E+00 lbs/day
2,4-Dinitrotoluene	2.00E+01 ug/l	0.00E+00 lbs/day
2,6-Dinitrotoluene		
1,2-Diphenylhydrazine	1.19E+00 ug/l	0.00E+00 lbs/day
Ethylbenzene	6.38E+04 ug/l	0.00E+00 lbs/day
Fluoranthene	8.14E+02 ug/l	0.00E+00 lbs/day
4-Chlorophenyl phenyl ether		
4-Bromophenyl phenyl ether		
Bis(2-chloroisopropyl) ether	3.74E+05 ug/l	0.00E+00 lbs/day
Bis(2-chloroethoxy) methane		
Methylene chloride (HM)	3.52E+03 ug/l	0.00E+00 lbs/day
Methyl chloride (HM)		
Methyl bromide (HM)		

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Bromoform (HM)	7.92E+02 ug/l	0.00E+00 lbs/day
Dichlorobromomethane(HM)	4.84E+01 ug/l	0.00E+00 lbs/day
Chlorodibromomethane (HM)	7.48E+01 ug/l	0.00E+00 lbs/day
Hexachlorocyclopentadiene	3.74E+04 ug/l	0.00E+00 lbs/day
Isophorone	1.32E+03 ug/l	0.00E+00 lbs/day
Naphthalene		
Nitrobenzene	4.18E+03 ug/l	0.00E+00 lbs/day
2-Nitrophenol		
4-Nitrophenol		
2,4-Dinitrophenol	3.08E+04 ug/l	0.00E+00 lbs/day
4,6-Dinitro-o-cresol	1.68E+03 ug/l	0.00E+00 lbs/day
N-Nitrosodimethylamine	1.78E+01 ug/l	0.00E+00 lbs/day
N-Nitrosodiphenylamine	3.52E+01 ug/l	0.00E+00 lbs/day
N-Nitrosodi-n-propylamine	3.08E+00 ug/l	0.00E+00 lbs/day
Pentachlorophenol	1.80E+01 ug/l	0.00E+00 lbs/day
Phenol	1.01E+07 ug/l	0.00E+00 lbs/day
Bis(2-ethylhexyl)phthalate	1.30E+01 ug/l	0.00E+00 lbs/day
Butyl benzyl phthalate	1.14E+04 ug/l	0.00E+00 lbs/day
Di-n-butyl phthalate	2.64E+04 ug/l	0.00E+00 lbs/day
Di-n-octyl phthalate		
Diethyl phthalate	2.64E+05 ug/l	0.00E+00 lbs/day
Dimethyl phthalate	6.38E+06 ug/l	0.00E+00 lbs/day
Benzo(a)anthracene (PAH)	6.82E-02 ug/l	0.00E+00 lbs/day
Benzo(a)pyrene (PAH)	6.82E-02 ug/l	0.00E+00 lbs/day
Benzo(b)fluoranthene (PAH)	6.82E-02 ug/l	0.00E+00 lbs/day
Benzo(k)fluoranthene (PAH)	6.82E-02 ug/l	0.00E+00 lbs/day
Chrysene (PAH)	6.82E-02 ug/l	0.00E+00 lbs/day
Acenaphthylene (PAH)		
Anthracene (PAH)		
Dibenzo(a,h)anthracene (PAH)	6.82E-02 ug/l	0.00E+00 lbs/day
Indeno(1,2,3-cd)pyrene (PAH)	6.82E-02 ug/l	0.00E+00 lbs/day
Pyrene (PAH)	2.42E+04 ug/l	0.00E+00 lbs/day
Tetrachloroethylene	1.96E+01 ug/l	0.00E+00 lbs/day
Toluene	4.40E+05 ug/l	0.00E+00 lbs/day
Trichloroethylene	1.78E+02 ug/l	0.00E+00 lbs/day
Vinyl chloride	1.15E+03 ug/l	0.00E+00 lbs/day
Pesticides		
Aldrin	3.08E-04 ug/l	0.00E+00 lbs/day
Dieldrin	3.08E-04 ug/l	0.00E+00 lbs/day
Chlordane	1.30E-03 ug/l	0.00E+00 lbs/day
4,4'-DDT	1.30E-03 ug/l	0.00E+00 lbs/day
4,4'-DDE	1.30E-03 ug/l	0.00E+00 lbs/day
4,4'-DDD	1.85E-03 ug/l	0.00E+00 lbs/day
alpha-Endosulfan	4.40E+00 ug/l	0.00E+00 lbs/day
beta-Endosulfan	4.40E+00 ug/l	0.00E+00 lbs/day
Endosulfan sulfate	4.40E+00 ug/l	0.00E+00 lbs/day
Endrin	1.78E+00 ug/l	0.00E+00 lbs/day
Endrin aldehyde	1.78E+00 ug/l	0.00E+00 lbs/day
Heptachlor	4.62E-04 ug/l	0.00E+00 lbs/day
Heptachlor epoxide		
PCB's		
PCB 1242 (Arochlor 1242)	9.90E-05 ug/l	0.00E+00 lbs/day
PCB-1254 (Arochlor 1254)	9.90E-05 ug/l	0.00E+00 lbs/day
PCB-1221 (Arochlor 1221)	9.90E-05 ug/l	0.00E+00 lbs/day

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PCB-1232 (Arochlor 1232)	9.90E-05 ug/l	0.00E+00 lbs/day
PCB-1248 (Arochlor 1248)	9.90E-05 ug/l	0.00E+00 lbs/day
PCB-1260 (Arochlor 1260)	9.90E-05 ug/l	0.00E+00 lbs/day
PCB-1016 (Arochlor 1016)	9.90E-05 ug/l	0.00E+00 lbs/day

Pesticide

Toxaphene	1.65E-03 ug/l	0.00E+00 lbs/day
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Metals

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

Dioxin

Dioxin (2,3,7,8-TCDD)	3.08E-08 ug/l	0.00E+00 lbs/day
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**Metals Effluent Limitations for Protection of All Beneficial Uses
Based upon Water Quality Standards and Toxics Rule**

	Class 4 Acute Agricultural ug/l	Class 3 Acute Aquatic Wildlife ug/l	Acute Toxics Drinking Water Source ug/l	Acute Toxics Wildlife ug/l	1C Acute Health Criteria ug/l	Acute Most Stringent ug/l	Class 3 Chronic Aquatic Wildlife ug/l
Aluminum		1198.4				1198.4	N/A
Antimony				9458.0		9458.0	
Arsenic	220.0	543.4			0.0	220.0	417.0
Barium						0.0	
Beryllium						0.0	
Cadmium	21.9	11.8			0.0	11.8	1.4
Chromium (III)		7849.2			0.0	7849.2	514.9
Chromium (VI)	219.0	23.2			0.0	23.21	19.43
Copper	439.0	70.4				70.4	57.4
Cyanide		35.2	483896.2			35.2	11.4
Iron		1599.0				1599.0	
Lead	219.0	618.7			0.0	219.0	32.2
Mercury		3.84		0.33	0.0	0.33	0.026
Nickel		2110.6		10117.8		2110.6	321.8

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XI. Colorado River Salinity Forum Considerations

Discharges in the Colorado River Basin are required to have their discharge at a TDS loading of less than 1.00 tons/day unless certain exemptions apply. Refer to the Forum's Guidelines for additional information allowing for an exceedence of this value.

This doesn't apply to facilities that do not discharge to the Colorado River Basin.

XII. Summary Comments

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

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XIII. Notice of UPDES Requirement

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

Antidegradation Review

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

ATTACHMENT 4

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.

Due to lack of discharge data for metals parameters, an RP analysis was not able to be performed at this time. Therefore, more data points are needed utilizing the most sensitive laboratory test methods to determine if RP actually exists for the metals parameters. Based upon this evaluation, the RP determination for this permit renewal was not to include any additional total metal effluent limits at this time, however, monitoring for all the metals parameters will remain in place utilizing sufficiently sensitive laboratory test methods in order to provide a better data set to be re-evaluated for RP during the next permit renewal efforts as appropriate, which essentially equates to Outcome C as described above.

¹ See Reasonable Potential Analysis Guidance for definitions of terms