

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 Annotated ("UCA") 1953, as amended* (the "Act"),

**CITY OF EPHRAIM LAGOONS**

is hereby authorized to discharge from its wastewater treatment facility to receiving waters named


**SAN PITCH RIVER,**

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

This permit shall become effective on June 01, 2019

This permit expires at midnight on June 30, 2023.

Signed this 31st day of May, 2019.

  
Erica Brown Gaddis, PhD  
Director

DWQ-2018-007181

Table of Contents

Outline	Page Number
I. DISCHARGE LIMITATIONS AND REPORTING REQUIREMENTS .....	1
A. Description of Discharge Points.....	1
B. Narrative Standard.....	1
C. Specific Limitations and Self-Monitoring Requirements.....	1
D. Reporting of Monitoring Results .....	3
II. INDUSTRIAL PRETREATMENT PROGRAM .....	4
III. BIOSOLIDS REQUIREMENTS .....	8
IV. STORM WATER REQUIREMENTS.....	9
V. MONITORING, RECORDING & GENERAL REPORTING REQUIREMENTS .....	10
A. Representative Sampling.....	10
B. Monitoring Procedures.....	10
C. Penalties for Tampering .....	10
D. Compliance Schedules .....	10
E. Additional Monitoring by the Permittee.....	10
F. Records Contents .....	10
G. Retention of Records.....	10
H. Twenty-four Hour Notice of Noncompliance Reporting .....	10
I. Other Noncompliance Reporting.....	11
J. Inspection and Entry.....	11
VI. COMPLIANCE RESPONSIBILITIES.....	13
A. Duty to Comply.....	13
B. Penalties for Violations of Permit Conditions.....	13
C. Need to Halt or Reduce Activity not a Defense .....	13
D. Duty to Mitigate .....	13
E. Proper Operation and Maintenance .....	13
F. Removed Substances .....	13
G. Bypass of Treatment Facilities.....	13
H. Upset Conditions.....	15
VII. GENERAL REQUIREMENTS.....	16
A. Planned Changes .....	16
B. Anticipated Noncompliance .....	16
C. Permit Actions.....	16
D. Duty to Reapply .....	16
E. Duty to Provide Information.....	16
F. Other Information .....	16
G. Signatory Requirements .....	16
H. Penalties for Falsification of Reports .....	17
I. Availability of Reports .....	17
J. Oil and Hazardous Substance Liability .....	17
K. Property Rights .....	17
L. Severability .....	17
M. Transfers.....	17
N. State or Federal Laws.....	18
O. Water Quality - Reopener Provision .....	18
P. Biosolids – Reopener Provision.....	18
Q. Toxicity Limitation - Reopener Provision .....	18
R. Storm Water-Reopener Provision .....	19

VIII. DEFINITIONS .....	20
A. Wastewater.....	20

**PART I**  
**DISCHARGE PERMIT NO. UT0025984**  
**WASTEWATER**

**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" through the lagoon overflow pipe and disinfection system to a ditch, then travels one mile to empty into the San Pitch River.

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

Parameter	Effluent Limitations <sup>1</sup>				
	Maximum Monthly Avg	Maximum Weekly Avg	lbs. per Month	Daily Minimum	Daily Maximum
Total Flow, MGD					
Dec. 1-Feb. 28	1.94	-	-	-	-
Mar. 1 – Nov. 30	0.0 <sup>2</sup>	-	-	-	-
BOD <sub>5</sub> , mg/L	25	35	-	-	-
BOD <sub>5</sub> Min. % Removal	85	-	-	-	-
TSS, mg/L	25	35	-	-	-
TSS Min. % Removal	85	-	-	-	-
Dissolved Oxygen, mg/L	-	-	-	5.0	-
TRC, mg/L	0.019	-	-	-	0.034
Ammonia, mg/L	-	-	-	-	9.4
<i>E. coli</i> , No./100mL	126	157	-	-	-
Oil & Grease, mg/L	-	-	-	-	10.0

<sup>1</sup> See Definitions, Part VIII, for definition of terms

<sup>2</sup> Ephraim is prohibited from discharging to the San Pitch River from March 1 through November 30 every year.



**PART I**  
**DISCHARGE PERMIT NO. UT0025984**  
**WASTEWATER**

Parameter	Effluent Limitations <sup>1</sup>				
	Maximum Monthly Avg	Maximum Weekly Avg	lbs. per Month	Daily Minimum	Daily Maximum
pH, Standard Units	-	-	-	6.5	9
TDS, mg/L	-	-	-	-	1200
Mass Loading Limit					
Ammonia, lbs./Month	-	-	1,359	-	-

Self-Monitoring and Reporting Requirements <sup>1</sup>			
Parameter	Frequency	Sample Type	Units
Total Flow <sup>3, 4</sup>	Continuous	Recorder	MGD
BOD <sub>5</sub> , Influent <sup>5</sup>	2 x Weekly	Composite	mg/L
Effluent	2 x Weekly	Composite	mg/L
TSS, Influent <sup>5</sup>	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
DO	2 x Weekly	Grab	mg/L
Ammonia <sup>6</sup>	2 x Weekly	Grab	mg/L
TRC <sup>7</sup>	Daily	Grab	mg/L
Oil & Grease <sup>8</sup>	2 x Weekly	Grab	mg/L
Total Ammonia (as N) <sup>9</sup>	Monthly	Composite	mg/L
Orthophosphate, (as P) <sup>9</sup>	Monthly	Composite	mg/L
Effluent			
Phosphorus, Total <sup>9</sup>	Monthly	Composite	mg/L
Influent			
Effluent	Monthly	Composite	mg/L
Total Kjeldahl Nitrogen, TKN (as N) <sup>9</sup>	Monthly	Composite	mg/L
Influent			
Effluent	Monthly	Composite	mg/L
Nitrate, NO <sub>3</sub> <sup>9</sup>	Monthly	Composite	mg/L
Nitrite, NO <sub>2</sub> <sup>9</sup>	Monthly	Composite	mg/L
TDS, mg/L	Monthly	Composite	mg/L
Metals <sup>10</sup> ,	2 X Yearly	Grab/Composite	mg/L
Influent			
Effluent	2 X Yearly	Grab/Composite	mg/L

3 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.

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

5 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

6 This ammonia monitoring is in relation to the ammonia effluent limits.

7 Only sample when disinfection is being used.

8 Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report NA.

9 These parameters reflect changes required with the adoption of UCA R317-1-3.3, Technology-Based Phosphorus Effluent Limits rule.

10 Additional sampling and monitoring requirements are in Part II of the permit for organic toxics and metals.

**PART I**  
**DISCHARGE PERMIT NO. UT0025984**  
**WASTEWATER**

Self-Monitoring and Reporting Requirements <sup>1</sup>			
Parameter	Frequency	Sample Type	Units
Organic Toxics <sup>10</sup> , Influent Effluent	2 <sup>nd</sup> and 4 <sup>th</sup> Year of the Permit Cycle	Grab/Composite Grab/Composite	mg/L mg/L

3. Compliance Schedule

There is no Compliance Schedule included in this renewal permit

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

As part of the nationwide effort to control toxics, biomonitoring requirements are being included in all major permits and in minor permits for facilities where effluent toxicity is an existing or potential concern. Authorization for requiring effluent biomonitoring is provided for in UAC R317-8-4.2 and R317-8-5.3. The Whole Effluent Toxicity (WET) Control Guidance Document, February 15, 1991, outlines guidance to be used by Utah Division of Water Quality staff and by permittee's for implementation of WET control through the UPDES discharge permit program.

Ephraim City is a minor facility infrequently discharging a minor amount of effluent. Comparison of the laboratory analysis performed on their effluent to the waste load analysis on the San Pitch River, Ephraim's discharge is not likely to be toxic. As a result, biomonitoring of the effluent will not be required. However, the permit will contain a WET reopener provision.

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)<sup>11</sup> or by NetDMR, post-marked or entered into NetDMR no later than the 28<sup>th</sup> day of the month following the completed reporting period. 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

<sup>11</sup> Starting January 1, 2017 monitoring results must be submitted using NetDMR unless the permittee has successfully petitioned for an exception.

## **II. INDUSTRIAL PRETREATMENT PROGRAM**

### **A. Definitions.**

For this section the following definitions shall apply:

1. Indirect Discharge means the introduction of pollutants into a POTW from any non-domestic source regulated under section 307 (b), (c) or (d) of the Act.
2. 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).
3. Significant industrial user (SIU) is defined as an industrial user discharging to a publicly-owned treatment works (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
  - d. Has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement.
4. User or Industrial User means a source of Indirect Discharge

### **B. Self-Monitoring and Reporting Requirements.**

1. Because the design capacity of this municipal wastewater treatment facility is less than 5 MGD, the permittee will not be required to develop a State-approved industrial pretreatment program at this time. However, in order to determine if development of an industrial pretreatment program is warranted, the permittee shall conduct an **industrial waste survey**, as described in *Part II.C.1*, and submit it to the Division of Water Quality within **sixty (60) calendar days** of the effective date of this permit and shall sample and analyze both the influent and effluent annually, for the following parameters.

Monitoring for Pretreatment Program				
Parameter	MDL a*	Sample Type	Frequency	Units
Total Arsenic	0.183	Composite	2 X Yearly	mg/L
Total Cadmium	0.0017			
Total Chromium	0.0169			
Total Copper	0.072			
Total Cyanide	0.0095	Grab		
Total Lead	0.0496	Composite		
Total Mercury	0.000022	Composite/Grab		
Total Molybdenum	NA	Composite		
Total Nickel	0.400			
Total Selenium	0.0071			
Total Silver	0.0985			

**PART II**  
**DISCHARGE PERMIT NO. UT0025984**  
**PRETREATMENT**

Total Zinc	0.712			
TTOs, b*	NA	Composite/Grab	2 <sup>nd</sup> and 4 <sup>th</sup> Year of the Permit Cycle	

- a\* The minimum detection limit (MDL) of the test method used for analysis must be below this limit, if a test method is not available the permittee must submit documentation to the Director regarding the method that will be used.
- b\* In addition, the permittee shall analyze the treatment facility influent and effluent for the presence of the toxic pollutants listed in 40 CFR 122 Appendix D Table II (Organic Toxic Pollutants). The pesticides fraction of Appendix D, Table II is suspended unless pesticides are expected to be present.

**C. Industrial Waste Survey (IWS).**

1. As required by *Part II.B.1.* the industrial waste survey 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 and/or controlled at all times. Updates must be submitted to the Director sixty (60) days following a change to the IWS.
3. Evaluate all significant industrial users at least once every two years to determine if they need to develop a slug prevention plan. If a slug prevention plan is required, the permittee shall notify the Director.
4. 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)*.
5. 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 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**

1. General Prohibitions. No User shall introduce or cause to be introduced into the POTW any pollutant or wastewater which causes Pass Through or Interference. These general prohibitions apply to all Users of the POTW whether or not they are subject to categorical Pretreatment Standards or any other National, State, or local Pretreatment Standards or Requirements.

**PART II**  
**DISCHARGE PERMIT NO. UT0025984**  
**PRETREATMENT**

2. 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 source of non-domestic discharge:
    - 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.
  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).
- E. Signification Industrial Users Discharging to the POTW.

The permittee shall provide adequate notice to the Director and the Division of Water Quality Industrial 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,

**PART II**  
**DISCHARGE PERMIT NO. UT0025984**  
**PRETREATMENT**

- 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 SIU 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 pretreatment program.

**G. Legal Action.**

The Director retains, at all times, the right to take legal action against the industrial user and/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).

### **III. BIOSOLIDS REQUIREMENTS**

The State of Utah has adopted the 40 CFR 503 federal regulations for the disposal of sewage sludge (biosolids) by reference. However, since this facility is 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.

**IV. STORM WATER REQUIREMENTS.**

Wastewater treatment facilities, which includes treatment lagoons, are required to comply with storm water permit requirements if they meet one or both of the following criteria,

1. The facility has an approved pretreatment program as described in 40 CFR Part 403.
2. The facility has a design flow of 1.0 MGD or greater.

The [Facility Name] fits one of these criteria for exclusion from a UPDES Storm Water Permit by a No Exposure Certification. The facility only recently became required to submit a No Exposure Certification. They have submitted a No Exposure Certification for coverage during this permit cycle and have met all requirements. Therefore, no storm water permitting requirements will be required at this time



**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*, 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 503* 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, (801) 536-4300, or 24-hour answering service (801) 536-4123.

**PART V**  
**DISCHARGE PERMIT NO. UT0025984**  
**STORM WATER PERMIT NO. UT00000**

2. The following occurrences of noncompliance shall be reported by telephone (801) 536-4300 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 maximum daily discharge limitation for any of the pollutants listed in the permit; or,
  - e. Violation of any of the Table 3 metals limits, the pathogen limits, the vector attraction reduction limits or the management practices for biosolids that have been sold or given away.
3. A written submission shall also be provided within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:
  - a. A description of the noncompliance and its cause;
  - b. The period of noncompliance, including exact dates and times;
  - c. The estimated time noncompliance is expected to continue if it has not been corrected;
  - d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and,
  - e. Steps taken, if any, to mitigate the adverse impacts on the environment and human health during the noncompliance period.
4. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Division of Water Quality, (801) 536-4300.
5. Reports shall be submitted to the addresses in *Part I.D, Reporting of Monitoring Results.*
- I. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for *Part I.D* are submitted. The reports shall contain the information listed in *Part V.H.3*
- J. Inspection and Entry The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:
  1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
  2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

**PART V**  
**DISCHARGE PERMIT NO. UT0025984**  
**STORM WATER PERMIT NO. UT00000**

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 *UCA 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.

**PART VI**  
**DISCHARGE PERMIT NO. UT0025984**  
**STORM WATER PERMIT NO. UTR000000**

- a. Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:
  - (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 *section 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 *sections VI.G.2.a (1), (2) and (3)*.

3. Notice.

- a. *Anticipated bypass.* Except as provided above in *section VI.G.2* and below in *section 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 *section VI.G.3.a.(1) through (6)* to the extent practicable.

**PART VI**  
**DISCHARGE PERMIT NO. UT0025984**  
**STORM WATER PERMIT NO. UTR000000**

- c. *Unanticipated bypass.* The permittee shall submit notice of an unanticipated bypass to the Director as required under *Part IV.H, Twenty Four Hour Reporting*. The permittee shall also immediately notify the Director of the Department of Natural Resources, the public and downstream users and shall implement measures to minimize impacts to public health and environment to the extent practicable.

**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,



**PART VII**  
**DISCHARGE PERMIT NO. UT0025984**  
**STORM WATER PERMIT NO. UTR000000**

superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. A duly authorized representative may thus be either a named individual or any individual occupying a named position.

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:



**PART VII**  
**DISCHARGE PERMIT NO. UT0025984**  
**STORM WATER PERMIT NO. UTR000000**

1. The current permittee notifies the Director at least 20 days in advance of the proposed transfer date;
  2. The notice includes a written agreement between the existing and new permittee's containing a specific date for transfer of permit responsibility, coverage, and liability between them; and,
  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 *UCA 19-5-117* and *Section 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 area-wide treatment management plans or promulgations/revisions to TMDLs (40 CFR 130.7) approved by the EPA and adopted by DWQ which calls for different effluent limitations than contained in this permit.
- P. Biosolids – Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate biosolids limitations (and compliance schedule, if necessary), management practices, other appropriate requirements to protect public health and the environment, or if there have been substantial changes (or such changes are planned) in biosolids use or disposal practices; applicable management practices or numerical limitations for pollutants in biosolids have been promulgated which are more stringent than the requirements in this permit; and/or it has been determined that the permittees biosolids use or land application practices do not comply with existing applicable state of federal regulations.
- Q. Toxicity Limitation - Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include WET testing, a WET limitation, a compliance schedule, a compliance date, additional or modified numerical limitations, or any other conditions related to the control of toxicants if toxicity is detected during the life of this permit

**PART VII**  
**DISCHARGE PERMIT NO. UT0025984**  
**STORM WATER PERMIT NO. UTR000000**

- R. Storm Water-Reopener Provision. At any time during the duration (life) of this permit, this permit may be reopened and modified (following proper administrative procedures) as per *UAC R317.8*, to include, any applicable storm water provisions and requirements, a storm water pollution prevention plan, a compliance schedule, a compliance date, monitoring and/or reporting requirements, or any other conditions related to the control of storm water discharges to "waters-of-State".

## 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 species at any effluent concentration. Mortality in the control must simultaneously be 10 percent or less for the effluent results to be considered valid.
5. "Bypass," means the diversion of waste streams from any portion of a treatment facility.
6. "Chronic toxicity" occurs when during a chronic toxicity test, the 25% inhibition concentration (IC<sub>25</sub>) calculated on the basis of test organism survival and growth, or survival and reproduction, is less than or equal to the effluent dilution designated as the receiving water concentration (RWC)
7. "IC<sub>25</sub>" (inhibition concentration) is a point estimate of the toxicant concentration that would cause a 25% reduction in a biological measurement of the test organism, such as reproduction or growth.
8. "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;

**PART VIII**  
**DISCHARGE PERMIT NO. UT0025984**  
**STORM WATER PERMIT NO. UTR000000**

- 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.
- 9. "CWA," means *The Federal Water Pollution Control Act*, as amended, by *The Clean Water Act of 1987*.
  - 10. "Daily Maximum" (Daily Max.) is the maximum value allowable in any single sample or instantaneous measurement.
  - 11. "EPA," means the United States Environmental Protection Agency.
  - 12. "Director," means Director of the Division of Water Quality.
  - 13. A "grab" sample, for monitoring requirements, is defined as a single "dip and take" sample collected at a representative point in the discharge stream.
  - 14. An "instantaneous" measurement, for monitoring requirements, is defined as a single reading, observation, or measurement.
  - 15. "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.
  - 16. "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  
RENEWAL PERMIT: DISCHARGE  
UPDES PERMIT NUMBER: UT0025984  
MINOR MUNICIPAL**

**FACILITY CONTACTS**

Person Name:	Chad Parry	Person Name:	Bryan Kimball
Position:	Public Works Director	Position:	City Engineer
Phone Number:	(435) 283-4631	Phone Number:	(435) 283-4631

Facility Name:	Ephraim City
Mailing and Facility Address:	5 South Main Ephraim City, Utah 84627
Telephone:	435-283-4631
Mailing and Facility Address:	3780 South 1550 West St. George, Utah 84790
Telephone:	(435) 627-4266
Actual Address:	700 North 1100 East

**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 is the receiving stream during discharge periods. During non-discharge periods the facility will land apply effluent to isolated fields adjacent to the lagoons. The land application activity will continue to be addressed under Operating Permit No. UTOP00114. 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 18<sup>th</sup> 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 (December through February).

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 PREVIOUS PERMIT**

1. Upgrade Completion.

Ephraim had been working towards finalizing all the facility changes required to allow for the land application activities, and preparing for future discharges. During an inspection on September 27, 2017, it was confirmed that the work had been completed. Since then the facility has not discharged.

## 2. WLA Model

A new model is used by Water Quality to develop a waste load allocation (WLA) for dischargers to Waters of the State. Since the permit was first issued, Water Quality has managed to acquire more data on the receiving stream. The greater volume of data and the use of the new model have combined to reduce the possible water quality based effluent limits (WQBEL) from the WLA. One of the parameters impacted by this change is the WQBEL for ammonia.

## 3. RP

During the permit cycle, Water Quality has worked to improve our reasonable potential analysis (RP) for parameters to have limits included by using an EPA provided model. The results of the RP Analysis are included in Attachment 3 of the FSSOB. During the permit cycle Ephraim has reported No Discharge in all but one of the months, resulting in insufficient data to run a proper RP for this permit renewal. As a result there are no changes in the discharge limits or monitoring for the permit renewal.

## 4. TBPEL Rule

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

The TBPEL discharging treatment works are required to implement, at a minimum, monthly monitoring of the following beginning July 1, 2015:

- R317-1-3.3, E, 1, a. Influent for total phosphorus (as P) and total Kjeldahl nitrogen (as N) concentrations;
- R317-1-3.3, E, 1, b. Effluent for total phosphorus and orthophosphate (as P), ammonia, nitrate-nitrite and total Kjeldahl nitrogen (as N);

In R317-1-3.3, E, 3 the rule states that all monitoring shall be based on 24-hour composite samples by use of an automatic sampler or a minimum of four grab samples collected a minimum of two hours apart..

A cap of 125% of the current annual total phosphorus load has been established and is referred to as the phosphorus loading cap. It is the intent of *UAC R317-3.3.B* to provide capacity for growth within your facility's service area by setting the loading cap at 125 percent of your current annual total phosphorus load. The phosphorus loading cap went into effect July 1, 2018. The discharge from the Ephraim lagoons has not occurred during the time frame that the loading cap would be developed. As a result, no cap could be implemented. To address this, when the discharge does become consistent and data can be obtained, the loading cap will be calculated and implemented. Currently, there is no estimate on when this might happen.

Once the lagoon's phosphorus loading cap has been reached, the owner of the facility will have five years to construct treatment processes or implement treatment alternatives to prevent the total phosphorus loading cap from being exceeded.

## 5. Ammonia

In reviewing the proposed new WQBEL for ammonia it was determined that Ephraim would have trouble meeting the chronic WQBEL (2.8 mg/L) during the discharge months. Ephraim should not have trouble meeting the acute WQBEL (9.4 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;

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

$$\text{Mass Loading, } \frac{\text{lbs}}{\text{Mon}} = (1.94 \text{ MGD}) * \left( 2.8, \frac{\text{mg}}{\text{L}} \right) * \left( 8.34 \frac{\text{lbs}}{\text{gal}} \right) * \left( 30 \frac{\text{days}}{\text{Mon}} \right)$$

$$\text{Mass Loading, } \frac{\text{lbs}}{\text{Mon}} = 1,359$$

If the concentration is higher, and the flow is lower, they can still discharge up to 1,359 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;

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

Parameter	Previous Limit		New Limit		
	Monthly Ave	Daily Max	Monthly Ave	lbs./Month	Daily Max
Ammonia, mg/l					
Dec – Feb	-	-	-	1,359	9.4

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.

## DISCHARGE

### DESCRIPTION OF DISCHARGE

Ephraim only discharged once during the permit cycle, and they did not violate the permit effluent limits during that month. They are expected to achieve the discharge limits for this permit.

Outfall  
001

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

### RECEIVING WATERS AND STREAM CLASSIFICATION

The final discharge from the lagoons is through the lagoon overflow pipe and disinfection system to an unnamed ditch that flows around the lagoons and travels a mile to flow into 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.

#### **BASIS FOR EFFLUENT LIMITATIONS**

Limitations on total suspended solids (TSS), biochemical oxygen demand (BOD<sub>5</sub>), E-Coli, pH and percent removal for BOD<sub>5</sub> and TSS are based on current Utah Secondary Treatment Standards, *UAC R317-1-3.2*. The TDS limits are based on the water quality standard for the receiving stream. The Dissolved Oxygen is based on the Waste Load Allocation (WLA). The oil and grease is based on best professional judgment (BPJ).

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

#### **Reasonable Potential Analysis**

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

A qualitative RP check was performed on the metals to determine if there was enough data to perform a reasonable potential analysis on the outfall. Ephraim City was only required to retrieve one metals sample during the previous permit cycle, and the results were all non-detect.



The permit limitations are:

Parameter	Effluent Limitations <sup>1</sup>				
	Maximum Monthly Avg	Maximum Weekly Avg	lbs. per Month	Daily Minimum	Daily Maximum
Total Flow, MGD					
Dec. 1-Feb. 28	1.94	-	-	-	-
Mar. 1 – Nov. 30	0.0 <sup>2</sup>	-	-	-	-
BOD <sub>5</sub> , mg/L	25	35	-	-	-
BOD <sub>5</sub> Min. % Removal	85	-	-	-	-
TSS, mg/L	25	35	-	-	-
TSS Min. % Removal	85	-	-	-	-
Dissolved Oxygen, mg/L	-	-	-	5.0	-
TRC, mg/L	0.019	-	-	-	0.034
Ammonia, mg/L	-	-	-	-	9.4
<i>E. coli</i> , No./100mL	126	157	-	-	-
Oil & Grease, mg/L	-	-	-	-	10.0
pH, Standard Units	-	-	-	6.5	9
TDS, mg/L	-	-	-	-	1200
Mass Loading Limit					
Ammonia, lbs./Month	-	-	1,359	-	-

#### SELF-MONITORING AND REPORTING REQUIREMENTS

The following self-monitoring requirements are the same as in the previous permit. 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 <sup>1</sup>			
Parameter	Frequency	Sample Type	Units
Total Flow <sup>3, 4</sup>	Continuous	Recorder	MGD
BOD <sub>5</sub> , Influent <sup>5</sup>	2 x Weekly	Composite	mg/L
Effluent	2 x Weekly	Composite	mg/L
TSS, Influent <sup>5</sup>	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
DO	2 x Weekly	Grab	mg/L

<sup>1</sup> See Definitions, Part VIII, for definition of terms.

<sup>2</sup> Ephraim is prohibited from discharging to the San Pitch River from March 1 through November 30 every year.

<sup>3</sup> 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.

<sup>4</sup> If the rate of discharge is controlled, the rate and duration of discharge shall be reported.

<sup>5</sup> 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

Self-Monitoring and Reporting Requirements <sup>1</sup>			
Parameter	Frequency	Sample Type	Units
Ammonia <sup>6</sup>	2 x Weekly	Grab	mg/L
TRC <sup>7</sup>	Daily	Grab	mg/L
Oil & Grease <sup>8</sup>	2 x Weekly	Grab	mg/L
Total Ammonia (as N) <sup>9</sup>	Monthly	Composite	mg/L
Orthophosphate, (as P) <sup>9</sup> Effluent	Monthly	Composite	mg/L
Phosphorus, Total <sup>9</sup> Influent	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Total Kjeldahl Nitrogen, TKN (as N) <sup>9</sup> Influent	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Nitrate, NO <sub>3</sub> <sup>9</sup>	Monthly	Composite	mg/L
Nitrite, NO <sub>2</sub> <sup>9</sup>	Monthly	Composite	mg/L
TDS, mg/L	Monthly	Composite	mg/L
Metals <sup>10</sup> , Influent	2 X Yearly	Grab/Composite	mg/L
Effluent	2 X Yearly	Grab/Composite	mg/L
Organic Toxics <sup>10</sup> , Influent	2 <sup>nd</sup> and 4 <sup>th</sup> Year of the Permit Cycle	Grab/Composite	mg/L
Effluent		Grab/Composite	mg/L

### **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**

<sup>6</sup> This ammonia monitoring is in relation to the ammonia effluent limits.

<sup>7</sup> Only sample when disinfection is being used.

<sup>8</sup> Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report NA.

<sup>9</sup> These parameters reflect changes required with the adoption of UCA R317-1-3.3, Technology-Based Phosphorus Effluent Limits rule.

<sup>10</sup> Additional sampling and monitoring requirements are in Part II of the permit for organic toxics and metals.

**STORMWATER REQUIREMENTS**

Wastewater treatment facilities, which includes treatment lagoons, are required to comply with storm water permit requirements if they meet one or both of the following criteria,

1. The facility has an approved pretreatment program as described in 40 CFR Part 403.
2. The facility has a design flow of 1.0 MGD or greater.

The Ephraim City facility fits one of these criteria for exclusion from a UPDES Storm Water Permit by a No Exposure Certification. They have submitted a No Exposure Certification for coverage during this permit cycle and have met all requirements. Therefore, no storm water permitting requirements will be required at this time.

**PRETREATMENT REQUIREMENTS**

The permittee has not been designated for pretreatment program development because it does not meet conditions which necessitate a full program. The flow through the plant is less than five (5) MGD, there are no categorical industries discharging to the treatment facility, industrial discharges comprise less than 1 percent of the flow through the treatment facility, and there is no indication of pass through or interference with the operation of the treatment facility such as upsets or violations of the POTW's UPDES permit limits.

Although the permittee does not have to develop a State-approved 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, the permittee 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.

An industrial waste survey (IWS) is required of the permittee as stated in Part II of the permit. The IWS is to assess the needs of the permittee regarding pretreatment assistance. The IWS is required to be submitted within sixty (60) days after the issuance of the permit. If an Industrial User begins to discharge or an existing Industrial User changes their discharge the permittee 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 the permittee 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 the permittee 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 State of Utah Permitting and Enforcement Guidance Document for Whole Effluent Toxicity Control (biomonitoring). 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. Also, the receiving irrigation ditch is regularly dry; therefore there is not any available data to conclude that the irrigation ditch is impaired. Based on these considerations and the absence of receiving stream water quality monitoring data, there is no reasonable potential for toxicity in the permittee's discharge (per State of Utah Permitting and Enforcement Guidance Document for WET Control). As such, there will be no numerical WET limitations or WET monitoring requirements in this permit. However, the permit will contain a toxicity limitation re-opener provision that allows for modification of the permit should additional information indicate the presence of toxicity in the discharge.

### **PERMIT DURATION**

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

Drafted by  
Daniel Griffin, Discharge, Biosolids, Reasonable Potential Analysis  
Jennifer Robinson, Pretreatment  
Michael George, Storm Water  
Dave Wham, Wasteload Analysis  
Utah Division of Water Quality, (801) 536-4300

### **PUBLIC NOTICE**

Began: April 4, 2019

Ended: May 7, 2019

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 in the Sanpete Messenger.

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.

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

No Comments were received during the Public Notice period for this permit, therefor no changes were needed.

# **ATTACHMENT 1**

## *Industrial Waste Survey*

This Page Intentionally Left Blank

# 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, bluing 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, non-biodegradable 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  
PO Box 144870  
Salt Lake City, UT 84114-4870

Phone: (801) 536-4383  
Fax: (801) 536-4301  
E-mail: [jenrobinson@utah.gov](mailto: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 wash-down | 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**  
**PO Box 144870**  
**Salt Lake City, Utah 84114-4870**

**Phone:** (801) 536-4383  
**Fax:** (801) 536-4301  
**E-Mail:** [jenrobinson@utah.gov](mailto: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							

This Page Intentionally Left Blank

## **ATTACHMENT 2**

### *Wasteload Analysis*

This Page Intentionally Left Blank

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

**Date:** July 10, 2018

**Prepared by:** Dave Wham   
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 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.*



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

Typically, the critical flow for the wasteload analysis is considered the lowest stream flow 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 1996-2016 (December-February) to approximate the 7Q10 low flow condition.

The calculated critical low flow condition is 6.9 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 2016 303(d) Water Quality Assessment, the assessment unit for this section of the San Pitch River (UT16030004-005) was listed as impaired for E. coli (class 2B use), total ammonia (class 3C and 3D uses) and total dissolved solids (class 4 use).

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 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



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

limits. The LC<sub>50</sub> (lethal concentration, 50%) percent effluent for acute toxicity and the IC<sub>25</sub> (inhibition concentration, 25%) percent effluent for chronic toxicity, as determined by the WET test, needs to be below the WET limits, as determined by the WLA. The WET limit for LC<sub>50</sub> is typically 100% effluent and does not need to be determined by the WLA.

IC25 WET limits for Outfall 001 30.3% 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 the existing permit is being requested.

Documents:

WLA Document: *Ephraim\_WLADoc\_7-10-18.docx*  
Wasteload Analysis and Addendums: *Ephraim\_WLA\_1-31-19.xls*

References:

Utah Division of Water Quality. 2012. *Utah Wasteload Analysis Procedures Version 1.0*.  
Utah Division of Water Quality. 2003. Middle San Pitch River TMDL.

Utah Division of Water Quality  
Salt Lake City, Utah

**WASTELOAD ANALYSIS [WLA]**  
**Addendum: Statement of Basis**  
**SUMMARY**

**Discharging Facility:** Ephraim City Lagoons

UPDES No: UT-25984

Current Flow: 1.94 MGD Design Flow

Design Flow 1.94 MGD

**Receiving Water:** Ditch => San Pitch River

Stream Classification: 2B, 3C, 3D, 4

Stream Flows [cfs]:

6.9 Winter (Dec-Feb)

20th Percentile Winter

Stream TDS Values:

978.5 Winter (Dec-Feb)

Winter Average

**Effluent Limits:**

Flow, MGD: 1.94 MGD

BOD, mg/l: 25.0 Winter

Dissolved Oxygen, mg/l 4.0 Winter

TNH<sub>3</sub>, Chronic, mg/l: 21.5 Winter

TDS, mg/l: 1709.2 Winter

**WQ Standard:**

Design Flow

5.0 Indicator

5.0 30 Day Average

Varies Function of pH and Temperature

1200.0

**Modeling Parameters:**

Acute River Width: 50.0%

Chronic River Width: 100.0%

**Level II Review Not required.**

Utah Division of Water Quality  
Salt Lake City, Utah

WASTELOAD ANALYSIS [WLA]  
Addendum: Statement of Basis

10-Jul-18

4:00 PM

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

UPDES No: UT-25984

**THIS IS A DRAFT DOCUMENT**

**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

**Utah Division of Water Quality  
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	0.95 ug/l	0.015 lbs/day	11.92	ug/l	0.193 lbs/day
Chromium III	344.72 ug/l	5.587 lbs/day	7212.20	ug/l	116.893 lbs/day
Chromium VI	11.00 ug/l	0.178 lbs/day	16.00	ug/l	0.259 lbs/day
Copper	39.63 ug/l	0.642 lbs/day	68.98	ug/l	1.118 lbs/day
Iron			1000.00	ug/l	16.208 lbs/day
Lead	27.44 ug/l	0.445 lbs/day	704.26	ug/l	11.415 lbs/day
Mercury	0.0120 ug/l	0.000 lbs/day	2.40	ug/l	0.039 lbs/day
Nickel	218.41 ug/l	3.540 lbs/day	1964.46	ug/l	31.839 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	69.57	ug/l	1.128 lbs/day
Zinc	502.78 ug/l	8.149 lbs/day	502.78	ug/l	8.149 lbs/day

\* Allowed below discharge

\*\*Chronic Aluminum standard applies only to waters with a pH < 7.0 and a Hardness < 50 mg/l as CaCO<sub>3</sub>

Metals Standards Based upon a Hardness of 543.4 mg/l as CaCO<sub>3</sub>

**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	0.128 lbs/day	1.200	ug/l	0.019 lbs/day
DDT, DDE	0.001 ug/l	0.030 lbs/day	0.550	ug/l	0.009 lbs/day
Dieldrin	0.002 ug/l	0.056 lbs/day	1.250	ug/l	0.020 lbs/day
Endosulfan	0.056 ug/l	1.660 lbs/day	0.110	ug/l	0.002 lbs/day
Endrin	0.002 ug/l	0.068 lbs/day	0.090	ug/l	0.001 lbs/day
Guthion			0.010	ug/l	0.000 lbs/day
Heptachlor	0.004 ug/l	0.113 lbs/day	0.260	ug/l	0.004 lbs/day
Lindane	0.080 ug/l	2.372 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	0.415 lbs/day	2.000	ug/l	0.032 lbs/day
Pentachlorophenol	13.00 ug/l	385.468 lbs/day	20.000	ug/l	0.324 lbs/day
Toxephene	0.0002 ug/l	0.006 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**

<b>4 Day Average (Chronic) Standard</b>		<b>1 Hour Average (Acute) Standard</b>	
	<b>Concentration</b>	<b>Concentration</b>	<b>Load*</b>
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)**

<b>4 Day Average (Chronic) Standard</b>		<b>1 Hour Average (Acute) Standard</b>	
<b>Metals</b>	<b>Concentration</b>	<b>Concentration</b>	<b>Load*</b>
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]**

<b>Maximum Conc., ug/l - Acute Standards</b>			
<b>Class 1C</b>		<b>Class 3A, 3B</b>	
<b>[2 Liters/Day for 70 Kg Person over 70 Yr.]</b>		<b>[6.5 g for 70 Kg Person over 70 Yr.]</b>	
<b>Toxic Organics</b>			
Acenaphthene	ug/l lbs/day	2700.0 ug/l	80.06 lbs/day
Acrolein	ug/l lbs/day	780.0 ug/l	23.13 lbs/day
Acrylonitrile	ug/l lbs/day	0.7 ug/l	0.02 lbs/day
Benzene	ug/l lbs/day	71.0 ug/l	2.11 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	0.13 lbs/day
Chlorobenzene	ug/l lbs/day	21000.0 ug/l	622.68 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	2.94 lbs/day

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

1,1,1-Trichloroethane				
Hexachloroethane	ug/l	lbs/day	8.9 ug/l	0.26 lbs/day
1,1-Dichloroethane				
1,1,2-Trichloroethane	ug/l	lbs/day	42.0 ug/l	1.25 lbs/day
1,1,2,2-Tetrachloroethane	ug/l	lbs/day	11.0 ug/l	0.33 lbs/day
Chloroethane			0.0 ug/l	0.00 lbs/day
Bis(2-chloroethyl) ether	ug/l	lbs/day	1.4 ug/l	0.04 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	127.50 lbs/day
2,4,6-Trichlorophenol	ug/l	lbs/day	6.5 ug/l	0.19 lbs/day
p-Chloro-m-cresol			0.0 ug/l	0.00 lbs/day
Chloroform (HM)	ug/l	lbs/day	470.0 ug/l	13.94 lbs/day
2-Chlorophenol	ug/l	lbs/day	400.0 ug/l	11.86 lbs/day
1,2-Dichlorobenzene	ug/l	lbs/day	17000.0 ug/l	504.07 lbs/day
1,3-Dichlorobenzene	ug/l	lbs/day	2600.0 ug/l	77.09 lbs/day
1,4-Dichlorobenzene	ug/l	lbs/day	2600.0 ug/l	77.09 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	0.09 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	23.42 lbs/day
1,2-Dichloropropane	ug/l	lbs/day	39.0 ug/l	1.16 lbs/day
1,3-Dichloropropylene	ug/l	lbs/day	1700.0 ug/l	50.41 lbs/day
2,4-Dimethylphenol	ug/l	lbs/day	2300.0 ug/l	68.20 lbs/day
2,4-Dinitrotoluene	ug/l	lbs/day	9.1 ug/l	0.27 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	859.89 lbs/day
Fluoranthene	ug/l	lbs/day	370.0 ug/l	10.97 lbs/day
4-Chlorophenyl phenyl ether				
4-Bromophenyl phenyl ether				
Bis(2-chloroisopropyl) ether	ug/l	lbs/day	170000.0 ug/l	5040.73 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	47.44 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	10.67 lbs/day
Dichlorobromomethane	ug/l	lbs/day	22.0 ug/l	0.65 lbs/day
Chlorodibromomethane	ug/l	lbs/day	34.0 ug/l	1.01 lbs/day
Hexachlorobutadiene(c)	ug/l	lbs/day	50.0 ug/l	1.48 lbs/day
Hexachlorocyclopentadiene	ug/l	lbs/day	17000.0 ug/l	504.07 lbs/day
Isophorone	ug/l	lbs/day	600.0 ug/l	17.79 lbs/day
Naphthalene				
Nitrobenzene	ug/l	lbs/day	1900.0 ug/l	56.34 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	415.12 lbs/day
4,6-Dinitro-o-cresol	ug/l	lbs/day	765.0 ug/l	22.68 lbs/day
N-Nitrosodimethylamine	ug/l	lbs/day	8.1 ug/l	0.24 lbs/day
N-Nitrosodiphenylamine	ug/l	lbs/day	16.0 ug/l	0.47 lbs/day
N-Nitrosodi-n-propylamine	ug/l	lbs/day	1.4 ug/l	0.04 lbs/day
Pentachlorophenol	ug/l	lbs/day	8.2 ug/l	0.24 lbs/day



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

Phenol	ug/l	lbs/day	4.6E+06 ug/l	1.36E+05 lbs/day
Bis(2-ethylhexyl)phthala	ug/l	lbs/day	5.9 ug/l	0.17 lbs/day
Butyl benzyl phthalate	ug/l	lbs/day	5200.0 ug/l	154.19 lbs/day
Di-n-butyl phthalate	ug/l	lbs/day	12000.0 ug/l	355.82 lbs/day
Di-n-octyl phthlate				
Diethyl phthalate	ug/l	lbs/day	120000.0 ug/l	3558.16 lbs/day
Dimethyl phthlate	ug/l	lbs/day	2.9E+06 ug/l	8.60E+04 lbs/day
Benzo(a)anthracene (P/	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
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	326.16 lbs/day
Tetrachloroethylene	ug/l	lbs/day	8.9 ug/l	0.26 lbs/day
Toluene	ug/l	lbs/day	200000 ug/l	5930.27 lbs/day
Trichloroethylene	ug/l	lbs/day	81.0 ug/l	2.40 lbs/day
Vinyl chloride	ug/l	lbs/day	525.0 ug/l	15.57 lbs/day
				lbs/day
<b>Pesticides</b>				lbs/day
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	0.06 lbs/day
beta-Endosulfan	ug/l	lbs/day	2.0 ug/l	0.06 lbs/day
Endosulfan sulfate	ug/l	lbs/day	2.0 ug/l	0.06 lbs/day
Endrin	ug/l	lbs/day	0.8 ug/l	0.02 lbs/day
Endrin aldehyde	ug/l	lbs/day	0.8 ug/l	0.02 lbs/day
Heptachlor	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Heptachlor epoxide				
<b>PCB's</b>				
PCB 1242 (Arochlor 124	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1254 (Arochlor 124	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1221 (Arochlor 124	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1232 (Arochlor 124	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 124	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1016 (Arochlor 104	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
<b>Pesticide</b>				
Toxaphene	ug/l		0.0 ug/l	0.00 lbs/day
<b>Dioxin</b>				
Dioxin (2,3,7,8-TCDD)	ug/l	lbs/day		

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

**Metals**

Antimony	ug/l	lbs/day		
Arsenic	ug/l	lbs/day	4300.00 ug/l	127.50 lbs/day
Asbestos	ug/l	lbs/day		
Beryllium				
Cadmium				
Chromium (III)				
Chromium (VI)				
Copper				
Cyanide	ug/l	lbs/day	2.2E+05 ug/l	6523.30 lbs/day
Lead	ug/l	lbs/day		
Mercury			0.15 ug/l	0.00 lbs/day
Nickel			4600.00 ug/l	136.40 lbs/day
Selenium	ug/l	lbs/day		
Silver	ug/l	lbs/day		
Thallium			6.30 ug/l	0.19 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.



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

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

**VIII. Modeling Information**

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

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

**Other Conditions**

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

**Model Inputs**

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

**Current Upstream Information**

	Stream		pH	T-NH3 mg/l as N	BOD5 mg/l	DO mg/l	TRC mg/l	TDS mg/l
	Flow cfs	Temp. Deg. C						
Summer (Irrig. Season)	2.50	1.8	8.1	1.00	0.10	10.29	0.00	978.5
Fall	2.50	1.8	8.1	1.00	0.10	---	0.00	978.5
Winter	2.50	1.8	8.1	1.00	0.10	---	0.00	978.5
Spring	2.50	1.8	8.1	1.00	0.10	---	0.00	978.5
Dissolved Metals	Al ug/l	As ug/l	Cd ug/l	CrIII ug/l	CrVI ug/l	Copper ug/l	Fe ug/l	Pb ug/l
All Seasons	1.59*	0.53*	0.053*	0.53*	2.65*	0.53*	0.83*	0.53*
Dissolved Metals	Hg ug/l	Ni ug/l	Se ug/l	Ag ug/l	Zn ug/l	Boron ug/l	* 1/2 MDL	
All Seasons	0.0000	0.53*	1.06*	0.1*	0.053*	10.0		

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

**Projected Discharge Information**

Season	Flow, MGD	Temp.
Winter (Dec-Mar)	1.94000	4.0

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 >	54.6% Effluent	[Chronic]

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

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

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

Season	Concentration	
Summer	25.0 mg/l as BOD5	0.0 lbs/day
Fall	25.0 mg/l as BOD5	0.0 lbs/day
Winter	25.0 mg/l as BOD5	0.0 lbs/day
Spring	25.0 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	5.00

**Effluent Limitation for Total Ammonia based upon Water Quality Standards**

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

Season		Concentration	Load
Winter	4 Day Avg. - Chronic	2.8 mg/l as N	45.7 lbs/day
(Dec-Mar)	1 Hour Avg. - Acute	9.4 mg/l as N	151.6 lbs/day

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

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

**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	0.019	mg/l	0.31	lbs/day
	1 Hour Avg. - Acute	0.034	mg/l	0.55	lbs/day

**Effluent Limitations for Total Dissolved Solids based upon Water Quality Standards**

Season		Concentration		Load	
Winter (Dec - Mar)	Maximum, Acute	1384.5	mg/l	11.20	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 543.4 mg/l):

	4 Day Average		Load	1 Hour Average		Load
	Concentration			Concentration		
Aluminum*	N/A		N/A	1,061.4	ug/l	17.2 lbs/day
Arsenic*	347.61	ug/l	3.6 lbs/day	481.3	ug/l	7.8 lbs/day
Cadmium	1.67	ug/l	0.0 lbs/day	16.9	ug/l	0.3 lbs/day
Chromium III	631.21	ug/l	6.6 lbs/day	10,215.8	ug/l	165.6 lbs/day
Chromium VI*	16.85	ug/l	0.2 lbs/day	21.0	ug/l	0.3 lbs/day
Copper	71.97	ug/l	0.8 lbs/day	97.4	ug/l	1.6 lbs/day
Iron*	N/A		N/A	1,416.0	ug/l	22.9 lbs/day
Lead	49.64	ug/l	0.5 lbs/day	997.3	ug/l	16.2 lbs/day
Mercury*	0.02	ug/l	0.0 lbs/day	3.4	ug/l	0.1 lbs/day
Nickel	399.68	ug/l	4.2 lbs/day	2,782.3	ug/l	45.1 lbs/day
Selenium*	7.11	ug/l	0.1 lbs/day	27.7	ug/l	0.4 lbs/day
Silver	N/A	ug/l	N/A lbs/day	98.5	ug/l	1.6 lbs/day
Zinc	921.54	ug/l	9.6 lbs/day	712.2	ug/l	11.5 lbs/day
Cyanide*	9.53	ug/l	0.1 lbs/day	31.2	ug/l	0.5 lbs/day

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

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

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

Summer	23.8 Deg. C.	74.9 Deg. F
Fall	9.3 Deg. C.	48.7 Deg. F
Winter	26.1 Deg. C.	78.9 Deg. F
Spring	21.1 Deg. C.	70.0 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		1 Hour Average		
	Concentration	Load	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	9.08E-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

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

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

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

	1 Hour Average	
	Concentration	Loading
Gross Beta (pCi/l)	50.0 pCi/L	
BOD (mg/l)	5.0 mg/l	81.0 lbs/day
Nitrates as N	4.0 mg/l	64.8 lbs/day
Total Phosphorus as P	0.05 mg/l	0.8 lbs/day
Total Suspended Solids	90.0 mg/l	1458.7 lbs/day

Note: Pollution indicator targets are for information purposes only.

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

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

	Maximum Concentration	
	Concentration	Load
<b>Toxic Organics</b>		
Acenaphthene	4.95E+03 ug/l	0.00E+00 lbs/day
Acrolein	1.43E+03 ug/l	0.00E+00 lbs/day
Acrylonitrile	1.21E+00 ug/l	0.00E+00 lbs/day
Benzene	1.30E+02 ug/l	0.00E+00 lbs/day
Benzidine	ug/l	lbs/day
Carbon tetrachloride	8.07E+00 ug/l	0.00E+00 lbs/day
Chlorobenzene	3.85E+04 ug/l	0.00E+00 lbs/day
1,2,4-Trichlorobenzene		
Hexachlorobenzene	1.41E-03 ug/l	0.00E+00 lbs/day
1,2-Dichloroethane	1.81E+02 ug/l	0.00E+00 lbs/day
1,1,1-Trichloroethane		
Hexachloroethane	1.63E+01 ug/l	0.00E+00 lbs/day
1,1-Dichloroethane		
1,1,2-Trichloroethane	7.70E+01 ug/l	0.00E+00 lbs/day
1,1,2,2-Tetrachloroethane	2.02E+01 ug/l	0.00E+00 lbs/day
Chloroethane		
Bis(2-chloroethyl) ether	2.57E+00 ug/l	0.00E+00 lbs/day
2-Chloroethyl vinyl ether		
2-Chloronaphthalene	7.88E+03 ug/l	0.00E+00 lbs/day
2,4,6-Trichlorophenol	1.19E+01 ug/l	0.00E+00 lbs/day
p-Chloro-m-cresol		
Chloroform (HM)	8.62E+02 ug/l	0.00E+00 lbs/day
2-Chlorophenol	7.33E+02 ug/l	0.00E+00 lbs/day
1,2-Dichlorobenzene	3.12E+04 ug/l	0.00E+00 lbs/day
1,3-Dichlorobenzene	4.77E+03 ug/l	0.00E+00 lbs/day

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

1,4-Dichlorobenzene	4.77E+03 ug/l	0.00E+00 lbs/day
3,3'-Dichlorobenzidine	1.41E-01 ug/l	0.00E+00 lbs/day
1,1-Dichloroethylene	5.87E+00 ug/l	0.00E+00 lbs/day
1,2-trans-Dichloroethylene1		
2,4-Dichlorophenol	1.45E+03 ug/l	0.00E+00 lbs/day
1,2-Dichloropropane	7.15E+01 ug/l	0.00E+00 lbs/day
1,3-Dichloropropylene	3.12E+03 ug/l	0.00E+00 lbs/day
2,4-Dimethylphenol	4.22E+03 ug/l	0.00E+00 lbs/day
2,4-Dinitrotoluene	1.67E+01 ug/l	0.00E+00 lbs/day
2,6-Dinitrotoluene		
1,2-Diphenylhydrazine	9.90E-01 ug/l	0.00E+00 lbs/day
Ethylbenzene	5.32E+04 ug/l	0.00E+00 lbs/day
Fluoranthene	6.78E+02 ug/l	0.00E+00 lbs/day
4-Chlorophenyl phenyl ether		
4-Bromophenyl phenyl ether		
Bis(2-chloroisopropyl) ether	3.12E+05 ug/l	0.00E+00 lbs/day
Bis(2-chloroethoxy) methane		
Methylene chloride (HM)	2.93E+03 ug/l	0.00E+00 lbs/day
Methyl chloride (HM)		
Methyl bromide (HM)		
Bromoform (HM)	6.60E+02 ug/l	0.00E+00 lbs/day
Dichlorobromomethane(HM)	4.03E+01 ug/l	0.00E+00 lbs/day
Chlorodibromomethane (HM)	6.23E+01 ug/l	0.00E+00 lbs/day
Hexachlorocyclopentadiene	3.12E+04 ug/l	0.00E+00 lbs/day
Isophorone	1.10E+03 ug/l	0.00E+00 lbs/day
Naphthalene		
Nitrobenzene	3.48E+03 ug/l	0.00E+00 lbs/day
2-Nitrophenol		
4-Nitrophenol		
2,4-Dinitrophenol	2.57E+04 ug/l	0.00E+00 lbs/day
4,6-Dinitro-o-cresol	1.40E+03 ug/l	0.00E+00 lbs/day
N-Nitrosodimethylamine	1.48E+01 ug/l	0.00E+00 lbs/day
N-Nitrosodiphenylamine	2.93E+01 ug/l	0.00E+00 lbs/day
N-Nitrosodi-n-propylamine	2.57E+00 ug/l	0.00E+00 lbs/day
Pentachlorophenol	1.50E+01 ug/l	0.00E+00 lbs/day
Phenol	8.43E+06 ug/l	0.00E+00 lbs/day
Bis(2-ethylhexyl)phthalate	1.08E+01 ug/l	0.00E+00 lbs/day
Butyl benzyl phthalate	9.53E+03 ug/l	0.00E+00 lbs/day
Di-n-butyl phthalate	2.20E+04 ug/l	0.00E+00 lbs/day
Di-n-octyl phthlate		
Diethyl phthalate	2.20E+05 ug/l	0.00E+00 lbs/day
Dimethyl phthlate	5.32E+06 ug/l	0.00E+00 lbs/day
Benzo(a)anthracene (PAH)	5.68E-02 ug/l	0.00E+00 lbs/day
Benzo(a)pyrene (PAH)	5.68E-02 ug/l	0.00E+00 lbs/day
Benzo(b)fluoranthene (PAH)	5.68E-02 ug/l	0.00E+00 lbs/day
Benzo(k)fluoranthene (PAH)	5.68E-02 ug/l	0.00E+00 lbs/day
Chrysene (PAH)	5.68E-02 ug/l	0.00E+00 lbs/day
Acenaphthylene (PAH)		
Anthracene (PAH)		
Dibenzo(a,h)anthracene (PAH)	5.68E-02 ug/l	0.00E+00 lbs/day
Indeno(1,2,3-cd)pyrene (PAH)	5.68E-02 ug/l	0.00E+00 lbs/day

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

Pyrene (PAH)	2.02E+04 ug/l	0.00E+00 lbs/day
Tetrachloroethylene	1.63E+01 ug/l	0.00E+00 lbs/day
Toluene	3.67E+05 ug/l	0.00E+00 lbs/day
Trichloroethylene	1.48E+02 ug/l	0.00E+00 lbs/day
Vinyl chloride	9.62E+02 ug/l	0.00E+00 lbs/day

**Pesticides**

Aldrin	2.57E-04 ug/l	0.00E+00 lbs/day
Dieldrin	2.57E-04 ug/l	0.00E+00 lbs/day
Chlordane	1.08E-03 ug/l	0.00E+00 lbs/day
4,4'-DDT	1.08E-03 ug/l	0.00E+00 lbs/day
4,4'-DDE	1.08E-03 ug/l	0.00E+00 lbs/day
4,4'-DDD	1.54E-03 ug/l	0.00E+00 lbs/day
alpha-Endosulfan	3.67E+00 ug/l	0.00E+00 lbs/day
beta-Endosulfan	3.67E+00 ug/l	0.00E+00 lbs/day
Endosulfan sulfate	3.67E+00 ug/l	0.00E+00 lbs/day
Endrin	1.48E+00 ug/l	0.00E+00 lbs/day
Endrin aldehyde	1.48E+00 ug/l	0.00E+00 lbs/day
Heptachlor	3.85E-04 ug/l	0.00E+00 lbs/day
Heptachlor epoxide		

**PCB's**

PCB 1242 (Arochlor 1242)	8.25E-05 ug/l	0.00E+00 lbs/day
PCB-1254 (Arochlor 1254)	8.25E-05 ug/l	0.00E+00 lbs/day
PCB-1221 (Arochlor 1221)	8.25E-05 ug/l	0.00E+00 lbs/day
PCB-1232 (Arochlor 1232)	8.25E-05 ug/l	0.00E+00 lbs/day
PCB-1248 (Arochlor 1248)	8.25E-05 ug/l	0.00E+00 lbs/day
PCB-1260 (Arochlor 1260)	8.25E-05 ug/l	0.00E+00 lbs/day
PCB-1016 (Arochlor 1016)	8.25E-05 ug/l	0.00E+00 lbs/day

**Pesticide**

Toxaphene	1.37E-03 ug/l	0.00E+00 lbs/day
-----------	---------------	------------------

**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		



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

<b>Dioxin</b>		
Dioxin (2,3,7,8-TCDD)	2.57E-08 ug/l	0.00E+00 lbs/day

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

	<b>Class 4 Acute Agricultural ug/l</b>	<b>Class 3 Acute Aquatic Wildlife ug/l</b>	<b>Acute Toxics Drinking Water Source ug/l</b>	<b>Acute Toxics Wildlife ug/l</b>	<b>1C Acute Health Criteria ug/l</b>	<b>Acute Most Stringent ug/l</b>	<b>Class 3 Chronic Aquatic Wildlife ug/l</b>
Aluminum		1061.4				1061.4	N/A
Antimony				7881.9		7881.9	
Arsenic	183.3	481.3			0.0	183.3	347.6
Barium						0.0	
Beryllium						0.0	
Cadmium	18.3	16.9			0.0	16.9	1.7
Chromium (III)		10215.8			0.0	10215.8	631.2
Chromium (VI)	182.6	21.0			0.0	21.01	16.85
Copper	365.9	97.4				97.4	72.0
Cyanide		31.2	403261.3			31.2	9.5
Iron		1416.0				1416.0	
Lead	182.6	997.3			0.0	182.6	49.6
Mercury		3.40		0.27	0.0	0.27	0.022
Nickel		2782.3		8431.8		2782.3	399.7
Selenium	90.3	27.7			0.0	27.7	7.1
Silver		98.5			0.0	98.5	
Thallium				11.5		11.5	
Zinc		712.2				712.2	921.5
Boron	1374.8					1374.8	

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

	<b>WLA Acute ug/l</b>	<b>WLA Chronic ug/l</b>	
Aluminum	1061.4	N/A	
Antimony	7881.92		
Arsenic	183.3	347.6	Acute Controls
Asbestos	0.00E+00		
Barium			
Beryllium			
Cadmium	16.9	1.7	
Chromium (III)	10215.8	631	
Chromium (VI)	21.0	16.9	
Copper	97.4	72.0	

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

Cyanide	31.2	9.5	
Iron	1416.0		
Lead	182.6	49.6	
Mercury	0.275	0.022	
Nickel	2782.3	400	
Selenium	27.7	7.1	
Silver	98.5	N/A	
Thallium	11.5		
Zinc	712.2	921.5	Acute Controls
Boron	1374.75		

Other Effluent Limitations are based upon R317-1.

E. coli                      126.0 organisms per 100 ml

#### **X. Antidegradation Considerations**

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

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

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

#### **XI. Colorado River Salinity Forum Considerations**

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

#### **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.

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

**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.

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

**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 3**

### *Reasonable Potential Analysis*

This Page Intentionally Left Blank

## 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 Analysis<sup>11</sup>. They are;

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

Initial screening for metals values that were submitted through the discharge monitoring reports showed that Ephraim City was only required to retrieve one metals sample during the previous permit cycle, and the results were all non-detect. This result indicates that the inclusion of an effluent metals limits are not required at this time, and that routine monitoring requirements can remain as they are in the permit.(Outcome C from Reasonable Potential Guide)

---

<sup>11</sup> See Reasonable Potential Analysis Guidance for definitions of terms