

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. **UT0020311**

In compliance with provisions of the Utah *Water Quality Act, Title 19, Chapter 5, Utah Code ("UCA") 1953, as amended* (the "Act"),

Bear River City Lagoons

is hereby authorized to discharge from its wastewater treatment facility to receiving waters named **Malad River,**

and to distribute effluent for reuse,

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

This permit shall become effective on March 1, 2022.

This permit expires at midnight on February 28, 2027.

Signed the 1st day of March, 2022.



Erica Brown Gaddis, PhD
Director

DWQ-2022-002797

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I. DISCHARGE LIMITATIONS AND REPORTING REQUIREMENTS

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

| <u>Outfall Number(s)</u> | <u>Location of Discharge Outfall(s)</u> |
|--------------------------|--|
| 001 | Located at latitude 41° 35' 58" N and longitude 112° 08' 32" W. The outfall is in a manhole with a 90-degree, v-notch weir that flows into an 8" concrete pipe and discharges directly into the Malad River. |
| 002 | Located at latitude 41° 36' 04" N and longitude 112° 08' 21" W. The outfall at the bottom drains into the retention basin, which flows into a tributary (ditch), then to the Malad River. |
| 003 | Located at latitude 41° 36' 03" N and longitude 112° 08' 19" W. The outfall is an emergency overflow spillway from the retention basin that flows to a tributary (ditch), then to the Malad River. |

Location of Effluent Reuse Discharge Outfall(s)

| | |
|------|--|
| 001R | <u>Description of Area for Use</u> Located at latitude 41° 36' 04" N and longitude 112° 08' 23" W. The outfall is to a retention basin for land application on the adjacent site. |
|------|--|

- 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(s) 001, 002, and 003 as defined in *Part VIII*, and determined by test procedures in DWQ's Permitting and Enforcement Guidance Document for Whole Effluent Toxicity Control, dated February 2018.
2. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from Outfall 001, 002, and 003. Such discharges shall be limited and monitored by the permittee as specified Table 1, 2, and 3.

Table 1

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| Parameter | Effluent Limitations Outfall(s) 001, 002, & 003 ^{a,b} | | | | |
|--------------------------------------|--|--------------------|----------------|---------------|---------------|
| | Maximum Monthly Avg | Maximum Weekly Avg | Yearly Maximum | Daily Minimum | Daily Maximum |
| Total Flow, MGD ^{c, d, e} | -- | -- | -- | -- | 0.36 |
| BOD ₅ , mg/L | 45 | 65 | -- | -- | -- |
| TSS, mg/L | 45 | 65 | -- | -- | -- |
| Dissolved Oxygen, mg/L | -- | -- | -- | 4.0 | -- |
| TRC, mg/L | -- | -- | -- | -- | 0.019 |
| <i>E. coli</i> , No./100mL | 126 | 157 | -- | -- | -- |
| Total Ammonia (as N), mg/L | | | | | |
| Summer (Jul-Sep) | 22.0 | -- | -- | -- | 17.8 |
| Fall (Oct-Dec) | 3.0 | -- | -- | -- | 14.0 |
| Winter (Jan-Mar) | 6.0 | -- | -- | -- | 17.0 |
| Spring (Apr-Jun) | 2.0 | -- | -- | -- | 6.0 |
| Total Phosphorus (as P), lbs/yr | -- | -- | 1,132 | -- | -- |
| pH, Standard Units | -- | -- | -- | 6.5 | 9 |
| Oil and Grease, mg/L ^{f, g} | -- | -- | -- | 10.0 | -- |
| Metals ^{h, i, j} | -- | -- | -- | -- | -- |

Table 1 References

- a. See Definitions, *Part VIII*, for definition of terms.
- b. All parameters in this table will be reported on the monthly Discharge Monitoring Report.
- c. Flow measurements of effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained.
- d. If the rate of discharge is controlled, the rate and duration of discharge shall be reported.
- e. 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.
- f. There shall be no visible sheen or floating solids or visible foam in other than trace amounts.
- g. Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report 9 under "NODI" in NetDMR.
- h. Metals samples should be analyzed using a method that meets MDL requirements. If a test method is not available the permittee must submit documentation to the Director regarding the method that will be used. The sample type (composite or grab) should be performed according to the methods requirements.
- i. Metals are being sampled in support of the work being done for the Reasonable Potential Analysis. The Metal parameters will be monitored and reported on an annual basis by the facility on Discharge Monitoring Report, but will not have a limit associated with them, if Bear River decides to sample more frequently for these parameters, the additional data will be required as per Part V.E.
- j. Metals

| | | |
|----------------|---------|----------|
| Arsenic | Cyanide | Selenium |
| Cadmium | Lead | Silver |
| Total Chromium | Mercury | Zinc |
| Copper | Nickel | |

End Table 1 References

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| Table 2 | | | |
|---|------------------|--------------------|--------------|
| Influent Self-Monitoring and Reporting Requirements ^{a, b, c} | | | |
| Parameter | Frequency | Sample Type | Units |
| BOD ₅ | Monthly | Composite | mg/L |
| TSS | Monthly | Composite | mg/L |
| Total Phosphorus (as P) ^d | Monthly | Composite | mg/L |
| Total Kjeldahl Nitrogen (as N) ^d | Monthly | Composite | mg/L |

Table 2 References

- a.** See Definitions, *Part VIII*, for definition of terms.
- b.** All parameters in this table will be reported on the monthly Discharge Monitoring Report.
- c.** 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.
- d.** Monitoring only for total phosphorus (TP), orthophosphate as P (OP), total ammonia, nitrate, nitrite, and total Kjeldahl nitrogen as N (TKN) have been included to comply with Utah Secondary Treatment Standards and the Technology-based Phosphorus Effluent limit rule in *UAC R317-1-3.3*

End Table 2 References

| Table 3 | | | |
|--|---------------------|--------------------|--------------|
| Outfall 001 Effluent Self-Monitoring and Reporting Requirements ^{a, b} | | | |
| Parameter | Frequency | Sample Type | Units |
| Total Flow ^{c, d, e} | Continuous | Recorder | MGD |
| BOD ₅ | Monthly | Composite | mg/L |
| BOD ₅ Removal | Monthly | Calculated | % |
| TSS | Monthly | Composite | mg/L |
| TSS Removal | Monthly | Calculated | % |
| <i>E. coli</i> | Monthly | Grab | No./100mL |
| pH | Monthly | Grab | SU |
| DO | Monthly | Grab | mg/L |
| TRC ^f | Monthly | Grab | mg/L |
| Ammonia | Monthly | Grab | mg/L |
| TDS | Monthly | Composite | Mg/L |
| Oil & Grease ^{g, h} | When Sheen Observed | Grab | mg/L |
| Total Phosphorus (as P) ⁱ | Monthly | Composite | mg/L |
| Total Kjeldahl Nitrogen (as N) ⁱ | Monthly | Composite | mg/L |
| Orthophosphate (as P) ⁱ | Monthly | Composite | mg/L |
| Nitrate, NO ₃ ⁱ | Monthly | Composite | mg/L |
| Nitrite, NO ₂ ⁱ | Monthly | Composite | mg/L |
| Metals ^{j, k, l} | Quarterly | Composite | mg/L |

Table 3 References

- a.** See Definitions, *Part VIII*, for definition of terms.
- b.** All parameters in this table will be reported on the monthly Discharge Monitoring Report.

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- c. Flow measurements of effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained.
- d. If the rate of discharge is controlled, the rate and duration of discharge shall be reported.
- e. 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.
- f. The facility is required to disinfect to destroy, inactivate or remove pathogenic microorganisms by chemical, physical or biological means. Disinfection may be accomplished by chlorination, ozonation, or other chemical disinfectants, UV radiation. Or other approved processes. Chlorine residual is recommended but no longer required. Sampling not required if chlorination is not being used. The total residual chlorine shall be measured continuously and shall at no time be less than 1.0 mg/l after 30 minutes contact time at peak flow. If an alternative disinfection process is used, it must be demonstrated to the satisfaction of the Director that the alternative process is comparable to that achieved by chlorination with a 1 mg/l residual after 30 minutes contact time. If the effectiveness cannot be related to chlorination, then the effectiveness of the alternative disinfection process must be demonstrated by testing for pathogen destruction as determined by the Director. A 1 mg/l total chlorine residual is recommended after disinfection and before the treated effluent goes into the distribution system.
- g. There shall be no visible sheen or floating solids or visible foam in other than trace amounts.
- h. Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report 9 under "NODI" in NetDMR.
- i. Monitoring only for total phosphorus (TP), orthophosphate as P (OP), total ammonia, nitrate, nitrite, and total Kjeldahl nitrogen as N (TKN) have been included to comply with Utah Secondary Treatment Standards and the Technology-based Phosphorus Effluent limit rule in *UAC R317-1-3.3*
- j. Metals samples should be analyzed using a method that meets MDL requirements. If a test method is not available the permittee must submit documentation to the Director regarding the method that will be used. The sample type (composite or grab) should be performed according to the methods requirements.
- k. Metals are being sampled in support of the work being done for the Reasonable Potential Analysis. The Metal parameters will be monitored and reported on an annual basis by the facility on Discharge Monitoring Report, but will not have a limit associated with them, if Bear River decides to sample more frequently for these parameters, the additional data will be required as per Part V.E.
- l. Metals

| | | |
|----------------|---------|----------|
| Arsenic | Cyanide | Selenium |
| Cadmium | Lead | Silver |
| Total Chromium | Mercury | Zinc |
| Copper | Nickel | |

End Table 3 References

3. Effective immediately and lasting the duration of this permit, the permittee is authorized to reuse from Outfall 001R and subject to Section I.D.1 Compliance requirements below. Such discharges shall be limited and monitored by the permittee as specified Table 4, 5, and 6.

Reuse

| Table 4 | | | | | |
|---------------------------|---|--------------------------|--------------------------|----------------|----------------|
| Parameter | Type II Reuse Outfall 001R Effluent Limitations^{a, b} | | | | |
| | Max Monthly Average | Max Weekly Median | Max Daily Average | Minimum | Maximum |
| BOD ₅ | 45 | 65 | -- | -- | -- |
| TSS | 45 | 65 | -- | - | -- |
| <i>E. coli</i> , No/100mL | -- | 126 | -- | -- | 500 |
| pH, Standard Units | -- | -- | -- | 6.0 | 9.0 |

Table 4 References

- a. See Definitions, *Part VIII*, for definition of terms.
- b. All parameters in this table will be reported on the monthly Discharge Monitoring Report.

End Table 4 References

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| Table 5 | | | |
|--|------------------|--------------------|--------------|
| Outfall 002R | | | |
| Self-Monitoring and Reporting Requirements ^{a, b, c} | | | |
| Parameter | Frequency | Sample Type | Units |
| Applied Flow ^d | Continuous | Recorder | MGD |
| Irrigated Acreage | Monthly | Estimated | mg/L |
| BOD ₅ | Monthly | Composite | mg/L |
| TSS | Weekly | Composite | mg/L |
| <i>E. coli</i> ^e | Weekly | Grab | No./100mL |
| pH | Weekly | Grab | SU |
| TRC ^f | Weekly | Grab | mg/L |
| Total Inorganic Nitrogen | Monthly | Grab | mg/L |
| Metals ^{g, h, i} | Annually | Comp/Grab | mg/L |
| Cell Depth | Monthly | Measure | Feet |
| Free Board | Monthly | Measure | Feet |

Table 5 References

- a. See Definitions, *Part VIII*, for definition of terms.
- b. All parameters in this table will be reported on the monthly Discharge Monitoring Report.
- c. Effluent shall only be disposed of by methods allowed by R317-3-11.5.A.
- d. Flow measurements of effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained.
- e. If *E.coli* sampling exceeds effluent limitations, the permittee shall notify the Director within 24 hours and in writing within 5 days after becoming aware of the test result. The permittee shall perform an accelerated schedule of *E. coli* sampling to establish if there is a pattern. Accelerated sampling should begin within 24 hours after the permittee becomes aware of the test result. Accelerated testing is considered to be daily grab sampling of *E. coli*, until 2 consecutive tests are within permit limitations. If *E. coli* limits are exceeded for 5 consecutive tests, Bear River City shall stop reusing until an evaluation can be completed to determine cause of *E. coli* exceedances. Once the cause is resolved and documentation sent to the Director in writing, DWQ staff will review the findings and provide written approval to Bear River City to conduct reuse.
- f. The facility is required to disinfect to destroy, inactivate or remove pathogenic microorganisms by chemical, physical or biological means. Disinfection may be accomplished by chlorination, ozonation, or other chemical disinfectants, UV radiation. Or other approved processes. Chlorine residual is recommended but no longer required. Sampling not required if chlorination is not being used. The total residual chlorine shall be measured continuously and shall at no time be less than 1.0 mg/l after 30 minutes contact time at peak flow. If an alternative disinfection process is used, it must be demonstrated to the satisfaction of the Director that the alternative process is comparable to that achieved by chlorination with a 1 mg/l residual after 30 minutes contact time. If the effectiveness cannot be related to chlorination, then the effectiveness of the alternative disinfection process must be demonstrated by testing for pathogen destruction as determined by the Director. A 1 mg/l total chlorine residual is recommended after disinfection and before the treated effluent goes into the distribution system.
- g. Metals samples should be analyzed using a method that meets MDL requirements. If a test method is not available the permittee must submit documentation to the Director regarding the method that will be used. The sample type (composite or grab) should be performed according to the methods requirements.
- h. Metals are being sampled in support of the work being done for the Reasonable Potential Analysis. The Metal parameters will be monitored and reported on an annual basis by the facility on Discharge Monitoring Report, but will not have a limit associated with them, if Bear River decides to sample more frequently for these parameters, the additional data will be required as per Part V.E.
- i. Metals

| | | |
|----------------|---------|----------|
| Arsenic | Cyanide | Selenium |
| Cadmium | Lead | Silver |
| Total Chromium | Mercury | Zinc |
| Copper | Nickel | |

End Table 5 References

| Table 6 | |
|--|---|
| Land Application per Crop Type ^a | |
| Crop Type | List of crops grown on each site |
| Crop Harvest (tons/yr) | As measured based on harvest records |
| Land Application Area (acres) | Land treated process water effluent was applied based on application area |
| Number of Days per Season | Estimated (about 180 days/growing season) |

Table 6 References

- ^{a.} Land Application Reports shall be summarized per crop type and submitted annually, no later than January 28th of the month following the completed reporting period.

End Table 6 References

Lagoon Best Management Practices:

- 1) The permittee shall take such parameters as are necessary to maintain and operate the facility in a manner that will minimize upsets and ensure stable operating conditions.
- 2) The permittee shall visually inspect, at least weekly, the pond(s) to determine if there is adequate freeboard to minimize the likelihood of an accidental discharge occurring. If it is determined that a discharge is occurring and/or there is not adequate freeboard, the appropriate corrective measures shall be taken immediately.
- 3) The permittee shall take precautions and have erosion control measures in place that, in the event of a bypass of treatment, the discharge will not cause erosion into the Waters of the State.

Management Practices for Land Application of Treated Effluent:

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

D. Compliance

1. Bear River City must submit Division of Water Rights wastewater reuse project approval documentation to the Division within ***six months of the issuance of this permit*** and receive DWQ approval for Reuse Project Plan submitted on November 29, 2021.

E. Reporting of Monitoring Results.

1. Reporting of Wastewater Monitoring Results.

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Monitoring results obtained during the previous month shall be summarized for each month and reported on NetDMR no later than the 28th 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 shall be signed and certified in accordance with the requirements of *Signatory Requirements (see Part VII.G)*, and submitted by NetDMR.

2. Land Application Reports

Land Application Reports from Table 6 shall be summarized per crop type and submitted annually, no later than January 28th of the month following the completed reporting period. Legible copies of these, and all other reports required herein, shall be reported. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the requirements of *Signatory Requirements (see Part VII.G)*, submitted to the Division of Water Quality via the Division of Water Quality – Water Quality Electronic Submissions portal at:

<https://deq.utah.gov/water-quality/water-quality-electronic-submissions>

With the e-Delivery Submittal Purpose of Submission: *Bear River City Land Application Report UPDES Permit No. UT0020311.*

II. INDUSTRIAL PRETREATMENT PROGRAM

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

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

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

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

B. Pretreatment Monitoring and Reporting Requirements.

1. Because the design capacity of this municipal wastewater treatment facility is less than 5 MGD, the permittee will not be required to develop an approved industrial pretreatment program at this time. However, 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.*
2. Monitoring will not be required of the permittee for the pretreatment requirements at this time. If changes occur monitoring may be required for parameters not currently listed in the permit or current monitoring requirements may be required to be increased to determine the impact of an industrial user or to investigate sources of pollutant loading. This could include but is not limited to sampling of the influent and effluent of the wastewater treatment plant and within the collection system.

C. Industrial Wastes.

1. The "Industrial Waste Survey" as required by *Part II.B.1.* consists of;
 - a. Identifying each industrial user (IU),
 - b. Determination of the qualitative and quantitative characteristics of each discharge, and
 - c. If determined necessary by the Director, provide production data regarding the IU.
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. Report to the Director any industrial users that may need to develop a slug prevention plan. A slug prevention plan may be needed if chemicals are stored by the IU or have the potential to spill.
4. Notify the Director of any IUs that may need 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 IUs 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. The permittee must ensure that no IU violates any of the general or specific standards. If an IU is found violating a general or specific standard the permittee must notify the Director within 24 hours of the event. The general prohibitions and the specific prohibitions apply to each User introducing pollutants into a POTW whether or not the User is subject to other Pretreatment Standards or any national, State or local Pretreatment Requirements. The general prohibitions and the specific prohibitions apply to each User introducing pollutants into a POTW whether or not the User is subject to other Pretreatment Standards or any national, State or local Pretreatment Requirements.

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

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PRETREATMENT

- a. The quality and quantity of effluent to be introduced into such treatment works; and,
 - b. Any anticipated impact of the change on the quantity or quality of effluent to be discharged from such publicly owned treatment works.
4. Any IU that must comply with applicable requirements under Subtitles C and D of the Resource Conservation and Recovery Act (RCRA).
- F. Change of Conditions.** At such time as a specific pretreatment limitation becomes applicable to an industrial user of the permittee, the Director may, as appropriate, do the following:
1. Amend the 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 POTW 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 POTW, 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 permittee, 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.

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

V. MONITORING, RECORDING & GENERAL REPORTING REQUIREMENTS

- A. Representative Sampling. Samples taken in compliance with the monitoring requirements established under *Part I* shall be collected from the effluent stream prior to discharge into the receiving waters. Samples and measurements shall be representative of the volume and nature of the monitored discharge. Samples of biosolids shall be collected at a location representative of the quality of biosolids immediately prior to the use-disposal practice.
- B. Monitoring Procedures. Monitoring must be conducted according to test procedures approved under *Utah Administrative Code ("UAC") R317-2-10 and 40CFR Part 503*, 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.

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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 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;
 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;

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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.
 - a. Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:

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- (1) Bypass was unavoidable to prevent loss of human life, personal injury, or severe property damage;
 - (2) There were no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance, and
 - (3) The permittee submitted notices as required under *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.
 - 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, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. A duly authorized

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

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

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

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

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2. The notice includes a written agreement between the existing and new permittee's containing a specific date for transfer of permit responsibility, coverage, and liability between them; and,
 3. The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify, or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph 2 above.
- N. State or Federal Laws. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by *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 areawide treatment management plans or promulgations/revisions to TMDLs (40 CFR 130.7) approved by the EPA and adopted by DWQ which calls for different effluent limitations than contained in this permit.
- P. Biosolids – Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate biosolids limitations (and compliance schedule, if necessary), management practices, other appropriate requirements to protect public health and the environment, or if there have been substantial changes (or such changes are planned) in biosolids use or disposal practices; applicable management practices or numerical limitations for pollutants in biosolids have been promulgated which are more stringent than the requirements in this permit; and/or it has been determined that the permittees biosolids use or land application practices do not comply with existing applicable state or federal regulations.
- 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.
- 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 test species at any effluent concentration (lethal concentration or "LC₅₀").
5. "Annual Loading Cap" is the highest allowable phosphorus loading discharged over a calendar year, calculated as the sum of all the monthly loading discharges measured during a calendar year divided by the number of monthly discharges measured during that year.
6. "Bypass," means the diversion of waste streams from any portion of a treatment facility.
7. "Chronic toxicity" occurs when the IC₂₅< 3% effluent in the Summer, IC₂₅< 18% effluent in the Fall, IC₂₅< 11% effluent in the Winter, and IC₂₅< 22% effluent in the Spring . The % effluents are the concentrations of the effluent in the receiving water, at the end of the mixing zone expressed as per cent effluent.
8. "IC₂₅" is the concentration of toxicant (given in % effluent) that would cause a 25% reduction in mean young per female, or a 25% reduction in overall growth for the test population.
9. "Composite Samples" shall be flow proportioned. The composite sample shall, as a minimum, contain at least four (4) samples collected over the compositing period. Unless otherwise specified, the time between the collection of the first sample and the last sample shall not be less than six (6) hours nor more than 24 hours. Acceptable methods for preparation of composite samples are as follows:

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- a. Constant time interval between samples, sample volume proportional to flow rate at time of sampling;
 - b. Constant time interval between samples, sample volume proportional to total flow (volume) since last sample. For the first sample, the flow rate at the time the sample was collected may be used;
 - c. Constant sample volume, time interval between samples proportional to flow (i.e., sample taken every “X” gallons of flow); and,
 - d. Continuous sample volume, with sample collection rate proportional to flow rate.
10. “CWA,” means *The Federal Water Pollution Control Act*, as amended, by *The Clean Water Act of 1987*.
 11. “Daily Maximum” (Daily Max.) is the maximum value allowable in any single sample or instantaneous measurement.
 12. “EPA,” means the United States Environmental Protection Agency.
 13. “Director,” means Director of the Division of Water Quality.
 14. A “grab” sample, for monitoring requirements, is defined as a single “dip and take” sample collected at a representative point in the discharge stream.
 15. An “instantaneous” measurement, for monitoring requirements, is defined as a single reading, observation, or measurement.
 16. “Severe Property Damage,” means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
 17. “Upset,” means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.
 18. “Grit and Screenings” are sand, gravel, cinders, other materials with a high specific gravity and relatively large materials such as rags generated during preliminary treatment of domestic sewage at a treatment works and shall be disposed of according to *40 CFR 258*.
 19. “High Potential for Public Contact Site” is land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.
 20. “Low Potential for Public Contact Site” is the land with a low potential for contact by the public. This includes, but is not limited to, farms, ranches, reclamation areas, and other

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lands which are private lands, restricted public lands, or lands which are not generally accessible to or used by the public.

21. "Monthly Average" is the arithmetic mean of all measurements taken during the month.
22. "Volatile Solids" is the amount of the total solids in sewage sludge lost when the sludge is combusted at 550 degrees Celsius for 15-20 minutes in the presence of excess air.

**FACT SHEET AND STATEMENT OF BASIS
BEAR RIVER CITY LAGOONS
RENEWAL PERMIT: DISCHARGE
UPDES PERMIT NUMBER: UT0020311
MINOR MUNICIPAL**

FACILITY CONTACTS

| | |
|-------------------------------|--|
| Person Name: | Jared Holmgren |
| Position: | Operator |
| Phone Number: | (435) 279-9047 |
| Facility Name: | Bear River City Lagoons |
| Mailing and Facility Address: | PO Box 426 Bear River City, UT 84301 |
| Telephone: | (435) 279-9047 |
| Actual Address: | 5200 West Rd. Bear River City, UT 84301 |

DESCRIPTION OF FACILITY

Bear River City (City) is located northwest of Ogden in Box Elder County. The 2010 census showed that there are 853 people who live in the city. The City lagoon system was put into operation in 1974 to treat residential sewage for the City. The design flow of the treatment facility is 0.36 million gallons per day. The treatment facility consists of a pump station, a pressurized 6-inch line, followed by a six-cell facultative lagoon system that has a total containment capacity of 54.4-acre feet, with a surface area of 10.4 acres. The primary cell was designed for 156 pounds of BOD₅ per day with a population equivalent of 916 people. The facility has the ability to discharge to the Malad River.

In November 2015, the City completed construction of a 12-million-gallon land application reservoir. The reservoir is located on private property with an agreement of first right to purchase with the city. The reservoir is fenced and will be signed before beginning operation. The reservoir holds treatment plant effluent for land application by agricultural irrigation on the property adjoining to the East. No crops for human consumption will be grown with the treated effluent. Prior to discharge into the reservoir, the city has gaseous chlorination.

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

Reuse (Land Application)

Bear River City conducts land application for irrigation of crop for livestock (Type II reuse). Bear River City began land application in 2016, which was during the last permit cycle. During this past permit cycle Bear River City had frequent exceedances of their *E. coli* limitations. In order to address these violations during this permit cycle they will be required to report reuse monitoring on their monthly DMR, rather than an annual report and the permit includes accelerated *E. coli* sampling if *E. coli* limits are exceeded, with possible cessation of reuse, until *E. coli* limitations can be met. See below for *E. coli* accelerated sampling language:

If *E.coli* sampling exceeds effluent limitations, the permittee shall notify the Director within 24 hours and in writing within 5 days after becoming aware of the test result. The permittee shall perform an accelerated schedule of *E. coli* sampling to establish if there is a pattern. Accelerated

sampling should begin within 24 hours after the permittee becomes aware of the test result. Accelerated testing is considered to be daily grab sampling of *E. coli*, until 2 consecutive tests are within permit limitations. If *E. coli* limits are exceeded for 5 consecutive tests, Bear River City shall stop reusing until an evaluation can be completed to determine cause of *E. coli* exceedances. Once the cause is resolved and documentation sent to the Director in writing, DWQ staff will review the findings and provide written approval to Bear River City to conduct reuse.

In addition to the changes made to reuse reporting and *E. coli* accelerated testing, weekly grab sampling for Total Residual Chlorine (TRC) was added. Reuse sampling frequency of pH, *E. coli*, and TSS have been increased to weekly, max monthly averages for BOD₅ and TSS have been added, and max weekly median *E. coli* limits have been reduced to 126 organisms/100 mL to meet the requirements outlined in R317-3-11.5. The sampling frequencies reflect the minimum allowed for by R317-3-11.5C. 5.

Bear River City water rights approval is required to be submitted to the Division within six months of the issuance of this permit.

Ammonia (as N) Limit

Based on the wasteload analysis and available Bear River effluent data, effluent limits have been added to this permit. The limits will apply when/if the lagoons discharge to the Malad River. Based on available data there is a possibility that Bear River would not be able to meet the Ammonia (as N) limits in the Winter and Spring. Bear River has not consistently discharged to the Malad since 2015, and has no plans to discharge in the near future. Bear River currently land applies (reuse) their effluent on an adjacent property. If Bear River determines the need to discharge to the Malad in the future and is unable to meet these Ammonia limits, the DWQ will initiate a compliance schedule.

DISCHARGE

DESCRIPTION OF DISCHARGE

Bear River City is a total reuse facility. Bear River City maintains a UPDES permit in the event that a discharge from their facility to the Malad River is necessary.

| <u>Outfall Number(s)</u> | <u>Location of Discharge Outfall(s)</u> |
|--------------------------|---|
| 001 | Located at <u>latitude</u> 41 ° 35' 58" N and longitude 112° 08' 32" W. The outfall is in a manhole, with a 90 degree, v-notch weir, that flows into an 8" concrete pipe that discharges directly into the Malad River. |
| 002 | Located at latitude 41 ° 36' 04" N and longitude 112° 08' 21" W. The outfall of the bottom drain of retention basin flows into a Tributary (ditch), then to the Malad River. |
| 003 | Located at latitude 41 ° 36' 03" N and longitude 112° 08' 19" W. The outfall is an emergency overflow spillway from the retention basin that flows to a tributary (ditch), then to the Malad River. |

Location of Effluent Reuse Discharge Outfall(s)

001R

Description of Area for Use

Located at latitude 41° 36' 04" N and longitude 112° 08' 23" W. The outfall is to a retention basin for land application on the adjacent site.

RECEIVING WATERS AND STREAM CLASSIFICATION

If a discharge were to occur, it would discharge to the Malad River, then the Bear River. The Malad River is a Classified as 2B and 3C 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.

TMDL

The Malad River was not assessed due to insufficient data in *Utah's Final 2016 Integrated Report*. The Malad River is tributary to the Bear River, which is listed as impaired for dissolved oxygen, total dissolved solids, and benthic macroinvertebrates in the 2016 303(d) list.

The *Lower Bear River and Tributaries TMDL*, which was approved by EPA in 2002, addressed the dissolved oxygen impairment by establishing instream concentration and load allocations for total phosphorous (TP) in the watershed. Point sources identified in the TMDL were Tremonton City, Bear River City, and Corrine City WWTPs. Based on the revised implantation plan Bear River City Lagoons were allocated 3.1 lb/day of TP.

Parameter of Concern

The potential in-stream parameters of concern identified for the discharge/receiving water may include metals, total dissolved solids (TDS), total residual chlorine (TRC), total suspended solids (TSS), dissolved oxygen (DO), BOD, total phosphorus (TP), and pH.

BASIS FOR EFFLUENT LIMITATIONS

Discharge

Limitations on total suspended solids (TSS), biochemical oxygen demand (BOD₅), *E. coli*, pH and percent removal for BOD₅ and TSS are based on current Utah Secondary Treatment Standards, UAC R317-1-3.2. Since Bear River City is a Lagoon, they were granted relaxed BOD₅ and TSS limitations, in accordance with R317-1-3.2. The limits for dissolved oxygen, total residual chlorine, and ammonia were taken from the Wasteload Analysis (WLA). Attached is a WLA for this discharge into the Malad River. 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 facility does not have any proposed changes.

Reasonable Potential Analysis

Since January 1, 2016, DWQ has conducted reasonable potential analysis (RP) on all new and renewal applications received after that date. In order to complete a RP analysis, more than 10 data points per parameter are needed. Bear River City hasn't discharged to the Malad since initiating reuse, except for a single emergency situation in 2017. For this permit cycle, Bear River will be required to sample, at a minimum, annual metal sampling from Outfall 001, 002, 003 and 001R. If additional sampling is performed, it shall be reported to DWQ. Less than 10 data points may affect the RP outcomes which may require additional monitoring in the future.

The permit limitations for outfall(s) 001, 002, and 003 in Table 1.

| Table 1 | | | | | |
|--------------------------------------|---|---------------------------|-----------------------|----------------------|----------------------|
| Parameter | Effluent Limitations Outfall(s) 001, 002, & 003 ^{a,b} | | | | |
| | Maximum Monthly Avg | Maximum Weekly Avg | Yearly Maximum | Daily Minimum | Daily Maximum |
| Total Flow, MGD ^{c, d, e} | -- | -- | -- | -- | 0.36 |
| BOD ₅ , mg/L | 45 | 65 | -- | -- | -- |
| TSS, mg/L | 45 | 65 | -- | -- | -- |
| Dissolved Oxygen, mg/L | -- | -- | -- | 4.0 | -- |
| TRC, mg/L | -- | -- | -- | -- | 0.019 |
| <i>E. coli</i> , No./100mL | 126 | 157 | -- | -- | -- |
| Total Ammonia (as N), mg/L | | | | | |
| Summer (Jul-Sep) | 22.0 | -- | -- | -- | 17.8 |
| Fall (Oct-Dec) | 3.0 | -- | -- | -- | 14.0 |
| Winter (Jan-Mar) | 6.0 | -- | -- | -- | 17.0 |
| Spring (Apr-Jun) | 2.0 | -- | -- | -- | 6.0 |
| Total Phosphorus (as P), lbs/yr | -- | -- | 1,132 | -- | -- |
| pH, Standard Units | -- | -- | -- | 6.5 | 9 |
| Oil and Grease, mg/L ^{f, g} | -- | -- | -- | 10.0 | -- |
| Metals ^{h, i, j} | -- | -- | -- | -- | -- |

Table 1 References

- a. See Definitions, *Part VIII*, for definition of terms.
- b. All parameters in this table will be reported on the monthly Discharge Monitoring Report.
- c. Flow measurements of effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained.
- d. If the rate of discharge is controlled, the rate and duration of discharge shall be reported.
- e. 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.
- f. There shall be no visible sheen or floating solids or visible foam in other than trace amounts.
- g. Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report 9 under "NODI" in NetDMR.
- h. Metals samples should be analyzed using a method that meets MDL requirements. If a test method is not available the permittee must submit documentation to the Director regarding the method that will be used. The sample type (composite or grab) should be performed according to the methods requirements.
- i. Metals are being sampled in support of the work being done for the Reasonable Potential Analysis. The Metal parameters will be monitored and reported on an annual basis by the facility on Discharge Monitoring Report, but will not have a limit associated with them, if Manti decides to sample more frequently for these parameters, the additional data will be required as per Part V.E.
- j. Metals

| | | |
|----------------|---------|----------|
| Arsenic | Cyanide | Selenium |
| Cadmium | Lead | Silver |
| Total Chromium | Mercury | Zinc |
| Copper | Nickel | |

End Table 1 References

SELF-MONITORING AND REPORTING REQUIREMENTS

The following self-monitoring requirements are the same as in the previous permit for the discharge. 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.

| Table 2 | | | |
|--|------------------|--------------------|--------------|
| Influent Self-Monitoring and Reporting Requirements^{a, b, c} | | | |
| Parameter | Frequency | Sample Type | Units |
| BOD ₅ | Monthly | Composite | mg/L |
| TSS | Monthly | Composite | mg/L |
| Total Phosphorus (as P) ^d | Monthly | Composite | mg/L |
| Total Kjeldahl Nitrogen (as N) ^d | Monthly | Composite | mg/L |

Table 2 References

- a. See Definitions, *Part VIII*, for definition of terms.
- b. All parameters in this table will be reported on the monthly Discharge Monitoring Report.
- c. 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.
- d. Monitoring only for total phosphorus (TP), orthophosphate as P (OP), total ammonia, nitrate, nitrite, and total Kjeldahl nitrogen as N (TKN) have been included to comply with Utah Secondary Treatment Standards and the Technology-based Phosphorus Effluent limit rule in *UAC R317-1-3.3*

End Table 2 References

| Table 3 | | | |
|--|---------------------|--------------------|--------------|
| Outfall 001 | | | |
| Effluent Self-Monitoring and Reporting Requirements ^{a, b} | | | |
| Parameter | Frequency | Sample Type | Units |
| Total Flow ^{c, d, e} | Continuous | Recorder | MGD |
| BOD ₅ | Monthly | Composite | mg/L |
| BOD ₅ Removal | Monthly | Calculated | % |
| TSS | Monthly | Composite | mg/L |
| TSS Removal | Monthly | Calculated | % |
| <i>E. coli</i> | Monthly | Grab | No./100mL |
| pH | Monthly | Grab | SU |
| DO | Monthly | Grab | mg/L |
| TRC ^f | Monthly | Grab | mg/L |
| Ammonia | Monthly | Grab | mg/L |
| TDS | Monthly | Composite | Mg/L |
| Oil & Grease ^{g, h} | When Sheen Observed | Grab | mg/L |
| Total Phosphorus (as P) ⁱ | Monthly | Composite | mg/L |
| Total Kjeldahl Nitrogen (as N) ⁱ | Monthly | Composite | mg/L |
| Orthophosphate (as P) ⁱ | Monthly | Composite | mg/L |
| Nitrate, NO ₃ ⁱ | Monthly | Composite | mg/L |
| Nitrite, NO ₂ ⁱ | Monthly | Composite | mg/L |
| Metals ^{j, k, l} | Quarterly | Composite | mg/L |

Table 3 References

- a. See Definitions, *Part VIII*, for definition of terms.
- b. All parameters in this table will be reported on the monthly Discharge Monitoring Report.
- c. Flow measurements of effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained.
- d. If the rate of discharge is controlled, the rate and duration of discharge shall be reported.
- e. 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.
- f. The facility is required to disinfect to destroy, inactivate or remove pathogenic microorganisms by chemical, physical or biological means. Disinfection may be accomplished by chlorination, ozonation, or other chemical disinfectants, UV radiation, Or other approved processes. Chlorine residual is recommended but no longer required. Sampling not required if chlorination is not being used. The total residual chlorine shall be measured continuously and shall at no time be less than 1.0 mg/l after 30 minutes contact time at peak flow. If an alternative disinfection process is used, it must be demonstrated to the satisfaction of the Director that the alternative process is comparable to that achieved by chlorination with a 1 mg/l residual after 30 minutes contact time. If the effectiveness cannot be related to chlorination, then the effectiveness of the alternative disinfection process must be demonstrated by testing for pathogen destruction as determined by the Director. A 1 mg/l total chlorine residual is recommended after disinfection and before the treated effluent goes into the distribution system.
- g. There shall be no visible sheen or floating solids or visible foam in other than trace amounts.
- h. Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report 9 under “NODI” in NetDMR.
- i. Monitoring only for total phosphorus (TP), orthophosphate as P (OP), total ammonia, nitrate, nitrite, and total Kjeldahl nitrogen as N (TKN) have been included to comply with Utah Secondary Treatment Standards and the Technology-based Phosphorus Effluent limit rule in *UAC R317-1-3.3*.

- j. Metals samples should be analyzed using a method that meets MDL requirements. If a test method is not available the permittee must submit documentation to the Director regarding the method that will be used. The sample type (composite or grab) should be performed according to the methods requirements.
- k. Metals are being sampled in support of the work being done for the Reasonable Potential Analysis. The Metal parameters will be monitored and reported on an annual basis by the facility on Discharge Monitoring Report, but will not have a limit associated with them, if Manti decides to sample more frequently for these parameters, the additional data will be required as per Part V.E.

- l. Metals

| | | |
|----------------|---------|----------|
| Arsenic | Cyanide | Selenium |
| Cadmium | Lead | Silver |
| Total Chromium | Mercury | Zinc |
| Copper | Nickel | |

End Table 3 References

Reuse

Limitations for reuse are based on Type II reuse requirements in R317-3-11.5. Since Bear River City is a Lagoon system they have been granted relaxation of their BOD₅ and TSS limitations, in accordance with R317-1-3.2. This reflects the same limits as the last permit cycle with the addition of a max monthly average limitation to be consistent with R317-3-11.5.

The permit limitations for Outfall 001R (Reuse) in Table 4.

| Table 4 | | | | | |
|---------------------------|---|--------------------------|--------------------------|----------------|----------------|
| Parameter | Type II Reuse Outfall 001R Effluent Limitations^{a, b} | | | | |
| | Max Monthly Average | Max Weekly Median | Max Daily Average | Minimum | Maximum |
| BOD ₅ | 45 | 65 | -- | -- | -- |
| TSS | 45 | 65 | -- | - | -- |
| <i>E. coli</i> , No/100mL | -- | 126 | -- | -- | 500 |
| pH, Standard Units | -- | -- | -- | 6.0 | 9.0 |

Table 4 References

- a. See Definitions, *Part VIII*, for definition of terms.
- b. All parameters in this table will be reported on the monthly Discharge Monitoring Report.

End Table 4 References

Reuse Self-Monitoring and Reporting Requirements

The permit will require reports to be submitted monthly and annually, as applicable, on Discharge Monitoring Report (DMR) and submitted using NetDMR. DMRs are due by the 28th day of the following month. Lab sheets for metals must be attached to the DMRs.

The following Type II reuse self-monitoring and reporting requirements have changed in order to be consistent with requirements in R317-3-11.5. The sampling frequencies reflect the minimum allowed for by R317-3-11.5.C.5. and the BOD₅ and TSS limits reflect the relaxation allowed for lagoons in R317-1-3.2.

| Table 5 | | | |
|---|------------------|--------------------|--------------|
| Outfall 002R | | | |
| Self-Monitoring and Reporting Requirements^{a, b, c} | | | |
| Parameter | Frequency | Sample Type | Units |
| Applied Flow ^d | Continuous | Recorder | MGD |
| Irrigated Acreage | Monthly | Estimated | mg/L |
| BOD ₅ | Monthly | Composite | mg/L |
| TSS | Weekly | Composite | mg/L |
| <i>E. coli</i> ^e | Weekly | Grab | No./100mL |
| pH | Weekly | Grab | SU |
| TRC ^f | Weekly | Grab | mg/L |
| Total Inorganic Nitrogen | Monthly | Grab | mg/L |
| Metals ^{g, h, i} | Annually | Comp/Grab | mg/L |
| Cell Depth | Monthly | Measure | Feet |
| Free Board | Monthly | Measure | Feet |

Table 5 References

- a. See Definitions, *Part VIII*, for definition of terms.
- b. All parameters in this table will be reported on the monthly Discharge Monitoring Report.
- c. Effluent shall only be disposed of by methods allowed by R317-3-11.5.A.
- d. Flow measurements of effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained.
- e. If *E. coli* sampling exceeds effluent limitations, the permittee shall notify the Director within 24 hours and in writing within 5 days after becoming aware of the test result. The permittee shall perform an accelerated schedule of *E. coli* sampling to establish if there is a pattern. Accelerated sampling should begin within 24 hours after the permittee becomes aware of the test result. Accelerated testing is considered to be daily grab sampling of *E. coli*, until 2 consecutive tests are within permit limitations. If *E. coli* limits are exceeded for 5 consecutive tests, Bear River City shall stop reusing until an evaluation can be completed to determine cause of *E. coli* exceedances. Once the cause is resolved and documentation sent to the Director in writing, DWQ staff will review the findings and provide written approval to Bear River City to conduct reuse.
- f. The facility is required to disinfect to destroy, inactivate or remove pathogenic microorganisms by chemical, physical or biological means. Disinfection may be accomplished by chlorination, ozonation, or other chemical disinfectants, UV radiation. Or other approved processes. Chlorine residual is recommended but no longer required. Sampling not required if chlorination is not being used. The total residual chlorine shall be measured continuously and shall at no time be less than 1.0 mg/l after 30 minutes contact time at peak flow. If an alternative disinfection process is used, it must be demonstrated to the satisfaction of the Director that the alternative process is comparable to that achieved by chlorination with a 1 mg/l residual after 30 minutes contact time. If the effectiveness cannot be related to chlorination, then the effectiveness of the alternative disinfection process must be demonstrated by testing for pathogen destruction as determined by

the Director. A 1 mg/l total chlorine residual is recommended after disinfection and before the treated effluent goes into the distribution system.

- g. Metals samples should be analyzed using a method that meets MDL requirements. If a test method is not available the permittee must submit documentation to the Director regarding the method that will be used. The sample type (composite or grab) should be performed according to the methods requirements.
- h. Metals are being sampled in support of the work being done for the Reasonable Potential Analysis. The Metal parameters will be monitored and reported on an annual basis by the facility on Discharge Monitoring Report, but will not have a limit associated with them, if Manti decides to sample more frequently for these parameters, the additional data will be required as per Part V.E.

i. Metals

| | | |
|----------------|---------|----------|
| Arsenic | Cyanide | Selenium |
| Cadmium | Lead | Silver |
| Total Chromium | Mercury | Zinc |
| Copper | Nickel | |

End Table 5 References

| Table 6 | |
|--|---|
| Land Application per Crop Type ^a | |
| Crop Type | List of crops grown on each site |
| Crop Harvest (tons/yr) | As measured based on harvest records |
| Land Application Area (acres) | Land treated process water effluent was applied based on application area |
| Number of Days per Season | Estimated (about 180 days/growing season) |

Table 6 References

- ^a Land Application Reports shall be summarized per crop type and submitted annually, no later than January 28th of the month following the completed reporting period.

End Table 6 References

Lagoon Best Management Practices:

- 1) The permittee shall take such parameters as are necessary to maintain and operate the facility in a manner that will minimize upsets and ensure stable operating conditions.
- 2) The permittee shall visually inspect, at least weekly, the pond(s) to determine if there is adequate freeboard to minimize the likelihood of an accidental discharge occurring. If it is determined that a discharge is occurring and/or there is not adequate freeboard, the appropriate corrective measures shall be taken immediately.
- 3) The permittee shall take precautions and have erosion control measures in place that, in the event of a bypass of treatment, the discharge will not cause erosion into the Waters of the State.

Management Practices for Land Application of Treated Effluent:

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

BIOSOLIDS

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

PRETREATMENT REQUIREMENTS

Bear River will not be required to develop an approved pretreatment program. This decision is based on the following: the flow through the plant is less than five (5) MGD, there are no known Significant Industrial Users discharging to the Publicly Owned Treatment Works (POTW), and the POTW has not discharged in the last three years. Although Bear River does not have to develop an approved pretreatment program, any wastewater discharged to a POTW from an Industrial User (IU) is subject to Federal, State, and local regulations. Per Section 307 of the Clean Water Act, Bear River must 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 per Part II of the permit. The IWS is to assess the need for pretreatment assistance. Based on a search of the service area and information stated in the application, the IWS is not required at this time. Bear River must notify DWQ per the requirements of the permit if an IU begins to discharge or an existing IU changes its discharge or process. Notification must be provided, by submitting information regarding the IU, no later than sixty days following the introduction or change as stated in Part II of the permit. Information and forms to assist with the IWS can be found in Attachment I of this document.

Sampling is not required for metals and toxic organic chemicals per the requirements of Part II of the permit. At this time, local limits have not been and are not required to be developed by Bear River. Although, Bear River is required to submit any local limits that are developed in the future for review and approval by the Director. Approval must be provided by the Director before the local limits are implemented by Bear River. If local limits are developed, it is required that Bear River perform an annual evaluation of the need to revise or develop technically based local limits for pollutants of concern, to implement the general and specific prohibitions 40 CFR, Part 403.5(a) and Part 403.5(b). This evaluation may indicate that present local limits are sufficiently protective, need to be revised, or should be developed.

BIOMONITORING REQUIREMENTS

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

The permittee is a minor municipal facility that primarily land applies effluent, in which toxicity is neither an existing concern, nor likely to be present. Bear River City does not have any categorical industrial users, so 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
Leanna Littler, Discharge
Jennifer Robinson, Pretreatment
Lonnie Shull, Biomonitoring
Sarah Leavitt Ward, Reuse
Suzan Tahir, Wasteload Analysis
Utah Division of Water Quality, (801) 536-4300

PUBLIC NOTICE

Began: January 14, 2022
Ended: February 14, 2022

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

The Public Notice of the draft permit was published in Division of Water Quality public notice website.

ADDENDUM TO FSSOB

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

RESPONSIVENESS SUMMARY

No comments were received.

DWQ-2022-002799

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ATTACHMENT 1

Industrial Waste Survey

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Industrial Pretreatment Wastewater Survey



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

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

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

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

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

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

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

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

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

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

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

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

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

An Industrial Waste Survey consists of:

Step 1: Identify Industrial Users

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

Sources for the list:

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

Split the list into two groups:

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

Step 2: Preliminary Inspection

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

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

Step 3: Informing the State

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

Jennifer Robinson

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

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

PRELIMINARY INSPECTION FORM

INSPECTION DATE ____ / ____ /

Name of Business _____ Person Contacted _____
Address _____ Phone Number _____

Description of Business _____

Principal product or service: _____

Raw Materials used: _____

Production process is: Batch Continuous Both

Is production subject to seasonal variation? yes no

If yes, briefly describe seasonal production cycle.

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

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

Wastes are discharged to (check all that apply):

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

Name of waste hauler(s), if used

Is a grease trap installed? Yes No

Is it operational? Yes No

Does the business discharge a lot of process wastewater?

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

Does the business do any of the following:

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

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

Inspector

Waste Treatment Facility

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

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

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

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

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ATTACHMENT 2

Effluent Monitoring Data

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| | Parameter | Flow | BOD ₅ mg/L | BOD ₅ mg/L | TSS | TSS | E. coli No./100 mL | E. coli, No./100 mL | pH | pH | DO | Oil & Grease | TRC, mg/L | TDS | Total P | Orthophosphate | Ammonia | Nitrate-Nitrite | TKN | | |
|------|-----------|-----------|-----------------------|-----------------------|-----------------|------------------|--------------------|---------------------|-----------|-----------|-----------|--------------|-----------|-----|---------|----------------|---------|-----------------|-----|----|----|
| | Month | Daily Max | Max Weekly Avg. | Max Monthly Avg. | Max Weekly Avg. | Max Monthly Avg. | Max Weekly Avg. | Max Monthly Avg. Ma | Daily Min | Daily Max | Daily Min | Daily Max | Daily Max | | | | | | | | |
| 2017 | Jan | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| | Feb | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| | Mar | 0.28 | ND | ND | 4 | 4 | 90 | 90 | 8.3 | 8.3 | 9.6 | | | | | | | | | | |
| | Apr | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| | May | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| | Jun | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | Jul | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | Aug | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | Sep | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | Oct | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | Nov | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | Dec | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2018 | Jan | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| | Feb | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| | Mar | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| | Apr | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| | May | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| | Jun | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | Jul | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | Aug | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | Sep | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | Oct | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | Nov | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| | Dec | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |
| 2019 | Jan | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| | Feb | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| | Mar | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| | Apr | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| | May | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| | Jun | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| | Jul | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| | Aug | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| | Sep | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| | Oct | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| | Nov | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |
| | Dec | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | |

*ND=No Discharge

ATTACHMENT 3

Wasteload Analysis

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

Date: June 24, 2020

Prepared by: Suzan Tahir
Standards and Technical Services Section

Facility: Bear River City Lagoons
UPDES No. UT0020311

Receiving water: Malad River (2B, 3C)

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

Discharge

Outfall 001D: Malad River → Bear River
Outfall 002 & Outfall 003: Tributary to Malad River → Bear River

The maximum daily discharge for the facility is 0.36 MGD.

Receiving Water

The receiving water for Outfall 001 is the Malad River, which is tributary to the Bear River and drains to the Bear River Bay of the Great Salt Lake. Per UAC R317-2-13, the designated beneficial uses for Malad River and tributaries, from confluence with Bear River to state line are 2B and 3C.

- *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*

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 for the Malad River at Bear River City, the 20th percentile of flow measurements observed at

Utah Division of Water Quality
Wasteload Analysis
Bear River City Lagoons, Bear River City, UT

monitoring site 4902040 Malad River above Bear City Lagoons for 2010-2020 was calculated to estimate annual critical flow in the receiving water (Table 1).

Table 1: Malad River critical low flow

| Season | Flow (cfs) |
|--------|------------|
| Annual | 2.5 |

TMDL

The Malad River was not assessed due to insufficient data in *Utah's Final 2016 Integrated Report*. The Malad River is tributary to the Bear River, which is listed as impaired for dissolved oxygen, total dissolved solids and benthic macroinvertebrates in the 2016 303(d) list.

The *Lower Bear River and Tributaries TMDL*, which was approved by EPA in 2002, addressed the dissolved oxygen impairment by establishing instream concentration and load allocations for total phosphorous (TP) in the watershed. Point sources identified in the TMDL were Tremonton City, Bear River City, and Corrine City WWTPs. Based on the revised implantation plan Bear City Lagoons were allocated 3.1 lb/day of TP (see attached documentation).

Mixing Zone

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

The mixing zone was not delineated as part of this WLA, but was assumed to remain within the maximum allowable mixing zone specified in the rule.

Parameters of Concern

The potential in-stream parameters of concern identified for the discharge/receiving water may include metals (as a function of hardness),total dissolved solids (TDS), total residual chlorine (TRC), total ammonia (TAN), total suspended solids (TSS), dissolved oxygen (DO), BOD₅, total phosphorus (TP) and pH.

Water Quality Modeling

A QUAL2Kw model of the Malad River was built that extends from the 5575 North Road crossing to the confluence with the Bear River (approximately 4.9 km). The kinetic rate parameters were taken from a QUAL2Kw model of the Malad River that was built and calibrated and utilized for the Tremonton Wastewater Treatment Plant WLA (DWQ 2013).

Receiving water quality data was obtained from monitoring site 4902040 Malad River above Bear City Lagoons for 2010-2020. The average seasonal value was calculated for each constituent with available data in the receiving water.

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Wasteload Analysis
Bear River City Lagoons, Bear River City, UT**

The QUAL2Kw model was used for determining WQBELs related to eutrophication and dissolved oxygen. Effluent concentrations were adjusted so that water quality standards were not exceeded in the receiving water. QUAL2Kw rates, input and output are summarized in Appendix A. Where WQBELs exceeded secondary standards or categorical limits, the concentration in the model was set at the secondary standard or categorical limit.

The QUAL2Kw model was also used to determine the effluent limits for ammonia. The water quality criterion for chronic ammonia toxicity is dependent on temperature and pH, and the water quality criterion for acute ammonia toxicity is dependent on pH.

A mass balance mixing analysis was conducted for conservative constituents such as dissolved metals. The WQBELs determined using the mass balance mixing analysis are summarized in Appendix B.

Models and supporting documentation are available for review upon request.

WET Limits

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

Table 2: WET Limits for IC₂₅

| Season | Percent Effluent |
|--------|------------------|
| Summer | 3% |
| Fall | 18% |
| Winter | 11% |
| Spring | 22% |

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.

Documents:

WLA Document: *BearRiver_WLA_2020.docx*

QUAL2Kw Wasteload Model: *Bear River WLA_2020.xlsm*

Bear River City Lagoons.docx (a document received from the watershed coordinator Mike D.Allred on June23rd 2020)

Utah Division of Water Quality
Wasteload Analysis
Bear River City Lagoons, Bear River City, UT

References:

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

Field Data Collection for QUAL2Kw Model Build and Calibration Standard Operating Procedures Version 1.0. 2012. Utah Division of Water Quality.

Using QUAL2K Modeling to Support Nutrient Criteria Development and Wasteload Analyses in Utah. 2012. Neilson, B.T., A.J. Hobson, N. von Stackelberg, M. Shupryt, and J.D. Ostermiller.

Utah's Final 2016 Integrated Report. 2017. Utah Division of Water Quality.

Tremonton WWTP WLA. 2013. Utah Division of Water Quality.

WASTELOAD ANALYSIS [WLA]

Date: 7/2/2020

Appendix A: QUAL2Kw Analysis Results

Discharging Facility: Bear River City Lagoons
 UPDES No: UT0020311
 Permit Flow [MGD]: 0.36 Max. Daily
 0.36 Max. Monthly Average

Receiving Water: Malad River
 Stream Classification: 2B, 3C
 Stream Flows [cfs]: 21.70 Summer (July-Sept) Critical Low Flow
 2.60 Fall (Oct-Dec)
 4.70 Winter (Jan-Mar)
 2.00 Spring (Apr-June)

Instantaneously Fully Mixed: No
 Acute River Width: 50%
 Chronic River Width: 100%

Modeling Information

A QUAL2Kw model was used to determine these effluent limits.

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.

| Headwater/Upstream Information | Summer | Fall | Winter | Spring |
|------------------------------------|--------|-------|--------|--------|
| Flow (cfs) | 21.7 | 2.6 | 4.7 | 2.0 |
| Temperature (deg C) | 22.4 | 4.6 | 8.3 | 21.1 |
| Specific Conductance (µmhos) | 1,448 | 6,499 | 5,374 | 5,024 |
| Inorganic Suspended Solids (mg/L) | 88.2 | 19.5 | 54.1 | 104.6 |
| Dissolved Oxygen (mg/L) | 10.6 | 16.0 | 14.9 | 19.1 |
| Dissolved Oxygen Diel Range (mg/L) | 3.3 | 2.0 | 2.0 | 2.0 |
| CBOD ₅ (mg/L) | 1.5 | 1.5 | 1.5 | 1.5 |
| Organic Nitrogen (mg/L) | 0.555 | 0.587 | 0.499 | 0.781 |
| NH ₄ -Nitrogen (mg/L) | 0.110 | 1.143 | 0.547 | 0.479 |
| NO ₃ -Nitrogen (mg/L) | 0.876 | 2.077 | 0.881 | 0.680 |
| Organic Phosphorus (mg/L) | 0.026 | 0.114 | 0.049 | 0.070 |
| Inorganic Ortho-Phosphorus (mg/L) | 0.105 | 0.457 | 0.198 | 0.278 |
| Phytoplankton (µg/L) | 21.5 | 9.5 | 0.0 | 146.5 |
| Detritus [POM] (mg/L) | 9.3 | 6.5 | 19.1 | 27.8 |
| Alkalinity (mg/L) | 390 | 390 | 390 | 390 |
| pH | 8.4 | 8.2 | 8.4 | 8.6 |

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| Discharge Information | | | | | |
|-----------------------------------|---------------|-------------|---------------|---------------|--|
| Acute | Summer | Fall | Winter | Spring | |
| Flow (cfs) | 0.4 | 0.4 | 0.4 | 0.4 | |
| Temperature (deg C) | 21.0 | 3.4 | 7.8 | 16.8 | |
| Specific Conductance (µmhos) | 1,639 | 1,654 | 1,455 | 1,485 | |
| Inorganic Suspended Solids (mg/L) | 0.0 | 1.0 | 6.8 | 2.9 | |
| Dissolved Oxygen (mg/L) | 4.0 | 4.0 | 4.0 | 4.0 | |
| CBOD ₅ (mg/L) | 65.0 | 65.0 | 65.0 | 65.0 | |
| Organic Nitrogen (mg/L) | 1.959 | 1.295 | 1.685 | 2.117 | |
| NH ₄ -Nitrogen (mg/L) | 17.800 | 14.000 | 17.000 | 6.000 | |
| NO ₃ -Nitrogen (mg/L) | 0.057 | 0.990 | 0.129 | 0.131 | |
| Organic Phosphorus (mg/L) | 0.290 | 0.108 | 0.164 | 0.382 | |
| Inorganic Ortho-Phosphorus (mg/L) | 1.160 | 0.432 | 0.656 | 1.528 | |
| Phytoplankton (µg/L) | 0.000 | 0.000 | 0.000 | 0.000 | |
| Detritus [POM] (mg/L) | 2.000 | 2.000 | 14.500 | 9.067 | |
| Alkalinity (mg/L) | 300 | 300 | 300 | 300 | |
| pH | 8.9 | 8.7 | 8.8 | 8.6 | |
| Chronic | Summer | Fall | Winter | Spring | |
| Flow (cfs) | 0.4 | 0.4 | 0.4 | 0.4 | |
| Temperature (deg C) | 21.0 | 3.4 | 7.8 | 16.8 | |
| Specific Conductance (µmhos) | 1,639 | 1,654 | 1,455 | 1,485 | |
| Inorganic Suspended Solids (mg/L) | 0.0 | 1.0 | 6.8 | 2.9 | |
| Dissolved Oxygen (mg/L) | 4.0 | 4.0 | 4.0 | 4.0 | |
| CBOD ₅ (mg/L) | 45.0 | 45.0 | 45.0 | 45.0 | |
| Organic Nitrogen (mg/L) | 1.959 | 1.295 | 1.685 | 2.117 | |
| NH ₄ -Nitrogen (mg/L) | 22.000 | 3.000 | 6.000 | 2.000 | |
| NO ₃ -Nitrogen (mg/L) | 0.057 | 0.990 | 0.129 | 0.131 | |
| Organic Phosphorus (mg/L) | 0.290 | 0.108 | 0.164 | 0.382 | |
| Inorganic Ortho-Phosphorus (mg/L) | 1.160 | 0.432 | 0.656 | 1.528 | |
| Phytoplankton (µg/L) | 0.000 | 0.000 | 0.000 | 0.000 | |
| Detritus [POM] (mg/L) | 2.000 | 2.000 | 14.500 | 9.067 | |
| Alkalinity (mg/L) | 300 | 300 | 300 | 300 | |
| pH | 8.9 | 8.7 | 8.8 | 8.6 | |

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

Effluent Limitations

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

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

Effluent Limitation for Biological Oxygen Demand (BOD₅) based upon Secondary Standards

In-stream criteria of downstream segments for Dissolved Oxygen will be met with an effluent BOD₅ limitation as follows:

| Season | Concentration | | |
|--------|---------------|-------|---------------|
| | Chronic | Acute | |
| Summer | 45.0 | 65.0 | mg/L as CBOD5 |
| Fall | 45.0 | 65.0 | mg/L as CBOD5 |
| Winter | 45.0 | 65.0 | mg/L as CBOD5 |
| Spring | 45.0 | 65.0 | mg/L as CBOD5 |

Effluent Limitation for Dissolved Oxygen (DO) based upon Secondary Standards

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

| Season | Concentration | | |
|--------|---------------|-------|------|
| | Chronic | Acute | |
| Summer | 4.0 | 4.0 | mg/L |
| Fall | 4.0 | 4.0 | mg/L |
| Winter | 4.0 | 4.0 | mg/L |
| Spring | 4.0 | 4.0 | mg/L |

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 | Total Ammonia | | |
|--------|---------------|-------|-----------|
| | Chronic | Acute | |
| Summer | 22.0 | 17.8 | mg/L as N |
| Fall | 3.0 | 14.0 | mg/L as N |
| Winter | 6.0 | 17.0 | mg/L as N |
| Spring | 2.0 | 6.0 | mg/L as N |

Summary Comments

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

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Coefficients and Other Model Information

| <i>Parameter</i> | <i>Value</i> | <i>Units</i> |
|--|--------------|--------------|
| <i>Stoichiometry:</i> | | |
| Carbon | 40 | gC |
| Nitrogen | 7.2 | gN |
| Phosphorus | 1 | gP |
| Dry weight | 100 | gD |
| Chlorophyll | 1 | gA |
| <i>Inorganic suspended solids:</i> | | |
| Settling velocity | 0.2 | m/d |
| <i>Oxygen:</i> | | |
| Reaeration model | Internal | |
| Temp correction | 1.024 | |
| Reaeration wind effect | None | |
| O2 for carbon oxidation | 2.69 | gO2/gC |
| O2 for NH4 nitrification | 4.57 | gO2/gN |
| Oxygen inhib model CBOD oxidation | Exponential | |
| Oxygen inhib parameter CBOD oxidation | 0.60 | L/mgO2 |
| Oxygen inhib model nitrification | Exponential | |
| Oxygen inhib parameter nitrification | 0.60 | L/mgO2 |
| Oxygen enhance model denitrification | Exponential | |
| Oxygen enhance parameter denitrification | 0.60 | L/mgO2 |
| Oxygen inhib model phyto resp | Exponential | |
| Oxygen inhib parameter phyto resp | 0.60 | L/mgO2 |
| Oxygen enhance model bot alg resp | Exponential | |
| Oxygen enhance parameter bot alg resp | 0.60 | L/mgO2 |
| <i>Slow CBOD:</i> | | |
| Hydrolysis rate | 0 | /d |
| Temp correction | 1.047 | |
| Oxidation rate | 0.103 | /d |
| Temp correction | 1.047 | |
| <i>Fast CBOD:</i> | | |
| Oxidation rate | 10 | /d |
| Temp correction | 1.047 | |
| <i>Organic N:</i> | | |
| Hydrolysis | 0.89483527 | /d |
| Temp correction | 1.07 | |
| Settling velocity | 0.091262 | m/d |
| <i>Ammonium:</i> | | |
| Nitrification | 1.7040043 | /d |
| Temp correction | 1.07 | |
| <i>Nitrate:</i> | | |
| Denitrification | 1.76751272 | /d |
| Temp correction | 1.07 | |
| Sed denitrification transfer coeff | 0.159155 | m/d |
| Temp correction | 1.07 | |
| <i>Organic P:</i> | | |
| Hydrolysis | 0.96655348 | /d |
| Temp correction | 1.07 | |
| Settling velocity | 0.040271 | m/d |
| <i>Inorganic P:</i> | | |
| Settling velocity | 0.11043 | m/d |
| Sed P oxygen attenuation half sat constant | 0.13709 | mgO2/L |

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| <i>Phytoplankton:</i> | | |
|--------------------------------------|-----------|------------|
| Max Growth rate | 2.9996 | /d |
| Temp correction | 1.07 | |
| Respiration rate | 0.0464108 | /d |
| Temp correction | 1.07 | |
| Death rate | 0.149325 | /d |
| Temp correction | 1 | |
| Nitrogen half sat constant | 15 | ugN/L |
| Phosphorus half sat constant | 2 | ugP/L |
| Inorganic carbon half sat constant | 1.30E-05 | moles/L |
| Phytoplankton use HCO3- as substrate | Yes | |
| Light model | Smith | |
| Light constant | 57.6 | langleys/d |
| Ammonia preference | 16.0685 | ugN/L |
| Settling velocity | 0.00939 | m/d |

| <i>Bottom Plants:</i> | | |
|---|-----------------|---------------|
| Growth model | Zero-order | |
| Max Growth rate | 2.036895 | gD/m2/d or /d |
| Temp correction | 1.07 | |
| First-order model carrying capacity | 100 | gD/m2 |
| Basal respiration rate | 0.2547098 | /d |
| Photo-respiration rate parameter | 0.01 | unitless |
| Temp correction | 1.07 | |
| Excretion rate | 0.155962 | /d |
| Temp correction | 1.07 | |
| Death rate | 0.34128 | /d |
| Temp correction | 1.07 | |
| External nitrogen half sat constant | 75.5788 | ugN/L |
| External phosphorus half sat constant | 93.0243 | ugP/L |
| Inorganic carbon half sat constant | 7.83E-05 | moles/L |
| Bottom algae use HCO3- as substrate | Yes | |
| Light model | Half saturation | |
| Light constant | 43.0758 | langleys/d |
| Ammonia preference | 16.21275 | ugN/L |
| Subsistence quota for nitrogen | 38.2721 | mgN/gD |
| Subsistence quota for phosphorus | 2.582105 | mgP/gD |
| Maximum uptake rate for nitrogen | 883.188 | mgN/gD/d |
| Maximum uptake rate for phosphorus | 95.5036 | mgP/gD/d |
| Internal nitrogen half sat ratio | 2.009455 | |
| Internal phosphorus half sat ratio | 3.4393945 | |
| Nitrogen uptake water column fraction | 1 | |
| Phosphorus uptake water column fraction | 1 | |

| <i>Detritus (POM):</i> | | |
|------------------------|-----------|-----|
| Dissolution rate | 0.0800015 | /d |
| Temp correction | 1.07 | |
| Settling velocity | 0.00714 | m/d |

| <i>pH:</i> | | |
|------------------------------------|-----|-----|
| Partial pressure of carbon dioxide | 370 | ppm |

| Atmospheric Inputs: | Summer | Fall | Winter | Spring |
|-------------------------|--------|------|--------|--------|
| Max. Air Temperature, F | 89.1 | 47.7 | 38.8 | 70.4 |
| Min. Air Temperature, F | 58.6 | 26.6 | 20.7 | 44.2 |
| Dew Point, Temp., F | 57.2 | 34.0 | 28.6 | 47.3 |
| Wind, ft./sec. @ 21 ft. | 7.7 | 6.1 | 6.2 | 7.8 |
| Cloud Cover, % | 0.1 | 0.1 | 0.1 | 0.1 |

| Other Inputs: | |
|-----------------------|--------------|
| Bottom Algae Coverage | 100.0% |
| Bottom SOD Coverage | 100.0% |
| Prescribed SOD | 0.0 gO2/m2/d |

WASTELOAD ANALYSIS [WLA]

Date: 7/2/2020

Appendix B: Mass Balance Mixing Analysis for Conservative Constituents

| | | | |
|------------------------------|-------------------------|----------------------|-------------------|
| Discharging Facility: | Bear River City Lagoons | | |
| UPDES No: | UT0020311 | | |
| Permit Flow [MGD]: | 0.36 | Maximum Monthly Flow | |
| | 0.36 | Maximum Daily Flow | |
| Receiving Water: | Malad River | | |
| Stream Classification: | 2B, 3C | | |
| Stream Flows [cfs]: | 21.70 | Summer (July-Sept) | Critical Low Flow |
| | 2.60 | Fall (Oct-Dec) | |
| | 4.70 | Winter (Jan-Mar) | |
| | 2.00 | Spring (Apr-June) | |
| Instantaneously Fully Mixed: | No | | |
| Acute River Width: | 50% | | |
| Chronic River Width: | 100% | | |

Modeling Information

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

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.

Headwater/Upstream Information

| | |
|--------|--------------------|
| | Malad River |
| | cfs |
| Summer | 21.7 |
| Fall | 2.6 |
| Winter | 4.7 |
| Spring | 2.0 |

Discharge Information

| | |
|-----------------|-------------|
| | Flow |
| | MGD |
| Maximum Daily | 0.36 |
| Maximum Monthly | 0.36 |

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

Effluent Limitations

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

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

Utah Division of Water Quality

Effluent Limitations for Protection of Recreation (Class 2B Waters)

| Physical Parameter | | Maximum Concentration |
|---------------------------|---------------------------------|------------------------------|
| | pH Minimum | 6.5 |
| | pH Maximum | 9.0 |
| | | |
| Bacteriological | | |
| | E. coli (30 Day Geometric Mean) | 206 (#/100 mL) |
| | E. coli (Maximum) | 668 (#/100 mL) |

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

| Physical Parameter | | Maximum Concentration |
|---------------------------|----------------------------|------------------------------|
| | Temperature (deg C) | 27 |
| | Temperature Change (deg C) | 4 |

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

| Dissolved Metals | Chronic Standard (4 Day Average)¹ | | | Acute Standard (1 Hour Average)¹ | | | |
|-------------------------|---|------------------|-------------------------------|--|-----------------|-------------------------------|--------------|
| | Parameter | Standard | Background² | Limit | Standard | Background² | Limit |
| | Aluminum (µg/L) | N/A ³ | | NONE | 750 | 503 | 5571 |
| | Arsenic (µg/L) | 150 | 101 | 2078 | 340 | 101 | 5005 |
| | Cadmium (µg/L) | 1.6 | 1.1 | 22.7 | 5.0 | 1.1 | 81.1 |
| | Chromium VI (µg/L) | 11.0 | 7.4 | 152.4 | 16.0 | 7.4 | 184.1 |
| | Chromium III (µg/L) | 182 | 122 | 2525 | 1,401 | 122 | 26,315 |
| | Copper (µg/L) | 22.9 | 15.3 | 317.3 | 37.8 | 15.3 | 476.0 |
| | Cyanide (µg/L) | 22.0 | 14.7 | 304.8 | 5.2 | 14.7 | -180.6 |
| | Iron (µg/L) | | | | 1,000 | 670 | 7,428 |
| | Lead (µg/L) | 8.1 | 5.4 | 112.6 | 209 | 5.4 | 4166 |
| | Mercury (µg/L) | 0.012 | 0.008 | 0.166 | 2.4 | 0.0 | 49.0 |
| | Nickel (µg/L) | 132 | 88.3 | 1825 | 1,186 | 88.3 | 22,571 |
| | Selenium (µg/L) | 4.6 | 3.1 | 63.7 | 18.4 | 3.1 | 316.8 |
| | Silver (µg/L) | | | | 21.3 | 14.3 | 158.1 |
| | Tributyltin (µg/L) | 0.072 | 0.048 | 0.998 | 0.46 | 0.05 | 8.48 |
| | Zinc (µg/L) | 300 | 201 | 4153 | 297 | 201 | 2176 |

1: Based upon a Hardness of 300 mg/l as CaCO₃

2: Background concentration assumed 67% of chronic standard

3: Where the pH is equal to or greater than 7.0 and the hardness is equal to or greater than 50 ppm as CaCO₃ in the receiving water after mixing, the 87 ug/L chronic criterion (expressed as total recoverable) will not apply, and aluminum will be regulated based on compliance with the 750 ug/L acute aluminum criterion (expressed as total recoverable).

Utah Division of Water Quality

| Organics [Pesticides] | Parameter | Chronic Standard (4 Day Average) | | | Acute Standard (1 Hour Average) | | |
|-----------------------|--------------------------------|----------------------------------|-------------------------|--------|---------------------------------|-------------------------|-------|
| | | Standard | Background ¹ | Limit | Standard | Background ¹ | Limit |
| | Aldrin (µg/L) | | | | 1.5 | 1.0 | 11.1 |
| | Chlordane (µg/L) | 0.0043 | 0.0029 | 0.0596 | 1.2 | 0.0 | 24.5 |
| | DDT, DDE (µg/L) | 0.001 | 0.001 | 0.014 | 0.55 | 0.00 | 11.25 |
| | Diazinon (µg/L) | 0.17 | 0.11 | 2.36 | 0.17 | 0.11 | 1.26 |
| | Dieldrin (µg/L) | 0.0056 | 0.0038 | 0.0776 | 0.24 | 0.00 | 4.84 |
| | Endosulfan, a & b (µg/L) | 0.056 | 0.038 | 0.776 | 0.11 | 0.04 | 1.52 |
| | Endrin (µg/L) | 0.036 | 0.024 | 0.499 | 0.086 | 0.024 | 1.291 |
| | Heptachlor & H. epoxide (µg/L) | 0.0038 | 0.0025 | 0.0527 | 0.26 | 0.00 | 5.28 |
| | Lindane (µg/L) | 0.08 | 0.05 | 1.11 | 1.0 | 0.1 | 19.4 |
| | Methoxychlor (µg/L) | | | | 0.03 | 0.02 | 0.22 |
| | Mirex (µg/L) | | | | 0.001 | 0.001 | 0.007 |
| | Nonylphenol (µg/L) | 6.6 | 4.4 | 91.5 | 28.0 | 4.4 | 487.3 |
| | Parathion (µg/L) | 0.0130 | 0.0087 | 0.1801 | 0.066 | 0.009 | 1.182 |
| | PCB's (µg/L) | 0.014 | 0.009 | 0.194 | | | |
| | Pentachlorophenol (µg/L) | 15.0 | 10.1 | 207.8 | 19.0 | 10.1 | 193.3 |
| | Toxephene (µg/L) | 0.0002 | 0.0001 | 0.0028 | 0.73 | 0.00 | 14.95 |

1: Background concentration assumed 67% of chronic standard

| Radiological | Parameter | Maximum Concentration | | |
|--------------|---------------------|-----------------------|-------------------------|-------|
| | | Standard | Background ¹ | Limit |
| | Gross Alpha (pCi/L) | 15 | 10.1 | -12.6 |

1: Background concentration assumed 67% of chronic standard; TDS is based on observed ambient data

1.0 BEAR RIVER CITY LAGOONS (UT0020311)

The Bear River City Lagoons were put into operation in 1974 to treat residential sewage from Bear River City. The design flow of the treatment facility is 0.36 mgd. The facility consists of a pump station, a pressurized 6-inch line, followed by a six cell facultative lagoon system (Utah DEQ 2016a). The facility constructed a 12 million gallon land application reservoir in 2015.

The Bear River City lagoons are permitted to discharge through four outfalls.

- **Outfall 001** is treated effluent that is discharged from an 8-inch concrete pipe to the Malad River.
- **Outfall 001D** is to a retention basin for land disposal.
- **Outfall 002** is from the bottom drain of the retention basin to a ditch tributary of the Malad River.
- **Outfall 003** is from an emergency overflow spillway from the retention basin to a tributary of the Malad River.

1.1 EFFLUENT CHARACTERIZATION

The available TP and flow data for this facility are shown in **Figure 1**. It appears that flows from the facility decreased substantially beginning in 2009 about the time TP concentration data became available. To facilitate this analysis, only those flows collected after September 2009 were considered.

Average monthly flows, based on records from September 2009 through June 2016, range from 0.19 mgd to 0.26 mgd (**Figure 2**). Discharge TP concentrations range from 0.70 mg/l to 3.10 mg/l. There do not appear to be any discernable seasonal or long-term trends in discharge TP concentration (**Figure 3**).

TP discharge loads range from 0.69 lb/d to 5.7 lb/d¹. As with concentration, there do not appear to be any obvious seasonal trends (**Figure 4** and **Table 1**).

¹ Loads were calculated using paired TP and flow data.

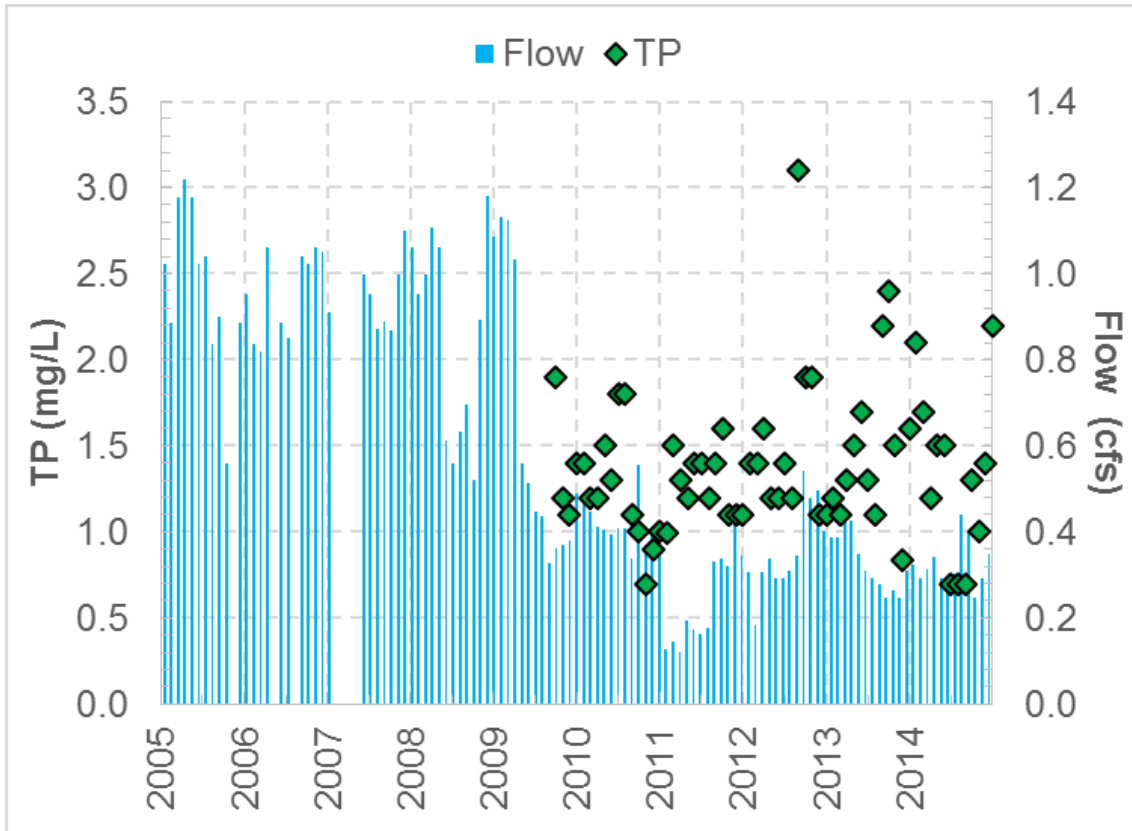


Figure 1. Summary of TP and flow data at the Bear River City lagoons.

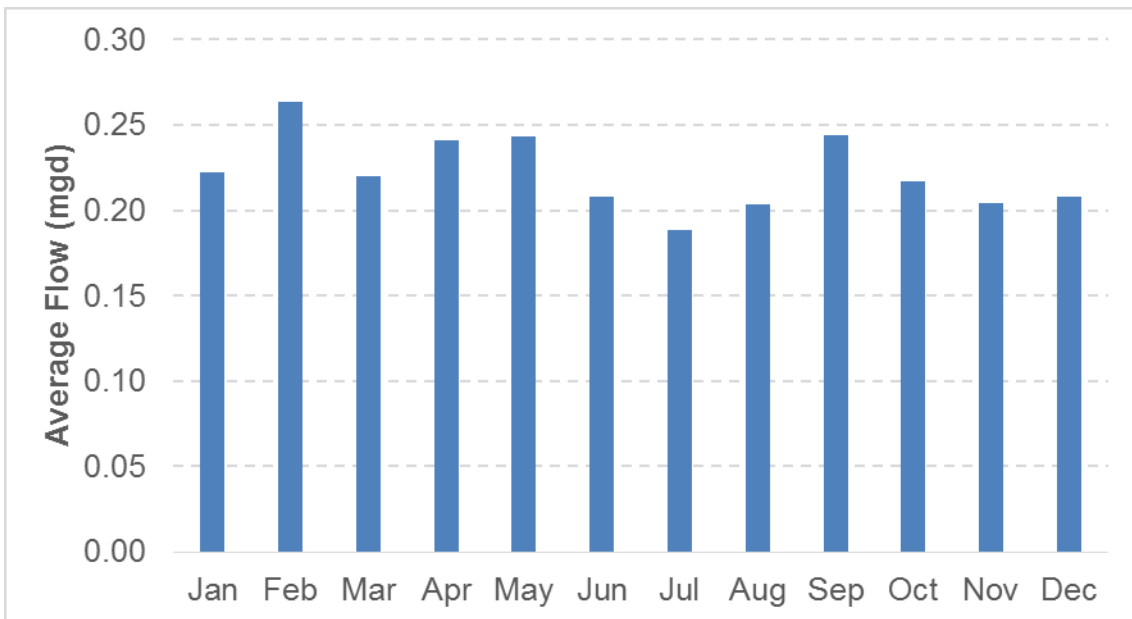


Figure 2. Average monthly flow at the Bear River City lagoons (2009-2015).

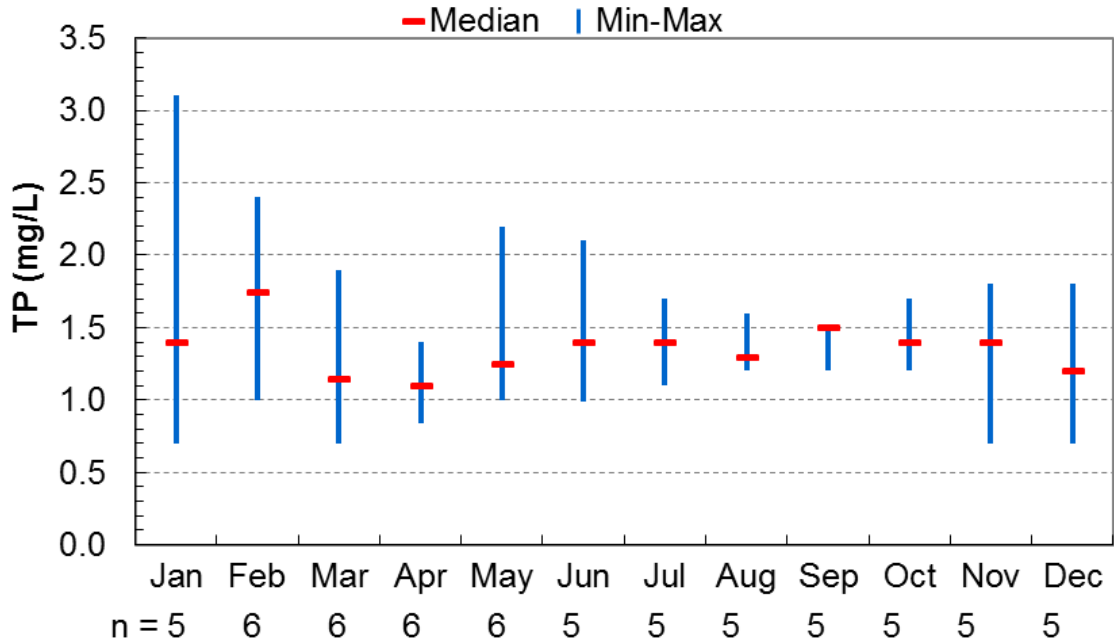


Figure 3. Monthly summary of TP concentrations in treated effluent at the Bear River City lagoons.

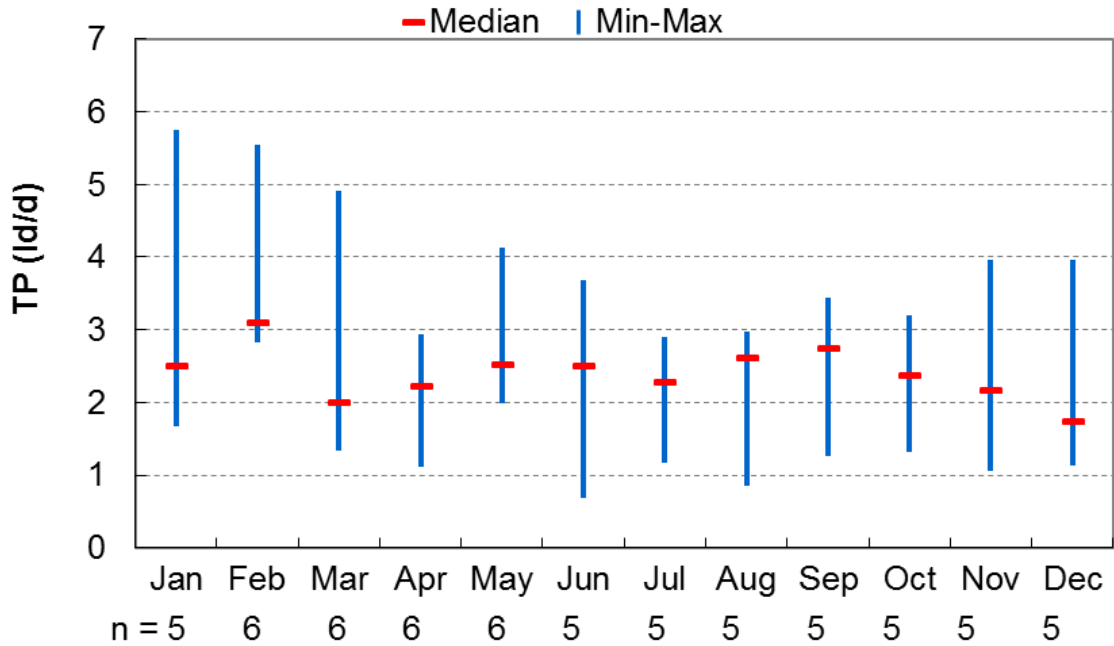


Figure 4. Monthly summary of TP loads in treated effluent at the Bear River City lagoons.

Table 1. Average monthly TP loads (lb/d) discharged from the Bear River City lagoons

| Month | Bear River City lagoons |
|-----------|-------------------------|
| | UT0020311 |
| January | 3.05 |
| February | 3.53 |
| March | 2.34 |
| April | 2.16 |
| May | 2.82 |
| June | 2.54 |
| July | 2.09 |
| August | 2.23 |
| September | 2.58 |
| October | 2.31 |
| November | 2.13 |
| December | 2.00 |

Note: Loads (lb/d) were calculated using paired TP and flow data.

1.2 WASTELOAD ALLOCATION

The following presents a WLA for the Bear River City lagoons based on the total phosphorus rule.

1.2.1 WLA Calculated Using Total Phosphorus Rule

A WLA of 3.1 lb/d was calculated by multiplying the average annual load (2.5 lb/d) by 125 percent. A daily average load for each calendar month was calculated by averaging paired TP and flow from February 2010 through May 2015. The daily average load for each month was then multiplied by the number of days per month and summed; the summation was divided by 365 days per year to yield the average annual load in lb/d.

1.3 IMPACT ANALYSIS

The current average annual load is 2.47 lb/d, which was calculated using monthly averages of paired TP and effluent flow data from February 2010 through May 2015. Implementing the phosphorus loading cap would result in an increase (on average) of 0.63 lb/d (**Table 2**).

Table 2. WLAs and Necessary load reductions at the Bear River City lagoons to achieve the WLA

| | Phosphorus Loading Cap |
|---|------------------------|
| Wasteload allocation | |
| TP (mg/L) | n/a |
| Flow (mgd) | n/a |
| WLA (lb/d) | 3.1 |
| Necessary reduction ^a | |
| Load reduction (lb/d) | 0.63 increase |
| Relative reduction (%) | 25% increase |

Note a.: Necessary reduction from the existing load (2.47 lb/d) to achieve the WLA.

Generally, no reduction would be necessary for the phosphorus loading cap because the rule allows for a future discharge from a lagoon system to discharge 125 percent of current average conditions (R317-1-3.3(B)). However, because this WLA is calculated as an average of current loads, load reductions could be necessary for larger loads that exceed 125 percent of the current average load.

Of the 64 loads calculated with paired TP and flow data from February 2010 through May 2015, 15 loads exceeded 3.1 lb/d, and thus, would have required reductions (range 3 to 46 percent).