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

**BEAR RIVER CITY**

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

**MALAD RIVER**

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

This modified permit shall become effective on July 1, 2018.

This modified permit expires at midnight on July 31, 2020.

Signed this 29th day of June, 2018.

Erica Brown Gaddis, PhD
Director

DWQ-2018-006642

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## I. DISCHARGE LIMITATIONS AND REPORTING REQUIREMENTS

A. Description of Discharge Points.

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

| Outfall Number | Location of Discharge Outfall |
|---|---|
| 001 | Located at latitude 41°35'58" and longitude 112°08'32". 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. |
| 001D | Located at latitude 41.601299° and longitude 112.139789°. The outfall is to a retention basin for land disposal. |
| 002 | Located at latitude 41.600978° and longitude 112.139184°. The outfall of the bottom drain of retention basin flows into a ditch tributary to the Malad River. |
| 003 | Located at latitude 41.601093° and longitude 112.138783°. The outfall is an emergency overflow spillway from the retention basin and discharges to a tributary of the Malad River. |

B. Narrative Standard.

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

C. Specific Limitations and Self-Monitoring Requirements for Surface Water Discharge.

1. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from Outfalls 001, 002, and 003. Such discharges shall be limited and monitored by the permittee as specified below:

| Parameter | Effluent Limitations[0] for Outfalls 001, 002, 003 | | | | |
|---|---|---|---|---|---|
| | Maximum Monthly Avg | Maximum Weekly Avg | Daily Minimum | Daily Maximum | Yearly Maximum |
| Flow, mgd | | | | 0.36 | |
| $BOD_5$, mg/L | 45 | 65 | | | |
| Total Suspended Solids (TSS) mg/L | 45 | 65 | | | |
| *E. coli*, No./100mL | 126 | 158 | | | |
| pH, Standard Units | | | 6.5 | 9.0 | |
| Dissolved Oxygen, mg/L | | | 4.0 | | |
| Oil & Grease, mg/L | | | | 10.0 | |
| Total Residual Chlorine (mg/L) | | | | 0.166 | |
| Total Phosphorus, lbs/year | | | | | 1,333 |

| Influent Self-Monitoring and Reporting Requirements[0] | | | |
|---|---|---|---|
| Parameter | Frequency | Sample Type | Units |
| $BOD_5$[2] | Monthly | Grab | mg/L |
| TSS[2] | Monthly | Grab | mg/L |
| Total Phosphorus (as P)[3] | Monthly | Composite[4] | mg/L |
| Total Kjeldahl Nitrogen (as N)[3] | Monthly | Composite[4] | mg/L |

| Effluent Self-Monitoring and Reporting Requirements[0] | | | |
|---|---|---|---|
| Parameter | Frequency | Sample Type | Units |
| Total Flow[2] | Continuous | Recorder | mgd |
| $BOD_5$[2] | Monthly | Grab | mg/L |
| $BOD_5$ % Removal | Monthly | Calculated | % |
| TSS[2] | Monthly | Grab | mg/L |
| TSS % Removal | Monthly | Calculated | % |
| *E. coli* | Monthly | Grab | No./100mL |
| pH | Monthly | Grab | SU |
| Dissolved Oxygen | Monthly | Grab | mg/L |
| Oil & Grease[5] | Monthly | Grab | mg/L |
| Total Dissolved Solids | Monthly | Grab | mg/L |
| Total Phosphorus (as P)[3] | Monthly | Composite[4] | mg/L |
| Orthophosphate (as P)[3] | Monthly | Composite[4] | mg/L |
| Ammonia (as N)[3] | Monthly | Composite[4] | mg/L |
| Nitrate-Nitrite (as N)[3] | Monthly | Composite[4] | mg/L |
| Total Kjeldahl Nitrogen (as N)[3] | Monthly | Composite[4] | mg/L |

1. See Definitions, *Part VI*, for definition of terms.
2. Influent samples and the influent flow shall be monitored and measured at the same frequency as the effluent samples and the effluent flow.
3. Monitoring of these parameters shall be conducted and begin in accordance with R317-1-3.3.D.
4. Composite samples shall be by use of an automatic sampler or minimum of four grab samples collected a minimum of two hours apart.
5. Sample only if a sheen is observed.

D. Reporting of Wastewater Monitoring Results.
Monitoring results obtained during the previous month shall be summarized for each month and reported on a Discharge Monitoring Report Form (EPA No. 3320-1) or by NetDMR, post-marked or entered into NetDMR no later than the 28th day of the month following the completed reporting period. The first report is due on March 28, 2016. If no discharge occurs during the reporting period, "no discharge" shall be reported. Legible copies of these, and all other reports reports required herein, shall be signed and certified in accordance with the requirements of *Signatory Requirements (see Part VII.G)*, and submitted by NetDMR, or to the Division of Water Quality at the following address:

Department of Environmental Quality
Division of Water Quality
195 North 1950 West
PO Box 144870
Salt Lake City, Utah 84114-4870

E. Specific Limitations and Self-Monitoring Requirements for Land Disposal.

1. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge effluent for Land Disposal from Outfall 001D. Such discharges shall be limited and monitored by the permittee as specified below:

| Parameter | Effluent Limitations for Land Disposal at Outfall 001D[1,2] | | |
|---|---|---|---|
| | Maximum Weekly Avg | Daily Minimum | Daily Maximum |
| $BOD_5$, mg/L | 65 | | |
| Total Suspended Solids (TSS) mg/L | 65 | | |
| *E. coli*, No./100mL | 158 | | 500 |
| pH, Standard Units (SU) | | 6.5 | 9.0 |

| Self-Monitoring and Reporting Requirements for Type II Land Disposal at Outfall 001D[0, 2] | | | |
|---|---|---|---|
| Parameter | Frequency | Sample Type | Units |
| Applied Flow | Continuous | Recorder | mgd |
| Irrigated Acreage | Monthly | Estimated | acres |
| $BOD_5$ | Monthly | Grab | mg/L |
| TSS | Monthly | Grab | mg/L |
| *E. coli* | Monthly | Grab | No./100mL |
| pH | Monthly | Grab | SU |
| Total Inorganic Nitrogen | Monthly | Grab | mg/L |

1. See Definitions, *Part VI*, for definition of terms.
2. Effluent shall only be disposed of by methods allowed by R317-3-11.5.A.

F. Management Practices for Land Disposal 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 except as authorized under I.C. of this permit.
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. Spray irrigation must be at least 100 feet from areas intended for public access. This distance may be reduced or increased by the Director.
7. Impoundments of treated effluent, if not sealed, must be at least 500 feet from any potable well.
8. 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.

G. Annual Reporting of Land Disposal Monitoring Results

Monitoring results obtained during the previous year shall be summarized and submitted in an Annual Report by May 1st. The report shall include a tabular summary of the monthly minimum, average, and maximum values. This report may be submitted as a standalone report or as an inclusion in the facility's Municipal Wastewater Planning Program (MWPP). 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 V.G)*, and submitted to the Division of Water Quality at the following address:

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

## II. INDUSTRIAL PRETREATMENT PROGRAM

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

1. Significant industrial user (SIU) is defined as an industrial user discharging to a publicly-owned treatment works (POTW) that satisfies any of the following:

   a. Has a process wastewater flow of 25,000 gallons or more per average work day;

   b. Has a flow greater than five percent of the flow carried by the municipal system receiving the waste;

   c. Is subject to Categorical Pretreatment Standards, or

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

2. Local Limit is defined as a limit designed to prevent pass through and/or interference. And is developed in accordance with 40 CFR 403.5(c).

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

C. Industrial Waste Survey (IWS).

1. As required by *Part II.B.1*. the industrial waste survey consists of;

   a. Identifying each industrial user (IU) and determining if the IU is a signification industrial user (SIU),

   b. Determination of the qualitative and quantitative characteristics of each discharge, and

   c. Appropriate production data.

2. The IWS must be maintained and updated with IU information as necessary, to ensure that all IUs are properly permitted and/or controlled

at all times. Updates must be submitted to the Director sixty (60) days following a change to the IWS.

3. Evaluate all significant industrial users at least once every two years to determine if they need to develop a slug prevention plan. If a slug prevention plan is required, the permittee shall notify the Director.

4. Notify all significant industrial users of their obligation to comply with applicable requirements under *Subtitles C and D* of the *Resource* Conservation and Recovery Act (RCRA).

5. The permittee must notify the Director of any new introductions by new or existing SIUs or any substantial change in pollutants from any major industrial source. Such notice must contain the information described in 1. above, and be forwarded no later than sixty (60) days following the introduction or change.

D. General and Specific Prohibitions

1. Developed pursuant to *Section 307* of *The Water Quality Act of 1987* require that under no circumstances shall the permittee allow introduction of the following pollutants into the waste treatment system from any source of non-domestic discharge:

   a. Pollutants which create a fire or explosion hazard in the publicly owned treatment works (POTW), including, but not limited to, wastestreams 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, nonbiodegradable 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.

2. In addition to the general and specific limitations expressed above, more specific pretreatment limitations have been and will be promulgated for specific industrial categories under *Section 307* of *the Water Quality Act of 1987 as amended (WQA). (See 40 CFR, Subchapter N, Parts 400* through *500*, for specific information).

E. Signification Industrial Users Discharging to the POTW.
The permittee shall provide adequate notice to the Director and the Division of Water Quality Industrial Pretreatment Coordinator of;

1. Any new introduction of pollutants into the treatment works from an indirect discharger (i.e., industrial user) which would be subject to *Sections 301* or *306* of the *WQA* if it were directly discharging those pollutants;

2. Any substantial change in the volume or character of pollutants being introduced into the treatment works by a source introducing pollutants into the treatment works at the time of issuance of the permit; and

3. For the purposes of this section, adequate notice shall include information on:

a. The quality and quantity of effluent to be introduced into such treatment works; and,

b. Any anticipated impact of the change on the quantity or quality of effluent to be discharged from such publicly owned treatment works.

4. Any SIU that must comply with applicable requirements under *Subtitles C and D* of the *Resource* Conservation and Recovery Act (RCRA).

F. Change of Conditions.
At such time as a specific pretreatment limitation becomes applicable to an industrial user of the permittee, the Director may, as appropriate, do the following:

1. Amend the permittee's UPDES discharge permit to specify the additional pollutant(s) and corresponding effluent limitation(s) consistent with the applicable national pretreatment limitation;

2. Require the permittee to specify, by ordinance, contract, or other enforceable means, the type of pollutant(s) and the maximum amount which may be discharged to the permittee's facility for treatment. Such requirement shall be imposed in a manner consistent with the POTW program development requirements of the *General Pretreatment Regulations* at *40 CFR 403;*

3. Require the permittee to monitor its discharge for any pollutant, which may likely be discharged from the permittee's facility, should the industrial user fail to properly pretreat its waste; and/or,

4. Require the permittee to develop an approved pretreatment program.

G. Legal Action.
The Director retains, at all times, the right to take legal action against the industrial user and/or the treatment works, in those cases where a permit violation has occurred because of the failure of an industrial user to discharge at an acceptable level. If the permittee has failed to properly delineate maximum acceptable industrial contributor levels, the Director will look primarily to the permittee as the responsible party.

H. Local Limits
If local limits are developed per R317-8-8.5(4)(b) to protect the POTW from pass through or interference, then the POTW must submit limits to DWQ for review and public notice, as required by R317-8-8.5(4)(c).

## III. BIOSOLIDS REQUIREMENTS

The State of Utah has adopted the 40 CFR 503 federal regulations for the disposal of sewage sludge (biosolids) by reference. However, since this facility is a lagoon, there is not any regular sludge production. Therefore 40 CFR 503 does not apply at this time. In the future, if the sludge needs to be removed from the lagoons and is disposed in some way, the Division of Water Quality must be contacted prior to the removal of the sludge to ensure that all applicable state and federal regulations are met.

IV. STORM WATER REQUIREMENTS.

The *Utah Administrative Code (UAC) R-317-8-3.9* requires storm water permit provisions to include the development of a storm water pollution prevention plan for waste water treatment facilities if the facility meets one or both of the following criteria.

- waste water treatment facilities with a design flow of 1.0 MGD or greater, and/or,
- waste water treatment facilities with an approved pretreatment program as described in *40CFR Part 403,*

The permittee does not meet either of the above criteria; therefore this permit does not include storm water provisions. The permit does however include a storm water re-opener provision.

## 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.

2. The following occurrences of noncompliance shall be reported by telephone (801) 536-4123 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 IV.G, Bypass of Treatment Facilities.)*;

   c. Any upset which exceeds any effluent limitation in the permit (See *PartIV.H, Upset Conditions.*);

   d. Violation of a maximum daily discharge limitation for any of the pollutants listed in the permit; or,

   e. Violation of any of the Table 3 metals limits, the pathogen limits, the vector attraction reduction limits or the management practices for biosolids that have been sold or given away.

3. A written submission shall also be provided within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:

   a. A description of the noncompliance and its cause;

   b. The period of noncompliance, including exact dates and times;

c. The estimated time noncompliance is expected to continue if it has not been corrected;

d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and,

e. Steps taken, if any, to mitigate the adverse impacts on the environment and human health during the noncompliance period.

4. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Division of Water Quality, (801) 536-4300.

5. Reports shall be submitted to the addresses in *Part I.D, Reporting of Monitoring Results*.

I. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for *Part I.D* are submitted. The reports shall contain the information listed in *Part III.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;

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 IV.G, Bypass of Treatment Facilities* and *Part IV.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:

      (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 IV.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 IV.G.2.a (1), (2) and (3).*

3. Notice.

   a. Anticipated *bypass.* Except as provided above in *section IV.G.2* and below in *section IV.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 IV.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 III.H, Twenty-four Hour Notice of Noncompliance Reporting*; and,

d. The permittee complied with any remedial measures required under *Part IV.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 representative may thus be either a named individual or any individual occupying a named position.

3. Changes to authorization. If an authorization under *paragraph V.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 V.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;

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 of federal regulations.

Q. Toxicity Limitation - Reopener Provision.
This permit may be reopened and modified (following proper administrative procedures) to include, whole effluent toxicity (WET) limitations, a compliance date, a compliance schedule, a change in the whole effluent toxicity (biomonitoring) protocol, additional or modified numerical limitations, or any other conditions related to the control of toxicants.

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. "Bypass," means the diversion of waste streams from any portion of a treatment facility.

5. "Composite Samples" shall be flow proportioned. The composite sample shall, as a minimum, contain at least four (4) samples collected over the compositing period. Unless otherwise specified, the time between the collection of the first sample and the last sample shall not be less than six (6) hours nor more than 24 hours. Acceptable methods for preparation of composite samples are as follows:

   a. Constant time interval between samples, sample volume proportional to flow rate at time of sampling;

   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.

6. "CWA," means *The Federal Water Pollution Control Act*, as amended, by *The Clean Water Act of 1987*.

7. "Daily Maximum" (Daily Max.) is the maximum value allowable in any single sample or instantaneous measurement.

8. "EPA," means the United States Environmental Protection Agency.

9. "Director," means Director of the Utah Division of Water Quality.

10. A "grab" sample, for monitoring requirements, is defined as a single "dip and take" sample collected at a representative point in the discharge stream.

11. An "instantaneous" measurement, for monitoring requirements, is defined as a single reading, observation, or measurement.

12. "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.

13. "Type II Land Disposal" means the use of treated domestic wastewater effluent where human exposure is unlikely.

14. "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.

**ADDENDUM TO FACT SHEET STATEMENT OF BASIS**
**BEAR RIVER CITY**
**MODIFIED PERMIT: DISCHARGE,**
**UPDES PERMIT NUMBER: UT0020311**
**MINOR MUNICIPAL**

## FACILITY CONTACTS

Jared Holmgren, Operator
PO Box 160
Bear River City, 84301-0160
(435) 279-9047

## DESCRIPTION OF PERMIT MODIFICATION

On December 16, 2014 the Utah Water Quality Board adopted *UAC R317-1-3.3, Technology-based Limits for Controlling Phosphorous Pollution.* This rule establishes new regulations for the discharge of phosphorus to surface waters. In a February 9, 2015 letter, the Division of Water Quality (DWQ) informed Bear River City (Bear River) of the passing of *Utah Administrative Code R317-1-3.3* as it relates to discharging lagoons. *UAC R317-1-3.3* implements new State of Utah regulations for the discharge of phosphorus to surface waters. This rule results in changes to Bear River's Utah Pollution Discharge Elimination System (UPDES) Permit and includes important action items for discharging lagoons. Important aspects of the rule pertain to Bear River lagoon system: including additional influent and effluent water quality monitoring was required as of July 1, 2015; and a surface water discharge limitation for total phosphorus requirement or "loading cap".

DWQ calculated the annual total phosphorus loading cap (loading cap) for the Bear River UPDES permit. It is the intent of *UAC R317-3.3.B* to provide capacity for growth within Bear River's service area by setting the loading cap at 125 percent of the current annual total phosphorus load. The current annual total phosphorus load was calculated based on the data reported on Bear River's monthly discharge monitoring reports. This limit will become effective on July 1, 2018.

The permit effluent limits will incorporate the following changes:

| **Effluent Limitations Changes** | | |
|---|---|---|
| Parameter | **Old** Yearly Maximum | **New** Yearly Maximum |
| Total Phosphorous, lbs./year | No Limit | 1,333 |

## PERMIT DURATION

It is recommended that this permit modification be effective through the Bear River City current permit expiration date, July 31, 2020.

Drafted by Kelsey Christiansen
Environmental Engineer
Utah Division of Water Quality
Permit Modification Drafted June 25, 2018

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# FACT SHEET
# BEAR RIVER CITY CORPORATION
# RENEWAL PERMIT: DISCHARGE, BIOSOLIDS & STORM WATER
# UPDES PERMIT NUMBER: UT0020311
# MINOR MUNICIPAL

## FACILITY CONTACTS

Jared Holmgren, Operator
P.O. Box 160
Bear River City, 84301-0160
(435) 279-9047

## 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 $BOD_5$ per day with a population equivalent of 916 people. The outfall STORET number is 490203.

## DESCRIPTION OF DISCHARGE

| Outfall | Description of Discharge Point |
|---|---|
| 001 | Located at latitude 41°35'58" and longitude 112°08'32". 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. |

## RECEIVING WATERS AND STREAM CLASSIFICATION

The final discharge flows into the Malad River, then to the Bear River. The Malad River is classified as 2B and 3C according to *Utah Administrative Code (UAC) R317-2-13.3(a).*

| | |
|---|---|
| Class 2B | -Protected for secondary contact recreation such as boating, wading, or similar uses. |
| Class 3C | -Protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain. |

A wasteload analysis (WLA) was conducted based on the receiving water background conditions and the design flow of the facility. The resulting values from the WLA are attached.

## TOTAL MAXIMUM DAILY LOADS (TMDL) AND IMPARMENT LISTINGS

The Bear River City Lagoons discharge to the Malad River which is tributary to a segment of the Bear River that is 303(d) listed for total phosphorous (TP) and total suspended solids (TDS). A TP TMDL was completed for the Bear River on September 9th, 2002. The TMDL indicated that the three point sources in this segment, Corinne, Bear River and Tremonton cities accounted for approximately 3% of the total phosphorous load to the Lower Bear River. The remaining 97% is attributed to nonpoint sources. Given that the non-point source TP loads overshadow the point source contributions, the time-frame for including TP effluent limits for the small towns of Bear River City, Tremonton and Corinne is not urgent. The Lower Bear River TP TMDL may be reevaluated in the future so continued TP monitoring is required. In addition, a future TMDL for TDS in the Lower Bear River will include an evaluation of TDS loading from the treatment plant. Thus, TDS monitoring is being added during this permit renewal.

## BOD5 AND TSS ALTERNATIVE DISCHARGE & 85% REMOVAL LIMITATIONS

On September 23, 2009, the City applied for the alternate discharge limitations under R317-1-3.2.G., which allows lagoon systems to discharge $BOD_5$ and total suspended solids (TSS) concentrations of 45 mg/l monthly average, 65 mg/l weekly average limitations, if the lagoon system meets 5 criteria. As part of this application, the City also applied for an exemption from the permit limitations for 85% removal of $BOD_5$ and TSS. The alternative discharge limitations and 85% removal exemption were granted by the Director of the Division of Water Quality (Director) on October 12, 2009. The alternative discharge limitations were changed and the exemption incorporated as part of the 2009 permit renewal. However, as part of the application approval, the Director required the City to attempt to address the infiltration and inflow issues experienced during the 2004-2009 permit term. The Director required the permit be reevaluated to determine if the percent removal for BOD and TSS should be included in this renewal.

During the 2009-2015 permit cycle the City undertook a number of projects to address infiltration and inflow problems and provided information on projects since 2011. In June 2011, the entire system was flushed and filmed. The filming identified numerous trouble spots. In 2012, the lift station connecting the collection system to the lagoons was covered. In addition during spring 2013, trouble spots were identified and infiltration hot spots were inline grouted and a major infiltration near the main collection line was found and grouted. Last, the City is currently underway with a project for a land disposal alternative.

Facility Effluent Flow Rate (based on water year October – September)

| | Annual Average Monthly Flow (mgd) | Maximum Monthly Average Flow (mgd) |
|---|---|---|
| 2005[1] | 0.59 | 0.79 |
| 2006 | 0.58 | 0.69 |
| 2007 | 0.63 | 0.69 |
| 2008 | 0.64 | 0.72 |
| 2009 | 0.54 | 0.76 |
| 2010 | 0.27 | 0.33 |
| 2011 | 0.21 | 0.36 |
| 2012 | 0.18 | 0.27 |
| 2013 | 0.26 | 0.35 |
| 2014 | 0.19 | 0.23 |
| 2015[2] | 0.21 | 0.29 |

1. Only partial year January 2005-September 2005
2. Only partial year October 2014-March 2015

The table shows the average annual flow from 2005 to 2009 was 0.60 mgd and the average annual flow from 2010 to 2015 was 0.22 mgd. This represents the effluent discharge rates have more than halved on average. The significantly reduced effluent flow indicates that the City has been successful at lessoning the infiltration and inflow. The 85% removal requirement remains unattainable and percent removal effluent limitations will not be included in this permit renewal. The need for this requirement will be evaluated at the next permit renewal, therefore, sampling and reporting of influent $BOD_5$ and influent TSS will again be required.

**DISCHARGE MONITORING RESULTS:**

Discharge monitoring report (DMR) data was evaluated for the past 5 years for effluent limitation exceedances of TSS, $BOD_5$ and pH. During this time exceedances have occurred: once for $BOD_5$, five times for *E. coli*, eight times for pH, and five times for TSS. Eight of these exceedances are categorized as serious violations for exceeding the effluent limitation by 40% or more. Reviewing these exceedances, the operator needs to pay more diligent attention to the disinfection process for *E. coli* control during winter months. However, since many of these exceedances span over a number of years for each constituent no notices of violation have been issued to the facility. This is in large part to the facility operators responding to these exceedances.

Only eight months of ammonia monitoring results were available in DMR data for review. These data were compared with the seasonal standards calculated in the WLA. No value was greater than 50% of its seasonal standard. Based on this comparison ammonia monitoring will continue to be required but no effluent limitation will be set.

## BASIS FOR EFFLUENT LIMITATIONS

The Water Quality Board has allowed the use of alternate limits for BOD and TSS for Bear River City's wastewater lagoon effluent limits per *UAC R317-1-3.2.G.* The BOD and TSS limit is 45 mg/L for a monthly average and 65 mg/L for a maximum weekly average. Limitations on total suspended solids (TSS), biochemical oxygen demand ($BOD_5$) are based on the alternate limits, which are allowed by the Water Quality Board. Utah Secondary Treatment Standards, *UAC R317-1-3.2,* set the *E. coli* and pH effluent limitations. The oil and grease limitation is based on best professional judgment (BPJ). In cases where no limits have been developed, BPJ may be used where applicable. "Best Professional Judgment" refers to the method used by permit writers to develop technology-based UPDES conditions on a case-by-case basis using all reasonably available and relevant data.

The total residual chlorine (TRC) and dissolved oxygen (DO) limits are based on the Waste Load Analysis. DO is included due to a known issue of low DO from lagoons. TRC is included due to the use of chlorination for disinfection. A flow limitation was included since total residual chlorine limits are based off of the WLA. The Waste Load Analysis (attached) indicates that these limits should be sufficiently protective of water quality, and will meet water quality standards in the receiving waters. The permit limitations are:

| Parameter | Effluent Limitations[1] | | | |
|---|---|---|---|---|
| | Maximum Monthly Average | Maximum Weekly Average | Daily Minimum | Daily Maximum |
| Flow, mgd | | | | 0.36 |
| $BOD_5$, mg/L | 45 | 65 | | |
| Total Suspended Solids (TSS) mg/L | 45 | 65 | | |
| *E. coli*, No./100mL | 126 | 158 | | |
| pH, Standard Units | | | 6.5 | 9.0 |
| Dissolved Oxygen, mg/L | | | 4.0 | |
| Oil & Grease, mg/L | | | | 10.0 |
| Total Residual Chlorine (mg/L) | | | | 0.166 |

1. See Definitions, *Part VI,* for definition of terms.

## SELF-MONITORING AND REPORTING REQUIREMENTS

The following self-monitoring requirements include some additions from the previous permit. Monitoring for total phosphorus, orthophosphate, total kjeldahl nitrogen, nitrate-nitrite, and ammonia are required in accordance with *UAC R317-1-3.3.D.* The permit will require reports to be submitted monthly on Discharge Monitoring Report (DMR) forms due 28 days after the end of the monitoring period.

| Influent Self-Monitoring and Reporting Requirements[1] | | | |
|---|---|---|---|
| Parameter | Frequency | Sample Type | Units |
| Total Flow | Continuous | Recorder | mgd |
| $BOD_5$ | Monthly | Grab | mg/L |
| TSS | Monthly | Grab | mg/L |
| Total Phosphorus (as P)[3] | Monthly | Composite[4] | mg/L |
| Total Kjeldahl Nitrogen (as N)[3] | Monthly | Composite[4] | mg/L |

| Effluent Self-Monitoring and Reporting Requirements[1] | | | |
|---|---|---|---|
| Parameter | Frequency | Sample Type | Units |
| Total Flow | Continuous | Recorder | mgd |
| $BOD_5$ | Monthly | Grab | mg/L |
| TSS | Monthly | Grab | mg/L |
| *E. coli* | Monthly | Grab | No./100mL |
| pH | Monthly | Grab | SU |
| Dissolved Oxygen | Monthly | Grab | mg/L |
| Oil & Grease[5] | Monthly | Grab | mg/L |
| Total Dissolved Solids | Monthly | Grab | mg/L |
| Total Phosphorus (as P)[3] | Monthly | Composite[4] | mg/L |
| Orthophosphate (as P)[3] | Monthly | Composite[4] | mg/L |
| Ammonia (as N)[3] | Monthly | Composite[4] | mg/L |
| Nitrate-Nitrite (as N)[3] | Monthly | Composite[4] | mg/L |
| Total Kjeldahl Nitrogen (as N)[3] | Monthly | Composite[4] | mg/L |

1. See Definitions, *Part VI*, for definition of terms.

2. Influent samples and the influent flow shall be monitored and measured at the same frequency as the effluent samples and the effluent flow.

3. Monitoring of these parameters shall be conducted and begin in accordance with R317-1-3.3.D.

4. Composite samples shall be 24 hour composites collected by use of an automatic sampler or minimum of four grab samples collected a minimum of two hours apart.

5. Sample only if a sheen is observed.

## STORMWATER REQUIREMENTS

Wastewater Treatment Facilities, which includes Lagoon Systems, are required to comply with storm water permit requirements if they meet one or both of the following criteria,

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

The Bear River City Lagoon system does not meet either of the criteria, therefore a storm water permit is not required at this time. A storm water re-opener provision is included in the permit should a storm water permit be needed in the future.

## PRETREATMENT REQUIREMENTS

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

Although the permittee does not have to develop a State-approved pretreatment program, any wastewater discharges to the sanitary sewer are subject to Federal, State and local regulations. Pursuant to *Section 307* of the *Clean Water Act*, the permittee shall comply with all applicable Federal General Pretreatment Regulations promulgated, found in *40 CFR 403* and the State Pretreatment Requirements found in *UAC R317-8-8*.

An industrial waste survey (IWS) is required of the permittee as stated in Part II of the permit. The IWS is to assess the needs of the permittee regarding pretreatment assistance. The IWS is required to be submitted within sixty (60) days after the issuance of the permit. If an Industrial User begins to discharge or an existing Industrial User changes their discharge the permittee must resubmit an IWS no later than sixty days following the introduction or change as stated in Part II of the permit.

It is recommended that the permittee perform an annual evaluation of the need to revise or develop technically based local limits for pollutants of concern, to implement the general and specific prohibitions *40 CFR, Part 403.5(a)* and *Part 403.5(b)*. This evaluation may indicate that present local limits are sufficiently protective, need to be revised or should be developed. It is required that the permittee submit any local limits that are developed to the Division of Water Quality for review and if needed public notice.

## BIOMONITORING REQUIREMENTS

A nationwide effort to control toxic discharges where effluent toxicity is an existing or potential concern is regulated in accordance with the *State of Utah Permitting and Enforcement Guidance Document for Whole Effluent Toxicity Control (biomonitoring)*. Authority to require effluent

biomonitoring is provided in *Permit Conditions, UAC R317-8-4.2, Permit Provisions, UAC R317-8-5.3* and *Water Quality Standards, UAC R317-2-5* and *R317 -2-7.2*.

The permittee is a minor municipal intermittent discharger that will be contributing a small volume of effluent when compared to the existing receiving waters, in which toxicity is not likely to be present. Based on these considerations, and the fact that there are no present or anticipated industrial users on the system, 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.

## SUMMARY OF CHANGES FROM PREVIOUS PERMIT

Effluent limitations were added for total residual chlorine, dissolved oxygen, and flow. In addition, reporting requirements were added for TSS and $BOD_5$ percent removal. Monitoring for pH was decrease from 3 times per week to monthly. Monitoring for total phosphorus, orthophosphate, total kjeldahl nitrogen, nitrate-nitrite, and ammonia were added in accordance with *UAC R317-1-3.3.D.*

## PERMIT DURATION

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

| | |
|---|---|
| Permit Writer | Ken Hoffman 801-536-4313 (kenhoffman@utah.gov) |
| Biosolids | Dan Griffin |
| Pretreatment | Jen Robinson |
| Stormwater | Mike George |
| WET | Mike Herkimer |
| TMDL | Mike Allred |
| WLA | Dave Wham |

## PUBLIC NOTICE

Began: May 29, 2015
Ended: June 29, 2015

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

The Public Noticed of the draft permit was published in the Ogden Standard Examiner.

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

No comments were received during the public notice period. Two minor corrections to the draft permit were made to the public noticed draft:

1. On Page 1 Section I.C. standard permit language was added at the end of the page:
"Outfall 001. Such discharges shall be limited and monitored by the permittee as specified below:"

2. On Pages 5-7 Executive Secretary was replaced by Director in 7 instances.

Correction 1 is standard language which was inadvertently dropped in the public notice document preparation. Correction 2 is equivalent to a typo. Neither correction alters the permit in any meaningful way. The Division feels this language addition does not constitute a significant change and does not warrant republic noticing the permit.

Utah Division of Water Quality
Salt Lake City, Utah

FILE COPY

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

| | | | | |
|---|---|---|---|---|
| **Discharging Facility:** | **Bear River City Lagoons** | | | |
| UPDES No: | UT-0020311 | | | |
| Current Flow: | 0.36 | MGD | Design Flow | |
| Design Flow | 0.36 | MGD | | |

| | | | |
|---|---|---|---|
| **Receiving Water:** | **Malad River** | | |
| Stream Classification: | 2B, 3C | | |
| Stream Flows [cfs]: | 9.1 | Summer (July-Sept) | 20th Percentile |
| | 9.1 | Fall (Oct-Dec) | 20th Percentile |
| | 9.1 | Winter (Jan-Mar) | 20th Percentile |
| | 9.1 | Spring (Apr-June) | 20th Percentile |
| | 47.0 | Average | |
| Stream TDS Values: | 4000.0 | Summer (July-Sept) | Average |
| | 2340.0 | Fall (Oct-Dec) | Average |
| | 1864.0 | Winter (Jan-Mar) | Average |
| | 2492.0 | Spring (Apr-June) | Average |

| **Effluent Limits:** | | | | **WQ Standard:** | |
|---|---|---|---|---|---|
| Flow, MGD: | | 0.36 | MGD | Design Flow | |
| BOD, mg/l: | | 45.0 | Summer | 5.0 | Indicator |
| Dissolved Oxygen, mg/l | | 4.0 | Summer | 5.0 | 30 Day Average |
| TNH3, Chronic, mg/l: | | 7.0 | Summer | Varies | Function of pH and Temperature |
| TDS, mg/l: | NA | | Summer | 0.0 | Site Specific |

| **Modeling Parameters:** | |
|---|---|
| Acute River Width: | 50.0% |
| Chronic River Width: | 100.0% |

**Level 1 Antidegradation Level Completed: Level II Review not required**

Date: 9/23/2014

Permit Writer: _____ _____

WLA by: _____ 9-25-14

WQM Sec. Approval: _____ _____

TMDL Sec. Approval: _____ _____

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

| 23-Sep-14 |
| --- |
| 4:00 PM |

**Facilities:** **Bear River City Lagoons** **UPDES No: UT-0020311**
**Discharging to:** **Malad River**

## I. Introduction

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

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

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

## II. Receiving Water and Stream Classification

| | |
| --- | --- |
| Malad River: | 2B, 3C |
| Antidegradation Review: | Level I review completed. Level II review not required. |

## III. Numeric Stream Standards for Protection of Aquatic Wildlife

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

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

**Acute and Chronic Heavy Metals (Dissolved)**

| Parameter | 4 Day Average (Chronic) Standard Concentration | Load* | 1 Hour Average (Acute) Standard Concentration | Load* |
|---|---|---|---|---|
| Aluminum | 87.00 ug/l** | 0.261 lbs/day | 750.00 ug/l | 2.252 lbs/day |
| Arsenic | 190.00 ug/l | 0.570 lbs/day | 340.00 ug/l | 1.021 lbs/day |
| Cadmium | 0.77 ug/l | 0.002 lbs/day | 8.96 ug/l | 0.027 lbs/day |
| Chromium III | 273.92 ug/l | 0.822 lbs/day | 5730.94 ug/l | 17.205 lbs/day |
| ChromiumVI | 11.00 ug/l | 0.033 lbs/day | 16.00 ug/l | 0.048 lbs/day |
| Copper | 31.18 ug/l | 0.094 lbs/day | 52.95 ug/l | 0.159 lbs/day |
| Iron | | | 1000.00 ug/l | 3.002 lbs/day |
| Lead | 19.20 ug/l | 0.058 lbs/day | 492.66 ug/l | 1.479 lbs/day |
| Mercury | 0.0120 ug/l | 0.000 lbs/day | 2.40 ug/l | 0.007 lbs/day |
| Nickel | 172.24 ug/l | 0.517 lbs/day | 1549.21 ug/l | 4.651 lbs/day |
| Selenium | 4.60 ug/l | 0.014 lbs/day | 20.00 ug/l | 0.060 lbs/day |
| Silver | N/A ug/l | N/A lbs/day | 42.93 ug/l | 0.129 lbs/day |
| Zinc | 396.36 ug/l | 1.190 lbs/day | 396.36 ug/l | 1.190 lbs/day |

* Allowed below discharge

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

Metals Standards Based upon a Hardness of 410.4 mg/l as CaCO3

**Organics [Pesticides]**

| Parameter | 4 Day Average (Chronic) Standard Concentration | Load* | 1 Hour Average (Acute) Standard Concentration | Load* |
|---|---|---|---|---|
| Aldrin | | | 1.500 ug/l | 0.005 lbs/day |
| Chlordane | 0.004 ug/l | 0.224 lbs/day | 1.200 ug/l | 0.004 lbs/day |
| DDT, DDE | 0.001 ug/l | 0.052 lbs/day | 0.550 ug/l | 0.002 lbs/day |
| Dieldrin | 0.002 ug/l | 0.099 lbs/day | 1.250 ug/l | 0.004 lbs/day |
| Endosulfan | 0.056 ug/l | 2.915 lbs/day | 0.110 ug/l | 0.000 lbs/day |
| Endrin | 0.002 ug/l | 0.120 lbs/day | 0.090 ug/l | 0.000 lbs/day |
| Guthion | | | 0.010 ug/l | 0.000 lbs/day |
| Heptachlor | 0.004 ug/l | 0.198 lbs/day | 0.260 ug/l | 0.001 lbs/day |
| Lindane | 0.080 ug/l | 4.164 lbs/day | 1.000 ug/l | 0.003 lbs/day |
| Methoxychlor | | | 0.030 ug/l | 0.000 lbs/day |
| Mirex | | | 0.010 ug/l | 0.000 lbs/day |
| Parathion | | | 0.040 ug/l | 0.000 lbs/day |
| PCB's | 0.014 ug/l | 0.729 lbs/day | 2.000 ug/l | 0.006 lbs/day |
| Pentachlorophenol | 13.00 ug/l | 676.660 lbs/day | 20.000 ug/l | 0.060 lbs/day |
| Toxephene | 0.0002 ug/l | 0.010 lbs/day | 0.7300 ug/l | 0.002 lbs/day |

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

**IV. Numeric Stream Standards for Protection of Agriculture**

| | 4 Day Average (Chronic) Standard | | 1 Hour Average (Acute) Standard | |
|---|---|---|---|---|
| | Concentration | Load* | Concentration | Load* |
| Arsenic | | | ug/l | lbs/day |
| Boron | | | ug/l #VALUE! | lbs/day |
| Cadmium | | | ug/l #VALUE! | lbs/day |
| Chromium | | | ug/l | lbs/day |
| Copper | | | ug/l | lbs/day |
| Lead | | | ug/l | lbs/day |
| Selenium | | | ug/l | lbs/day |
| TDS, Summer | | | mg/l | tons/day |

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

| | 4 Day Average (Chronic) Standard | | 1 Hour Average (Acute) Standard | |
|---|---|---|---|---|
| **Metals** | Concentration | Load* | Concentration | Load* |
| Arsenic | | | 50.0 ug/l | 2.603 lbs/day |
| Barium | | | 1000.0 ug/l | 52.051 lbs/day |
| Cadmium | | | 10.0 ug/l | 0.521 lbs/day |
| Chromium | | | 50.0 ug/l | 2.603 lbs/day |
| Lead | | | 50.0 ug/l | 2.603 lbs/day |
| Mercury | | | 2.0 ug/l | 0.104 lbs/day |
| Selenium | | | 10.0 ug/l | 0.521 lbs/day |
| Silver | | | 50.0 ug/l | 2.603 lbs/day |
| Fluoride (3) | | | 1.4 ug/l | 0.073 lbs/day |
| to | | | 2.4 ug/l | 0.125 lbs/day |
| Nitrates as N | | | 10.0 ug/l | 0.521 lbs/day |
| **Chlorophenoxy Herbicides** | | | | |
| 2,4-D | | | 100.0 ug/l | 5.205 lbs/day |
| 2,4,5-TP | | | 10.0 ug/l | 0.521 lbs/day |
| Endrin | | | 0.2 ug/l | 0.010 lbs/day |
| ocyclohexane (Lindane) | | | 4.0 ug/l | 0.208 lbs/day |
| Methoxychlor | | | 100.0 ug/l | 5.205 lbs/day |
| Toxaphene | | | 5.0 ug/l | 0.260 lbs/day |

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

| | Maximum Conc., ug/l - Acute Standards | | | |
|---|---|---|---|---|
| | Class 1C | | Class 3A, 3B | |
| **Toxic Organics** | [2 Liters/Day for 70 Kg Person over 70 Yr.] | | [6.5 g for 70 Kg Person over 70 Yr.] | |
| Acenaphthene | 1200.00 ug/l | 62.46 lbs/day | 2700.0 ug/l | 140.54 lbs/day |
| Acrolein | 320.00 ug/l | 16.66 lbs/day | 780.0 ug/l | 40.60 lbs/day |
| Acrylonitrile | 0.06 ug/l | 0.00 lbs/day | 0.7 ug/l | 0.03 lbs/day |
| Benzene | 1.20 ug/l | 0.06 lbs/day | 71.0 ug/l | 3.70 lbs/day |
| Benzidine | 0.00012 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| Carbon tetrachloride | 0.25 ug/l | 0.01 lbs/day | 4.4 ug/l | 0.23 lbs/day |
| Chlorobenzene | 680.00 ug/l | 35.39 lbs/day | 21000.0 ug/l | 1093.07 lbs/day |
| 1,2,4-Trichlorobenzene | | | | |
| Hexachlorobenzene | 0.00075 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| 1,2-Dichloroethane | 0.38 ug/l | 0.02 lbs/day | 99.0 ug/l | 5.15 lbs/day |

| | | | | |
|---|---|---|---|---|
| 1,1,1-Trichloroethane | | | | |
| Hexachloroethane | 1.90 ug/l | 0.10 lbs/day | 8.9 ug/l | 0.46 lbs/day |
| 1,1-Dichloroethane | | | | |
| 1,1,2-Trichloroethane | 0.61 ug/l | 0.03 lbs/day | 42.0 ug/l | 2.19 lbs/day |
| 1,1,2,2-Tetrachloroethai | 0.17 ug/l | 0.01 lbs/day | 11.0 ug/l | 0.57 lbs/day |
| Chloroethane | | | 0.0 ug/l | 0.00 lbs/day |
| Bis(2-chloroethyl) ether | 0.03 ug/l | 0.00 lbs/day | 1.4 ug/l | 0.07 lbs/day |
| 2-Chloroethyl vinyl ether | 0.00 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| 2-Chloronaphthalene | 1700.00 ug/l | 88.49 lbs/day | 4300.0 ug/l | 223.82 lbs/day |
| 2,4,6-Trichlorophenol | 2.10 ug/l | 0.11 lbs/day | 6.5 ug/l | 0.34 lbs/day |
| p-Chloro-m-cresol | | | 0.0 ug/l | 0.00 lbs/day |
| Chloroform (HM) | 5.70 ug/l | 0.30 lbs/day | 470.0 ug/l | 24.46 lbs/day |
| 2-Chlorophenol | 120.00 ug/l | 6.25 lbs/day | 400.0 ug/l | 20.82 lbs/day |
| 1,2-Dichlorobenzene | 2700.00 ug/l | 140.54 lbs/day | 17000.0 ug/l | 884.86 lbs/day |
| 1,3-Dichlorobenzene | 400.00 ug/l | 20.82 lbs/day | 2600.0 ug/l | 135.33 lbs/day |
| 1,4-Dichlorobenzene | 400.00 ug/l | 20.82 lbs/day | 2600.0 ug/l | 135.33 lbs/day |
| 3,3'-Dichlorobenzidine | 0.04 ug/l | 0.00 lbs/day | 0.1 ug/l | 0.00 lbs/day |
| 1,1-Dichloroethylene | 0.06 ug/l | 0.00 lbs/day | 3.2 ug/l | 0.17 lbs/day |
| 1,2-trans-Dichloroethyle | 700.00 ug/l | 36.44 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| 2,4-Dichlorophenol | 93.00 ug/l | 4.84 lbs/day | 790.0 ug/l | 41.12 lbs/day |
| 1,2-Dichloropropane | 0.52 ug/l | 0.03 lbs/day | 39.0 ug/l | 2.03 lbs/day |
| 1,3-Dichloropropylene | 10.00 ug/l | 0.52 lbs/day | 1700.0 ug/l | 88.49 lbs/day |
| 2,4-Dimethylphenol | 540.00 ug/l | 28.11 lbs/day | 2300.0 ug/l | 119.72 lbs/day |
| 2,4-Dinitrotoluene | 0.11 ug/l | 0.01 lbs/day | 9.1 ug/l | 0.47 lbs/day |
| 2,6-Dinitrotoluene | 0.00 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| 1,2-Diphenylhydrazine | 0.04 ug/l | 0.00 lbs/day | 0.5 ug/l | 0.03 lbs/day |
| Ethylbenzene | 3100.00 ug/l | 161.36 lbs/day | 29000.0 ug/l | 1509.47 lbs/day |
| Fluoranthene | 300.00 ug/l | 15.62 lbs/day | 370.0 ug/l | 19.26 lbs/day |
| 4-Chlorophenyl phenyl ether | | | | |
| 4-Bromophenyl phenyl ether | | | | |
| Bis(2-chloroisopropyl) e | 1400.00 ug/l | 72.87 lbs/day | 170000.0 ug/l | 8848.64 lbs/day |
| Bis(2-chloroethoxy) met | 0.00 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| Methylene chloride (HM | 4.70 ug/l | 0.24 lbs/day | 1600.0 ug/l | 83.28 lbs/day |
| Methyl chloride (HM) | 0.00 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| Methyl bromide (HM) | 0.00 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| Bromoform (HM) | 4.30 ug/l | 0.22 lbs/day | 360.0 ug/l | 18.74 lbs/day |
| Dichlorobromomethane | 0.27 ug/l | 0.01 lbs/day | 22.0 ug/l | 1.15 lbs/day |
| Chlorodibromomethane | 0.41 ug/l | 0.02 lbs/day | 34.0 ug/l | 1.77 lbs/day |
| Hexachlorobutadiene(c) | 0.44 ug/l | 0.02 lbs/day | 50.0 ug/l | 2.60 lbs/day |
| Hexachlorocyclopentadi | 240.00 ug/l | 12.49 lbs/day | 17000.0 ug/l | 884.86 lbs/day |
| Isophorone | 8.40 ug/l | 0.44 lbs/day | 600.0 ug/l | 31.23 lbs/day |
| Naphthalene | | | | |
| Nitrobenzene | 17.00 ug/l | 0.88 lbs/day | 1900.0 ug/l | 98.90 lbs/day |
| 2-Nitrophenol | 0.00 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| 4-Nitrophenol | 0.00 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| 2,4-Dinitrophenol | 70.00 ug/l | 3.64 lbs/day | 14000.0 ug/l | 728.71 lbs/day |
| 4,6-Dinitro-o-cresol | 13.00 ug/l | 0.68 lbs/day | 765.0 ug/l | 39.82 lbs/day |
| N-Nitrosodimethylamine | 0.00069 ug/l | 0.00 lbs/day | 8.1 ug/l | 0.42 lbs/day |
| N-Nitrosodiphenylamine | 5.00 ug/l | 0.26 lbs/day | 16.0 ug/l | 0.83 lbs/day |
| N-Nitrosodi-n-propylami | 0.01 ug/l | 0.00 lbs/day | 1.4 ug/l | 0.07 lbs/day |
| Pentachlorophenol | 0.28 ug/l | 0.01 lbs/day | 8.2 ug/l | 0.43 lbs/day |

| | | | | |
|---|---|---|---|---|
| Phenol | 2.10E+04 ug/l | 1.09E+03 lbs/day | 4.6E+06 ug/l | 2.39E+05 lbs/day |
| Bis(2-ethylhexyl)phthala | 1.80 ug/l | 0.09 lbs/day | 5.9 ug/l | 0.31 lbs/day |
| Butyl benzyl phthalate | 3000.00 ug/l | 156.15 lbs/day | 5200.0 ug/l | 270.66 lbs/day |
| Di-n-butyl phthalate | 2700.00 ug/l | 140.54 lbs/day | 12000.0 ug/l | 624.61 lbs/day |
| Di-n-octyl phthlate | | | | |
| Diethyl phthalate | 23000.00 ug/l | 1197.17 lbs/day | 120000.0 ug/l | 6246.10 lbs/day |
| Dimethyl phthlate | 3.13E+05 ug/l | 1.63E+04 lbs/day | 2.9E+06 ug/l | 1.51E+05 lbs/day |
| Benzo(a)anthracene (P/ | 0.0028 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| Benzo(a)pyrene (PAH) | 0.0028 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| Benzo(b)fluoranthene (F | 0.0028 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| Benzo(k)fluoranthene (F | 0.0028 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| Chrysene (PAH) | 0.0028 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| Acenaphthylene (PAH) | | | | |
| Anthracene (PAH) | 9600.00 ug/l | 499.69 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| Dibenzo(a,h)anthracene | 0.0028 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| Indeno(1,2,3-cd)pyrene | 0.0028 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| Pyrene (PAH) | 960.00 ug/l | 49.97 lbs/day | 11000.0 ug/l | 572.56 lbs/day |
| Tetrachloroethylene | 0.80 ug/l | 0.04 lbs/day | 8.9 ug/l | 0.46 lbs/day |
| Toluene | 6800.00 ug/l | 353.95 lbs/day | 200000 ug/l | 10410.16 lbs/day |
| Trichloroethylene | 2.70 ug/l | 0.14 lbs/day | 81.0 ug/l | 4.22 lbs/day |
| Vinyl chloride | 2.00 ug/l | 0.10 lbs/day | 525.0 ug/l | 27.33 lbs/day |
| | | | 0.0 | 0.00 lbs/day |
| **Pesticides** | | | 0.0 | 0.00 lbs/day |
| Aldrin | 0.0001 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| Dieldrin | 0.0001 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| Chlordane | 0.0006 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| 4,4'-DDT | 0.0006 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| 4,4'-DDE | 0.0006 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| 4,4'-DDD | 0.0008 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| alpha-Endosulfan | 0.9300 ug/l | 0.05 lbs/day | 2.0 ug/l | 0.10 lbs/day |
| beta-Endosulfan | 0.9300 ug/l | 0.05 lbs/day | 2.0 ug/l | 0.10 lbs/day |
| Endosulfan sulfate | 0.9300 ug/l | 0.05 lbs/day | 2.0 ug/l | 0.10 lbs/day |
| Endrin | 0.7600 ug/l | 0.04 lbs/day | 0.8 ug/l | 0.04 lbs/day |
| Endrin aldehyde | 0.7600 ug/l | 0.04 lbs/day | 0.8 ug/l | 0.04 lbs/day |
| Heptachlor | 0.0002 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| Heptachlor epoxide | | | | |
| | | | | |
| **PCB's** | | | | |
| PCB 1242 (Arochlor 12/ | 0.000044 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| PCB-1254 (Arochlor 12 | 0.000044 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| PCB-1221 (Arochlor 12 | 0.000044 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| PCB-1232 (Arochlor 12 | 0.000044 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| PCB-1248 (Arochlor 12/ | 0.000044 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| PCB-1260 (Arochlor 12 | 0.000044 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| PCB-1016 (Arochlor 10 | 0.000044 ug/l | 0.00 lbs/day | 0.0 ug/l | 0.00 lbs/day |
| | | | | |
| **Pesticide** | | | | |
| Toxaphene | 0.000750 ug/l | 0.00 | 0.0 ug/l | 0.00 lbs/day |
| | | | | |
| **Dioxin** | | | | |
| Dioxin (2,3,7,8-TCDD) | 1.30E-08 ug/l | 0.00 lbs/day | 1.40E-08 | 0.00 |

| | | | | |
|---|---|---|---|---|
| **Metals** | | | | |
| Antimony | 14.0 ug/l | 0.73 lbs/day | | |
| Arsenic | 50.0 ug/l | 2.60 lbs/day | 4300.00 ug/l | 223.82 lbs/day |
| Asbestos | 7.00E+06 ug/l | 3.64E+05 lbs/day | | |
| Beryllium | | | | |
| Cadmium | | | | |
| Chromium (III) | | | | |
| Chromium (VI) | | | | |
| Copper | | | | |
| Cyanide | 1.30E+03 ug/l | 67.67 lbs/day | 2.2E+05 ug/l | 11451.18 lbs/day |
| Lead | 700.0 ug/l | 36.44 lbs/day | | |
| Mercury | | | 0.15 ug/l | 0.01 lbs/day |
| Nickel | | | 4600.00 ug/l | 239.43 lbs/day |
| Selenium | 0.1 ug/l | 0.01 lbs/day | | |
| Silver | 610.0 ug/l | 31.75 lbs/day | | |
| Thallium | | | 6.30 ug/l | 0.33 lbs/day |
| Zinc | | | | |

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

## VII. Mathematical Modeling of Stream Quality

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

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

(1) The Utah River Model, Utah Division of Water Quality, 1992. Based upon STREAMDO IV (Region VIII) and Supplemental Ammonia Toxicity Models; EPA Region VIII, Sept. 1990 and QUAL2E (EPA, Athens, GA).

(2) Utah Ammonia/Chlorine Model, Utah Division of Water Quality, 1992.

(3) AMMTOX Model, University of Colorado, Center of Limnology, and EPA Region 8

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

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

(1) Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling. Environmental Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Athens Georgia. EPA/600/3-85/040 June 1985.

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

## VIII. Modeling Information

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

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

### Other Conditions

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

### Model Inputs

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

**Current Upstream Information**

| Stream Critical Low | Flow cfs | Temp. Deg. C. | pH | T-NH3 mg/l as N | BOD5 mg/l | DO mg/l | TRC mg/l | TDS mg/l |
|---|---|---|---|---|---|---|---|---|
| Summer (Irrig. Season) | 9.1 | 21.8 | 8.6 | 0.25 | 6.50 | 6.74 | 0.00 | 4000.0 |
| Fall | 9.1 | 8.8 | 8.5 | 0.21 | 4.50 | --- | 0.00 | 2340.0 |
| Winter | 9.1 | 3.1 | 8.2 | 0.21 | 3.70 | --- | 0.00 | 2340.0 |
| Spring | 9.1 | 13.5 | 8.3 | 0.37 | 5.10 | --- | 0.00 | 2340.0 |

| Dissolved Metals | Al ug/l | As ug/l | Cd ug/l | CrIII ug/l | CrVI ug/l | Copper ug/l | Fe ug/l | Pb ug/l |
|---|---|---|---|---|---|---|---|---|
| All Seasons | 1.59* | 0.53* | 0.053* | 0.53* | 2.65* | 0.53* | 0.83* | 0.53* |

| Dissolved Metals | Hg ug/l | Ni ug/l | Se ug/l | Ag ug/l | Zn ug/l | Boron ug/l | |
|---|---|---|---|---|---|---|---|
| All Seasons | 0.0000 | 0.53* | 1.06* | 0.1* | 0.053* | 10.0 | * 1/2 MDL |

**Projected Discharge Information**

| Season | Flow, MGD | Temp. | TDS mg/l | TDS tons/day |
|---|---|---|---|---|
| Summer | 0.36000 | 21.3 | 879.00 | 1.31929 |
| Fall | 0.36000 | 8.0 | | |
| Winter | 0.36000 | 5.4 | | |
| Spring | 0.36000 | 15.9 | | |

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

## IX. Effluent Limitations

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

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

**Effluent Limitation for Flow based upon Water Quality Standards**

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

| Season | Daily Average | |
|---|---|---|
| Summer | 0.360 MGD | 0.557 cfs |
| Fall | 0.360 MGD | 0.557 cfs |
| Winter | 0.360 MGD | 0.557 cfs |
| Spring | 0.360 MGD | 0.557 cfs |

**Flow Requirement or Loading Requirement**

The calculations in this wasteload analysis utilize the maximum effluent discharge flow of 0.36 MGD. If the discharger is allowed to have a flow greater than 0.36 MGD during 7Q10 conditions, and effluent limit concentrations as indicated, then water quality standards will be violated. In order to prevent this from occuring, the permit writers must include the discharge flow limititation as indicated above; or, include loading effluent limits in the permit.

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

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

| | | | |
|---|---|---|---|
| WET Requirements | LC50 > | 40.8% Effluent | [Acute] |
| | IC25 > | 5.8% Effluent | [Chronic] |

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

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

| Season | Concentration | |
|---|---|---|
| Summer | 45.0 mg/l as BOD5 | 135.1 lbs/day |
| Fall | 45.0 mg/l as BOD5 | 135.1 lbs/day |
| Winter | 45.0 mg/l as BOD5 | 135.1 lbs/day |
| Spring | 45.0 mg/l as BOD5 | 135.1 lbs/day |

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

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

| **Season** | **Concentration** |
|---|---|
| Summer | 4.00 |
| Fall | 4.00 |
| Winter | 4.00 |
| Spring | 4.00 |

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

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

| **Season** | | **Concentration** | | **Load** | |
|---|---|---|---|---|---|
| Summer | 4 Day Avg. - Chronic | 7.0 | mg/l as N | 21.1 | lbs/day |
| | 1 Hour Avg. - Acute | 17.8 | mg/l as N | 53.3 | lbs/day |
| Fall | 4 Day Avg. - Chronic | 14.8 | mg/l as N | 44.5 | lbs/day |
| | 1 Hour Avg. - Acute | 19.8 | mg/l as N | 59.4 | lbs/day |
| Winter | 4 Day Avg. - Chronic | 27.5 | mg/l as N | 82.5 | lbs/day |
| | 1 Hour Avg. - Acute | 35.2 | mg/l as N | 105.6 | lbs/day |
| Spring | 4 Day Avg. - Chronic | 14.7 | mg/l as N | 44.1 | lbs/day |
| | 1 Hour Avg. - Acute | 19.8 | mg/l as N | 59.4 | lbs/day |

Acute limit calculated with an Acute Zone of Initial Dilution (ZID) to be equal to 50.%.

**Effluent Limitation for Total Residual Chlorine based upon Water Quality Standards**

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

| Season | | Concentration | | Load | |
|---|---|---|---|---|---|
| Summer | 4 Day Avg. - Chronic | 0.174 | mg/l | 0.52 | lbs/day |
| | 1 Hour Avg. - Acute | 0.166 | mg/l | 0.50 | lbs/day |
| Fall | 4 Day Avg. - Chronic | 0.174 | mg/l | 0.52 | lbs/day |
| | 1 Hour Avg. - Acute | 0.166 | mg/l | 0.50 | lbs/day |
| Winter | 4 Day Avg. - Chronic | 0.174 | mg/l | 0.52 | lbs/day |
| | 1 Hour Avg. - Acute | 0.166 | mg/l | 0.50 | lbs/day |
| Spring | 4 Day Avg. - Chronic | 0.174 | mg/l | 0.00 | lbs/day |
| | 1 Hour Avg. - Acute | 0.166 | mg/l | 0.00 | lbs/day |

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

| Season | | Concentration | | Load | |
|---|---|---|---|---|---|
| Summer | Maximum, Acute | NA | mg/l | NA | tons/day |
| Fall | Maximum, Acute | NA | mg/l | NA | tons/day |
| Winter | Maximum, Acute | NA | mg/l | NA | tons/day |
| Spring | 4 Day Avg. - Chronic | NA | mg/l | NA | tons/day |

Colorado Salinity Forum Limits — Determined by Permitting Section

**Effluent Limitations for Total Recoverable Metals based upon Water Quality Standards**

In-stream criteria of downstream segments for Dissolved Metals will be met with an effluent limitation as follows (based upon a hardness of 410.4 mg/l):

| | 4 Day Average Concentration | | Load | 1 Hour Average Concentration | | Load |
|---|---|---|---|---|---|---|
| Aluminum | N/A | | N/A | 6,858.0 | ug/l | 20.6 lbs/day |
| Arsenic | 3,281.58 | ug/l | 6.4 lbs/day | 3,111.3 | ug/l | 9.3 lbs/day |
| Cadmium | 12.06 | ug/l | 0.0 lbs/day | 81.5 | ug/l | 0.2 lbs/day |
| Chromium III | 4,736.75 | ug/l | 9.2 lbs/day | 52,545.9 | ug/l | 157.8 lbs/day |
| Chromium VI | 125.79 | ug/l | 0.2 lbs/day | 114.2 | ug/l | 0.3 lbs/day |
| Copper | 527.60 | ug/l | 1.0 lbs/day | 479.1 | ug/l | 1.4 lbs/day |
| Iron | N/A | | N/A | 9,159.7 | ug/l | 27.5 lbs/day |
| Lead | 319.91 | ug/l | 0.6 lbs/day | 4,511.2 | ug/l | 13.5 lbs/day |
| Mercury | 0.21 | ug/l | 0.0 lbs/day | 22.0 | ug/l | 0.1 lbs/day |
| Nickel | 2,973.66 | ug/l | 5.8 lbs/day | 14,199.6 | ug/l | 42.6 lbs/day |
| Selenium | 53.78 | ug/l | 0.1 lbs/day | 170.4 | ug/l | 0.5 lbs/day |
| Silver | N/A | ug/l | N/A lbs/day | 393.6 | ug/l | 1.2 lbs/day |

| | | | | | |
|---|---|---|---|---|---|
| Zinc | 6,871.53 ug/l | 13.3 lbs/day | 3,633.9 | ug/l | 10.9 lbs/day |
| Cyanide | 90.17 ug/l | 0.2 lbs/day | 201.7 | ug/l | 0.6 lbs/day |

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

| | | |
|---|---|---|
| Summer | 40.1 Deg. C. | 104.3 Deg. F |
| Fall | 27.1 Deg. C. | 80.9 Deg. F |
| Winter | 21.4 Deg. C. | 70.6 Deg. F |
| Spring | 31.8 Deg. C. | 89.3 Deg. F |

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

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

| | 4 Day Average Concentration | Load | 1 Hour Average Concentration | | Load |
|---|---|---|---|---|---|
| Aldrin | | | 1.5E+00 | ug/l | 6.97E-03 lbs/day |
| Chlordane | 4.30E-03 ug/l | 1.29E-02 lbs/day | 1.2E+00 | ug/l | 5.57E-03 lbs/day |
| DDT, DDE | 1.00E-03 ug/l | 3.00E-03 lbs/day | 5.5E-01 | ug/l | 2.55E-03 lbs/day |
| Dieldrin | 1.90E-03 ug/l | 5.70E-03 lbs/day | 1.3E+00 | ug/l | 5.81E-03 lbs/day |
| Endosulfan | 5.60E-02 ug/l | 1.68E-01 lbs/day | 1.1E-01 | ug/l | 5.11E-04 lbs/day |
| Endrin | 2.30E-03 ug/l | 6.90E-03 lbs/day | 9.0E-02 | ug/l | 4.18E-04 lbs/day |
| Guthion | 0.00E+00 ug/l | 0.00E+00 lbs/day | 1.0E-02 | ug/l | 4.64E-05 lbs/day |
| Heptachlor | 3.80E-03 ug/l | 1.14E-02 lbs/day | 2.6E-01 | ug/l | 1.21E-03 lbs/day |
| Lindane | 8.00E-02 ug/l | 2.40E-01 lbs/day | 1.0E+00 | ug/l | 4.64E-03 lbs/day |
| Methoxychlor | 0.00E+00 ug/l | 0.00E+00 lbs/day | 3.0E-02 | ug/l | 1.39E-04 lbs/day |
| Mirex | 0.00E+00 ug/l | 0.00E+00 lbs/day | 1.0E-02 | ug/l | 4.64E-05 lbs/day |
| Parathion | 0.00E+00 ug/l | 0.00E+00 lbs/day | 4.0E-02 | ug/l | 1.86E-04 lbs/day |
| PCB's | 1.40E-02 ug/l | 4.20E-02 lbs/day | 2.0E+00 | ug/l | 9.29E-03 lbs/day |
| Pentachlorophenol | 1.30E+01 ug/l | 3.90E+01 lbs/day | 2.0E+01 | ug/l | 9.29E-02 lbs/day |
| Toxephene | 2.00E-04 ug/l | 6.00E-04 lbs/day | 7.3E-01 | ug/l | 3.39E-03 lbs/day |

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

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

| | 1 Hour Average Concentration | Loading |
|---|---|---|
| Gross Beta (pCi/l) | 50.0 pCi/L | |
| BOD (mg/l) | 5.0 mg/l | 15.0 lbs/day |
| Nitrates as N | 4.0 mg/l | 12.0 lbs/day |
| Total Phosphorus as P | 0.05 mg/l | 0.2 lbs/day |
| Total Suspended Solids | 90.0 mg/l | 270.2 lbs/day |

Note: Pollution indicator targets are for information purposes only.

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

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

| | Maximum Concentration Concentration | Load |
|---|---|---|
| **Toxic Organics** | | |
| Acenaphthene | 2.08E+04 ug/l | 6.25E+01 lbs/day |
| Acrolein | 5.55E+03 ug/l | 1.67E+01 lbs/day |
| Acrylonitrile | 1.02E+00 ug/l | 3.07E-03 lbs/day |
| Benzene | 2.08E+01 ug/l | 6.25E-02 lbs/day |
| Benzidine | ug/l | lbs/day |
| Carbon tetrachloride | 4.33E+00 ug/l | 1.30E-02 lbs/day |
| Chlorobenzene | 1.18E+04 ug/l | 3.54E+01 lbs/day |
| 1,2,4-Trichlorobenzene | | |
| Hexachlorobenzene | 1.30E-02 ug/l | 3.90E-05 lbs/day |
| 1,2-Dichloroethane | 6.59E+00 ug/l | 1.98E-02 lbs/day |
| 1,1,1-Trichloroethane | | |
| Hexachloroethane | 3.29E+01 ug/l | 9.89E-02 lbs/day |
| 1,1-Dichloroethane | | |
| 1,1,2-Trichloroethane | 1.06E+01 ug/l | 3.18E-02 lbs/day |
| 1,1,2,2-Tetrachloroethane | 2.95E+00 ug/l | 8.85E-03 lbs/day |
| Chloroethane | | |
| Bis(2-chloroethyl) ether | 5.38E-01 ug/l | 1.61E-03 lbs/day |
| 2-Chloroethyl vinyl ether | | |
| 2-Chloronaphthalene | 2.95E+04 ug/l | 8.85E+01 lbs/day |
| 2,4,6-Trichlorophenol | 3.64E+01 ug/l | 1.09E-01 lbs/day |
| p-Chloro-m-cresol | | |
| Chloroform (HM) | 9.88E+01 ug/l | 2.97E-01 lbs/day |
| 2-Chlorophenol | 2.08E+03 ug/l | 6.25E+00 lbs/day |
| 1,2-Dichlorobenzene | 4.68E+04 ug/l | 1.41E+02 lbs/day |
| 1,3-Dichlorobenzene | 6.94E+03 ug/l | 2.08E+01 lbs/day |

| | | |
|---|---|---|
| 1,4-Dichlorobenzene | 6.94E+03 ug/l | 2.08E+01 lbs/day |
| 3,3'-Dichlorobenzidine | 6.94E-01 ug/l | 2.08E-03 lbs/day |
| 1,1-Dichloroethylene | 9.88E-01 ug/l | 2.97E-03 lbs/day |
| 1,2-trans-Dichloroethylene1 | | |
| 2,4-Dichlorophenol | 1.61E+03 ug/l | 4.84E+00 lbs/day |
| 1,2-Dichloropropane | 9.02E+00 ug/l | 2.71E-02 lbs/day |
| 1,3-Dichloropropylene | 1.73E+02 ug/l | 5.21E-01 lbs/day |
| 2,4-Dimethylphenol | 9.36E+03 ug/l | 2.81E+01 lbs/day |
| 2,4-Dinitrotoluene | 1.91E+00 ug/l | 5.73E-03 lbs/day |
| 2,6-Dinitrotoluene | | |
| 1,2-Diphenylhydrazine | 6.94E-01 ug/l | 2.08E-03 lbs/day |
| Ethylbenzene | 5.38E+04 ug/l | 1.61E+02 lbs/day |
| Fluoranthene | 5.20E+03 ug/l | 1.56E+01 lbs/day |
| 4-Chlorophenyl phenyl ether | | |
| 4-Bromophenyl phenyl ether | | |
| Bis(2-chloroisopropyl) ether | 2.43E+04 ug/l | 7.29E+01 lbs/day |
| Bis(2-chloroethoxy) methane | | |
| Methylene chloride (HM) | 8.15E+01 ug/l | 2.45E-01 lbs/day |
| Methyl chloride (HM) | | |
| Methyl bromide (HM) | | |
| Bromoform (HM) | 7.46E+01 ug/l | 2.24E-01 lbs/day |
| Dichlorobromomethane(HM) | 4.68E+00 ug/l | 1.41E-02 lbs/day |
| Chlorodibromomethane (HM) | 7.11E+00 ug/l | 2.13E-02 lbs/day |
| Hexachlorocyclopentadiene | 4.16E+03 ug/l | 1.25E+01 lbs/day |
| Isophorone | 1.46E+02 ug/l | 4.37E-01 lbs/day |
| Naphthalene | | |
| Nitrobenzene | 2.95E+02 ug/l | 8.85E-01 lbs/day |
| 2-Nitrophenol | | |
| 4-Nitrophenol | | |
| 2,4-Dinitrophenol | 1.21E+03 ug/l | 3.64E+00 lbs/day |
| 4,6-Dinitro-o-cresol | 2.25E+02 ug/l | 6.77E-01 lbs/day |
| N-Nitrosodimethylamine | 1.20E-02 ug/l | 3.59E-05 lbs/day |
| N-Nitrosodiphenylamine | 8.67E+01 ug/l | 2.60E-01 lbs/day |
| N-Nitrosodi-n-propylamine | 8.67E-02 ug/l | 2.60E-04 lbs/day |
| Pentachlorophenol | 4.86E+00 ug/l | 1.46E-02 lbs/day |
| Phenol | 3.64E+05 ug/l | 1.09E+03 lbs/day |
| Bis(2-ethylhexyl)phthalate | 3.12E+01 ug/l | 9.37E-02 lbs/day |
| Butyl benzyl phthalate | 5.20E+04 ug/l | 1.56E+02 lbs/day |
| Di-n-butyl phthalate | 4.68E+04 ug/l | 1.41E+02 lbs/day |
| Di-n-octyl phthlate | | |
| Diethyl phthalate | 3.99E+05 ug/l | 1.20E+03 lbs/day |
| Dimethyl phthlate | 5.43E+06 ug/l | 1.63E+04 lbs/day |
| Benzo(a)anthracene (PAH) | 4.86E-02 ug/l | 1.46E-04 lbs/day |
| Benzo(a)pyrene (PAH) | 4.86E-02 ug/l | 1.46E-04 lbs/day |
| Benzo(b)fluoranthene (PAH) | 4.86E-02 ug/l | 1.46E-04 lbs/day |
| Benzo(k)fluoranthene (PAH) | 4.86E-02 ug/l | 1.46E-04 lbs/day |
| Chrysene (PAH) | 4.86E-02 ug/l | 1.46E-04 lbs/day |
| Acenaphthylene (PAH) | | |
| Anthracene (PAH) | | |
| Dibenzo(a,h)anthracene (PAH) | 4.86E-02 ug/l | 1.46E-04 lbs/day |
| Indeno(1,2,3-cd)pyrene (PAH) | 4.86E-02 ug/l | 1.46E-04 lbs/day |

| | | |
|---|---|---|
| Pyrene (PAH) | 1.66E+04 ug/l | 5.00E+01 lbs/day |
| Tetrachloroethylene | 1.39E+01 ug/l | 4.16E-02 lbs/day |
| Toluene | 1.18E+05 ug/l | 3.54E+02 lbs/day |
| Trichloroethylene | 4.68E+01 ug/l | 1.41E-01 lbs/day |
| Vinyl chloride | 3.47E+01 ug/l | 1.04E-01 lbs/day |
| **Pesticides** | | |
| Aldrin | 2.25E-03 ug/l | 6.77E-06 lbs/day |
| Dieldrin | 2.43E-03 ug/l | 7.29E-06 lbs/day |
| Chlordane | 9.88E-03 ug/l | 2.97E-05 lbs/day |
| 4,4'-DDT | 1.02E-02 ug/l | 3.07E-05 lbs/day |
| 4,4'-DDE | 1.02E-02 ug/l | 3.07E-05 lbs/day |
| 4,4'-DDD | 1.44E-02 ug/l | 4.32E-05 lbs/day |
| alpha-Endosulfan | 1.61E+01 ug/l | 4.84E-02 lbs/day |
| beta-Endosulfan | 1.61E+01 ug/l | 4.84E-02 lbs/day |
| Endosulfan sulfate | 1.61E+01 ug/l | 4.84E-02 lbs/day |
| Endrin | 1.32E+01 ug/l | 3.96E-02 lbs/day |
| Endrin aldehyde | 1.32E+01 ug/l | 3.96E-02 lbs/day |
| Heptachlor | 3.64E-03 ug/l | 1.09E-05 lbs/day |
| Heptachlor epoxide | | |
| **PCB's** | | |
| PCB 1242 (Arochlor 1242) | 7.63E-04 ug/l | 2.29E-06 lbs/day |
| PCB-1254 (Arochlor 1254) | 7.63E-04 ug/l | 2.29E-06 lbs/day |
| PCB-1221 (Arochlor 1221) | 7.63E-04 ug/l | 2.29E-06 lbs/day |
| PCB-1232 (Arochlor 1232) | 7.63E-04 ug/l | 2.29E-06 lbs/day |
| PCB-1248 (Arochlor 1248) | 7.63E-04 ug/l | 2.29E-06 lbs/day |
| PCB-1260 (Arochlor 1260) | 7.63E-04 ug/l | 2.29E-06 lbs/day |
| PCB-1016 (Arochlor 1016) | 7.63E-04 ug/l | 2.29E-06 lbs/day |
| **Pesticide** | | |
| Toxaphene | 1.27E-02 ug/l | 3.80E-05 lbs/day |
| **Metals** | | |
| Antimony | 242.76 ug/l | 0.73 lbs/day |
| Arsenic | 854.00 ug/l | 2.56 lbs/day |
| Asbestos | 1.21E+08 ug/l | 3.64E+05 lbs/day |
| Beryllium | | |
| Cadmium | | |
| Chromium (III) | | |
| Chromium (VI) | | |
| Copper | 22541.83 ug/l | 67.67 lbs/day |
| Cyanide | 12137.91 ug/l | 36.44 lbs/day |
| Lead | 0.00 | 0.00 |
| Mercury | 2.43 ug/l | 0.01 lbs/day |
| Nickel | 10577.32 ug/l | 31.75 lbs/day |
| Selenium | 0.00 | 0.00 |
| Silver | 0.00 | 0.00 |
| Thallium | 29.48 ug/l | 0.09 lbs/day |
| Zinc | | |

**Dioxin**

| | | |
|---|---|---|
| Dioxin (2,3,7,8-TCDD) | 2.25E-07 ug/l | 6.77E-10 lbs/day |

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

| | Class 4 Acute Agricultural ug/l | Class 3 Acute Aquatic Wildlife ug/l | Acute Toxics Drinking Water Source ug/l | Acute Toxics Wildlife ug/l | 1C Acute Health Criteria ug/l | Acute Most Stringent ug/l | Class 3 Chronic Aquatic Wildlife ug/l |
|---|---|---|---|---|---|---|---|
| Aluminum | | 6858.0 | | | | 6858.0 | N/A |
| Antimony | | | 242.8 | 74561.4 | | 242.8 | |
| Arsenic | | 3111.3 | 854.0 | | 0.0 | 854.0 | 3281.6 |
| Barium | | | | | 17339.9 | 17339.9 | |
| Beryllium | | | | | | 0.0 | |
| Cadmium | | 81.5 | | | 0.0 | 81.5 | 12.1 |
| Chromium (III) | | 52545.9 | | | 0.0 | 52545.9 | 4736.8 |
| Chromium (VI) | | 114.2 | | | 0.0 | 114.24 | 125.79 |
| Copper | | 479.1 | 22541.8 | | | 479.1 | 527.6 |
| Cyanide | | 201.7 | 3814771.2 | | | 201.7 | 90.2 |
| Iron | | 9159.7 | | | | 9159.7 | |
| Lead | | 4511.2 | | | 0.0 | 4511.2 | 319.9 |
| Mercury | | 22.01 | 2.4 | 2.60 | 0.0 | 2.43 | 0.208 |
| Nickel | | 14199.6 | 10577.3 | 79763.4 | | 10577.3 | 2973.7 |
| Selenium | | 170.4 | | | 0.0 | 170.4 | 53.8 |
| Silver | | 393.6 | | | 0.0 | 393.6 | |
| Thallium | | | 29.5 | 109.2 | | 29.5 | |
| Zinc | | 3633.9 | | | | 3633.9 | 6871.5 |
| Boron | 13004.9 | | | | | 13004.9 | |

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

| | WLA Acute ug/l | WLA Chronic ug/l | |
|---|---|---|---|
| Aluminum | 6858.0 | N/A | |
| Antimony | 242.76 | | |
| Arsenic | 854.0 | 3281.6 | Acute Controls |
| Asbestos | 1.21E+08 | | |
| Barium | | | |
| Beryllium | | | |
| Cadmium | 81.5 | 12.1 | |
| Chromium (III) | 52545.9 | 4737 | |
| Chromium (VI) | 114.2 | 125.8 | Acute Controls |
| Copper | 479.1 | 527.6 | Acute Controls |

| | | | |
|---|---|---|---|
| Cyanide | 201.7 | 90.2 | |
| Iron | 9159.7 | | |
| Lead | 4511.2 | 319.9 | |
| Mercury | 2.427 | 0.208 | |
| Nickel | 10577.3 | 2974 | |
| Selenium | 170.4 | 53.8 | |
| Silver | 393.6 | N/A | |
| Thallium | 29.5 | | |
| Zinc | 3633.9 | 6871.5 | Acute Controls |
| Boron | 13004.90 | | |

Other Effluent Limitations are based upon R317-1.

| | | |
|---|---|---|
| E. coli | 126.0 | organisms per 100 ml |

## X. Antidegradation Considerations

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

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

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

## XI. Colorado River Salinity Forum Considerations

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

## XII. Summary Comments

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

## XIII. Notice of UPDES Requirement

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

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## APPENDIX - Coefficients and Other Model Information

| CBOD Coeff. (Kd)20 1/day | CBOD Coeff. FORCED (Kd)/day | CBOD Coeff. (Ka)T 1/day | REAER. Coeff. (Ka)20 (Ka)/day | REAER. Coeff. FORCED 1/day | REAER. Coeff. (Ka)T 1/day | NBOD Coeff. (Kn)20 1/day | NBOD Coeff. (Kn)T 1/day |
|---|---|---|---|---|---|---|---|
| 2.000 | 0.000 | 2.172 | 26.940 | 0.000 | 28.115 | 0.400 | 0.459 |

| Open Coeff. (K4)20 1/day | Open Coeff. (K4)T 1/day | NH3 LOSS (K5)20 1/day | NH3 (K5)T 1/day | NO2+NO3 LOSS (K6)20 1/day | NO2+NO3 (K6)T 1/day | TRC Decay K(Cl)20 1/day | TRC K(Cl)(T) 1/day |
|---|---|---|---|---|---|---|---|
| 0.000 | 0.000 | 4.000 | 4.345 | 0.000 | 0.000 | 32.000 | 35.539 |

| BENTHIC DEMAND (SOD)20 gm/m2/day | BENTHIC DEMAND (SOD)T gm/m2/day |
|---|---|
| 1.000 | 1.120 |

| K1 CBOD {theta} | K2 Reaer. {theta} | K3 NH3 {theta} | K4 Open {theta} | K5 NH3 Loss {theta} | K6 NO2+3 {theta} | K(Cl) TRC {theta} | S Benthic {theta} |
|---|---|---|---|---|---|---|---|
| 1.0 | 1.0 | 1.1 | 1.0 | 1.0 | 1.0 | 1.1 | 1.1 |

## Antidegredation Review

An antidegradation review (ADR) was conducted to determine whether the proposed activity complies with the applicable antidegradation requirements for receiving waters that may be affected. The Level I ADR evaluated the criteria of R317-2-3.5(b) and determined that any degredation is de minimis in nature and therefore does not require a Level II review. The proposed activity is a basic permit renewal. No increase in effluent concentration or load is requested over that allowed under the current UPDES Permit.