

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. **UT0026026**

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

MANTI CITY

is hereby authorized to discharge from its wastewater treatment facility located approximately 0.9 miles north of Manti City on State Highway 65, with an outfall located at 39° 17' 10" latitude and 111° 38' 05" longitude, to receiving waters named

UNNAMED DITCH TO THE SAN PITCH RIVER

in accordance with discharge point, effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective on February 1, 2017

This permit expires at midnight on January 31, 2022

Signed this 30 day of January, 2017



Walter L. Baker, P.E.
Director

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I. DISCHARGE LIMITATIONS AND REPORTING REQUIREMENTS

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

Outfall Number

001

Location of Discharge Point:

A 12-inch outfall pipe, located at 39°17'10" N latitude and 111°38'5" W longitude on the southwest side of the lagoon system.

- 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.

Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from Outfall 001. This discharge will be limited to October 1 to February 28 of each year. Such discharges shall be limited and monitored by the permittee as specified below:

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Parameter	Effluent Limitations and Sampling Frequency a/					
	Maximum Monthly Avg	Maximum Weekly Avg	Daily Minimum	Daily Maximum	Sample Frequency	Sample Type
Flow, MGD	NA	NA	NA	0.97	Continuous	Recorder
BOD ₅ , mg/L	45	65	NA	NA	Weekly	Grab
BOD ₅ Min. % Removal	65	NA	NA	NA	Weekly	Grab
TSS, mg/L	45	65	NA	NA	Weekly	Grab
TSS Min. % Removal	65	NA	NA	NA	Weekly	Grab
<i>E. coli</i> , No./100mL	126	157	NA	NA	Weekly	Grab
TDS, Effluent, mg/l	1476	NA	NA	NA	Weekly	Grab
TRC, mg/L	NA	NA	NA	0.019	Daily	Grab
DO, mg/L	NA	NA	5.0	NA	Weekly	Grab
pH, Standard Units	NA	NA	6.5	9.0	Weekly	Grab
Total Phosphorus, Influent mg/L b/	NA	NA	NA	NA	Monthly	Composite
Total Phosphorus, Effluent mg/L b/	NA	NA	NA	NA	Monthly	Composite
Total Kjeldahl Nitrogen, Influent mg/L b/	NA	NA	NA	NA	Monthly	Composite
Total Kjeldahl Nitrogen, Effluent mg/L b/	NA	NA	NA	NA	Monthly	Composite
Orthophosphate, mg/L	NA	NA	NA	NA	Monthly	Composite
Ammonia, mg/L	NA	NA	NA	2.8	Weekly	Composite
Nitrate-Nitrite, mg/L	NA	NA	NA	NA	Monthly	Composite
Selenium, µ/L	NA	NA	NA	NA	Monthly	Grab

a/ See Definitions, *Part VI*, for definition of terms.

b/ Flow measurements of influent/effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained.

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

d/ In addition to monitoring the final discharge, influent samples shall be taken and analyzed for this constituent at the same frequency as required for this constituent in the discharge.

NA – Not Applicable

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

Parameter	Type II Reuse Effluent Limitations and Sampling Frequency a/ b/					
	Maximum Monthly Avg	Maximum Weekly Avg	Daily Minimum	Daily Maximum	Sample Frequency	Sample Type
Flow, MGD c/	NA	NA	NA	NA	Continuous	Recorder
BOD ₅ , mg/L	45	65	NA	NA	Monthly	Composite
TSS, mg/L d/	45	65	NA	NA	Monthly	Composite
pH, SU	NA	NA	6.5	9.0	Weekly	Grab
<i>E. coli</i> , No./100mL e/ f/	126	NA	NA	500	Monthly	Grab
Selenium, µg/l	NA	NA	NA	NA	Monthly	Grab

- a/ See Definitions, *Part VIII*, for definition of terms.
- b/ An alternative disposal option or diversion to storage must be available in case quality requirements are not met.
- c/ Flow measurements of effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained
- d/ Properly calibrated, continuous monitoring of turbidity may be substituted for the suspended solids testing.
- e/ The facility is required to disinfect to destroy, inactivate or remove pathogenic microorganisms by chemical, physical or biological means. Disinfection may be accomplished by chlorination, ozonation, or other chemical disinfectants, UV radiation. Or other approved processes.
- f/ The facility shall also have the ability to disinfect the effluent effective immediately and lasting the duration of this permit.

A. Management Practices for Land Application of Treated Effluent

1. The application of treated effluent to frozen, ice-covered, or snow covered land is prohibited.
2. No person shall apply treated effluent where the slope of the site exceeds 6 percent.
3. The use should not result in a surface water runoff.
4. The use must not result in the creation of an unhealthy or nuisance condition, as determined by the local health department.
5. Any irrigation with treated effluent must be at least 300 feet from a potable well.
6. For Type II reuse, any irrigation must be at least 300 feet from any potable water well.
7. For Type II reuse, spray irrigation must be at least 100 feet from areas intended for public access. This distance may be reduced or increased by the Director.

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8. Impoundments of treated effluent, if not sealed, must be at least 500 feet from any potable well.
 9. 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.
- B. Reporting of Wastewater Monitoring Results. Monitoring results obtained during the previous month shall be summarized for each month and reported using NetDMR no later than the 28th day of the month following the completed reporting period. The first report is due on March 28, 2017. If no discharge occurs during the reporting period, “no discharge” shall be reported. Legible copies of these, and all other reports including whole effluent toxicity (WET) test reports, 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 significant industrial user (SIU),
 - b. Determination of the qualitative and quantitative characteristics of each discharge, and
 - c. Appropriate production data.
2. The IWS must be maintained and updated with IU information as necessary, to ensure that all IUs are properly permitted and/or controlled at all times. Updates must be submitted to the Director sixty (60) days following a change to the IWS.
3. Evaluate all significant industrial users at least once every two years to determine if they need to develop a slug prevention plan. If a slug prevention plan is required, the permittee shall notify the Director.

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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

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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 passthrough 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. 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. 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 *Part IV.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.

IV. 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 judgment 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.3.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;

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- (3) Description of specific measures to be taken to minimize environmental and public health impacts;
 - (4) A notification plan sufficient to alert all downstream users, the public and others reasonably expected to be impacted by the bypass;
 - (5) A water quality assessment plan to include sufficient monitoring of the receiving water before, during and following the bypass to enable evaluation of public health risks and environmental impacts; and,
 - (6) Any additional information requested by the Director.
- b. *Emergency Bypass.* Where ninety days advance notice is not possible, the permittee must notify the Director, and the Director of the Department of Natural Resources, as soon as it becomes aware of the need to bypass and provide to the Director the information in *section VI.G.3.a.(1) through (6)* to the extent practicable.
- c. *Unanticipated bypass.* The permittee shall submit notice of an unanticipated bypass to the Director as required under *Part III.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,

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- 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.

V. 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.

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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.

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DISCHARGE PERMIT NO. UT0026026

- 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

PART V
DISCHARGE PERMIT NO. UT0026026

appropriate effluent limitations and compliance schedule, if necessary, if one or more of the following events occurs:

1. Water Quality Standards for the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than contained in this permit.
 2. A final wasteload allocation is developed and approved by the State and/or EPA for incorporation in this permit.
 3. Revisions to the current CWA § 208 areawide treatment management plans or promulgations/revisions to TMDLs (40 CFR 130.7) approved by the EPA and adopted by DWQ which calls for different effluent limitations than contained in this permit.
- P. Biosolids – Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate biosolids limitations (and compliance schedule, if necessary), management practices, other appropriate requirements to protect public health and the environment, or if there have been substantial changes (or such changes are planned) in biosolids use or disposal practices; applicable management practices or numerical limitations for pollutants in biosolids have been promulgated which are more stringent than the requirements in this permit; and/or it has been determined that the permittees biosolids use or land application practices do not comply with existing applicable state or federal regulations.
- Q. Toxicity Limitation - Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include, 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 if one or more of the following events occur;
- 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".

VI. 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;

PART VI
DISCHARGE PERMIT NO. UT0020893

- 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 Water Quality Board.
 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. "Upset," means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

**FACT SHEET and STATEMENT OF BASIS
MANTI CITY CORPORATION
WASTEWATER TREATMENT FACILITY
UPDES PERMIT No. UT0026026**

MINOR MUNICIPAL

FACILITY CONTACTS

Name: Kent Barton
Position: City Manager
Address: 50 South Main Street
Manti, UT 84642
Phone: (435) 835-2401

DESCRIPTION OF FACILITY AND BACKGROUND INFORMATION

The Manti City Wastewater Treatment Facility is located approximately 1 mile north of Manti City, Utah in Sanpete County. According to the most recent census data, the population of Manti is approximately 3,297 with approximately 850 sewer connections. The facility has been upgraded and will continue upgrades during the life of this permit. The design capacity is 0.33 million gallons per day (MGD) with a maximum effluent flow of 0.97 MGD.

The facility has traditionally been a non-discharging lagoon system. However a study completed by Manti City in 2011 indicated that due to increased flows the facility would reach its capacity for total containment in 2016. The facility has previously requested permission from the Division of Water Quality to perform an emergency discharge for land application under its existing Operating Permit No. UTOP00124.

The facility comprises an influent pump station, influent 8-inch Parshall Flume, influent flow meter, grinder, bar screen and three facultative lagoon cells totaling approximately 41.5 acres, (cell #1, 14.1 acres, cell #2, 13.6 acres, cell #3, 13.7 acres) with chlorination for disinfection. The facility plans to reuse the water to irrigate local fields and pastures in the summer and discharge to the San Pitch River in the winter.

DESCRIPTION OF DISCHARGE

Outfall Number
001

Location of Discharge Point:
A 12-inch outfall pipe, located at 39° 17' 10" N latitude and 111°38'05" W longitude, on the southwest side of the lagoon system.

RECEIVING WATERS AND STREAM CLASSIFICATIONS

The final discharge is into an unnamed ditch and then the San Pitch River (classified as 2B, 3C, 3D and 4).

- Class 2 B - 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.
- Class 3D - Protected for waterfowl, shore birds, and other water oriented wildlife not included in Classes 3A, 3B or 3C, including the necessary aquatic organisms in their food chain.
- Class 4 - protected for agricultural uses including irrigation of crops and stock watering.

BASIS FOR EFFLUENT LIMITATIONS

Limitations on total suspended solids (TSS), biochemical oxygen demand (BOD₅), *E. coli* and pH are based on current Utah Secondary Treatment Standards, (*Utah Administrative Code [UAC] R317-1-3.2*). The facility has requested the alternative effluent limits for BOD₅ and TSS. Per R317-1-3.2 G, they currently meet all of the requirements and the alternative effluent limits will be incorporated into this permit. The reduction in the percent removal is based on *40 CFR 133.105 Treatment Equivalent to secondary treatment* which allows for a reduction in percent removal for waste stabilization pond facilities.

The total residual chlorine (TRC) and dissolved oxygen (D.O.) limitations are based on water quality considerations of the San Pitch River River (*UAC R317-2*) and were derived in the wasteload analysis (see Addendum). The TRC limit derived in the wasteload incorporates additional modeling data. The wasteload analysis indicates that these limitations should be sufficiently protective of water quality and should meet State water quality standards in the receiving water.

The Utah Water Quality Board adopted a new rule for control of phosphorus discharges into waters of the state that became effective January 1, 2015. The Technology-Based Phosphorus Effluent Limit, or TBPEL Rule, R317-1-3.3 requires that discharges having reasonable potential to discharge phosphorus implement new water quality monitoring requirements by July 1, 2015. The rule requires that these dischargers meet specified nutrient effluent limits by January 1, 2020. As a result of this rule, this facility is being required to monitor for specific nutrients. Under R317-1-3.3, discharging lagoons will be evaluated to determine the current phosphorus load discharged annually. The rule restricts the amount of phosphorus that a lagoon could discharge to 125 percent of the current average annual total phosphorus loading to the receiving stream. This load cap will be identified for this facility and incorporated into the permit by July 1, 2018. Absent sufficient data to calculate a cap for lagoon facilities, the load cap will be estimated by the Director.

The receiving water is listed as impaired for total dissolved solids according to the 2012 303(d) list. A TMDL was completed for the Middle San Pitch River (HUC #16030004) on November 18, 2003. The TMDL identified a critical season of March 1 - September 30 where the loading capacity was exceeded and load limitations apply. As a result, new discharges with a potential to cause or contribute to the existing impairment are not allowed during the critical season. Therefore, the facility will only be allowed to discharge to the San Pitch River during the non-critical season or October 1 through the end of February.

The sampling frequency for Type II reuse for this facility is the same as the sampling frequency for discharges to surface water and is the same as similar facilities within the State.

REASONABLE POTENTIAL ANALYSIS

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

Quantitative RP analysis was performed on selenium to determine if there is RP to exceed the applicable water quality standards. RP analysis for selenium indicates it has a reasonable potential to exceed water quality standards. However, this was based on a sample set of two. Based on the permit writer's best professional judgment, selenium will be monitored on a monthly basis. If selenium is measured again at a level that indicates a reasonable potential to cause impairment to the San Pitch River (7.0 μ /L) the permit will be reopened and a selenium limit will be included. Also due to the lack of information available, annual metals monitoring will be required. The facility is not expected to discharge to the San Pitch River during the initial 5 year permit cycle and is expected to only utilize the land disposal portion of the permit during this time.

Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge effluent from Outfall 001. This discharge will be limited to October 1 to February 28 of each year. Such discharges shall be limited and monitored by the permittee as specified below:

Parameter	Effluent Limitations and Sampling Frequency a/					
	Maximum Monthly Avg	Maximum Weekly Avg	Daily Minimum	Daily Maximum	Sample Frequency	Sample Type
Flow, MGD	NA	NA	NA	0.97	Continuous	Recorder
BOD ₅ , mg/L	45	65	NA	NA	Weekly	Grab
BOD ₅ Min. % Removal	65	NA	NA	NA	Weekly	Grab
TSS, mg/L	45	65	NA	NA	Weekly	Grab
TSS Min. % Removal	65	NA	NA	NA	Weekly	Grab
<i>E. coli</i> , No./100mL	126	157	NA	NA	Weekly	Grab
TDS, Effluent, mg/l	1476	NA	NA	NA	Weekly	Grab
TRC, mg/L	NA	NA	NA	0.019	Daily	Grab
DO, mg/L	NA	NA	5.0	NA	Weekly	Grab
pH, Standard Units	NA	NA	6.5	9.0	Weekly	Grab
Total Phosphorus, Influent mg/L b/	NA	NA	NA	NA	Monthly	Composite
Total Phosphorus, Effluent mg/L b/	NA	NA	NA	NA	Monthly	Composite
Total Kjeldahl Nitrogen, Influent mg/L b/	NA	NA	NA	NA	Monthly	Composite
Total Kjeldahl Nitrogen, Effluent mg/L b/	NA	NA	NA	NA	Monthly	Composite
Orthophosphate, mg/L	NA	NA	NA	NA	Monthly	Composite
Ammonia, mg/L	NA	NA	NA	2.8	Weekly	Composite
Nitrate-Nitrite, mg/L	NA	NA	NA	NA	Monthly	Composite
Selenium, µ/L	NA	NA	NA	NA	Monthly	Grab

a/ See Definitions, Part VI, for definition of terms.

- b/ Flow measurements of influent/effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained.
- c/ If the rate of discharge is controlled, the rate and duration of discharge shall be reported.
- d/ In addition to monitoring the final discharge, influent samples shall be taken and analyzed for this constituent at the same frequency as required for this constituent in the discharge.

NA – Not Applicable

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

Parameter	Type II Reuse Effluent Limitations and Sampling Frequency a/ b/					
	Maximum Monthly Avg	Maximum Weekly Avg	Daily Minimum	Daily Maximum	Sample Frequency	Sample Type
Flow, MGD c/	NA	NA	NA	NA	Continuous	Recorder
BOD ₅ , mg/L	45	65	NA	NA	Monthly	Composite
TSS, mg/L d/	45	65	NA	NA	Monthly	Composite
pH, SU	NA	NA	6.5	9.0	Weekly	Grab
<i>E. coli</i> , No./100mL e/ f/	126	NA	NA	500	Monthly	Grab
Selenium, µg/l	NA	NA	NA	NA	Monthly	Grab

- a/ See Definitions, *Part VIII*, for definition of terms.
- b/ An alternative disposal option or diversion to storage must be available in case quality requirements are not met.
- c/ Flow measurements of effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained
- d/ Properly calibrated, continuous monitoring of turbidity may be substituted for the suspended solids testing.
- e/ The facility is required to disinfect to destroy, inactivate or remove pathogenic microorganisms by chemical, physical or biological means. Disinfection may be accomplished by chlorination, ozonation, or other chemical disinfectants, UV radiation. Or other approved processes.
- f/ The facility shall also have the ability to disinfect the effluent effective immediately and lasting the duration of this permit.

A. Management Practices for Land Application of Treated Effluent

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

STORM WATER REQUIREMENTS

Wastewater treatment facilities, including 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 *Title 40, Code of Federal Regulations (CFR) Part 403*.
2. The facility has a design flow of 1.0 MGD or greater.

The Manti City lagoon system does not meet either of these criteria; therefore no storm water requirements are included in the permit. A storm water re-opener provision is included in the permit should storm water requirements 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 for review any local limits that are developed to the Division of Water Quality for review.

BIOMONITORING REQUIREMENTS

As part of a nationwide effort to control toxic discharges, biomonitoring requirements are being included in permits for facilities where effluent toxicity is an existing or potential concern. In Utah, this is done in accordance with the *State of Utah Permitting and Enforcement Guidance Document for Whole Effluent Toxicity (WET) 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*.

Manti City is a minor municipal facility, discharges less than one (1) MGD, and has no industries contributing to the wastewater system. Based on these considerations, there is minimal reasonable potential for toxicity in Manti City's discharge (per *State of Utah Permitting and Enforcement Guidance Document for Whole Effluent Toxicity 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. This provision allows for modification of the permit, should additional information indicate the presence of toxicity in the discharge.

SEWAGE SLUDGE (BIOSOLIDS) DISPOSAL REQUIREMENTS

Because the permitted facility is a lagoon system, there is no regular sludge production. Therefore, the requirements of *40 CFR Part 503* do not apply unless or until sludge is removed from the bottom of the lagoon and used or disposed in some way.

PERMIT DURATION

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

PUBLIC NOTICE:


This permit was public noticed in the Sanpete Messenger and also on the Division of Water Quality's website from December 15, 2016 – January 17, 2016. No comments were received during the public comment period therefore the final version is the same as the version public noticed.

Drafted by Lonnie Shull
Environmental Scientist
Utah Division of Water Quality
June 1, 2016
Revised November 30, 2016
Revised January 24, 2017

Wasteload Allocation by Dave Wham
Pretreatment Review by Jennifer Robinson
TMDL Review by Scott Daly
Reasonable Potential Review by Ken Hoffman

Addendum I (Wasteload Allocation)

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

Date: January 4, 2016
Prepared by: Dave Wham 
Standards and Technical Services
Facility: Manti Lagoons.
UPDES No. Not Yet Assigned
Receiving water: San Pitch River (2B, 3C, 3D, 4)

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

Discharge

Outfall 001: Unnamed Ditch → San Pitch River

The mean monthly design discharge is 0.97 MGD (1.5 cfs) for the facility.

Receiving Water

The receiving water for Outfall 001 the San Pitch River.

Per UAC R317-2-13.7(a), the designated beneficial uses for San Pitch River and tributaries, is 2B, 3C, 3D, and 4.

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

Utah Division of Water Quality
Wasteload Analysis
Manti Lagoons
UPDES No. Not yet assigned

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

Typically, the critical flow for the wasteload analysis is considered the lowest stream flow for seven consecutive days with a ten year return frequency (7Q10). Due to a lack of flow records for the San Pitch River at this location, the 20th percentile of flow measurements was used to represent the critical low flow condition. The source of flow data was from DWQ sampling at station 4946450, San Pitch River west of Manti above Gunnison Reservoir at county road crossing for the period 1995-2014.

Table 1: Seasonal (Oct-Feb) critical low flow (cfs)

Season	San Pitch River at Station 4946450
Oct-Feb	1.2 cfs

San Pitch River water quality was characterized based on samples collected from monitoring station 4946450 - San Pitch River west of Manti above Gunnison Reservoir at county road crossing - for the period 1995-2014 (Oct.-Feb).

TMDL

The receiving water is listed as impaired for total dissolved solids according to the 2012 303(d) list. A TMDL was completed for the Middle San Pitch River (HUC #16030004) on November 18th 2003 (UDWQ 2003). The TMDL identified a critical season of March 1 - September 30 where the loading capacity was exceeded and load limitations apply. As a result, new discharges with a potential to cause or contribute to the existing impairment are not allowed during the critical season. The findings of this wasteload allocation apply only during the non-critical season – October 1st through the end of February.

Mixing Zone

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

Since the receiving water low flow (1.2 cfs) is equal to or less than twice the flow of a point source discharge (1.5 cfs), the combined flows are considered to be totally mixed. Acute limits were calculated using 50% of the seasonal critical low flow.

Parameters of Concern

The potential parameters of concern identified for the discharge/receiving water were BOD₅, total suspended solids, total dissolved solids, total ammonia, and total residual chlorine as determined in consultation with the UPDES Permit Writer.

Utah Division of Water Quality
Wasteload Analysis
Manti Lagoons
UPDES No. Not yet assigned

WET Limits

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

Table 2: WET Limits for IC₂₅

Outfall	Percent Effluent
Outfall 001	56%

Wasteload Allocation Methods

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

The water quality standard for chronic ammonia toxicity is dependent on temperature and pH, and the water quality standard for acute ammonia toxicity is dependent on pH. The AMMTOX Model developed by University of Colorado and adapted by Utah DWQ and EPA Region VIII was used to determine ammonia effluent limits (Lewis et al. 2002). The analysis is summarized in the Wasteload Addendum.

Effluent Limits

Table 3: Water Quality Based Effluent Limits Summary Non-critical Season: October -February

Constituent	Acute			Chronic		
	Standard	Limit	Averaging Period	Standard	Limit	Averaging Period
Flow Outfall 001 (MGD)		0.97	30 days		0.97	30 days
Ammonia (mg/L)	5.7	7.3	1 hour	1.89	2.8	30 days
Total dissolved solids (mg/L)	1200	1476	Instantaneous	---	---	---
Total residual chlorine (mg/L)	.019	.033	1 hour	.011	.019	30 days

Models and supporting documentation are available for review upon request.

Antidegradation Level I Review

The objective of the Level I ADR is to ensure the protection of existing uses, defined as the beneficial uses attained in the receiving water on or after November 28, 1975. No evidence is known that the existing uses deviate from the designated beneficial uses for the receiving water. Therefore, the beneficial uses will be protected if the discharge remains below the WQBELs presented in this wasteload.

**Utah Division of Water Quality
Wasteload Analysis
Manti Lagoons
UPDES No. Not yet assigned**

A Level II Antidegradation Review (ADR) is required for this facility because it is a new discharge permit application.

Documents:

WLA Document: *Manti_WLADoc_1-4-16.docx*
Wasteload Analysis and Addendum: *Manti_WLA_12-24-15.xlsm*

References:

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

Utah Division of Water Quality. 2003. San Pitch River Watershed Water Quality Management Plan. Millennium Science and Engineering, Inc.

Lewis, B., J. Saunders, and M. Murphy. 2002. *Ammonia Toxicity Model (AMMTOX, Version2): A Tool for Determining Effluent Ammonia Limits.* University of Colorado, Center for Limnology.

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

Discharging Facility: Manti City Lagoons
UPDES No: UT-None
Current Flow: 0.97 MGD Design Flow
Design Flow 0.97 MGD

Receiving Water: Ditch => San Pitch
Stream Classification: 2B, 3C, 3D, 4
Stream Flows [cfs]:

1.2 Winter (Dec-Mar) 20th Percentile Fall & Winter

Stream TDS Values:

855.0 Winter (Dec-Mar) Fall and Winter Average

Effluent Limits:

Flow, MGD:	0.97 MGD	Design Flow	WQ Standard:
BOD, mg/l:	25.0 Winter		5.0 Indicator
Dissolved Oxygen, mg/l:	5.0 Winter		5.0 30 Day Average
TNH3, Chronic, mg/l:	2.8 Winter		Varies Function of pH and Temperature
TDS, mg/l:	1475.9 Winter		1200.0

Modeling Parameters:

Acute River Width: 50.0%
Chronic River Width: 100.0%

Level II Antidegradation Review required (new permit).

Date: 12/24/2015

Permit Writer:

[Signature]

WLA by:

[Signature]

WQM Sec. Approval:

TMDL Sec. Approval:

1/4/2016

12/24/15

Utah Division of Water Quality
Salt Lake City, Utah

WASTELOAD ANALYSIS [WLA]
Addendum: Statement of Basis

24-Dec-15
4:00 PM

Facilities: Manti City Lagoons
Discharging to: Ditch => San Pitch

UPDES No: UT-None

THIS IS A DRAFT DOCUMENT

I. Introduction

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

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

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

II. Receiving Water and Stream Classification

Ditch => San Pitch:	2B, 3C, 3D, 4
Antidegradation Review:	Level I review completed. Level II review required.

III. Numeric Stream Standards for Protection of Aquatic Wildlife

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

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Acute and Chronic Heavy Metals (Dissolved)

Parameter	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard		
	Concentration	Load*	Concentration		Load*
Aluminum	87.00 ug/l**	0.705 lbs/day	750.00	ug/l	6.078 lbs/day
Arsenic	190.00 ug/l	1.540 lbs/day	340.00	ug/l	2.755 lbs/day
Cadmium	1.00 ug/l	0.008 lbs/day	12.89	ug/l	0.104 lbs/day
Chromium III	367.10 ug/l	2.975 lbs/day	7680.50	ug/l	62.242 lbs/day
ChromiumVI	11.00 ug/l	0.089 lbs/day	16.00	ug/l	0.130 lbs/day
Copper	42.32 ug/l	0.343 lbs/day	74.16	ug/l	0.601 lbs/day
Iron			1000.00	ug/l	8.104 lbs/day
Lead	30.26 ug/l	0.245 lbs/day	776.61	ug/l	6.294 lbs/day
Mercury	0.0120 ug/l	0.000 lbs/day	2.40	ug/l	0.019 lbs/day
Nickel	233.07 ug/l	1.889 lbs/day	2096.36	ug/l	16.989 lbs/day
Selenium	4.60 ug/l	0.037 lbs/day	20.00	ug/l	0.162 lbs/day
Silver	N/A ug/l	N/A lbs/day	79.39	ug/l	0.643 lbs/day
Zinc	536.60 ug/l	4.348 lbs/day	536.60	ug/l	4.348 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 586.79 mg/l as CaCO3

Organics [Pesticides]

Parameter	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard		
	Concentration	Load*	Concentration		Load*
Aldrin			1.500	ug/l	0.012 lbs/day
Chlordane	0.004 ug/l	0.063 lbs/day	1.200	ug/l	0.010 lbs/day
DDT, DDE	0.001 ug/l	0.015 lbs/day	0.550	ug/l	0.004 lbs/day
Dieldrin	0.002 ug/l	0.028 lbs/day	1.250	ug/l	0.010 lbs/day
Endosulfan	0.056 ug/l	0.815 lbs/day	0.110	ug/l	0.001 lbs/day
Endrin	0.002 ug/l	0.033 lbs/day	0.090	ug/l	0.001 lbs/day
Guthion			0.010	ug/l	0.000 lbs/day
Heptachlor	0.004 ug/l	0.055 lbs/day	0.260	ug/l	0.002 lbs/day
Lindane	0.080 ug/l	1.164 lbs/day	1.000	ug/l	0.008 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	0.204 lbs/day	2.000	ug/l	0.016 lbs/day
Pentachlorophenol	13.00 ug/l	189.230 lbs/day	20.000	ug/l	0.162 lbs/day
Toxephene	0.0002 ug/l	0.003 lbs/day	0.7300	ug/l	0.006 lbs/day

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IV. Numeric Stream Standards for Protection of Agriculture

	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Arsenic			100.0 ug/l	lbs/day
Boron			750.0 ug/l	lbs/day
Cadmium			10.0 ug/l	0.04 lbs/day
Chromium			100.0 ug/l	lbs/day
Copper			200.0 ug/l	lbs/day
Lead			100.0 ug/l	lbs/day
Selenium			50.0 ug/l	lbs/day
TDS, Summer			1200.0 mg/l	4.86 tons/day

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

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

Chlorophenoxy Herbicides

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

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

Toxic Organics	Maximum Conc., ug/l - Acute Standards			
	Class 1C		Class 3A, 3B	
	[2 Liters/Day for 70 Kg Person over 70 Yr.]		[6.5 g for 70 Kg Person over 70 Yr.]	
Acenaphthene	ug/l	lbs/day	2700.0 ug/l	39.30 lbs/day
Acrolein	ug/l	lbs/day	780.0 ug/l	11.35 lbs/day
Acrylonitrile	ug/l	lbs/day	0.7 ug/l	0.01 lbs/day
Benzene	ug/l	lbs/day	71.0 ug/l	1.03 lbs/day
Benzidine	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Carbon tetrachloride	ug/l	lbs/day	4.4 ug/l	0.06 lbs/day
Chlorobenzene	ug/l	lbs/day	21000.0 ug/l	305.68 lbs/day
1,2,4-Trichlorobenzene				
Hexachlorobenzene	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
1,2-Dichloroethane	ug/l	lbs/day	99.0 ug/l	1.44 lbs/day

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1,1,1-Trichloroethane				
Hexachloroethane	ug/l	lbs/day	8.9 ug/l	0.13 lbs/day
1,1-Dichloroethane				
1,1,2-Trichloroethane	ug/l	lbs/day	42.0 ug/l	0.61 lbs/day
1,1,2,2-Tetrachloroethane	ug/l	lbs/day	11.0 ug/l	0.16 lbs/day
Chloroethane			0.0 ug/l	0.00 lbs/day
Bis(2-chloroethyl) ether	ug/l	lbs/day	1.4 ug/l	0.02 lbs/day
2-Chloroethyl vinyl ether	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
2-Chloronaphthalene	ug/l	lbs/day	4300.0 ug/l	62.59 lbs/day
2,4,6-Trichlorophenol	ug/l	lbs/day	6.5 ug/l	0.09 lbs/day
p-Chloro-m-cresol			0.0 ug/l	0.00 lbs/day
Chloroform (HM)	ug/l	lbs/day	470.0 ug/l	6.84 lbs/day
2-Chlorophenol	ug/l	lbs/day	400.0 ug/l	5.82 lbs/day
1,2-Dichlorobenzene	ug/l	lbs/day	17000.0 ug/l	247.46 lbs/day
1,3-Dichlorobenzene	ug/l	lbs/day	2600.0 ug/l	37.85 lbs/day
1,4-Dichlorobenzene	ug/l	lbs/day	2600.0 ug/l	37.85 lbs/day
3,3'-Dichlorobenzidine	ug/l	lbs/day	0.1 ug/l	0.00 lbs/day
1,1-Dichloroethylene	ug/l	lbs/day	3.2 ug/l	0.05 lbs/day
1,2-trans-Dichloroethylene	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
2,4-Dichlorophenol	ug/l	lbs/day	790.0 ug/l	11.50 lbs/day
1,2-Dichloropropane	ug/l	lbs/day	39.0 ug/l	0.57 lbs/day
1,3-Dichloropropylene	ug/l	lbs/day	1700.0 ug/l	24.75 lbs/day
2,4-Dimethylphenol	ug/l	lbs/day	2300.0 ug/l	33.48 lbs/day
2,4-Dinitrotoluene	ug/l	lbs/day	9.1 ug/l	0.13 lbs/day
2,6-Dinitrotoluene	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
1,2-Diphenylhydrazine	ug/l	lbs/day	0.5 ug/l	0.01 lbs/day
Ethylbenzene	ug/l	lbs/day	29000.0 ug/l	422.13 lbs/day
Fluoranthene	ug/l	lbs/day	370.0 ug/l	5.39 lbs/day
4-Chlorophenyl phenyl ether				
4-Bromophenyl phenyl ether				
Bis(2-chloroisopropyl) ether	ug/l	lbs/day	170000.0 ug/l	2474.55 lbs/day
Bis(2-chloroethoxy) methane	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Methylene chloride (HM)	ug/l	lbs/day	1600.0 ug/l	23.29 lbs/day
Methyl chloride (HM)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Methyl bromide (HM)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Bromoform (HM)	ug/l	lbs/day	360.0 ug/l	5.24 lbs/day
Dichlorobromomethane	ug/l	lbs/day	22.0 ug/l	0.32 lbs/day
Chlorodibromomethane	ug/l	lbs/day	34.0 ug/l	0.49 lbs/day
Hexachlorobutadiene(c)	ug/l	lbs/day	50.0 ug/l	0.73 lbs/day
Hexachlorocyclopentadiene	ug/l	lbs/day	17000.0 ug/l	247.46 lbs/day
Isophorone	ug/l	lbs/day	600.0 ug/l	8.73 lbs/day
Naphthalene				
Nitrobenzene	ug/l	lbs/day	1900.0 ug/l	27.66 lbs/day
2-Nitrophenol	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
4-Nitrophenol	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
2,4-Dinitrophenol	ug/l	lbs/day	14000.0 ug/l	203.79 lbs/day
4,6-Dinitro-o-cresol	ug/l	lbs/day	765.0 ug/l	11.14 lbs/day
N-Nitrosodimethylamine	ug/l	lbs/day	8.1 ug/l	0.12 lbs/day
N-Nitrosodiphenylamine	ug/l	lbs/day	16.0 ug/l	0.23 lbs/day
N-Nitrosodi-n-propylamine	ug/l	lbs/day	1.4 ug/l	0.02 lbs/day
Pentachlorophenol	ug/l	lbs/day	8.2 ug/l	0.12 lbs/day

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Phenol	ug/l	lbs/day	4.6E+06 ug/l	6.70E+04 lbs/day
Bis(2-ethylhexyl)phthala	ug/l	lbs/day	5.9 ug/l	0.09 lbs/day
Butyl benzyl phthalate	ug/l	lbs/day	5200.0 ug/l	75.69 lbs/day
Di-n-butyl phthalate	ug/l	lbs/day	12000.0 ug/l	174.67 lbs/day
Di-n-octyl phthlate				
Diethyl phthalate	ug/l	lbs/day	120000.0 ug/l	1746.74 lbs/day
Dimethyl phthlate	ug/l	lbs/day	2.9E+06 ug/l	4.22E+04 lbs/day
Benzo(a)anthracene (P)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(a)pyrene (PAH)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(b)fluoranthene (F	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(k)fluoranthene (F	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Chrysene (PAH)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Acenaphthylene (PAH)				
Anthracene (PAH)	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Dibenzo(a,h)anthracene	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Indeno(1,2,3-cd)pyrene	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Pyrene (PAH)	ug/l	lbs/day	11000.0 ug/l	160.12 lbs/day
Tetrachloroethylene	ug/l	lbs/day	8.9 ug/l	0.13 lbs/day
Toluene	ug/l	lbs/day	200000 ug/l	2911.24 lbs/day
Trichloroethylene	ug/l	lbs/day	81.0 ug/l	1.18 lbs/day
Vinyl chloride	ug/l	lbs/day	525.0 ug/l	7.64 lbs/day
				lbs/day
				lbs/day
Pesticides				
Aldrin	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Dieldrin	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Chlordane	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDT	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDE	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDD	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
alpha-Endosulfan	ug/l	lbs/day	2.0 ug/l	0.03 lbs/day
beta-Endosulfan	ug/l	lbs/day	2.0 ug/l	0.03 lbs/day
Endosulfan sulfate	ug/l	lbs/day	2.0 ug/l	0.03 lbs/day
Endrin	ug/l	lbs/day	0.8 ug/l	0.01 lbs/day
Endrin aldehyde	ug/l	lbs/day	0.8 ug/l	0.01 lbs/day
Heptachlor	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Heptachlor epoxide				
PCB's				
PCB 1242 (Arochlor 124	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1254 (Arochlor 124	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1221 (Arochlor 122	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1232 (Arochlor 123	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1248 (Arochlor 124	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1260 (Arochlor 126	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1016 (Arochlor 101	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Pesticide				
Toxaphene	ug/l		0.0 ug/l	0.00 lbs/day
Dioxin				
Dioxin (2,3,7,8-TCDD)	ug/l	lbs/day		

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Metals

Antimony	ug/l	lbs/day		
Arsenic	ug/l	lbs/day	4300.00 ug/l	62.59 lbs/day
Asbestos	ug/l	lbs/day		
Beryllium				
Cadmium				
Chromium (III)				
Chromium (VI)				
Copper				
Cyanide	ug/l	lbs/day	2.2E+05 ug/l	3202.36 lbs/day
Lead	ug/l	lbs/day		
Mercury			0.15 ug/l	0.00 lbs/day
Nickel			4600.00 ug/l	66.96 lbs/day
Selenium	ug/l	lbs/day		
Silver	ug/l	lbs/day		
Thallium			6.30 ug/l	0.09 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.

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(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	Temp.	pH	T-NH3	BOD5	DO	TRC	TDS	
	cfs	Deg. C		mg/l as N	mg/l	mg/l	mg/l	mg/l	mg/l
Summer	1.20	3.6	8.2	0.10	2.00	9.75	0.00	855.0	
Fall	1.20	3.6	8.2	0.10	2.00	---	0.00	855.0	
Winter	1.20	3.6	8.2	0.10	2.00	---	0.00	855.0	
Spring	1.20	3.6	8.2	0.10	2.00	---	0.00	855.0	
Dissolved Metals	Al	As	Cd	CrIII	CrVI	Copper	Fe	Pb	
	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
All Seasons	1.59*	0.53*	0.053*	0.53*	2.65*	0.53*	0.83*	0.53*	
Dissolved Metals	Hg	Ni	Se	Ag	Zn	Boron			
	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l			
All Seasons	0.0000	0.53*	1.06*	0.1*	0.053*	10.0			* 1/2 MDL

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Projected Discharge Information

Season	Flow, MGD	Temp.
Winter (Dec-Mar)	0.97000	5.0

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

IX. Effluent Limitations

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

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

Effluent Limitation for Flow based upon Water Quality Standards

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

Season	Daily Average	
Winter	0.970 MGD	1.501 cfs

Flow Requirement or Loading Requirement

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

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

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

WET Requirements	LC50 >	EOP Effluent	[Acute]
	IC25 >	55.6% Effluent	[Chronic]

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

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

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

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

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

Season	Concentration
Winter	5.00

Effluent Limitation for Total Ammonia based upon Water Quality Standards

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

Season		Concentration	Load
Winter (Oct - Feb)	4 Day Avg. - Chronic	2.8 mg/l as N	22.7 lbs/day
	1 Hour Avg. - Acute	7.3 mg/l as N	59.0 lbs/day

Acute limit calculated with an Acute Zone of Initial Dilution (ZID) to be equal to 100.0%.

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Effluent Limitation for Total Residual Chlorine based upon Water Quality Standards

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

Season		Concentration		Load	
Winter (Oct - Feb)	4 Day Avg. - Chronic	0.019	mg/l	0.15	lbs/day
	1 Hour Avg. - Acute	0.033	mg/l	0.27	lbs/day

Effluent Limitations for Total Dissolved Solids based upon Water Quality Standards

Season		Concentration		Load	
Winter (Oct - Feb)	Maximum, Acute	1475.9	mg/l	5.97	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 586.79 mg/l):

	4 Day Average		1 Hour Average		Load
	Concentration	Load	Concentration	Load	
Aluminum*	N/A	N/A	1,048.9	ug/l	8.5 lbs/day
Arsenic*	341.30 ug/l	1.8 lbs/day	475.6	ug/l	3.9 lbs/day
Cadmium	1.74 ug/l	0.0 lbs/day	18.0	ug/l	0.1 lbs/day
Chromium III	660.03 ug/l	3.5 lbs/day	10,751.2	ug/l	87.1 lbs/day
Chromium VI*	16.62 ug/l	0.1 lbs/day	20.8	ug/l	0.2 lbs/day
Copper	75.52 ug/l	0.4 lbs/day	103.5	ug/l	0.8 lbs/day
Iron*	N/A	N/A	1,399.3	ug/l	11.3 lbs/day
Lead	53.83 ug/l	0.3 lbs/day	1,086.8	ug/l	8.8 lbs/day
Mercury*	0.02 ug/l	0.0 lbs/day	3.4	ug/l	0.0 lbs/day
Nickel	418.82 ug/l	2.2 lbs/day	2,934.3	ug/l	23.8 lbs/day
Selenium*	7.01 ug/l	0.0 lbs/day	27.4	ug/l	0.2 lbs/day
Silver	N/A ug/l	N/A lbs/day	111.1	ug/l	0.9 lbs/day
Zinc	965.64 ug/l	5.0 lbs/day	751.1	ug/l	6.1 lbs/day
Cyanide*	9.36 ug/l	0.0 lbs/day	30.8	ug/l	0.2 lbs/day

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

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

Summer	10.8 Deg. C.	51.4 Deg. F
Fall	10.8 Deg. C.	51.4 Deg. F
Winter	10.8 Deg. C.	51.4 Deg. F
Spring	10.8 Deg. C.	51.4 Deg. F

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

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

	4 Day Average		1 Hour Average	
	Concentration	Load	Concentration	Load
Aldrin			1.5E+00	ug/l 1.88E-02 lbs/day
Chlordane	4.30E-03 ug/l	3.48E-02 lbs/day	1.2E+00	ug/l 1.50E-02 lbs/day
DDT, DDE	1.00E-03 ug/l	8.09E-03 lbs/day	5.5E-01	ug/l 6.90E-03 lbs/day
Dieldrin	1.90E-03 ug/l	1.54E-02 lbs/day	1.3E+00	ug/l 1.57E-02 lbs/day
Endosulfan	5.60E-02 ug/l	4.53E-01 lbs/day	1.1E-01	ug/l 1.38E-03 lbs/day
Endrin	2.30E-03 ug/l	1.86E-02 lbs/day	9.0E-02	ug/l 1.13E-03 lbs/day
Guthion	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l 1.25E-04 lbs/day
Heptachlor	3.80E-03 ug/l	3.07E-02 lbs/day	2.6E-01	ug/l 3.26E-03 lbs/day
Lindane	8.00E-02 ug/l	6.47E-01 lbs/day	1.0E+00	ug/l 1.25E-02 lbs/day
Methoxychlor	0.00E+00 ug/l	0.00E+00 lbs/day	3.0E-02	ug/l 3.76E-04 lbs/day
Mirex	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l 1.25E-04 lbs/day
Parathion	0.00E+00 ug/l	0.00E+00 lbs/day	4.0E-02	ug/l 5.01E-04 lbs/day
PCB's	1.40E-02 ug/l	1.13E-01 lbs/day	2.0E+00	ug/l 2.51E-02 lbs/day
Pentachlorophenol	1.30E+01 ug/l	1.05E+02 lbs/day	2.0E+01	ug/l 2.51E-01 lbs/day
Toxephene	2.00E-04 ug/l	1.62E-03 lbs/day	7.3E-01	ug/l 9.15E-03 lbs/day

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**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	40.5 lbs/day
Nitrates as N	4.0 mg/l	32.4 lbs/day
Total Phosphorus as P	0.05 mg/l	0.4 lbs/day
Total Suspended Solids	90.0 mg/l	729.3 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	4.86E+03 ug/l	0.00E+00 lbs/day
Acrolein	1.40E+03 ug/l	0.00E+00 lbs/day
Acrylonitrile	1.19E+00 ug/l	0.00E+00 lbs/day
Benzene	1.28E+02 ug/l	0.00E+00 lbs/day
Benzidine	ug/l	lbs/day
Carbon tetrachloride	7.92E+00 ug/l	0.00E+00 lbs/day
Chlorobenzene	3.78E+04 ug/l	0.00E+00 lbs/day
1,2,4-Trichlorobenzene		
Hexachlorobenzene	1.39E-03 ug/l	0.00E+00 lbs/day
1,2-Dichloroethane	1.78E+02 ug/l	0.00E+00 lbs/day
1,1,1-Trichloroethane		
Hexachloroethane	1.60E+01 ug/l	0.00E+00 lbs/day
1,1-Dichloroethane		
1,1,2-Trichloroethane	7.56E+01 ug/l	0.00E+00 lbs/day
1,1,2,2-Tetrachloroethane	1.98E+01 ug/l	0.00E+00 lbs/day
Chloroethane		
Bis(2-chloroethyl) ether	2.52E+00 ug/l	0.00E+00 lbs/day
2-Chloroethyl vinyl ether		
2-Chloronaphthalene	7.74E+03 ug/l	0.00E+00 lbs/day
2,4,6-Trichlorophenol	1.17E+01 ug/l	0.00E+00 lbs/day
p-Chloro-m-cresol		
Chloroform (HM)	8.46E+02 ug/l	0.00E+00 lbs/day
2-Chlorophenol	7.20E+02 ug/l	0.00E+00 lbs/day
1,2-Dichlorobenzene	3.06E+04 ug/l	0.00E+00 lbs/day
1,3-Dichlorobenzene	4.68E+03 ug/l	0.00E+00 lbs/day

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1,4-Dichlorobenzene	4.68E+03 ug/l	0.00E+00 lbs/day
3,3'-Dichlorobenzidine	1.39E-01 ug/l	0.00E+00 lbs/day
1,1-Dichloroethylene	5.76E+00 ug/l	0.00E+00 lbs/day
1,2-trans-Dichloroethylene1		
2,4-Dichlorophenol	1.42E+03 ug/l	0.00E+00 lbs/day
1,2-Dichloropropane	7.02E+01 ug/l	0.00E+00 lbs/day
1,3-Dichloropropylene	3.06E+03 ug/l	0.00E+00 lbs/day
2,4-Dimethylphenol	4.14E+03 ug/l	0.00E+00 lbs/day
2,4-Dinitrotoluene	1.64E+01 ug/l	0.00E+00 lbs/day
2,6-Dinitrotoluene		
1,2-Diphenylhydrazine	9.72E-01 ug/l	0.00E+00 lbs/day
Ethylbenzene	5.22E+04 ug/l	0.00E+00 lbs/day
Fluoranthene	6.66E+02 ug/l	0.00E+00 lbs/day
4-Chlorophenyl phenyl ether		
4-Bromophenyl phenyl ether		
Bis(2-chloroisopropyl) ether	3.06E+05 ug/l	0.00E+00 lbs/day
Bis(2-chloroethoxy) methane		
Methylene chloride (HM)	2.88E+03 ug/l	0.00E+00 lbs/day
Methyl chloride (HM)		
Methyl bromide (HM)		
Bromoform (HM)	6.48E+02 ug/l	0.00E+00 lbs/day
Dichlorobromomethane(HM)	3.96E+01 ug/l	0.00E+00 lbs/day
Chlorodibromomethane (HM)	6.12E+01 ug/l	0.00E+00 lbs/day
Hexachlorocyclopentadiene	3.06E+04 ug/l	0.00E+00 lbs/day
Isophorone	1.08E+03 ug/l	0.00E+00 lbs/day
Naphthalene		
Nitrobenzene	3.42E+03 ug/l	0.00E+00 lbs/day
2-Nitrophenol		
4-Nitrophenol		
2,4-Dinitrophenol	2.52E+04 ug/l	0.00E+00 lbs/day
4,6-Dinitro-o-cresol	1.38E+03 ug/l	0.00E+00 lbs/day
N-Nitrosodimethylamine	1.46E+01 ug/l	0.00E+00 lbs/day
N-Nitrosodiphenylamine	2.88E+01 ug/l	0.00E+00 lbs/day
N-Nitrosodi-n-propylamine	2.52E+00 ug/l	0.00E+00 lbs/day
Pentachlorophenol	1.48E+01 ug/l	0.00E+00 lbs/day
Phenol	8.28E+06 ug/l	0.00E+00 lbs/day
Bis(2-ethylhexyl)phthalate	1.06E+01 ug/l	0.00E+00 lbs/day
Butyl benzyl phthalate	9.36E+03 ug/l	0.00E+00 lbs/day
Di-n-butyl phthalate	2.16E+04 ug/l	0.00E+00 lbs/day
Di-n-octyl phthlate		
Diethyl phthalate	2.16E+05 ug/l	0.00E+00 lbs/day
Dimethyl phthlate	5.22E+06 ug/l	0.00E+00 lbs/day
Benzo(a)anthracene (PAH)	5.58E-02 ug/l	0.00E+00 lbs/day
Benzo(a)pyrene (PAH)	5.58E-02 ug/l	0.00E+00 lbs/day
Benzo(b)fluoranthene (PAH)	5.58E-02 ug/l	0.00E+00 lbs/day
Benzo(k)fluoranthene (PAH)	5.58E-02 ug/l	0.00E+00 lbs/day
Chrysene (PAH)	5.58E-02 ug/l	0.00E+00 lbs/day
Acenaphthylene (PAH)		
Anthracene (PAH)		
Dibenzo(a,h)anthracene (PAH)	5.58E-02 ug/l	0.00E+00 lbs/day
Indeno(1,2,3-cd)pyrene (PAH)	5.58E-02 ug/l	0.00E+00 lbs/day

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Pyrene (PAH)	1.98E+04 ug/l	0.00E+00 lbs/day
Tetrachloroethylene	1.60E+01 ug/l	0.00E+00 lbs/day
Toluene	3.60E+05 ug/l	0.00E+00 lbs/day
Trichloroethylene	1.46E+02 ug/l	0.00E+00 lbs/day
Vinyl chloride	9.45E+02 ug/l	0.00E+00 lbs/day

Pesticides

Aldrin	2.52E-04 ug/l	0.00E+00 lbs/day
Dieldrin	2.52E-04 ug/l	0.00E+00 lbs/day
Chlordane	1.06E-03 ug/l	0.00E+00 lbs/day
4,4'-DDT	1.06E-03 ug/l	0.00E+00 lbs/day
4,4'-DDE	1.06E-03 ug/l	0.00E+00 lbs/day
4,4'-DDD	1.51E-03 ug/l	0.00E+00 lbs/day
alpha-Endosulfan	3.60E+00 ug/l	0.00E+00 lbs/day
beta-Endosulfan	3.60E+00 ug/l	0.00E+00 lbs/day
Endosulfan sulfate	3.60E+00 ug/l	0.00E+00 lbs/day
Endrin	1.46E+00 ug/l	0.00E+00 lbs/day
Endrin aldehyde	1.46E+00 ug/l	0.00E+00 lbs/day
Heptachlor	3.78E-04 ug/l	0.00E+00 lbs/day
Heptachlor epoxide		

PCB's

PCB 1242 (Arochlor 1242)	8.10E-05 ug/l	0.00E+00 lbs/day
PCB-1254 (Arochlor 1254)	8.10E-05 ug/l	0.00E+00 lbs/day
PCB-1221 (Arochlor 1221)	8.10E-05 ug/l	0.00E+00 lbs/day
PCB-1232 (Arochlor 1232)	8.10E-05 ug/l	0.00E+00 lbs/day
PCB-1248 (Arochlor 1248)	8.10E-05 ug/l	0.00E+00 lbs/day
PCB-1260 (Arochlor 1260)	8.10E-05 ug/l	0.00E+00 lbs/day
PCB-1016 (Arochlor 1016)	8.10E-05 ug/l	0.00E+00 lbs/day

Pesticide

Toxaphene	1.35E-03 ug/l	0.00E+00 lbs/day
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Metals

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

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Cyanide	30.8	9.4	
Iron	1399.3		
Lead	179.3	53.8	
Mercury	0.270	0.022	
Nickel	2934.3	419	
Selenium	27.4	7.0	
Silver	111.1	N/A	
Thallium	11.3		
Zinc	751.1	965.6	Acute Controls
Boron	1349.76		

Other Effluent Limitations are based upon R317-1.

E. coli 126.0 organisms per 100 ml

X. Antidegradation Considerations

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

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

An Antidegradation Level I Review was conducted on this discharge and its effect on the receiving water. Based upon that review, it has been determined that an Antidegradation Level II Review is required.

XI. Colorado River Salinity Forum Considerations

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

XII. Summary Comments

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

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XIII. Notice of UPDES Requirement

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

Antidegradation Review

An antidegradation review (ADR) was conducted to determine whether the proposed activity complies with the applicable antidegradation requirements for receiving waters that may be affected. The Level I ADR evaluated the criteria of R317-2-3.5(b) and determined that the proposed discharge will require a Level II Antidegradation Review.

