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

UTAH POLLUTANT DISCHARGE ELIMINATION SYSTEM (UPDES) PERMITS

Minor Industrial Permit No. **UT0025801**

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

DUCHESNE VALLEY WATER TREATMENT PLANT

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

STARVATION RESERVOIR,

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

This permit shall become effective on August 1, 2021.

This permit expires at midnight on July 31, 2026.

Signed this 11th day of June, 2021.

Erica Brown Gaddis, PhD
Director

DWQ-2021-003825

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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	Description of Discharge Point
001	Located at latitude 40° 11' 45" and longitude 110° 26' 10". The discharge is gravity flow through a 10-inch diameter pipe leading from the solids settling basin to Starvation Reservoir.

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

C. Specific Limitations and Self-Monitoring Requirements.

1. Effective on the date of this permit and lasting through the life of this permit, there shall be no acute or chronic toxicity in Outfall 001 as defined in *Part VII*, and determined by test procedures described in *Part I. C.4* of this permit.

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

Parameter	Effluent Limitations *a				
	Maximum Monthly Avg	Maximum Weekly Avg	Yearly Average	Daily Minimum	Daily Maximum
Total Flow, MGD *b	Report	--	Report	--	Report
pH, Standard Units	--	--	--	6.5	9
Aluminum, mg/L *c	3.9	--	--	--	7.24
Aluminum, lbs/day *c	3.2	--	--	--	6.0
Iron, mg/L *d	--	--	--	--	0.17
Iron, lbs/day *d	--	--	--	--	0.14
TDS, mg/L *e	--	--	--	--	1200
TDS, tons/day *e	--	--	--	--	1.0
TDS, tons/yr *e	--	--	366	--	--
Turbidity, NTU *f	--	--	--	--	Report
WET, Chronic Biomonitoring *g	--	--	--	--	IC_{25} > 2% effluent

Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
Total Flow *b	Continuous	Recorder	MGD
pH	Weekly	Grab	SU
Aluminum *c	Monthly	Grab	mg/L
Iron *d	Monthly	Grab	mg/L
Total Dissolved Solids *e	Monthly	Grab	mg/L
Turbidity *f	Monthly	Grab	NTU
WET – Biomonitoring *g Ceriodaphnia - Chronic Fathead Minnows - Chronic	 1st & 3rd Quarter 2nd & 4th Quarter	 Composite Composite	 Pass/Fail Pass/Fail

*a See Definitions, *Part VII*, for definition of terms.

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

*c Aluminum monitoring is not required if no Alum is used in the treatment process.

*d Iron monitoring is not required if no Ferric Chloride is used in the treatment process.

*e In addition to the total dissolved solids (TDS) effluent concentration limitation, TDS effluent loading is limited to one-ton/day. If the one-ton/day effluent loading limitation cannot be met, then the permittee is limited to 366-tons/year total TDS effluent loading from the facility. It is the responsibility of the permittee to maintain annual TDS loading information and upon request the permittee shall submit to the Director the annual TDS loading information.

*f Turbidity monitoring shall be conducted monthly whenever possible from the discharge to ensure that there is not an increase of more than 10 NTU over the receiving waters, if applicable.

*g Chronic Biomonitoring of the effluent shall be conducted quarterly with alternating species as detailed above.

3. Routine, excess, untreated intake flows can be discharged provided that:

   a. No chemicals are added to the water prior to returning it to the original water course;

   b. The excess flow is conducted on a continuous basis or at such frequency as to minimize any slugging effect in the receiving stream due to the return of settled sediments;

   c. The discharge is properly managed to minimize erosion of the stream channel;

   d. There are no significant detrimental effects on the receiving water quality or on downstream beneficial uses.

4. Chronic Whole Effluent Toxicity (WET) Testing.

   a. *Whole Effluent Testing – Chronic Toxicity*. Starting on the effective date of this permit, the permittee shall quarterly, conduct chronic short-term toxicity tests on a composite sample of the final effluent at Outfall 001. The sample shall be collected at the point of compliance before mixing with the receiving water.

The monitoring frequency shall be quarterly. Quarterly Composite Samples shall be collected on a two-day progression; i.e., if the first sample is on a Monday, during the next sampling period, sampling shall be on a Wednesday. A five dilution test plus the control shall be used whenever possible. If chronic toxicity is detected, the test shall be repeated within four weeks from the date the initial sample was taken. The need for any additional samples, and/or a Toxicity Reduction Evaluation (TRE), see *Part I.C.4.e.*, shall be determined by the Director. If the second test shows no chronic toxicity, routine monitoring shall be resumed.

The chronic toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, Fourth Edition*, October 2002, *EPA—821-R-02-013* as per *40 CFR 136.3(a)* TABLE IA-LIST OF APPROVED BIOLOGICAL METHODS. Test species shall consist of *Ceriodaphnia dubia* and *Pimephales promelas* (fathead minnow).

A multi dilution test consisting of at least five concentrations and a control is required at two dilutions below and two above the RWC, if possible. If test acceptability criteria are not met for control survival, growth, or reproduction, the test shall be considered invalid. A valid replacement test is required within the specified sampling period to remain in compliance with this permit. Chronic toxicity occurs when, during a chronic toxicity test, the 25% inhibition concentration (IC25) calculated on the basis of test organism survival and growth or survival and reproduction, is less than or equal to 2% effluent concentration (equivalent to the RWC). If a sample is found to be chronically toxic during a routine test, the monitoring frequency shall become biweekly (see *Part I.C.4.b., Accelerated Testing*). (the Director may enter acceptable variations in the test procedure here as documented in the Fact Sheet Statement of Basis and based on the test acceptability criteria as contained in Utah Pollutant Discharge Elimination System (UPDES) Permitting and Enforcement Guidance Document for Whole Effluent Toxicity Control February, 2018). If possible, dilution water should be obtained from the receiving stream.

Quarterly test results shall be reported along with the Discharge Monitoring Report (DMR) submitted for the end of the required reporting period (e.g., biomonitoring results for the calendar quarter ending March 31 shall be reported with the DMR due April 28, with the remaining biomonitoring reports submitted with DMRs due each July 28, October 28, and January 28). Monthly test results shall be reported along with the DMR submitted for that month. The format for the report shall be consistent with Appendix C of "Utah Pollutant Discharge Elimination System (UPDES) Permitting and Enforcement Guidance Document for Whole Effluent Toxicity, Utah Division of Water Quality, February, 2018."

If the results for ten consecutive tests indicate no chronic toxicity, the permittee may submit a request to the Director to allow a reduction in chronic toxicity testing frequency, by alternating species, or using only the most sensitive species. The permit issuing authority may approve or deny the request based on the results and other available information without public notice. If the request is approved, the test procedures are to be the same as specified above for the test species. Under no circumstances shall monitoring for WET at major facilities be reduced less than quarterly. Minor facilities may be less than quarterly at the discretion of the Director.

b. *Accelerated Testing*. When whole effluent toxicity is indicated during routine WET testing as specified in this permit, the permittee shall notify the Director in writing within 5 days after becoming aware of the test result. The permittee shall perform an

accelerated schedule of WET testing to establish whether a pattern of toxicity exists unless the permittee notifies the Director and commences a PTI, TIE, or a TRE. Accelerated testing or the PTI, TIE, or TRE will begin within fourteen days after the permittee becomes aware of the test result. Accelerated testing shall be conducted as specified under Part I. Pattern of Toxicity. If the accelerated testing demonstrates no pattern of toxicity, routine monitoring shall be resumed.

c. *Pattern of Toxicity*. A pattern of toxicity is defined by the results of a series of up to five biomonitoring tests pursuant to the accelerated testing requirements using a full set of dilutions for acute (five plus the control) and five effluent dilutions for chronic (five plus the control), on the species found to be more sensitive, once every week for up to five consecutive weeks for acute and once every two weeks up to ten consecutive weeks for chronic.

If two (2) consecutive tests (not including the scheduled test which triggered the search for a pattern of toxicity) do not result in an exceedance of the acute or chronic toxicity criteria, no further accelerated testing will be required and no pattern of toxicity will be found to exist. The permittee will provide written verification to the Director within 5 days of determining no pattern of toxicity exists, and resume routine monitoring.

A pattern of toxicity may or may not be established based on the following:

WET tests should be run at least weekly (acute) or every two weeks (chronic) (note that only one test should be run at a time), for up to 5 tests, until either:

1) 2 consecutive tests fail, or 3 out of 5 tests fail, at which point a pattern of toxicity will have been identified, or

2) 2 consecutive tests pass, or 3 out of 5 tests pass, in which case no pattern of toxicity is identified.

d. *Preliminary Toxicity Investigation*.

(1) When a pattern of toxicity is detected the permittee will notify the Director in writing within 5 days and begin an evaluation of the possible causes of the toxicity. The permittee will have 15 working days from demonstration of the pattern of toxicity to complete an optional Preliminary Toxicity Investigation (PTI) and submit a written report of the results to the Director. The PTI may include, but is not limited to: additional chemical and biological monitoring, examination of pretreatment program records, examination of discharge monitoring reports, a thorough review of the testing protocol, evaluation of treatment processes and chemical use, inspection of material storage and transfer areas to determine if any spill may have occurred.

(2) If the PTI identifies a probable toxicant and/or a probable source of toxicity, the permittee shall submit, as part of its final results, written notification of that effect to the Director. Within thirty days of completing the PTI the permittee shall submit to the Director for approval a control program to control effluent toxicity and shall proceed to implement such plan in accordance with the Director's approval. The control program, as submitted to or revised by the Director, will be incorporated into the permit. After final implementation, the permittee must demonstrate successful removal of toxicity by passing a two species WET test as outlined in this permit. With adequate justification, the Director may extend these deadlines.

(3) If no probable explanation for toxicity is identified in the PTI, the permittee shall notify the Director as part of its final report, along with a schedule for conducting a Phase I Toxicity Reduction Evaluation (TRE) (see Part ___ Toxicity Reduction Evaluation

(4) If toxicity spontaneously disappears during the PTI, the permittee shall submit written notification to that effect to the Director, with supporting testing evidence.

e. *Toxicity Reduction Evaluation (TRE)*. If a pattern of toxicity is detected the permittee shall initiate a TIE/TRE within 7 days unless the Director has accepted the decision to complete a PTI. With adequate justification, the Director may extend the 7-day deadline. The purpose of the TIE portion of a TRE will be to establish the cause of the toxicity, locate the source(s) of the toxicity, and the TRE will control or provide treatment for the toxicity.

A TRE may include but is not limited to one, all, or a combination of the following:

(1) Phase I – Toxicity Characterization

(2) Phase II – Toxicity Identification Procedures

(3) Phase III – Toxicity Control Procedures

(4) Any other appropriate procedures for toxicity source elimination and control.

If the TRE establishes that the toxicity cannot be immediately eliminated, the permittee shall submit a proposed compliance plan to the Director. The plan shall include the proposed approach to control toxicity and a proposed compliance schedule for achieving control. If the approach and schedule are acceptable to the Director, this permit may be reopened and modified.

If toxicity spontaneously disappears during the TIE/TRE, the permittee shall submit written notification to that effect to the Director.

If the TRE shows that the toxicity is caused by a toxicant(s) that may be controlled with specific numerical limitations, the permittee shall submit the following:

(a) An alternative control program for compliance with the numerical requirements.

(b) If necessary, as determined by the Director, provide a modified biomonitoring protocol which compensates for the pollutant(s) being controlled numerically.

This permit may be reopened and modified to incorporate any additional numerical limitations, a modified compliance schedule if judged necessary by the Director, and/or modified WET testing requirements without public notice.

Failure to conduct an adequate TIE/TRE plan or program as described above, or the submittal of a plan or program judged inadequate by the Director, shall be considered a violation of this permit. After implementation of TIE/TRE plan, the permittee must demonstrate successful removal of toxicity by passing a two species WET test as outlined in this permit.

D. Reporting of Wastewater Monitoring Results. Monitoring results obtained during the previous month shall be summarized for each month and reported on a Discharge Monitoring Report Form (EPA No. 3320-1) or by NetDMR, post-marked or entered into NetDMR no later than the 28th day of the month following the completed reporting period. Starting January 1, 2017 monitoring results must be submitted using NetDMR unless the permittee has successfully petitioned for an exception. If no discharge occurs during the reporting period, "no discharge" shall be reported. Legible copies of these, and all other reports including whole effluent toxicity (WET) test reports required herein, shall be signed and certified in accordance with the requirements of *Signatory Requirements (see Part VI.G*), and submitted by NetDMR, or to the Division of Water Quality at the following address:

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

II. INDUSTRIAL PRETREATMENT REQUIREMENTS

A. Discharge to POTW. Any wastewaters discharged to the sanitary sewer, either as a direct discharge or as a hauled waste, are subject to Federal, State and local pretreatment regulations. Pursuant to Section 307 of The Water Quality Act of 1987, the permittee shall comply with all applicable federal General Pretreatment Regulations promulgated at 40 CFR 403, the State Pretreatment Requirements at UAC R317-8-8, and any specific local discharge limitations developed by the Publicly Owned Treatment Works (POTW) accepting the wastewaters. At a minimum the discharge, into a POTW, must met the requirements of Part VI of the permit.

B. Hazardous Waste Notification. The permittee must notify the POTW, the EPA Regional Waste Management Director, and the State hazardous waste authorities, in writing, if they discharge any substance into a POTW which if otherwise disposed of would be considered a hazardous waste under 40 CFR 261. This notification must include the name of the hazardous waste, the EPA hazardous waste number, and the type of discharge (continuous or batch).

C. Hauled Hazardous Waste. Notification must be provided to the Pretreatment Coordinator for the Division of Water Quality 14 days prior to discharge to a POTW which does not have an approved pretreatment program.

D. General and Specific Prohibitions.

1. General Prohibitions. The permittee may not introduce into a POTW any pollutant(s) which cause Pass Through or Interference. These general prohibitions and the specific prohibitions in paragraph 2. of this section apply to the introducing pollutants into a POTW whether or not the permittee is subject to other National Pretreatment Standards or any national, State, or local Pretreatment Requirements.

2. Specific Prohibitions. The following pollutants shall not be introduced into a POTW:

   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;

h. Any trucked or hauled pollutants, except at discharge points designated by the POTW; or

i. Any pollutant that causes pass through or interference at the POTW.

j. Any specific pollutant which exceeds any local limitation established by the POTW.

E. Categorical Standards. In addition to the general and specific limitations expressed in *Part VI. C.* of this section, applicable National Categorical Pretreatment Standards must be met by all industrial users discharging into a POTW. These standards are published in the federal regulations at *40 CFR 405 through 471*.

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

1. *Indirect Discharge* means the introduction of pollutants into a publicly-owned treatment works (POTW) from any non-domestic source regulated under section 307 (b), (c) or (d) of the CWA.

2. *Interference* means a discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

a. Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

b. Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

3. *Pass Through means* a Discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

4. *Publicly Owned Treatment Works* or *POTW* means a treatment works as defined by section 212 of the CWA, which is owned by a State or municipality (as defined by section 502(4) of the CWA). This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW Treatment Plant. The term also means the municipality as defined in section 502(4) of the CWA, which has jurisdiction over the Indirect Discharges to and the discharges from such a treatment works.

5. *Significant industrial user (SIU)* is defined as an industrial user discharging to a POTW that satisfies any of the following:

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

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

c. Is subject to Categorical Pretreatment Standards, or

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

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

III. STORM WATER REQUIREMENTS

A. Industrial Storm Water Permit. The facility's SIC code is 4941 for Water Supply, whereas there is no bulk storage exposure of any contaminants at the facility. Based on the type of industrial activities occurring at the facility, the permittee is not required to maintain separate coverage or an appropriate exclusion under the Multi-Sector General Permit (MSGP) for Storm Water Discharges Associated with Industrial Activities (UTR000000).

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

IV. 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 Form. Such increased frequency shall also be indicated. Only those parameters required by the permit need to be reported.

F. Records Contents. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements:
2. The individual(s) who performed the sampling or measurements;
3. The date(s) and time(s) analyses were performed;
4. The individual(s) who performed the analyses;
5. The analytical techniques or methods used; and,
6. The results of such analyses.

G. Retention of Records. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least five years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time. A copy of this UPDES permit must be maintained on site during the duration of activity at the permitted location

H. Twenty-four Hour Notice of Noncompliance Reporting.

1. The permittee shall (orally) report any noncompliance including transportation accidents, spills, and uncontrolled runoff from biosolids transfer or land application sites which may seriously endanger health or environment, as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of circumstances. The report shall be made to the Division of Water Quality, (801) 536-4300, or 24-hour answering service (801) 536-4123.

2. The following occurrences of noncompliance shall be reported by telephone (801) 536-4300 as soon as possible but no later than 24 hours from the time the permittee becomes aware of the circumstances:

   a. Any noncompliance which may endanger health or the environment;

   b. Any unanticipated bypass, which exceeds any effluent limitation in the permit (See *Part V.G, Bypass of Treatment Facilities.)*;

   c. Any upset which exceeds any effluent limitation in the permit (See *Part V.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 IV.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.

V. 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 V.G*, *Bypass of Treatment Facilities* and *Part V.H*, *Upset Conditions*, nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.

C. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit, which has a reasonable likelihood of adversely affecting human health or the environment. The permittee shall also take all reasonable steps to minimize or prevent any land application in violation of this permit.

E. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems, which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

F. Removed Substances. Collected screening, grit, solids, sludge, or other pollutants removed in the course of treatment shall be disposed of in such a manner so as to prevent any pollutant from entering any waters of the state or creating a health hazard. Sludge/digester supernatant and filter backwash shall not directly enter either the final effluent or waters of the state by any other direct route.

G. Bypass of Treatment Facilities.

1. Bypass Not Exceeding Limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to paragraph 2 and 3 of this section.

2. Prohibition of Bypass.

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

(1) Bypass was unavoidable to prevent loss of human life, personal injury, or severe property damage;

(2) There were no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance, and

(3) The permittee submitted notices as required under *section V.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 V.G.2.a (1), (2) and (3)*.

3. Notice.

a. *Anticipated bypass*. Except as provided above in *section V.G.2* and below in *section V.G.3.b*, if the permittee knows in advance of the need for a bypass, it shall submit prior notice, at least ninety days before the date of bypass. The prior notice shall include the following unless otherwise waived by the Director:

(1) Evaluation of alternative to bypass, including cost-benefit analysis containing an assessment of anticipated resource damages:

(2) A specific bypass plan describing the work to be performed including scheduled dates and times. The permittee must notify the Director in advance of any changes to the bypass schedule;

(3) Description of specific measures to be taken to minimize environmental and public health impacts;

(4) A notification plan sufficient to alert all downstream users, the public and others reasonably expected to be impacted by the bypass;

(5) A water quality assessment plan to include sufficient monitoring of the receiving water before, during and following the bypass to enable evaluation of public health risks and environmental impacts; and,

(6) Any additional information requested by the Director.

b. *Emergency Bypass*. Where ninety days advance notice is not possible, the permittee must notify the Director, and the Director of the Department of Natural Resources, as soon as it becomes aware of the need to bypass and provide to the Director the information in *section V.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 IV.H*, *Twenty-four Hour Notice of Noncompliance Reporting*; and,

   d. The permittee complied with any remedial measures required under *Part V.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.

I. Toxic Pollutants. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of *The Water Quality Act of 1987* for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

J. Changes in Discharge of Toxic Substances. Notification shall be provided to the Executive Secretary as soon as the permittee knows of, or has reason to believe:

1. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

   a. One hundred micrograms per liter (100 ug/L);

   b. Two hundred micrograms per liter (200 ug/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/L) for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;

   c. Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with *UAC R317-8-3.4(7)* or (10); or,

   d. The level established by the Executive Secretary in accordance with *UAC R317-8-4.2(6)*.

2. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

a. Five hundred micrograms per liter (500 ug/L);

b. One milligram per liter (1 mg/L) for antimony:

c. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with *UAC R317-8-3.4(9)*; or,

d. The level established by the Executive Secretary in accordance with *UAC R317-8-4.2(6)*.

VI. GENERAL REQUIREMENTS

A. Planned Changes. The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when the alteration or addition could significantly change the nature or increase the quantity of parameters discharged or pollutant sold or given away. This notification applies to pollutants, which are not subject to effluent limitations in the permit. In addition, if there are any planned substantial changes to the permittee's existing sludge facilities or their manner of operation or to current sludge management practices of storage and disposal, the permittee shall give notice to the Director of any planned changes at least 30 days prior to their implementation.

B. Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements.

C. Permit Actions. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

D. Duty to Reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee shall apply for and obtain a new permit. The application shall be submitted at least 180 days before the expiration date of this permit.

E. Duty to Provide Information. The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

F. Other Information. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts or information.

G. Signatory Requirements. All applications, reports or information submitted to the Director shall be signed and certified.

1. All permit applications shall be signed by either a principal executive officer or ranking elected official.

2. All reports required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described above and submitted to the Director, and,

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. A duly authorized

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

3. Changes to authorization. If an authorization under *paragraph VI.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 VI.G.2.* must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification. Any person signing a document under this section shall make the following certification:

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

H. Penalties for Falsification of Reports. The *Act* provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than $10,000.00 per violation, or by imprisonment for not more than six months per violation, or by both.

I. Availability of Reports. Except for data determined to be confidential under *UAC R317-8-3.2*, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the office of Director. As required by the *Act*, permit applications, permits and effluent data shall not be considered confidential.

J. Oil and Hazardous Substance Liability. Nothing in this permit shall be construed to preclude the permittee of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under the *Act*.

K. Property Rights. The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

L. Severability. The provisions of this permit are severable, and if any provisions of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

M. Transfers. This permit may be automatically transferred to a new permittee if:

1. The current permittee notifies the Director at least 20 days in advance of the proposed transfer date;

2. The notice includes a written agreement between the existing and new permittee's containing a specific date for transfer of permit responsibility, coverage, and liability between them; and,

3. The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify, or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph *2* above.

N. State or Federal Laws. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by *UCA 19-5-117* and *Section 510* of the *Act* or any applicable Federal or State transportation regulations, such as but not limited to the Department of Transportation regulations.

O. Water Quality - Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limitations and compliance schedule, if necessary, if one or more of the following events occurs:

1. Water Quality Standards for the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than contained in this permit.

2. A final wasteload allocation is developed and approved by the State and/or EPA for incorporation in this permit.

3. Revisions to the current CWA § 208 areawide treatment management plans or promulgations/revisions to TMDLs (40 CFR 130.7) approved by the EPA and adopted by DWQ which calls for different effluent limitations than contained in this permit.

P. Biosolids – Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate biosolids limitations (and compliance schedule, if necessary), management practices, other appropriate requirements to protect public health and the environment, or if there have been substantial changes (or such changes are planned) in biosolids use or disposal practices; applicable management practices or numerical limitations for pollutants in biosolids have been promulgated which are more stringent than the requirements in this permit; and/or it has been determined that the permittees biosolids use or land application practices do not comply with existing applicable state of federal regulations.

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

1. Toxicity is detected, as per *Part I.C.4.a* of this permit, during the duration of this permit.

2. The TRE results indicate that the toxicant(s) represent pollutant(s) that may be controlled with specific numerical limits, and the Director agrees that numerical controls are the most appropriate course of action.

3. Following the implementation of numerical control(s) of toxicant(s), the Director agrees that a modified biomonitoring protocol is necessary to compensate for those toxicants that are controlled numerically.

4. The TRE reveals other unique conditions or characteristics, which in the opinion of the permit issuing authority justify the incorporation of unanticipated special conditions in the permit.

VII. DEFINITIONS

A. Wastewater.

1. The "7-day (and weekly) average", other than for e-coli bacteria, fecal coliform bacteria, and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. Geometric means shall be calculated for e-coli bacteria, fecal coliform bacteria, and total coliform bacteria. The 7-day and weekly averages are applicable only to those effluent characteristics for which there are 7-day average effluent limitations. The calendar week, which begins on Sunday and ends on Saturday, shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms. Weekly averages shall be calculated for all calendar weeks with Saturdays in the month. If a calendar week overlaps two months (i.e., the Sunday is in one month and the Saturday in the following month), the weekly average calculated for that calendar week shall be included in the data for the month that contains Saturday.

2. The "30-day (and monthly) average," other than for e-coli bacteria, fecal coliform bacteria and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 30-day period or calendar month, whichever is applicable. Geometric means shall be calculated for e-coli bacteria, fecal coliform bacteria and total coliform bacteria. The calendar month shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms.

3. "Act," means the *Utah Water Quality Act*.

4. "Acute toxicity" occurs when 50 percent or more mortality is observed for either test species at any effluent concentration (lethal concentration or "LC_{50}").

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

6. "Chronic toxicity" occurs when the IC_{25}< 2% effluent. The 2% effluent is the concentration of the effluent in the receiving water, at the end of the mixing zone expressed as per cent effluent.

7. "IC_{25}" is the concentration of toxicant (given in % effluent) that would cause a 25% reduction in mean young per female, or a 25% reduction in overall growth for the test population.

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

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

   b. Constant time interval between samples, sample volume proportional to total flow (volume) since last sample. For the first sample, the flow rate at the time the sample was collected may be used;

c. Constant sample volume, time interval between samples proportional to flow (i.e., sample taken every "X" gallons of flow); and,

d. Continuous sample volume, with sample collection rate proportional to flow rate.

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

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

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

12. "Director," means Director of the Division of Water Quality.

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

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

15. "Severe Property Damage," means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

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

FACT SHEET AND STATEMENT OF BASIS
DUCHESNE VALLEY WATER TREATMENT PLANT
DISCHARGE RENEWAL PERMIT
UPDES PERMIT NUMBER: UT0025801
MINOR INDUSTRIAL FACILITY

FACILITY CONTACTS

Person Name:	Chuck Hale
Position:	Facility Manager
Person Name:	Mike Rau
Position:	Water Quality Manager
Facility Name:	Central Utah Water Conservancy District Duchesne Valley Water Treatment Plant
Mailing Address:	PO Box 912 Duchesne, UT 84021
Telephone:	(801) 785-5725
Actual Address:	23419 West State Park Road Duchesne, UT 84021

DESCRIPTION OF FACILITY

Central Utah Water Conservancy District owns and operates the Duchesne Valley Water Treatment Plant (DVWTP) located on the east side of the Starvation Reservoir in Duchesne, Utah. The DVWTP is a direct filtration drinking water treatment plant that was constructed in the early 1980's and is designed to discharge an annual average of 0.65 million gallons per day (MGD) and falls under the Standard Industrial Category #4941, for Water Supply. The DVWTP process starts with pumping raw water from Starvation Reservoir up to the treatment plant where either aluminum sulfate (alum) or ferric chloride (ferric) is then rapidly mixed with the raw water (coagulation) to neutralize the surface charge of particles found in the raw water. The water is then mechanically mixed (flocculation) to form larger particles which can then be removed next in the duel media filtration process. After the filtration and disinfection process, the high-quality treated drinking water then enters finished water storage reservoirs to await delivery to the consumer.

Regarding DVWTP effluent discharges, when the filtration process has collected or filtered a pre-determined amount of material from the water, the filtration process is stopped and clean drinking water is pumped in the reverse direction through the filter media to wash out all the collected particles within the filter. This (backwash) water then flows to one of two 1.1-million-gallon capacity drying/settling basins, where the backwash particles in the water settle out in the basin, and the clarified decant water flows, at a selected rate, from the top water level in the basin through adjustable gates and then flows back to Starvation Reservoir via pipeline to Outfall 001 located at latitude 40° 11' 45" & longitude 110° 26' 10".

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

The only changes proposed with this renewal permit are the removal of Secondary Treatment Standards which no longer apply to Non-POTW facilities, as well as the inclusion of Turbidity monitoring, both as described in the Self-Monitoring & Reporting Requirements section of the permit and this Fact Sheet. All other permit provisions remain unchanged.

DISCHARGE INFORMATION

DESCRIPTION OF DISCHARGE OUTFALL(S)

A description of the permitted discharging outfalls are as follows:

Outfall	Description of Discharge Point
001	Located at latitude 40° 11' 45" and longitude 110° 26' 10". The discharge is gravity flow through a 10-inch diameter pipe leading from the settling basin to Starvation Reservoir.

RECEIVING WATERS AND STREAM CLASSIFICATION

The discharge flows into the Starvation Reservoir. Starvation Reservoir is Class 1C, 2A, 2B, 3A, and 4, according to *Utah Administrative Code (UAC) R317-2-13*:

Class 1C -- Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water

Class 2A -- Protected for frequent primary contact recreation where there is a high likelihood of ingestion of water or a high degree of bodily contact with the water. Examples include, but are not limited to, swimming, rafting, kayaking, diving, and water skiing.

Class 3A -- Protected for cold water species of game fish and other cold-water aquatic life, 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

In accordance with regulations promulgated in *40 Code of Federal Regulations (CFR) Part 122.44* and in *Utah Administrative Code* (*UAC) R317-8-4.2*, effluent limitations are derived from technology-based effluent limitations guidelines, Utah Secondary Treatment Standards (*UAC R317-1-3.2*) or Utah Water Quality Standards (*UAC R317-2*). In cases where multiple limits have been developed, those that are more stringent apply. In cases where no limits or multiple limits have been developed, Best Professional Judgment (BPJ) of the permitting authority may be used where applicable. "Best Professional Judgment" refers to a discretionary, best professional decision made by the permit writer based upon precedent, prevailing regulatory standards or other relevant information.

Permit limits can also be derived from the Wasteload Analysis (WLA), which incorporates Secondary Treatment Standards, Water Quality Standards, including Total Maximum Daily Load (TMDL) impairments as appropriate, Antidegradation Review (ADR) and designated uses into a water quality model that projects the effects of discharge concentrations on receiving water quality. Effluent limitations are those that the model demonstrates are sufficient to meet State water quality standards in the receiving waters. During this UPDES renewal permit development, a WLA and ADR were completed. An ADR Level I review was performed and concluded that an ADR Level II review was not required this time since there are no proposed increases in flow or concentrations from the existing DVWTP operations. The WLA indicates that the effluent limitations will be sufficiently protective of water quality, in order to meet State water quality standards in the receiving waters. The WLA and ADR are attached as an addendum to this Fact Sheet.

The following list is the basis of the effluent limitations for the applicable permit parameters:

1) Daily minimum and daily maximum limitations for pH are derived from Utah Water Quality Standards in *UAC R317-2-14.*

2) Limitations for Total Dissolved Solids (TDS) are based on the State Water Quality Standard for concentrations, as authorized in *UAC R317-2-14*, as well as the Colorado River Basin Salinity Control Forum (CRBSCF) for loading, as authorized in *UAC R317-2-4*. Discharges from the permittee eventually reach the Colorado River, which places it under the guidance of the CRBSCF. Total dissolved solids are limited in loading by the CRBSCF and in February 1977 they produced the *"Policy For Implementation of Colorado River Salinity Standards Through the NPDES Permit Program"* (Policy). This Policy is still in effect, and recently updated in October 2020. Therefore, discharges from DVWTP will be limited to a maximum discharge of 1.0 ton per day TDS or 366 tons per year if the 1-ton/day limitation cannot be met.

3) Limitations on Iron and Aluminum for both concentration and loading are water quality based as derived from the previous permit development and 2016 WLA, which are more stringent than the limitations for those parameters as derived from the current 2021 WLA. Since DVWTP has consistently met all previous permit limitations, as well as to avoid EPA's Anti-Backsliding Policy for any potential increased permit limitations, the more stringent limitations from the previous permit and WLA will remain in the permit based upon BPJ of the permitting authority.

The parameters of concern (POCs) are the same as previous permits and are based upon the DVWTP process utilizing either aluminum sulfate, or ferric chloride to treat the raw water of Starvation Reservoir as mentioned previously. Therefore, aluminum and iron, along with TDS and pH as mentioned above, are once again the primary POCs for this renewal permit.

Total Maximum Daily Load (TMDL)
According to the Utah's 2016 303(d) Water Quality Assessment Report, the receiving water for the discharge; Starvation Reservoir (UT-L-14060004-006_00) was not assessed against water quality standards for its beneficial uses due to insufficient data to make the assessment. Therefore, a TMDL does not exist for the receiving waters and no additional potential POCs are being included at this time. Also, a limitation on Effluent Flow has not been previously included and is not required since both the concentration and loading limitations are included for the applicable POCs.

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

A qualitative RP analysis was performed on the parameters of concern, as derived from the current permit and WLA, to determine if there was reasonable potential for the discharge to exceed the applicable water quality standards. Based on the RP analysis it was determined not to include any additional effluent limits in this 2021 renewal permit. This is because all the data points reviewed did not exceed, or come close to exceeding the applicable Water Quality Standards, Therefore, no RP currently exists at the facility for the identified POCs and a more quantitative RP analysis was not necessary at this time. The result is *RP Outcome C: No new effluent limitation. Routine monitoring requirements maintained as they are in the permit*. A copy of the RP analysis is included at the end of this Fact Sheet.
The permit limitations are as follows:

Parameter	Effluent Limitations *a				
	Maximum Monthly Avg	Maximum Weekly Avg	Yearly Average	Daily Minimum	Daily Maximum
Total Flow, MGD *b	Report	--	Report	--	Report
pH, Standard Units	--	--	--	6.5	9
Aluminum, mg/L *c	3.9	--	--	--	7.24
Aluminum, lbs/day *c	3.2	--	--	--	6.0
Iron, mg/L *d	--	--	--	--	0.17
Iron, lbs/day *d	--	--	--	--	0.14
TDS, mg/L *e	--	--	--	--	1200
TDS, tons/day *e	--	--	--	--	1.0
TDS, tons/yr *e	--	--	366	--	--
Turbidity, NTU *f	--	--	--	--	Report
WET, Chronic Biomonitoring *g	--	--	--	--	$IC_{25} > 2\%$ effluent

SELF-MONITORING AND REPORTING REQUIREMENTS

The following self-monitoring requirements are very similar as in the previous permit with a couple changes. As mentioned previously, Turbidity monitoring has been included in lieu of TSS secondary treatment standards to reflect rule changes in *UAC R317-1-3,* which clarifies that both TSS and BOD secondary treatment standards are not required for Non-POTW facilities. Publicly Owned Treatment Works (POTWs) are facilities that receive and process domestic waste water, therefore DVWTP is a Non-POTW facility as classified and secondary treatment standards do not apply. The permit requires that the self-monitoring reports are to be submitted monthly as appropriate, and on Discharge Monitoring Report (DMR) forms due 28 days after the end of each monitoring period. Effective January 1, 2017, monitoring results must be submitted electronically using NetDMR unless the permittee has successfully petitioned for an exception. Lab reports for biomonitoring, as well as lab reports for metals and toxic organics, if required in the future must be submitted with the applicable DMRs. A review of the past 5 years of DMR data reveals that the DVWTP has had no permit exceedances and should be able to continue complying with the permit provisions as included herein.

Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
Total Flow *b	Continuous	Recorder	MGD
pH	Weekly	Grab	SU
Aluminum *c	Monthly	Grab	mg/L
Iron *d	Monthly	Grab	mg/L
Total Dissolved Solids *e	Monthly	Grab	mg/L
Turbidity *f	Monthly	Grab	NTU
WET – Biomonitoring *g			
Ceriodaphnia - Chronic	1st & 3rd Quarter	Composite	Pass/Fail
Fathead Minnows - Chronic	2nd & 4th Quarter	Composite	Pass/Fail

*a See Permit Definitions, *Part VIII*, for definition of terms.
*b If the flow rate of discharge is controlled, the rate and duration of discharge shall be reported.
*c Aluminum monitoring is not required if no Alum is used in the treatment process.
*d Iron monitoring is not required if no Ferric Chloride is used in the treatment process.

*e In addition to the total dissolved solids (TDS) effluent concentration limitation, TDS effluent loading is limited to one-ton/day. If the one-ton/day effluent loading limitation cannot be met, then the permittee is limited to 366-tons/year total TDS effluent loading from the facility. It is the responsibility of the permittee to maintain annual TDS loading information and upon request the permittee shall submit to the Director the annual TDS loading information.

*f Turbidity monitoring shall be conducted monthly whenever possible from the discharge to ensure that there is not an increase of more than 10 NTU over the receiving waters, if applicable.

*g Chronic Biomonitoring of the effluent shall be conducted quarterly with alternating species as detailed above.

STORM WATER

Separate storm water permits may be required based on the types of activities occurring on site. The facility's SIC code is 4941: Water Supply, and there is no bulk storage of any contaminants at the facility. Therefore, a separate storm water industrial UPDES permit is not required.

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

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

PRETREATMENT REQUIREMENTS

There is no discharge of process wastewater to any municipal wastewater treatment facility. Any process wastewater that the facility may discharge to the public sanitary sewer, either as direct discharge or as a hauled waste, is subject to federal, state and local pretreatment regulations. Pursuant to section 307 of the Clean Water Act, the permittee shall comply with all applicable Federal General Pretreatment Regulations promulgated in 40 CFR Section 403, the State Pretreatment Requirements found in UAC R317-8-8, and any specific local discharge limitations developed by the Publicly Owned Treatment Works (POTW) accepting the waste.

In addition, in accordance with *40 CFR 403.12(p)(1)*, the permittee must notify the POTW, the EPA Regional Waste Management Director, and the State hazardous waste authorities, in writing, if they discharge any substance into a POTW which if otherwise disposed of would be considered a hazardous waste under *40 CFR 261*. This notification must include the name of the hazardous waste, the EPA hazardous waste number, and the type of discharge (continuous or batch).

BIOMONITORING REQUIREMENTS

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

The renewal permit will once again require Whole Effluent Toxicity (WET) Chronic testing. Although

Acute WET testing is the minimally required method as derived from the DWQ WET policy based upon the effluent dilution ratio being >20:1 into the receiving waters of Starvation Reservoir, Chronic WET testing will remain in the permit based upon best professional judgment of the permitting authority to be more protective of the receiving water. The permittee previously performed both Acute and Chronic WET testing for the initial 5-year permit cycle and after no WET failures of any kind, requested a reduction to Chronic WET testing only and with alternating species. Chronic toxicity tests will remain quarterly, alternating between *Ceriodaphnia dubia and Pimephales promelas (fathead minnows) species*, as detailed in the permit. Alternating the testing species, as well as alternating the composite sampling to one day instead of three days have been previously granted to the permittee, and will continue in this permit renewal once again as requested by the permittee. This is based upon the absence of toxicity as confirmed through testing over the previous 5-year permit cycles and the permitting authority's best professional judgment.

The permit will once again contain the standard requirements for accelerated testing frequency, as well as a Toxicity Reduction Evaluation (TRE) as necessary. The permit will also contain a toxicity limitation re-opener provision. This provision allows for modification of the permit at any time to include WET limitations and/or increased WET monitoring, should additional information indicate the presence of toxicity in the discharge.

PERMIT DURATION

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

Drafted by
Jeff Studenka, Discharge
Lonnie Shull, Biomonitoring
Jennifer Robinson, Pretreatment
Carl Adams, Storm Water
Jodi Gardberg, TMDL/Watershed Protection
Suzan Tahir, Wasteload Analysis & ADR
Utah Division of Water Quality, (801) 536-4300
April 19, 2021

PUBLIC NOTICE INFORMATION (updated June 2, 2021)

Began: April 30, 2021
Ended: June 1, 2021

Written comments received at: 195 North 1950 West
PO Box 144870
Salt Lake City, UT 84114-4870
Or electronically at: https://deq.utah.gov/water-quality/water-quality-electronic-submissions

The Public Notice of the draft permit and the draft permit documents were published on the DWQ website for at least 30 days as required per UAC R317-8-6.5.

During the public comment period provided under UAC R317-8-6.5, any interested person may submit written comments on the draft permit and/or may request a public hearing, if no hearing has already been scheduled. A request for a public hearing shall be in writing and shall state the nature of the issues proposed

to be raised in the hearing. All comments will be considered in making the final decision and shall be answered as provided in UAC R317-8-6.12.

No comments or requests were received during the public comment period. Staff recommends re-issuing the permit as drafted.

ADDENDUM TO FSSOB

ATTACHMENTS (2): I. Wasteload Analysis and Antidegradation Review
II. Reasonable Potential Analysis Summary

DWQ-2021-003851

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ATTACHMENT 1

Wasteload Analysis & Antidegradation Review

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WASTELOAD ANALYSIS [WLA]
Addendum: Statement of Basis
SUMMARY

Discharging Facility:	**Duchesne Valley Water Treatment Plant**		
UPDES No:	UT0025801		
Current Flow:	0.65	MGD	Design Flow
Design Flow	0.65	MGD	

Receiving Water:	**Starvation Reservoir**	
Lake Classification:	1C, 2A, 3A, 4	

TDS (mg/l)	334.76	Average
Hardness (mg/l)	220.00	Average
pH	8.20	Average
Temp (C)	13.5	Average

Selected Effluent Limit Summary:				**WQ Standard:**
Flow, MGD:	0.65	MGD	Design Flow	
BOD, mg/l:	25.0	All Season	5	Indicator
Dissolved Oxygen, mg/l:	5.00	All Season	6.50	30 Day Average
TNH3, Acute, mg/l:	14.90	All Season	Varies	Function of pH and Temperature
TDS, mg/l:	1200.00	All Season	1200	Receiving water is impaired for TDS
Zinc, ug/l	2580.82	All Season	Varies	Function of Hardness
Copper, ug/l	304.96	All Season	Varies	Function of Hardness

Modeling Parameters:

Acute Dilution Ratio	11.90	to 1
Chronic Dilution Ratio:	67.97	to 1

Level 1 Antidegradation Level Completed: Level II Review not required -
No increase over in concentration or load of pollutants over previous permit

Wasteload Analysis - Total Maximum Daily Load (Lake TMDL)

3/16/2021 9:58

Facility: **Duchesne Valley Water Treatment Plant** **UPDES No: UT- UT0025801**
Discharging to: **Starvation Reservoir**

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 lake water quality. The wasteload analysis does not take 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 water quality parameters of concern may include metals (as a function of hardness), total dissolved solids (TDS), total residual chlorine (TRC), unionized ammonia (as a function of pH and temperature, measured and evaluated interms of total ammonia), and dissolved oxygen.

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

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

II. Receiving Water and Lake / Reservoir Classification

Starvation Reservoir	1C, 2A, 3A, 4

III. Numeric Water Quality Standards for Protection of Aquatic Wildlife

Total Ammonia (TNH3)	Function of Temperature and pH	pH	Temp
	1.67 mg/l as N (4 Day Average)	8.25	13.4
	3.50 mg/l as N (1 Hour Average	8.25	13.4
Chronic Total Residual Chlorine (TRC)	0.011 mg/l (4 Day Average)		
	0.019 mg/l (1 Hour Average)		
Chronic Dissolved Oxygen (DO)	6.50 mg/l (30 Day Average)		
	5.00 mg/l (7Day Average)		
	4.00 mg/l (1 Day Average		
Maximum Total Dissolved Solids [Class 4 Ag]	1200 mg/l		
Maximum Boron [Class 4 Ag]	750 mg/l		

Acute and Chronic Heavy Metals (Dissolved)

Parameter	4 Day Average (Chronic) Standard Concentration		1 Hour Average (Acute) Standard Concentration	
Aluminum	87.000	ug/l	750	ug/l
Antimony		ug/l		ug/l
Arsenic	190.000	ug/l	360.00	ug/l
Asbestos		ug/l		ug/l
Barium		ug/l	1000.00	ug/l
Beryllium		ug/l		ug/l
Cadmium	0.482	ug/l	4.71	ug/l
Chromium III	162.973	ug/l	3409.72	ug/l
ChromiumVI	11.000	ug/l	16.00	ug/l
Copper	18.136	ug/l	29.14	ug/l
Cyanide	5.200	ug/l	22.00	ug/l
Iron		ug/l	1000.00	ug/l
Lead	8.565	ug/l	219.80	ug/l
Mercury	0.012	ug/l	2.40	ug/l
Nickel	170.40	ug/l	906.08	ug/l
Selenium	5.000	ug/l	20.00	ug/l
Silver		ug/l	14.43	ug/l
Thallium				
Zinc	231.627	ug/l	231.63	ug/l
Based upon a Hardness of 217.7 mg/l as CaCO3			Based upon 217.87 mg/l as CaCO3	

Organics [Pesticides]

Parameter	4 Day Average (Chronic) Standard Concentration		1 Hour Average (Acute) Standard Concentration	
Aldrin			1.500	ug/l
Chlordane	0.0043	ug/l	1.200	ug/l
DDT, DDE	0.001	ug/l	0.550	ug/l
Dieldrin	0.0056	ug/l	0.240	ug/l
Endosulfan, a & b	0.056	ug/l	0.110	ug/l
Endrin	0.036	ug/l	0.086	ug/l
Guthion				
Heptachlor & H. epoxide	0.0038	ug/l	0.260	ug/l
Lindane	0.08	ug/l	1.000	ug/l
Methoxychlor			0.030	ug/l
Mirex			0.001	ug/l
Parathion	0.0130	ug/l	0.066	ug/l
PCB's	0.014	ug/l		
Pentachlorophenol	15.00	ug/l	19.000	ug/l
Toxephene	0.0002	ug/l	0.730	ug/l

IV. Numeric Water Quality Standards for Protection of Agriculture

	1 Hour Average (Acute) Standard Concentration	
TDS	1200	mg/l
Arsenic	100	ug/l
Boron	750	ug/l
Cadmium	10	ug/l
Chromium	100	ug/l
Copper	200	ug/l
Lead	100	ug/l
Selenium	50	ug/l

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

Metals	1 Hour Average (Acute) Standard Concentration	
Arsenic	10	ug/l
Barium	1000	ug/l
Cadmium	10	ug/l
Chromium	50	ug/l
Lead	15	ug/l
Mercury	2	ug/l
Selenium	50	ug/l
Silver	50	ug/l
Fluoride (3)	1400	ug/l
to	2400	ug/l
Nitrates as N	10000	ug/l
Chlorophenoxy Herbicides		
2,4-D	0	ug/l
2,4,5-TP	0	ug/l
Methoxychlor	0	ug/l

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

	Maximum Conc., ug/l - Acute Standards	
	Class 1C	**Class 3A, 3B, 3C, 3D**
	[2 Liters/Day for 70 Kg Person over 70 Yr.	[6.5 g for 70 Kg Person over 70 Yr.]
Antimony	5.6 ug/l	640 ug/l
Arsenic	A	A
Beryllium	C	C
Cadmium	C	C
Chromium III	C	C
Chromium VI	C	C
Copper	1,300 ug/l	
Lead	C	C
Mercury	A	A
Nickel	100 ug/l	4,600 ug/l
Selenium	A	4,200 ug/l
Silver		
Thallium	0.24 ug/l	6.3 ug/l
Zinc	7400 ug/l	26,000 ug/l
Cyanide	140 ug/l	220,000 ug/l
Asbestos	7.00E+06 Fibers/L	
2,3,7,8-TCDD Dioxin	5.0 E-9 ug/l	5.1 E-9 ug/l
Acrolein	190 ug/l	290 ug/l
Acrylonitrile	0.051 ug/l	0.25 ug/l
Alachlor	2 ug/l	
Benzene	2.2 ug/l	51 B ug/l
Bromoform	4.3 ug/l	140.00 ug/l
Carbofuran	40	
Carbon Tetrachloride	0.23 ug/l	1.60 ug/l
Chlorobenzene	100 ug/l	21,000 ug/l
Chlorodibromomethane	0.4 ug/l	13.00 ug/l
Chloroethane		
2-Chloroethylvinyl Ether		
Chloroform	5.7 ug/l	470.00 ug/l
Dalapon	200 ug/l	
Di(2ethylhexl)adipate	400 ug/l	

Dichlorobromopropane	0.2				
Dichlorobromomethane	0.55	ug/l		17.00	ug/l
1,1-Dichloroethane					
1,2-Dichloroethane	0.38	ug/l		37.00	ug/l
1,1-Dichloroethylene	7	ug/l		3.20	ug/l
Dichloroethylene (cis-1,2)	70				
Dinoseb	7				
Diquat	20				
1,2-Dichloropropane	0.5	ug/l		15.00	ug/l
1,3-Dichloropropene	0.34	ug/l		1,700	ug/l
Endothall	100				
Ethylbenzene	530	ug/l		29,000	ug/l
Ethyldibromide	0.05	ug/l			
Glyphosate	700	ug/l			
Haloacetic acids	60	ug/l E			
Methyl Bromide	47	ug/l		1,500	ug/l
Methyl Chloride	F			F	
Methylene Chloride	4.6	ug/l		590.00	ug/l
Ocamyl (vidate)	200	ug/l			
Picloram	500	ug/l			
Simazine	4	ug/l			
Styrene	100	ug/l			
1,1,2,2-Tetrachloroethane	0.17	ug/l		4.00	ug/l
Tetrachloroethylene	0.69	ug/l		3.30	ug/l
Toluene	1000	ug/l		200,000	ug/l
1,2 -Trans-Dichloroethylene	100	ug/l		140,000	ug/l
1,1,1-Trichloroethane	200	ug/l		F	
1,1,2-Trichloroethane	0.59	ug/l		16.00	ug/l
Trichloroethylene	2.5	ug/l		30.00	ug/l
Vinyl Chloride	0.025	ug/l		530.00	ug/l
Xylenes	10000	ug/l			
2-Chlorophenol	81	ug/l		150	ug/l
2,4-Dichlorophenol	77	ug/l		290	ug/l
2,4-Dimethylphenol	380	ug/l		850	ug/l
2-Methyl-4,6-Dinitrophenol	13	ug/l		280	ug/l
2,4-Dinitrophenol	69	ug/l		5,300	ug/l
2-Nitrophenol					
4-Nitrophenol					
3-Methyl-4-Chlorophenol					
Penetachlorophenol	0.27	ug/l		3.00	ug/l
Phenol	21000	ug/l		1,700,000	ug/l
2,4,6-Trichlorophenol	1.4	ug/l		2.40	ug/l
Acenaphthene	670	ug/l		990	ug/l
Acenaphthylene		ug/l			ug/l
Anthracene	8300	ug/l		40,000	ug/l
Benzidine	0.000086	ug/l	B	0.00	ug/l
BenzoaAnthracene	0.0038	ug/l		0.02	ug/l
BenzoaPyrene	0.0038	ug/l		0.02	ug/l
BenzobFluoranthene	0.0038	ug/l		0.02	ug/l
BenzoghiPerylene		ug/l			
BenzokFluoranthene	0.0038	ug/l		0.02	ug/l
Bis2-ChloroethoxyMethane		ug/l			
Bis2-ChloroethylEther	0.03	ug/l		0.53	ug/l
Bis2-Chloroisopropy1Ether	1400	ug/l		65,000	ug/l
Bis2-EthylbexylPhthalate	1.2	ug/l		2.20	ug/l
4-Bromophenyl Phenyl Ether		ug/l			
Butylbenzyl Phthalate	1500	ug/l		1,900	ug/l
2-Chloronaphthalene	1000	ug/l		1,600	ug/l
4-Chlorophenyl Phenyl Ether		ug/l			

Chrysene	0.0038 ug/l		0.02 ug/l
Dibenzoa, hAnthracene	0.0038 ug/l		0.02 ug/l
1,2-Dichlorobenzene	420 ug/l		17,000 ug/l
1,3-Dichlorobenzene	320 ug/l		960 ug/l
1,4-Dichlorobenzene	63 ug/l		2,600 ug/l
3,3-Dichlorobenzidine	0.021 ug/l		0.03 ug/l
Diethyl Phthalate	17000 ug/l		44,000 ug/l
Dimethyl Phthalate	270000 ug/l		1,100,000 ug/l
Di-n-Butyl Phthalate	2000 ug/l		4,500 ug/l
2,4-Dinitrotoluene	0.11 ug/l		3.40 ug/l
2,6-Dinitrotoluene	ug/l		
Di-n-Octyl Phthalate	ug/l		
1,2-Diphenylhydrazine	0.036 ug/l		0.20 ug/l
Fluoranthene	130 ug/l		140.00 ug/l
Fluorene	1100 ug/l		5,300 ug/l
Hexachlorobenzene	0.00028 ug/l		0.00029 B ug/l
Hexachlorobutedine	0.44 ug/l		18.00 ug/l
Hexachloroethane	1.4 ug/l		3.30 ug/l
Hexachlorocyclopentadiene	40 ug/l		17,000 ug/l
Ideno 1,2,3-cdPyrene	0.0038 ug/l		0.02 ug/l
Isophorone	35 ug/l	B	960.00 ug/l
Naphthalene			
Nitrobenzene	17 ug/l		690 ug/l
N-Nitrosodimethylamine	0.00069 ug/l		3.00 ug/l
N-Nitrosodi-n-Propylamine	0.005 ug/l		0.51 ug/l
N-Nitrosodiphenylamine	3.3 ug/l		6.00 ug/l
Phenanthrene			
Pyrene	830 ug/l		4,000 ug/l
1,2,4-Trichlorobenzene	260 ug/l		940 ug/l
Aldrin	0.000049 ug/l		0.000050 ug/l
alpha-BHC	0.0026 ug/l		0.00 ug/l
beta-BHC	0.0091 ug/l		0.02 ug/l
gamma-BHC (Lindane)	0.2 ug/l		0.06 ug/l
delta-BHC			
Chlordane	0.0008 ug/l		0.00 ug/l
4,4-DDT	0.00022 ug/l		0.00 ug/l
4,4-DDE	0.00022 ug/l		0.00 ug/l
4,4-DDD	0.00031 ug/l		0.00 ug/l
Dieldrin	0.000052 ug/l	B	0.000054 ug/l
alpha-Endosulfan	62 ug/l		89 ug/l
beta-Endosulfan	62 ug/l		89 ug/l
Endosulfan Sulfate	62 ug/l		89 ug/l
Endrin	0.059 ug/l		0.81 ug/l
Endrin Aldehyde	0.29 ug/l		0.30 ug/l
Heptachlor	0.000079 ug/l	B	0.000079 ug/l
Heptachlor Epoxide	0.000039 ug/l	B	0.000039 ug/l
Polychlorinated Biphenyls	0.000064 ug/l	B,D	0.000064 ug/l
Toxaphene	0.00028 ug/l		0.00028 ug/l

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

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

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

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

The Utah Reservoir and Lake Model is a simple round jet model which was received from EPA Region 8. It assumes a discharge expands into the receiving water as a 1/2 cone from the point of discharge with the appropriate dilution.

The dilution ratios for this wasteload analysis are as follows:

Acute Dilution Ratio:	**11.9 to 1**
Chronic Dilution Ration:	**68.0 to 1**

VIII. Modeling Information

The required information for the model may include the following information for both the lake and effluent conditions:

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
D.O. mg/l	

Other Conditions

In addition to the lake 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

Lake Information	Temp. Deg. C	pH	T-NH3 mg/l as N	BOD mg/l	DO mg/l	TRC mg/l	TDS mg/l	Metals ug/l
	13.4	8.3	0.00	N/A	N/A	0.00	334.8	0.0

	Season	Flow, MGD	Temp.
Discharge Information	All Seasons	0.7	13.5

IX. Effluent Limitations based upon Water Quality Standards

Effluent Limitation for Flow

All Seasons

Not to Exceed:	0.65	MGD	Daily Average
	1.01	cfs	Daily Average

WET Requirements: As determined by Permits & Compliance Branch

Effluent Limitation for Biological Oxygen Demand (BOD)

	Concentration	
30 Day Average	25.0	mg/l as BOD5
30 Day Average	20.0	mg/l as CBOD5

Effluent Limitation for Dissolved Oxygen (DO)

	Concentration 1 Day Average (Acute)	
30 Day Average	5.00	mg/l

Effluent Limitation for Total Ammonia

	4 Day Average [Chronic] Concentration		Load	
All Seasons	202.94	mg/l as N	1099.9	lbs/day

	1 Hour Average [Acute] Concentration		Load	
	14.9	mg/l as N	80.8	lbs/day

Effluent Limitation for Total Residual Chlorine

	4 Day Average [Chronic] Concentration	Load
All Seasons	0.748 mg/l	4.1 lbs/day

	1 Hour Average [Acute] Concentration	Load
	0.226 mg/l	1.2 lbs/day

Effluent Limitations for Metals

	4 Day Average (Chronic) Concentration	Load	1 Hour Average (Acute) Concentration	Load
Aluminum	4710.26 ug/l*	16.5 lbs/day	8725.88 ug/l	30.6 lbs/day
Arsenic	9966.47 ug/l	34.9 lbs/day	4007.12 ug/l*	14.0 lbs/day
Barium			11895.56 ug/l	41.7 lbs/day
Cadmium	13.96 ug/l*	0.0 lbs/day	48.65 ug/l	0.2 lbs/day
Chromium III	6798.38 ug/l*	23.8 lbs/day	12381.05 ug/l	43.4 lbs/day
ChromiumVI	610.42 ug/l	2.1 lbs/day	167.99 ug/l*	0.6 lbs/day
Copper	1011.34 ug/l	3.5 lbs/day	304.96 ug/l*	1.1 lbs/day
Cyanide	61.86		261.70	
Iron			259.31 ug/l	0.9 lbs/day
Lead	334.20 ug/l*	1.2 lbs/day	1763.41 ug/l	6.2 lbs/day
Mercury	0.01 ug/l*	0.000 lbs/day	28.42 ug/l	0.1 lbs/day
Nickel	6592.75 ug/l*	23.1 lbs/day	10725.47 ug/l	37.6 lbs/day
Selenium	279.20 ug/l	1.0 lbs/day	213.43 ug/l*	0.7 lbs/day
Silver			139.18 ug/l	0.5 lbs/day
Zinc	111667.07 ug/l	391.2 lbs/day	2580.82 ug/l*	9.0

* Most stringent between Chronic & Acute Effluent Limitations

Effluent Limitations for Organics [Pesticides]

Pesticide	4 Day Average Concentration	Load	1 Hour Average Concentration	Load
Aldrin			17.8433 ug/l	0.063 lbs/day
Chlordane	0.2923 ug/l*	0.001 lbs/day	14.2747 ug/l	0.050 lbs/day
DDT, DDE	0.0680 ug/l*	0.000 lbs/day	6.5426 ug/l	0.023 lbs/day
Dieldrin	0.3807 ug/l*	0.001 lbs/day	2.8549 ug/l	0.010 lbs/day
Endosulfan	3.8066 ug/l	0.013 lbs/day	1.3085 ug/l*	0.005 lbs/day
Endrin	2.4471 ug/l	0.009 lbs/day	1.0230 ug/l*	0.004 lbs/day
Guthion			0.0000 ug/l	0.000 lbs/day
Heptachlor	0.2583 ug/l*	0.001 lbs/day	3.0928 ug/l	0.011 lbs/day
Lindane	5.4380 ug/l*	0.019 lbs/day	11.8956 ug/l	0.042 lbs/day
Methoxychlor			0.3569 ug/l	0.001 lbs/day
Mirex			0.0119 ug/l	0.000 lbs/day
Parathion			0.7851 ug/l	0.003 lbs/day
PCB's	0.9516 ug/l	0.003 lbs/day	0.0000 ug/l*	0.000 lbs/day
Pentachlorophenol	1019.6197 ug/l	3.572 lbs/day	226.0157 ug/l*	0.792 lbs/day
Toxephene	0.0136 ug/l*	0.000 lbs/day	8.6838 ug/l	0.030 lbs/day

Effluent Limitations for Protection of Human Health (Class 1C Waters)

Metals	1 Hour Average (Acute) Standard Concentration	Load
Arsenic	0.00 ug/l	0.00 lbs/day
Barium	0.00 ug/l	0.00 lbs/day
Cadmium	0.00 ug/l	0.00 lbs/day
Chromium	0.00 ug/l	0.00 lbs/day
Lead	0.00 ug/l	0.00 lbs/day
Mercury	0.00 ug/l	0.00 lbs/day
Selenium	0.00 ug/l	0.00 lbs/day
Silver	0.00 ug/l	0.00 lbs/day
Fluoride	0.00 ug/l	0.00 lbs/day
to	0.00 ug/l	0.00 lbs/day
Nitrates as N	0.00 ug/l	0.00 lbs/day
Pesticides		
2,4-D	0.00 ug/l	0.00 lbs/day
2,4,5-TP	0.00 ug/l	0.00 lbs/day
Methoxychlor	0.00 ug/l	0.00 lbs/day

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

	Maximum Conc., ug/l - Acute Standards			
	Class 1C		Class 3A, 3B	
Toxics Rule Parameters	[2 Liters/Day for 70 Kg Person over 70 Yr.		[6.5 g for 70 Kg Person over 70 Yr. Period]	
Antimony	0.00 ug/l	0.00 lbs/day	66.62 ug/l	0.2 lbs/day
Arsenic				
Beryllium				
Cadmium				
Chromium III				
Chromium VI				
Copper	0.00 ug/l	0.00 lbs/day	15464.23 ug/l	54.2 lbs/day
Lead				
Mercury		lbs/day	1189.56 ug/l	4.2 lbs/day
Nickel	0.00 ug/l	0.00 lbs/day		
Selenium			88027.17 ug/l	308.4 lbs/day
Silver			1665.38 ug/l	5.8 lbs/day
Thallium	0.00 ug/l	0.00 lbs/day		
Zinc	0.00 ug/l	0.00 lbs/day	2260.16 ug/l	7.9 lbs/day
Cyanide	0.00 ug/l	0.00 lbs/day	0.61 ug/l	0.0 lbs/day
Asbestos	0.00 ug/l	0.00E+00 lbs/day	51.15 ug/l	0.2 lbs/day
0	0.00 ug/l	0.00 lbs/day		
2,3,7,8-TCDD Dioxin	0.00 ug/l	0.00 lbs/day	1189.56 ug/l	4.2 lbs/day
Acrolein	0.00 ug/l	0.00 lbs/day	4.76 ug/l	0.0 lbs/day
Acrylonitrile	0.00 ug/l	0.00 lbs/day		
Benzene	0.00 ug/l	0.00 lbs/day		
Bromoform	0.00 ug/l	0.00 lbs/day	67.80 ug/l	0.2 lbs/day
Carbon Tetrachloride	0.00 ug/l	0.00 lbs/day		
Chlorobenzene	0.00 ug/l	0.00 lbs/day		
Chlorodibromomethane	0.00 ug/l	0.00 lbs/day	4.52 ug/l	0.0 lbs/day
Chloroethane	0.00 ug/l	0.00 lbs/day	83.27 ug/l	0.3 lbs/day
2-Chloroethylvinyl Ether	0.00 ug/l	0.00 lbs/day	5.95 ug/l	0.0 lbs/day
Chloroform	0.00 ug/l	0.00 lbs/day	4.04 ug/l	0.0 lbs/day
Dichlorobromomethane	0.00 ug/l	0.00 lbs/day	559.09 ug/l	2.0 lbs/day
1,1-Dichloroethane	0.00 ug/l	0.00 lbs/day		

1,2-Dichloroethane	0.00 ug/l	0.00 lbs/day	54.72 ug/l	0.2 lbs/day
1,1-Dichloroethylene	0.00 ug/l	0.00 lbs/day	2.02 ug/l	0.0 lbs/day
1,2-Dichloropropane	0.00 ug/l	0.00 lbs/day	11895.56 ug/l	41.7 lbs/day
1,3-Dichloropropene	0.00 ug/l	0.00 lbs/day	7.02 ug/l	0.0 lbs/day
Ethylbenzene	0.00 ug/l	0.00 lbs/day	29.74 ug/l	0.1 lbs/day
Methyl Bromide	0.00 ug/l	0.00 lbs/day	0.30 ug/l	0.0 lbs/day
Methyl Chloride	0.00 ug/l	0.00 lbs/day	963.54 ug/l	3.4 lbs/day
Methylene Chloride	0.00 ug/l	0.00 lbs/day	915.96 ug/l	3.2 lbs/day
1,1,2,2-Tetrachloroethane	0.00 ug/l	0.00 lbs/day	4520.31 ug/l	15.8 lbs/day
Tetrachloroethylene	0.00 ug/l	0.00 lbs/day	154.64 ug/l	0.5 lbs/day
Toluene	0.00 ug/l	0.00 lbs/day		
1,2 -Trans-Dichloroethylene	0.00 ug/l	0.00 lbs/day		
1,1,1-Trichloroethane	0.00 ug/l	0.00 lbs/day	3.21 ug/l	0.0 lbs/day
1,1,2-Trichloroethane	0.00 ug/l	0.00 lbs/day	249806.83 ug/l	875.2 lbs/day
Trichloroethylene	0.00 ug/l	0.00 lbs/day	16.65 ug/l	0.1 lbs/day
Vinyl Chloride	0.00 ug/l	0.00 lbs/day	7970.03 ug/l	27.9 lbs/day
2-Chlorophenol	0.00 ug/l	0.00 lbs/day		
2,4-Dichlorophenol	0.00 ug/l	0.00 lbs/day	98733.18 ug/l	345.9 lbs/day
2,4-Dimethylphenol	0.00 ug/l	0.00 lbs/day		
2-Methyl-4,6-Dinitrophenol	0.00 ug/l	0.00 lbs/day	0.05 ug/l	0.0 lbs/day
2,4-Dinitrophenol	0.00 ug/l	0.00 lbs/day	0.05 ug/l	0.0 lbs/day
2-Nitrophenol	0.00 ug/l	0.00 lbs/day	0.05 ug/l	0.0 lbs/day
4-Nitrophenol	0.0000 ug/l	0.0000 lbs/day		
3-Methyl-4-Chlorophenol	0.0000 ug/l	0.0000 lbs/day	0.05 ug/l	0.000 lbs/day
Penetachlorophenol	0.0000 ug/l	0.0000 lbs/day		
Phenol	0.0000 ug/l	0.00E+00 lbs/day	0.36 ug/l	0.001 lbs/day
2,4,6-Trichlorophenol	0.0000 ug/l	0.0000 lbs/day	16653.79 ug/l	58.347 lbs/day
Acenaphthene	0.00 ug/l	0.00 lbs/day		
Acenaphthylene	0.00 ug/l	0.00 lbs/day	17843.35 ug/l	62.5 lbs/day
Anthracene	0.00 ug/l	0.00 lbs/day	11895.56 ug/l	41.7 lbs/day
Benzidine	0.00 ug/l	0.00 lbs/day		
BenzoaAnthracene	0.00 ug/l	0.00 lbs/day	0.05 ug/l	0.0 lbs/day
BenzoaPyrene	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.0 lbs/day
BenzobFluoranthene	0.00 ug/l	0.00 lbs/day	4996.14 ug/l	17.5 lbs/day
BenzoghiPerylene	0.00 ug/l	0.00 lbs/day	3806.58 ug/l	13.3 lbs/day
BenzokFluoranthene				
Bis2-ChloroethoxyMethane				
Bis2-ChloroethylEther	0.0000 ug/l	0.00000 lbs/day	2.02E+05 ug/l	7.08E+02 lbs/day
Bis2-Chloroisopropy1Ether	0.0000 ug/l	0.00E+00 lbs/day	3.21E+06 ug/l	1.13E+04 lbs/day
Bis2-EthylbexylPhthalate	0.0000 ug/l	0.00000 lbs/day	######### ug/l	83.35221 lbs/day
4-Bromophenyl Phenyl Ether	0.0000 ug/l	0.00000 lbs/day	1.30851 ug/l	0.00458 lbs/day
Butylbenzyl Phthalate	0.0000 ug/l	0.00E+00 lbs/day		
2-Chloronaphthalene	0.0000 ug/l	0.00000 lbs/day		
4-Chlorophenyl Phenyl Ether	0.0000 ug/l	0.00000 lbs/day	0.42824 ug/l	0.00150 lbs/day
Chrysene	0.0000 ug/l	0.00000 lbs/day	######### ug/l	5.41789 lbs/day
Dibenzoa, hAnthracene	0.0000 ug/l	0.00000 lbs/day	######### ug/l	45.84372 lbs/day
1,2-Dichlorobenzene	0.0000 ug/l	0.00000 lbs/day	0.00333 ug/l	0.00001 lbs/day
1,3-Dichlorobenzene	0.0000 ug/l	0.00000 lbs/day	5.23405 ug/l	0.01834 lbs/day
1,4-Dichlorobenzene	0.0000 ug/l	0.00000 lbs/day	16.65379 ug/l	0.05835 lbs/day
3,3-Dichlorobenzidine				
Diethyl Phthalate				
Dimethyl Phthalate				
Di-n-Butyl Phthalate	0.00000 ug/l	0.00000 lbs/day		
2,4-Dinitrotoluene	0.00000 ug/l	0.00000 lbs/day	######### ug/l	0.708494 lbs/day
2,6-Dinitrotoluene	0.00000 ug/l	0.00000 lbs/day	0.008208 ug/l	0.000029 lbs/day
Di-n-Octyl Phthalate	0.00000 ug/l	0.00000 lbs/day	0.059478 ug/l	0.000208 lbs/day
1,2-Diphenylhydrazine	0.00000 ug/l	0.00000 lbs/day	39.255360 ug/l	0.137531 lbs/day
Fluoranthene	0.00000 ug/l	0.00000 lbs/day		
Fluorene	0.00000 ug/l	0.00000 lbs/day	9.87E+03 ug/l	3.46E+01 lbs/day

Hexachlorobenzene				
Hexachlorobutedine				
Hexachloroethane	0.00 ug/l	0.00 lbs/day		
Hexachlorocyclopentadiene				
Ideno 1,2,3-cdPyrene				
Isophorone	0.00 ug/l	0.00 lbs/day		
Naphthalene				
Nitrobenzene				
N-Nitrosodimethylamine	0.00 ug/l	0.00 lbs/day		
N-Nitrosodi-n-Propylamine	0.00 ug/l	0.00 lbs/day	0.00 ug/l	0.0 lbs/day
N-Nitrosodiphenylamine	0.00E+00 ug/l	0.00E+00 lbs/day		
Phenanthrene	0.00 ug/l	0.00 lbs/day	737.52 ug/l	2.6 lbs/day
Pyrene	0.00 ug/l	0.00 lbs/day		
1,2,4-Trichlorobenzene			737.52 ug/l	2.6 lbs/day
Aldrin			0.70 ug/l	0.0 lbs/day
alpha-BHC	0.00000000 ug/l	0.000000 lbs/day		
beta-BHC	0.00000000 ug/l	0.000000 lbs/day		
gamma-BHC (Lindane)	0.00000000 ug/l	0.000000 lbs/day		
delta-BHC		0.000000 lbs/day		
Chlordane	0.00000000 ug/l	0.000000 lbs/day		
4,4-DDT	0.00000000 ug/l	0.000000 lbs/day		
4,4-DDE	0.00000000 ug/l	0.000000 lbs/day		
4,4-DDD	0.00000000 ug/l	0.000000 lbs/day		
Dieldrin		0.000000 lbs/day		
alpha-Endosulfan	0.00 ug/l	0.000 lbs/day		
beta-Endosulfan	0.00 ug/l	0.000 lbs/day		
Endosulfan Sulfate	0.00 ug/l	0.000 lbs/day		
Endrin	0.00000000 ug/l	0.000 lbs/day		
Endrin Aldehyde	0.00000000 ug/l	0.000 lbs/day		
Heptachlor		lbs/day		
Heptachlor Epoxide		lbs/day		
Polychlorinated Biphenyls		lbs/day		
0	0.00000000 ug/l	0.000000 lbs/day		
Toxaphene	0.00000000 ug/l	0.000000 lbs/day		
Specific Parameter: TDS	0 ug/l	0.000000 lbs/day	1595.62 mg/l	5.6 tons / day

Effluent Limitations for the Protection of Agriculture

	1 Hour Average (Acute) Standard Concentration	Load
Arsenic	1189.56 ug/l	4.17 lbs / day
Boron	8921.67 ug/l	31.26 lbs / day
Cadmium	118.96 ug/l	0.42 lbs / day
Chromium	1189.56 ug/l	4.17 lbs / day
Copper	594.78 ug/l	2.08 lbs / day
Lead	1189.56 ug/l	4.17 lbs / day
Selenium	594.78 ug/l	2.08 lbs / day

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

	Class 4 Acute Agricultural ug/l	Class 3 Acute Aquatic Wildlife ug/l	Acute Toxics Drinking Water Source ug/l	Acute Toxics Wildlife ug/l	1C Acute Health Criteria ug/l	Acute Most Stringent ug/l	Class 3 Chronic Aquatic Wildlife ug/l
Aluminum		8725.88				8725.88	4710.26
Antimony			0.00			0.00	
Arsenic	1189.56	4007.12			10.00	10.00	9966.47
Asbestos							
Barium		11895.56			1000.00	1000.00	
Boron							
Cadmium	118.96	48.65			0.00	0.00	13.96
Chromium (III)		12381.1			50.00	50.00	6798.38
Chromium (VI)	1189.56	167.99				167.99	610.42
Copper	594.78	304.96				304.96	1011.34
Cyanide		261.70		0.00		0.00	61.86
Iron		259.31				259.31	
Lead	1189.56	1763.41			15.00	15.00	334.20
Mercury		28.4186			0.00	0.00	0.0120
Nickel		10725.47		0.00		0.00	6592.75
Selenium	594.78	213.43			50.00	50.00	279.20
Silver		139.18			0.00	0.00	
Thallium				0.00		0.00	
Zinc		2580.82				2580.82	111667.07

Summary Effluent Limitations for Metals [Wasteload Allocation, TMDL]

	Acute		Chronic	
	ug/l	lbs/day	ug/l	lbs/day
Aluminum	8725.88	47.3	4710.26	25.5
Antimony				
Arsenic	10.00	0.1	9966.47	54.0
Asbestos				
Cadmium	0.00	0.0	13.96	0.1
Chromium (III)	50.00	0.3	6798.38	36.8
Chromium (VI)	167.99	0.9	610.42	3.3
Copper	304.96	1.7	1011.34	5.5
Cyanide	0.00	0.0	61.86	0.3
Iron	259.31	1.4		
Lead	15.00	0.1	334.20	1.8
Mercury	0.00	0.0	0.01	0.0
Nickel	0.00	0.0	6592.75	35.7
Selenium	50.00	0.3	279.20	1.5
Silver	0.00	0.0		
Zinc	2580.82	14.0	111667.07	605.2

Effluent Indicators / Targets for Pollution Indicators

Water quality targets for pollution Indicators will be met with an effluent limit as follows:

	Indicator / Target mg/l	Target mg/l	lbs/day
Gross Beta (pCi/l)	50.0 pCi/L		
BOD	5.0	59.48	21791.68
Nitrates as N	4.0	47.58	17433.35
Total Phosphorus as P	0.05	0.59	217.92
Total Suspended Solids	90.0	1070.60	392250.28

Other Effluent Limitations are based upon R317-1.

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 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 interfer with existing water users.

Category III waters fall under special rules for the determination of effluent limits. These rules allow more stringent effluent limitations based upon additional factors, including: "blue-ribbon" fisheries, special recreation areas, and drinking water sources.

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 shown that this is not attainable. Refer to the Forum's Guidelines for additional information.
This doesn't apply to facilities that do not discharge to the Colorado River Basin.

The permit writers may utilize other information to adjust these limits and/or to determine other limits based upon best available technology and other considerations.

XII. Summary Comments

The mathematical modeling and best professional judgement indicate that violations of receiving wataer benefical 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.

The permit writers may utilize other information to adjust these limits or to determine other limite based upon best available technology and other considerations. Under no circumstances however, may those alterations allow for the violation of water quality standards by the permitee.

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.

XIV. Notice of Availability of Information

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

Prepared by:
Suzan Tahir
Utah Division of Water Quality
801-536-4341

Duchesne Valley _WTP_WLA_3-2-21

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

Date: **March 2, 2021**

Prepared by: **Suzan Tahir**
Standards and Technical Services

Facility: **Duchesne Valley Water Treatment Plant, Lagoon Effluent**
UPDES Permit No. UT0025801

Receiving water: **Starvation Reservoir (1C, 2A, 3A, 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

001 Duchesne Valley Water Treatment Plant 0.65 MGD design flow

Receiving Water
Per UAC R317-2-13.2.g, the designated beneficial uses of the Starvation Reservoir are 1C, 2A, 3A, 4.

- *Class 1C - Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water.*

- *Class 2A - Protected for frequent primary contact recreation where there is a high likelihood of ingestion of water or a high degree of bodily contact with the water. Examples include, but are not limited to, swimming, rafting, kayaking, diving, and water skiing.*

- *Class 3A - Protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain.*

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

Flow
Typically, the critical flow for the wasteload analysis is considered the lowest stream flow for

seven consecutive days with a ten year return frequency (7Q10). The lagoon effluent discharges to Starvation Reservoir, therefore seasonal critical values were not calculated for this waste load analysis and the design flow (0.65 MGD) was used instead.

Receiving water quality was characterized using data from DWQ Monitoring Stations # 4936050 STARVATION RES AB DAM 01 for the period 2000-2020.

The discharge point was characterized using data set sent to UDWQ by the facility for the period 2015-2020.

TMDL

According to the Utah's 2016 303(d) Water Quality Assessment Report, the receiving water for the discharge; Starvation Reservoir (UT-L-14060004-006_00) was not assessed against water quality standards for its beneficial uses due to insufficient data to make the assessment.

Mixing Zone

The maximum allowable mixing zone is 15 minutes of travel time for acute conditions, not to exceed 50% of stream width, and for chronic conditions, per UAC R317-2-5. Water quality standards must be met at the end of the mixing zone. The mixing zone model showed complete mixing within 2,500 feet for chronic conditions. Acute limits were calculated using 50% of the seasonal critical low flow.

Parameters of Concern

Based on a discussion with the permit writer, the potential parameters of concern for the discharge were identified as metals (specifically Aluminum and Iron) and TDS, which is consistent with the previous permit's POCs.

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 LC_{50} (lethal concentration, 50%) percent effluent for acute toxicity and the IC_{25} (inhibition concentration, 25%) percent effluent for chronic toxicity, as determined by the WET test, needs to be below the WET limits, as determined by the WLA. The WET limit for LC_{50} is typically 100% effluent and does not need to be determined by the WLA.

IC25 WET limits for Outfall 001 should be based on 1.47 % effluent (Table 1).

Utah Division of Water Quality
Wasteload Analysis
Duchesne Valley WTP
UPDES Permit No. UT0025801

Table 1.WET Limits for IC25

Outfall	Percent Effluent
Outfall 001	1.47%

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 Addendums.

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

Models and supporting documentation are available for review upon request.

Antidegradation Level I Review

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

A Level II Antidegradation Review (ADR) is not required for this facility. The proposed permit is a simple renewal of an existing UPDES permit. No increase in flow or concentration of pollutants over those authorized in the the existing permit is being requested.

Documents:

WLA Document*: Duchesne Valley _WTP_WLADoc_3-2-21.docx*
Wasteload Analysis and Addendums: *Duchesne Valley _WTP_WLA_3-2-21.xlsm*

References:

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

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.

DWQ-2021-007464

ATTACHMENT 2

Reasonable Potential Analysis

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REASONABLE POTENTIAL ANALYSIS

DWQ has worked to improve our reasonable potential (RP) analysis for the inclusion of limits for parameters in the permit by utilizing an EPA approved method and RP guidance document. As a result, more parameters and/or limits may be included in the renewal permit. There are four resulting outcomes for the RP Analyses[1] as listed below;

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

The Initial RP Screening Table is included below for all existing permit parameters of concern (POCs), as derived from the UPDES permit, the WLA, and/or applicable TMDL information. Note that the full RP analysis model was not utilized at this time due to the results of the initial screening results below.

RP Initial Screening Table for DVWTP (UT0025801)
2016-2020 Data Summary Results & RP Analysis (Outfall 001)

Parameter	No. of Samples	MEC* mg/L	Water Quality Standards MAC**		Result
			Current WLA Acute mg/L	Current WLA Chronic mg/L	
Aluminum	0	NA	8.72	4.71	MEC ≤ MAC
Iron	60	0.13	0.259	--	MEC ≤ MAC
TSS	60	4	25	35	MEC ≤ MAC
BOD5	60	5	25	35	MEC ≤ MAC
TDS	60	420	1200 (WQS)	1200 (WQS)	MEC ≤ MAC
pH, SU	>200	7.3 - 8.6 (SU)	6.5 (min)	9.0 (max)	MEC ≤ MAC

Notes: NA = not applicable. Alum not used for treatment, only Ferric Chloride.
*MEC = Maximum expected effluent concentration as determined from existing data set.
**MAC = Maximum allowable concentration from Water Quality Standards and/or Wasteload Analysis.
MEC less than or equal (≤) to MAC, no additional Acute or Chronic limits required.
MEC > MAC = RP identified, include appropriate limits, if applicable.

Result: From the table above, the RP analysis results of the discharge for the listed POCs is: MEC ≤ MAC, Therefore no additional Acute or Chronic limits required. This equates to ***RP Outcome C: No new effluent limitation. Routine monitoring requirements maintained as they are in the permit.***

Summary: Based upon the policy "Reasonable Potential Analysis Guidance" developed by the Utah Division of Water Quality on September 10, 2015 and subsequently implemented beginning January 1, 2016 for all new and renewal permits; it was determined not to include any additional effluent limits in this 2021 renewal permit. This is because all the data points reviewed did not exceed, or come close to exceeding the applicable Water Quality Standards, Therefore, no RP currently exists at the facility for the identified POCs and a more quantitative RP analysis was not necessary at this time.

[1] Outcome definitions taken from the 2015 DWQ Reasonable Potential Analysis Guidance.

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