

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

UTAH POLLUTANT DISCHARGE ELIMINATION SYSTEM (UPDES) PERMITS

Major Municipal Permit No. **UT0021636**
Biosolids Permit No. **UTL-021636**

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

SOUTH DAVIS SEWER DISTRICT – NORTH PLANT

is hereby authorized to discharge from its wastewater treatment facility to receiving waters named **STATE CANAL TO THE FARMINGTON BAY WATERFOWL MANAGEMENT AREA,**

to dispose of biosolids,

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

This modified permit shall become effective on December 1, 2023,

This permit expires at midnight on December 8, 2026.

Signed this 20th day of November, 2023.



John K. Mackey, P.E.
Director

DWQ-2023-121092

Table of Contents

<u>Outline</u>	<u>Page Number</u>
I. DISCHARGE LIMITATIONS AND REPORTING REQUIREMENTS	5
A. Description of Discharge Points	5
B. Narrative Standard	5
C. Specific Limitations and Self-Monitoring Requirements	5
D. Reporting of Monitoring Results	11
II. INDUSTRIAL PRETREATMENT PROGRAM.....	12
A. Pretreatment Program Delegation.....	12
B. Program Updates.....	13
C. Annual Report.....	13
D. General and Specific Prohibitions	13
E. Categorical Standards.....	14
F. Self-Monitoring and Reporting Requirements	14
G. Enforcement Notice	15
H. Formal Action.....	15
III. BIOSOLIDS REQUIREMENTS	16
A. Biosolids Treatment and Disposal	16
B. Specific Limitations and Monitoring Requirements	16
C. Management Practices of Biosolids.....	19
D. Special Conditions on Biosolids Storage.....	22
E. Representative Sampling.....	22
F. Reporting of Monitoring Results.....	22
G. Additional Record Keeping Requirements Specific to Biosolids.....	22
IV. STORM WATER REQUIREMENTS.....	24
V. MONITORING, RECORDING & GENERAL REPORTING REQUIREMENTS.....	25
A. Representative Sampling	25
B. Monitoring Procedures.....	25
C. Penalties for Tampering.....	25
D. Compliance Schedules.....	25
E. Additional Monitoring by the Permittee	25
F. Records Contents.....	25
G. Retention of Records	25
H. Twenty-four Hour Notice of Noncompliance Reporting.....	25
I. Other Noncompliance Reporting.....	26
J. Inspection and Entry	26
VI. COMPLIANCE RESPONSIBILITIES	28
A. Duty to Comply	28
B. Penalties for Violations of Permit Conditions	28
C. Need to Halt or Reduce Activity not a Defense.....	28
D. Duty to Mitigate.....	28
E. Proper Operation and Maintenance.....	28
F. Removed Substances.....	28
G. Bypass of Treatment Facilities	28
H. Upset Conditions	30
VII. GENERAL REQUIREMENTS.....	31
A. Planned Changes.....	31
B. Anticipated Noncompliance.....	31
C. Permit Actions	31
D. Duty to Reapply.....	31
E. Duty to Provide Information	31

DISCHARGE PERMIT NO. UT0021636
BIOSOLIDS PERMIT NO. UTL-021636

F. Other Information..... 31
G. Signatory Requirements..... 31
H. Penalties for Falsification of Reports..... 32
I. Availability of Reports 32
J. Oil and Hazardous Substance Liability..... 32
K. Property Rights 32
L. Severability 32
M. Transfers..... 32
N. State or Federal Laws 33
O. Water Quality - Reopener Provision..... 33
P. Biosolids – Reopener Provision 33
Q. Toxicity Limitation - Reopener Provision 33
VIII. DEFINITIONS 35
 A. Wastewater 35
 B. Biosolids 36

PART I
DISCHARGE PERMIT NO. UT0021636
WASTEWATER

I. DISCHARGE LIMITATIONS AND REPORTING REQUIREMENTS

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

Outfall Number
001

Location of Discharge Outfall
Located at latitude 40°56'04" and longitude 111°56'04". The treated effluent is discharged through a 36-inch corrugated metal pipe directly to the State Canal immediately west of the facility.

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

C. Specific Limitations and Self-Monitoring Requirements.

1. Effective immediately, and lasting through the life of this permit, there shall be no acute or chronic toxicity in Outfall 001 as defined in *Part VIII*, and determined by test procedures described in *Part I. C.4.a* of this permit.
2.
 - a. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from Outfall 001. Such discharges shall be limited and monitored by the permittee as specified below:

Parameter	Effluent Limitations *a				
	Maximum Monthly Avg	Maximum Weekly Avg	Yearly Average	Daily Minimum	Daily Maximum
Total Flow	12.0	--	--	--	--
BOD ₅ , mg/L					
Summer (Jul-Sep)	20	27	--	--	--
Fall (Oct-Dec)	25	35	--	--	--
Winter (Jan-Mar)	25	35	--	--	--
Spring (Apr-Jun)	25	35	--	--	--
BOD ₅ Min. % Removal	85	--	--	--	--
TSS, mg/L	25	35	--	--	--
TSS Min. % Removal	85	--	--	--	--
Dissolved Oxygen, mg/L	--	--	--	5.0	--
Total Ammonia (as N), *k mg/L					
Summer (Jun-Aug)	9.0	--	--	--	24.0
Fall (Sep-Oct)	9.0	--	--	--	16.2

PART I
DISCHARGE PERMIT NO. UT0021636
WASTEWATER

Fall (Nov)	10.0	--	--	--	16.2
Winter (Dec-Feb)	12.0	--	--	--	13.0
Spring (Mar-May)	6.0				15.0
TRC, mg/L *e					
Summer (Jul-Sep)	--	--	--	--	0.066
Fall (Oct-Dec)	--	--	--	--	0.057
Winter (Jan-Mar)	--	--	--	--	0.045
Spring (Apr-Jun)	--	--	--	--	0.048
<i>E. coli</i> , No./100mL	126	157	--	--	--
Total Phosphorus, mg/L (Final) *l	--	--	2.0 / 1.0	--	--
WET, Chronic Biomonitoring	--	--	--	--	IC ₂₅ > 63% effluent
Oil & Grease, mg/L	--	--	--	--	10.0
pH, Standard Units	--	--	--	6.5	9

Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
Total Flow *b, *c	Continuous	Recorder	MGD
BOD ₅ , Influent *d	3 x Week	Composite	mg/L
Effluent	3 x Week	Composite	mg/L
TSS, Influent *d	3 x Week	Composite	mg/L
Effluent	3 x Week	Composite	mg/L
<i>E. coli</i>	3 x Week	Grab	No./100mL
pH	Daily	Grab	SU
Total Ammonia (as N)	3 x Week	Grab	mg/L
Total Ammonia (as N) *j	Monthly	Composite	mg/L
DO	Daily	Grab	mg/L
WET – Biomonitoring *g			
Ceriodaphnia - Chronic	1 st & 3 rd Quarter	Composite	Pass/Fail
Fathead Minnows - Chronic	2 nd & 4 th Quarter	Composite	Pass/Fail
TRC, mg/L, *e	Daily	Grab	mg/L
Oil & Grease *f	When Sheen Observed	Grab	mg/L
Orthophosphate (as P), *i			
Effluent	Monthly	Composite	mg/L
Total Phosphorus (as P), *i, *j			
Influent	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Total Kjeldahl Nitrogen			
TKN (as N), *i, *j			
Influent	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Nitrate, NO ₃ *i, *j	Monthly	Composite	mg/L
Nitrite, NO ₂ *i, *j	Monthly	Composite	mg/L
TDS, mg/L *j	Monthly	Composite	mg/L
Temperature *j	Monthly	Grab	°C
Metals, Influent *h	Quarterly	Composite/Grab	mg/L
Effluent	Quarterly	Composite/Grab	mg/L
Cyanide *h	Monthly	Composite	mg/L

PART I
DISCHARGE PERMIT NO. UT0021636
WASTEWATER

Organic Toxics, Influent	Yearly	Grab	mg/L
Effluent	Yearly	Grab	mg/L

- *a See Definitions, *Part VIII*, for definition of terms.
- *b Flow measurements of influent/effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained.
- *c If the rate of discharge is controlled, the rate and duration of discharge shall be reported.
- *d In addition to monitoring the final discharge, influent samples shall be taken and analyzed for this constituent at the same frequency as required for this constituent in the discharge.
- *e Analytical results less than 0.06 mg/l will not be considered out of compliance with the permit. For purposes of calculating averages and reporting on the Discharge Monitoring Report form, the following will apply:
 - 1) analytical values less than 0.02 mg/L shall be considered zero; and
 - 2) analytical values less than 0.06 mg/L and equal to or greater than 0.02 mg/L will be recorded as measured.
- *f Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report NA.
- *g The chronic Ceriodaphnia will be tested during the 1st and 3rd quarters and the chronic fathead minnows will be tested during the 2nd and 4th quarters.
- *h Reasonable Potential Analysis was run on metals data for the 36 months. The results indicated that increased cyanide monitoring is required at this time. See *Attachment 3* of FSSOB for details.
- *i These reflect changes required with the adoption of UCA R317-1-3.3, Technology-based Phosphorus Effluent Limits rule.
- *j Pollutants are being sampled in support of the work being done for the TMDL currently underway for the Jordan River. The Pollutants of Concern (POC) will be monitored and reported (on a monthly basis by the facility on Discharge Monitoring Report, but will not have a limit associated with them /or at the end of each Calendar year of sampling for these POC's), SDSDN will report the results of all sampling done for the POC. If SDSDN decides to sample more frequently for these POC's, the additional data will be welcome.
- *k Final ammonia limits go into effect on September 1, 2026. See *Part I.C.3.a* for interim limits.
- *l SDSDN has been issued a variance from the Technology-Based Phosphorus Effluent Limits rule. The final total phosphorus limit of 1 mg/L will come into effect January 1, 2025, with an interim limit of 2.0 mg/L.

3. Compliance Schedule for Ammonia

a. Total Ammonia Compliance Schedule:

Date	Milestone
September 1, 2022	SDSD shall commence the design of Phase 1
December 31, 2022	SDSD submits a completed capital facilities plan revision consistent with SRF requirements, which will include Phase 1 and options for Phase 2

PART I
DISCHARGE PERMIT NO. UT0021636
WASTEWATER

September 1, 2023	SDSD submits detailed construction plans and specifications to DWQ to obtain a construction permit for Phase 1
December 1, 2023	SDSD obtains construction permit
January 31, 2024	SDSD bids construction of approved wastewater treatment upgrades as outlined in the DWQ construction permit
August 1, 2026	SDSD shall complete construction of the upgrades and begin startup and optimization of upgraded wastewater treatment upgrades
September 1, 2026	Final ammonia effluent limits will into effect, and mass-based ammonia limit will no longer apply

Date	Permit Limits for Ammonia (as N)				
	Maximum Monthly Average		Maximum Monthly Load	Daily Maximum	
	Season	mg/L	lbs/day	Season	mg/L
Modification Issue - August 31, 2026*	Summer (Jun-Aug)	9.0	--	Summer (Jun-Aug)	31.7
	Fall (Sep-Oct)	10.0	--	Fall (Sep-Oct)	16.2
	Fall (Nov)	10.0	--	Fall (Nov)	16.2
	Winter (Dec-Feb)	--	1,202**	Winter (Dec-Feb)	23.4
	Spring (Mar-May)	12.0	--	Spring (Mar-May)	26.8
September 1, 2026	Summer (Jun-Aug)	9.0	--	Summer (Jun-Aug)	24.0
	Fall (Sep-Oct)	9.0	--	Fall (Sep-Oct)	16.2
	Fall (Nov)	10.0	--	Fall (Nov)	16.2
	Winter (Dec-Feb)	12.0	--	Winter (Dec-Feb)	13.0
	Spring (Mar-May)	6.0	--	Spring (Mar-May)	15.0

* Interim limits were taken from pervious permit/ previous WLA.

** The mass-based limit will only extend through the final compliance date of September 1, 2026.

4. Chronic Whole Effluent Toxicity (WET) Testing.

a. *Whole Effluent Testing – Chronic Toxicity.*

Starting immediately, the permittee shall quarterly conduct chronic static renewal 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.

Three samples are required and samples shall be collected on Monday, Wednesday and Friday of each sampling period or collected on a two day progression for each sampling period. This may be changed with Director approval. 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 CO2 atmosphere may be used (in conjunction with an unmodified test) in order to account for artificial pH drift, if demonstrated and authorized by the Director.

PART I
DISCHARGE PERMIT NO. UT0021636
WASTEWATER

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 63% 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.

If the permit contains a total residual chlorine limitation such that it may interfere with WET testing (>0.20 mg/L), the permittee may dechlorinate the sample in accordance with the standard method. If de-chlorination is negatively affecting the test, the permittee may collect the sample just before chlorination with Director approval.

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.

- 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.

PART I
DISCHARGE PERMIT NO. UT0021636
WASTEWATER

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 1.C.4.e* 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

PART I
DISCHARGE PERMIT NO. UT0021636
WASTEWATER

- (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 Monitoring Results.

1. Reporting of Wastewater Monitoring Results Monitoring results obtained during the previous month shall be summarized for each month and reported on a Discharge Monitoring Report Form (EPA No. 3320-1)* or by NetDMR, post-marked or entered into NetDMR no later than the 28th day of the month following the completed reporting period. The first report is due on January 28, 2022. If no discharge occurs during the reporting period, “no discharge” shall be reported. Legible copies of these, and all other reports including whole effluent toxicity (WET) test reports required herein, shall be signed and certified in accordance with the requirements of *Signatory Requirements (see Part VII.G)*, and submitted by NetDMR, or to the Division of Water Quality at the following address:

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

* Starting January 1, 2017 monitoring results must be submitted using NetDMR unless the permittee has successfully petitioned for an exception.

II. INDUSTRIAL PRETREATMENT PROGRAM

- A. Pretreatment Program Delegation. The permittee has been delegated primary responsibility for enforcing against discharges prohibited by *40 CFR 403.5* and applying and enforcing any national Pretreatment Standards established by the United States Environmental Protection Agency in accordance with Section 307 (b) and (c) of *The Clean Water Act (CWA)*, as amended by *The Water Quality Act (WQA)*, of 1987.

The permittee shall implement the Industrial Pretreatment Program in accordance with the legal authorities, policies, and procedures described in the approved Pretreatment Program submission. Such program commits the permittee to do the following:

1. Carry out inspection, surveillance, and monitoring procedures, which will determine, independent of information supplied by the industrial user, whether the industrial user is in compliance with the pretreatment standards. At a minimum, all significant industrial users shall be inspected and sampled by the permittee at least once per year;
2. Control through permit, order, or similar means, the contribution to the POTW by each industrial user to ensure compliance with applicable pretreatment standards and requirements;
3. Require development, as necessary, of compliance schedules by each industrial user for the installation of control technologies to meet applicable pretreatment standards;
4. Maintain and update industrial user information as necessary, to ensure that all IUs are properly permitted and/or controlled at all times;
5. Enforce all applicable pretreatment standards and requirements and obtain appropriate remedies for noncompliance by any industrial user;
6. Annually publish a list of industrial users that were determined to be in significant noncompliance during the previous year. The notice must be published before March 28 of the following year;
7. Maintain an adequate revenue structure and staffing level for continued implementation of the Pretreatment Program.
8. Evaluate all significant industrial users at least once every two years to determine if they need to develop a slug prevention plan. If a slug prevention plan is required, the permittee shall insure that the plan contains at least the minimum elements required in *40 CFR 403.8(f)(2)(v)*;
9. Notify all significant industrial users of their obligation to comply with applicable requirements under *Subtitles C and D* of the *Resource Conservation and Recovery Act (RCRA)*; and
10. Develop, implement, and maintain an enforcement response plan as required by *40 CFR 403.8(f)(5)* which shall, at a minimum,
 - a. Describe how the POTW will investigate instances of noncompliance;
 - b. Describe the types of escalating enforcement responses the POTW will take in response to all anticipated type of industrial user violations; and

PART II
DISCHARGE PERMIT NO. UT0021636
PRETREATMENT

- c. Describe the time periods within which such responses will be taken and identify the POTW staff position(s) responsible for pursuing these actions.
11. Establish and enforce specific local limits as necessary to implement the provisions of the *40 CFR Parts 403.5(a) and (b)*, and as required by *40 CFR Part 403.5(c)*.
- B. Program Updates. The permittee is required to modify its pretreatment program, as necessary, to reflect changes in the regulations of *40 CFR 403*. Such modifications shall be completed within the time frame set forth by the applicable regulations. Modification of the approved pretreatment program must be done in accordance with the requirements of *40 CFR 403.18*. Modifications of the approved program which result in less stringent industrial user requirements shall not be effective until after approval has been granted by the Director.
- C. Annual Report. The permittee shall provide the Division of Water Quality and EPA with an annual report briefly describing the pretreatment program activities over the previous calendar year for the permittee. Reports shall be submitted no later than March 28 of each year. The permittee shall submit an annual report, that includes at a minimum, the following:
1. An updated listing of the industrial users.
 2. A descriptive summary of the compliance activities including numbers of any major enforcement actions, i.e., administrative orders, penalties, civil actions, etc.
 3. An assessment of the compliance status of the industrial users and the effectiveness of the Pretreatment Program in meeting its needs and objectives.
 4. A description of all changes made to the pretreatment program.
 5. Changes to pollutants of concern to include but not limited to the following
 - a. Violations of effluent limits,
 - b. Summary of pollutants of concern, and
 - c. Exceedances of the maximum headwork loading or industrial loading.
 6. Other information as may be determined necessary by the Director.
- D. General and Specific Prohibitions. Pretreatment standards (*40 CFR 403.5*) specifically prohibit the introduction of the following pollutants into the waste treatment system from any source of non-domestic discharge:
1. 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);
 2. Pollutants, which will cause corrosive structural damage to the POTW, but in no case, discharges with a pH lower than 5.0;
 3. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in interference;
 4. Any pollutant, including oxygen demanding pollutants (BOD, etc.), released in a discharge at such volume or strength as to cause interference in the POTW;

PART II
DISCHARGE PERMIT NO. UT0021636
PRETREATMENT

5. 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));
 6. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;
 7. 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;
 8. Any trucked or hauled pollutants, except at discharge points designated by the POTW; or
 9. Any pollutant that causes pass through or interference at the POTW.
 10. Any specific pollutant which exceeds any local limitation established by the POTW in accordance with the requirement of 40 CFR 403.5(c) and 40 CFR 403.5(d).
- E. Categorical Standards. In addition to the general and specific limitations expressed in *Part D* of this section, applicable National Categorical Pretreatment Standards must be met by all industrial users of the POTW. These standards are published in the federal regulations at 40 CFR 405 et. seq.
- F. Self-Monitoring and Reporting Requirements.
1. Influent and Effluent Monitoring and Reporting Requirements. The permittee shall sample and analyze both the influent and effluent, for the parameters listed in the Monitoring for Pretreatment Program Table.

Monitoring for Pretreatment Program Table				
Parameter	Reporting Limit	Sample Type	Frequency	Units
Total Arsenic	0.434	Composite	Quarterly	mg/L
Total Cadmium	0.0083			
Total Chromium	0.0319			
Total Copper	0.107			
Total Lead	0.068			
Total Molybdenum	NA			
Total Nickel	0.682			
Total Selenium	0.0146			
Total Silver	0.0985			
Total Zinc	0.957			
Total Cyanide	0.0226	Composite/Grab	Yearly	
Total Mercury	0.000052			
TTOs	NA			

2. A test method must be used that has a reporting limit as stated in the column. If a test method is not available the permittee must submit documentation to the Director regarding the method that will be used.
3. The influent and effluent shall be analyzed by the permittee for total toxic pollutants (TTOs) listed in 40 CFR 122 Appendix D Table II (Organic Toxic Pollutants). The pesticides fraction of Appendix D, Table II is suspended unless pesticides are expected to be present.

PART II
DISCHARGE PERMIT NO. UT0021636
PRETREATMENT

4. The results of the analyses of metals, cyanide and toxic organics shall be submitted along with the Discharge Monitoring Report (DMR) at the end of the earliest possible reporting period. Also, the permittee must submit a copy of the toxic organics data to the Pretreatment Coordinator for DWQ via email.
 5. In accordance with the requirements of 40 CFR Part 403.5(c), the permittee shall determine if there is a need to develop or revise its local limits in order to implement the general and specific prohibitions of 40 CFR Part 403.5 (a) and Part 403.5 (b). A technical evaluation of the need to develop or revise local limits shall be submitted to the Division within 12 months of the effective date of this permit. This evaluation should be conducted in accordance with the latest revision of the EPA Local Limits Development Guidance. If a technical evaluation, reveals that development or revision of local limits is necessary, the permittee shall submit the proposed local limits revision to the Division of Water Quality for approval, and after approval implement the new local limits, within 12 months of the determination that a revision is necessary.
 6. For local limit parameters it is recommended that the most sensitive method be used for analysis. This will determine if the parameter is present and provide removal efficiencies based on actual data rather than literature values. If a parameter load is greater than the allowable head works load, for any pollutant listed in Part II.F.1. or a pollutant of concern listed in the local limit development document, the permittee must report the information to the Pretreatment Coordinator for the DWQ. If the loading exceeds the allowable headworks load, increase sampling must occur based on the requirements given by the Pretreatment Coordinator for the DWQ. If needed sampling may need to occur to find the source(s) of the increase. This may include sampling of the collection system and/or additional sampling of industrial users. Notification regarding the exceedances of the allowable headworks loading can be provided via email.
- G. Enforcement Notice. *UCA 19-5-104* provides that the State may issue a notice to the POTW stating that a determination has been made that appropriate enforcement action must be taken against an industrial user for noncompliance with any pretreatment requirements within 30 days. The issuance of such notice shall not be construed to limit the authority of the Director.
- H. Formal Action. The Director retains the right to take legal action against any industrial user and/or POTW for those cases where a permit violation has occurred because of the failure of an industrial user to meet an applicable pretreatment standard.

III. BIOSOLIDS REQUIREMENTS

A. Biosolids Treatment and Disposal. The authorization to dispose of biosolids provided under this permit is limited to those biosolids produced from the treatment works owned and operated by the permittee. The treatment methods and disposal practices are designated below.

1. Treatment

a. The SDSDN facility functions in single-stage trickling filter mode. Sludge generated during unit processes is stabilized in two-stage mesophilic anaerobic digesters with a solid's retention time of at least 30 days. Under 40 CFR 503.33(b)(1), the solids need to be treated through anaerobic digestion for at least 15 days at a temperature of at least 35° C (95° F) with a 38% reduction of volatile solids. After stabilization, the Class B biosolids are wasted to drying beds for dewatering before the biosolids are land applied for beneficial use.

2. Description of Biosolids Disposal Method

- a. Class A biosolids may be sold or given away to the public for lawn and garden use or land application.
- b. Class B biosolids may be land applied for agriculture use or at reclamation sites at agronomic rates.
- c. Biosolids may be disposed of in a landfill or transferred to another facility for treatment and/or disposal.

3. Changes in Treatment Systems and Disposal Practices.

- a. Should the permittee change their disposal methods or the biosolids generation and handling processes of the plant, the permittee must notify the Director at least 30 days in advance if the process/method is specified in 40 CFR 503. This includes, but is not limited to, the permanent addition or removal of any biosolids treatment units (i.e., digesters, drying beds, belt presses, etc.) and/or any other change.
- b. Should the permittee change their disposal methods or the biosolids generation and handling processes of the plant, the permittee must notify the Director at least 180 days in advance if the process/method is not specified in 40 CFR 503. This includes, but is not limited to, the permanent addition or removal of any biosolids treatment units (i.e., digesters, drying beds, belt presses, etc.) and/or any other change.

For any biosolids that are land filled, the requirements in *Section 2.12* of the latest version of the *EPA Region VIII Biosolids Management Handbook* must be followed

B. Specific Limitations and Monitoring Requirements. All biosolids generated by this facility to be sold or given away to the public shall meet the requirements of *Part III.B.1, 2, 3 and 4* listed below.

1. Metals Limitations. All biosolids sold or given away in a bag or similar container for application to lawns and home gardens must meet the metals limitations as described below. If these metals limitations are not met, the biosolids must be landfilled.

PART III
BIOSOLIDS PERMIT NO. UTL-021636

Pollutant Limits, (40 CFR Part 503.13(b)) Dry Mass Basis				
Heavy Metals	Table 1	Table 2	Table 3	Table 4
	Ceiling Conc. Limits ¹ , (mg/kg)	CPLR ² (mg/ha)	Pollutant Conc. Limits ³ , (mg/kg)	APLR ⁴ , (mg/ha-yr)
Total Arsenic	75	41	41	2.0
Total Cadmium	85	39	39	1.9
Total Copper	4300	1500	1500	75
Total Lead	840	300	300	15
Total Mercury	57	17	17	0.85
Total Molybdenum	75	N/A	N/A	-
Total Nickel	420	420	420	21
Total Selenium	100	100	100	5
Total Zinc	7500	2800	2800	140
1 - The limitations represent the maximum allowable levels of heavy metals in any biosolids intended for land application.				
2 - CPLR - Cumulative Pollutant Loading Rate; the maximum pollutant load for any given piece of land.				
3 - These limitations represent the maximum allowable levels of heavy metals based on an average of all samples taken during a 30-day period.				
4 - APLR – Annual Pollutant Loading Rate; the maximum pollutant load for any given piece of land in any given year.				

2. Pathogen Limitations. All biosolids sold or given away in a bag or a similar container for application to lawns and home gardens must meet the pathogen limitations for Class A. Land applied biosolids must meet the pathogen limitations for Class B as described below. If the pathogen limitations are not met, the biosolids must be landfilled.
 - a. Class A biosolids shall meet one of the pathogen measurement requirements in the following Pathogen Control Class table or shall meet the requirements for a Process to Further Reduce Pathogens as defined in *40 CFR Part 503.32(a) Sewage Sludge – Class A*.
 - (1) SDSDN has chosen to not treat the biosolids through a PFRP to meet Class A biosolids requirements, as the biosolids are not intended for land application on home lawns or gardens.
 - b. Class B biosolids shall meet the pathogen measurement requirements in the following Pathogen Control Class table or shall meet the requirements for a Process to Significantly Reduce Pathogens as defined in *40 CFR Part 503.32(b) Sewage Sludge – Class B*. SDSDN has chosen to meet the PSRP through the following method;
 - (1) Anaerobic Digestion - solids are digested in an anaerobic digester with a retention time with a minimum retention time of 15 days at 95° F (35° C) or 60 days at 68° F (20°C). *40 CFR 503 (C)(6), Class A, Alternative 4(i)*
 - c. In addition, the permittee shall comply with all applicable site restrictions listed below (*40 CFR Part 503.32, (b), (5)*):
 - (1) Food crops with harvested parts that touch the biosolids/soil mixture and are totally above the land surface shall not be harvested for 14 months after application.

PART III
BIOSOLIDS PERMIT NO. UTL-021636

- (2) Food crops with harvested parts below the land surface shall not be harvested for 20 months after application if the biosolids remains on the land surface for four months or more prior to incorporation into the soil.
- (3) Food crops with harvested parts below the surface of the land shall not be harvested for 38 months after application of sewage sludge when the sewage sludge remains on the land surface for less than four months prior to incorporation into the soil.
- (4) Food crops, feed crops, and fiber crops shall not be harvested from the land for 30 days after application.
- (5) Animals shall not be allowed to graze on the land for 30 days after application.
- (6) Turf grown on land where biosolids is applied shall not be harvested for one year after application if the harvested turf is placed on either land with a high potential for public exposure or a lawn.
- (7) Public access to land with a high potential for public exposure shall be restricted for one year after application.
- (8) Public access to land with a low potential for public exposure shall be restricted for 30 days after application.
- (9) The sludge or the application of the sludge shall not cause or contribute to the harm of a threatened or endangered species or result in the destruction or adverse modification of critical habitat of a threatened or endangered species after application.

Pathogen Control Class	
503.32 (a)(1) - (5), (7) - (8), Class A	503.32 (b)(1) - (5), Class B
B Salmonella species –less than three (3) MPN ¹ per four (4) grams total solids (DWB) ¹ or Fecal Coliforms – less than 1,000 MPN per gram total solids (DWB).	Fecal Coliforms – less than 2,000,000 MPN or CFU ¹ per gram total solids (DWB).
503.32 (a)(6) Class A—Alternative 4	
B Salmonella species –less than three (3) MPN per four (4) grams total solids (DWB) or less than 1,000 MPN Fecal Coliforms per gram total solids (DWB), And - Enteric viruses –less than one (1) plaque forming unit per four (4) grams total solids (DWB) And - Viable helminth ova –less than one (1) per four (4) grams total solids (DWB)	
1 - MPN – Most Probable Number.	
2 - DWB – Dry Weight Basis.	
3 - CFU – Colony Forming Units	

3. Vector Attraction Reduction Requirements.

- a. The permittee will meet vector attraction reduction through use of one of the methods listed in 40 CFR 503.33. Facility is meeting the requirements though the following methods.

PART III
BIOSOLIDS PERMIT NO. UTL-021636

- (1) Anaerobic Digestion - Under *40 CFR 503.33(b)(1)*, the solids need to be treated through anaerobic digestion for at least 15 days at a temperature of a least 35° C (95° F) with a 38% reduction of volatile solids.

If the permittee intends to use another one of the alternatives, the Director and the EPA must be informed at least thirty (30) days prior to its use. This change may be made without additional public comment.

4. Self-Monitoring Requirements.

- a. At a minimum, upon the effective date of this permit, all chemical pollutants, pathogens and applicable vector attraction reduction requirements shall be monitored according to *40 CFR 503.16(1)(a)*.

Minimum Frequency of Monitoring (40 CFR Part 503.16, 503.26. and 503.46)		
Amount of Biosolids Disposed Per Year		Monitoring Frequency
Dry US Tons	Dry Metric Tons	Per Year or Batch
> 0 to < 320	> 0 to < 290	Once Per Year or Batch
> 320 to < 1650	> 290 to < 1,500	Once a Quarter or Four Times
> 1,650 to < 16,500	> 1,500 to < 15,000 ¹	Bi-Monthly or Six Times
> 16,500	> 15,000	Monthly or Twelve Times
1 - Over the previous decade, SDSDN has disposed of an average of 1200 DMT of biosolids. It is recommended that they monitor at least four time a year.		

- b. Sample collection, preservation and analysis shall be performed in a manner consistent with the requirements of *40 CRF 503* and/or other criteria specific to this permit. A metals analysis is to be performed using *Method SW 846* with *Method 3050* used for digestion. For the digestion procedure, an amount of biosolids equivalent to a dry weight of one gram shall be used. The methods are also described in the latest version of the *Region VIII Biosolids Management Handbook*.
- c. The Director may request additional monitoring for specific pollutants derived from biosolids if the data shows a potential for concern.
- d. After two (2) years of monitoring at the frequency specified, the permittee may request that the Director reduce the sampling frequency for the heavy metals. The frequency cannot be reduced to less than once per year for biosolids that are sold or given away to the public for any parameter. The frequency also cannot be reduced for any of the pathogen or vector attraction reduction requirements listed in this permit.

C. Management Practices of Biosolids.

1. Biosolids Distribution Information

- a. For biosolids that are sold or given away, an information sheet shall be provided to the person who receives the biosolids. The label or information sheet shall contain:
- (1) The name and address of the person who prepared the biosolids for a sale or to be given away.
 - (2) A statement that prohibits the application of the biosolids to the land except in accordance with the instructions on the label or information sheet.

PART III
BIOSOLIDS PERMIT NO. UTL-021636

2. Biosolids Application Site Storage

- a. For biosolids or material derived from biosolids that are stored in piles for one year or longer, measures shall be taken to ensure that erosion (whether by wind or water) does not occur. However, best management practices should also be used for piles used for biosolids treatment. If a treatment pile is considered to have caused a problem, best management practices could be added as a requirement in the next permit renewal

3. Land Application Practices

- a. The permittee shall operate and maintain the land application site operations in accordance with the following requirements:
 - (1) The permittee shall provide to the Director and the EPA within 90 days of the effective date of this permit a land application plan.
 - (2) Application of biosolids shall be conducted in a manner that will not contaminate the groundwater or impair the use classification for that water underlying the sites.
 - (3) Application of biosolids shall be conducted in a manner that will not cause a violation of any receiving water quality standard from discharges of surface runoff from the land application sites. Biosolids shall not be applied to land 10 meters or less from waters of the United States (as defined in 40 CFR 122.2).
 - (4) No person shall apply biosolids for beneficial use to frozen, ice-covered, or snow-covered land where the slope of such land is greater than three percent and is less than or equal to six percent unless one of the following requirements is met:
 - (a) there is 80 percent vegetative ground cover; or,
 - (b) approval has been obtained based upon a plan demonstrating adequate runoff containment measures.
 - (5) Application of biosolids is prohibited to frozen, ice-covered, or snow covered sites where the slope of the site exceeds six percent.
 - (6) Agronomic Rate
 - (a) Application of biosolids shall be conducted in a manner that does not exceed the agronomic rate for available nitrogen of the crops grown on the site. At a minimum, the permittee is required to follow the methods for calculating agronomic rate outlined in the latest version of the *Region VIII Biosolids Management Handbook* (other methods may be approved by the Director). The treatment plant shall provide written notification to the applier of the biosolids of the concentration of total nitrogen (as N on a dry weight basis) in the biosolids. Written permission from the Director is required to exceed the agronomic rate.
 - (b) The permittee may request the limits of *Part III, C, 6* be modified if different limits would be justified based on local conditions. The limits are required to be developed in cooperation with the local agricultural extension office or university.

PART III
BIOSOLIDS PERMIT NO. UTL-021636

- (c) Deep soil monitoring for nitrate-nitrogen is required for all land application sites (does not apply to sites where biosolids are applied less than once every five years). A minimum of six samples for each 320 (or less) acre area is to be collected. These samples are to be collected down to either a 5 foot depth, or the confining layer, whichever is shallower (sample at 1 foot, 2 foot, 3 foot, 4 foot and 5 foot intervals). Each of these one-foot interval samples shall be analyzed for nitrate-nitrogen. In addition to the one-foot interval samples, a composite sample of the 5 foot intervals shall be taken, and analyzed for nitrate-nitrogen as well. Samples are required to be taken once every five years for non-irrigated sites that receive more than 18 inches of precipitation annually or for irrigated sites. Sample results should be included on the Annual Report.
- (7) Biosolids shall not be applied to any site area with standing surface water. If the annual high groundwater level is known or suspected to be within five feet of the surface, additional deep soil monitoring for nitrate-nitrogen as described in *Part III.C.(6),(c)*. is to be performed. At a minimum, this additional monitoring will involve a collection of more samples in the affected area and possibly more frequent sampling. The exact number of samples to be collected will be outlined in a deep soil monitoring plan to be submitted to the Director and the EPA within 90 days of the effective date of this permit. The plan is subject to approval by the Director.
- (8) The specified cover crop shall be planted during the next available planting season. If this does not occur, the permittee shall notify the Director in writing. Additional restrictions may be placed on the application of the biosolids on that site on a case-by-case basis to control nitrate movement. Deep soil monitoring may be increased under the discretion of the Director.
- (9) When weather and or soil conditions prevent adherence to the biosolids application procedure, biosolids shall not be applied on the site.
- (10) For biosolids that are sold or given away, an information sheet shall be provided to the person who receives the biosolids. The label or information sheet shall contain:
- (a) The name and address of the person who prepared the biosolids for sale or give away for application to the land.
 - (b) A statement that prohibits the application of the biosolids to the land except in accordance with the instructions on the label or information sheet.
 - (c) The annual whole biosolids application rate for the biosolids that do not cause the metals loading rates in Tables 1, 2, and 3 (*Part III.B.1.*) to be exceeded.
- (11) Biosolids subject to the cumulative pollutant loading rates in Table 2 (*Part III.B.1.*) shall not be applied to agricultural land, forest, a public contact site, or a reclamation site if any of the cumulative pollutant loading rates in Table 2 have been reached.
- (12) If the treatment plant applies the biosolids, it shall provide the owner or leaseholder of the land on which the biosolids are applied notice and necessary information to comply with the requirements in this permit.

PART III
BIOSOLIDS PERMIT NO. UTL-021636

- (13) The permittee shall inspect the application of the biosolids to active sites to prevent malfunctions and deterioration, operator errors and discharges, which may cause or lead to the release of biosolids to the environment or a threat to human health. The permittee must conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment. The permittee shall keep an inspection log or summary including at least the date and time of inspection, the printed name and the handwritten signature of the inspector, a notation of observations made and the date and nature of any repairs or corrective action.
- D. Special Conditions on Biosolids Storage. Permanent storage of biosolids is prohibited. Biosolids shall not be temporarily stored for more than two (2) years. Written permission to store biosolids for more than two years must be obtained from the Director. Storage of biosolids for more than two years will be allowed only if it is determined that significant treatment is occurring.
- E. Representative Sampling. Biosolids samples used to measure compliance with *Part III* of this Permit shall be collected at locations representative of the quality of biosolids generated at the treatment works and immediately prior to land application.
- F. Reporting of Monitoring Results.
1. Biosolids. The permittee shall provide the results of all monitoring performed in accordance with *Part III.B*, and information on management practices, biosolids treatment, site restrictions and certifications shall be provided no later than February 19 of each year. Each report is for the previous calendar year. If no biosolids were sold or given away during the reporting period, "no biosolids were sold or given away" shall be reported. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the *Signatory Requirements* (see *Part VII.G*), and submitted to the Utah Division of Water Quality and the EPA by the NeT-Biosolids System through the EPA Central Data Exchange (CDX) system.
- G. Additional Record Keeping Requirements Specific to Biosolids.
1. Unless otherwise required by the Director, **the permittee is not required to keep records** on compost products if the permittee prepared them from biosolids that meet the limits in Table 3 (*Part III.B.1*), the Class A pathogen requirements in *Part III.B.2* and the vector attraction reduction requirements in *Part III.B.3*. The Director may notify the permittee that additional record keeping is required if it is determined to be significant to protecting public health and the environment.
 2. **The permittee is required** to keep the following information for at least 5 years:
 - a. Concentration of each heavy metal in Table 3 (*Part III.B.1*).
 - b. A description of how the pathogen reduction requirements in *Part III.B.2* were met.
 - c. A description of how the vector attraction reduction requirements in *Part III.B.3* were met.
 - d. A description of how the management practices in *Part III.C* were met (if necessary).
 - e. The following certification statement:

PART III
BIOSOLIDS PERMIT NO. UTL-021636

"I certify under the penalty of law, that the heavy metals requirements in *Part III.B.1*, the pathogen requirements in *Part III.B.2*, the vector attraction requirements in *Part III.B.3*, the management practices in *Part III.C*. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attraction reduction requirements and the management practices have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment."

3. 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 the life of the permit. Data collected on site, copies of Biosolids Report forms, and a copy of this UPDES biosolids-only permit must be maintained on site during the duration of activity at the permitted location.

PART IV
STORM WATER PERMIT

IV. STORM WATER REQUIREMENTS.

- A. Industrial Storm Water Permit. Based on the type of industrial activities occurring at the facility, the permittee is 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). If the facility is not already covered, the permittee has 30 days from when this permit is issued to submit the appropriate Notice of Intent (NOI) for the MSGP or exclusion documentation.

- 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.

PART V
DISCHARGE PERMIT NO. UT0021636
BIOSOLIDS PERMIT NO. UTL-021636

V. MONITORING, RECORDING & GENERAL REPORTING REQUIREMENTS

- A. Representative Sampling. Samples taken in compliance with the monitoring requirements established under *Part I* shall be collected from the effluent stream prior to discharge into the receiving waters. Samples and measurements shall be representative of the volume and nature of the monitored discharge. Samples of biosolids shall be collected at a location representative of the quality of biosolids immediately prior to the use-disposal practice.
- B. Monitoring Procedures. Monitoring must be conducted according to test procedures approved under *Utah Administrative Code ("UAC") R317-2-10 and 40CFR Part 503*, utilizing sufficiently sensitive test methods unless other test procedures have been specified in this permit.
- C. Penalties for Tampering. The *Act* provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or by both.
- D. Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any Compliance Schedule of this permit shall be submitted no later than 14 days following each schedule date.
- E. Additional Monitoring by the Permittee. If the permittee monitors any parameter more frequently than required by this permit, using test procedures approved under *UAC R317-2-10 and 40 CFR 503* or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or the Biosolids Report Form. Such increased frequency shall also be indicated. Only those parameters required by the permit need to be reported.
- F. Records Contents. Records of monitoring information shall include:
1. The date, exact place, and time of sampling or measurements;
 2. The individual(s) who performed the sampling or measurements;
 3. The date(s) and time(s) analyses were performed;
 4. The individual(s) who performed the analyses;
 5. The analytical techniques or methods used; and,
 6. The results of such analyses.
- G. Retention of Records. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least five years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time. A copy of this UPDES permit must be maintained on site during the duration of activity at the permitted location
- H. Twenty-four Hour Notice of Noncompliance Reporting.
1. The permittee shall (orally) report any noncompliance including transportation accidents, spills, and uncontrolled runoff from biosolids transfer or land application sites which may seriously endanger health or environment, as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of circumstances. The report shall be made to the Division of Water Quality, (801) 536-4300, or 24-hour answering service (801) 536-4123.

PART V
DISCHARGE PERMIT NO. UT0021636
BIOSOLIDS PERMIT NO. UTL-021636

2. The following occurrences of noncompliance shall be reported by telephone (801) 536-4300 as soon as possible but no later than 24 hours from the time the permittee becomes aware of the circumstances:
 - a. Any noncompliance which may endanger health or the environment;
 - b. Any unanticipated bypass, which exceeds any effluent limitation in the permit (See *Part VI.G, Bypass of Treatment Facilities.*);
 - c. Any upset which exceeds any effluent limitation in the permit (See *Part VI.H, Upset Conditions.*);
 - d. Violation of a daily discharge limitation for any of the pollutants listed in the permit; or,
 - e. Violation of any of the Table 3 metals limits, the pathogen limits, the vector attraction reduction limits or the management practices for biosolids that have been sold or given away.
3. A written submission shall also be provided within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:
 - a. A description of the noncompliance and its cause;
 - b. The period of noncompliance, including exact dates and times;
 - c. The estimated time noncompliance is expected to continue if it has not been corrected;
 - d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and,
 - e. Steps taken, if any, to mitigate the adverse impacts on the environment and human health during the noncompliance period.
4. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Division of Water Quality, (801) 536-4300.
5. Reports shall be submitted to the addresses in *Part I.D, Reporting of Monitoring Results.*
- I. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for *Part I.D* are submitted. The reports shall contain the information listed in *Part V.H.3*
- J. Inspection and Entry The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:
 1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
 2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

PART V
DISCHARGE PERMIT NO. UT0021636
BIOSOLIDS PERMIT NO. UTL-021636

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.

PART VI
DISCHARGE PERMIT NO. UT0021636
BIOSOLIDS PERMIT NO. UTL-021636

VI. COMPLIANCE RESPONSIBILITIES

- A. Duty to Comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements.
- B. Penalties for Violations of Permit Conditions. The Act provides that any person who violates a permit condition implementing provisions of the Act is subject to a civil penalty not to exceed \$10,000 per day of such violation. Any person who willfully or negligently violates permit conditions or the Act is subject to a fine not exceeding \$25,000 per day of violation. Except as provided at *Part VI.G, Bypass of Treatment Facilities* and *Part VI.H, Upset Conditions*, nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.
- C. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- D. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit, which has a reasonable likelihood of adversely affecting human health or the environment. The permittee shall also take all reasonable steps to minimize or prevent any land application in violation of this permit.
- E. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems, which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
- F. Removed Substances. Collected screening, grit, solids, sludge, or other pollutants removed in the course of treatment shall be disposed of in such a manner so as to prevent any pollutant from entering any waters of the state or creating a health hazard. Sludge/digester supernatant and filter backwash shall not directly enter either the final effluent or waters of the state by any other direct route.
- G. Bypass of Treatment Facilities.
1. Bypass Not Exceeding Limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to paragraph 2 and 3 of this section.
 2. Prohibition of Bypass.

PART VI
DISCHARGE PERMIT NO. UT0021636
BIOSOLIDS PERMIT NO. UTL-021636

- a. Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:
 - (1) Bypass was unavoidable to prevent loss of human life, personal injury, or severe property damage;
 - (2) There were no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance, and
 - (3) The permittee submitted notices as required under *section VI.G.3*.
 - b. The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed in *sections VI.G.2.a (1), (2) and (3)*.
3. Notice.
- a. *Anticipated bypass.* Except as provided above in *section VI.G.2* and below in *section VI.G.3.b*, if the permittee knows in advance of the need for a bypass, it shall submit prior notice, at least ninety days before the date of bypass. The prior notice shall include the following unless otherwise waived by the Director:
 - (1) Evaluation of alternative to bypass, including cost-benefit analysis containing an assessment of anticipated resource damages;
 - (2) A specific bypass plan describing the work to be performed including scheduled dates and times. The permittee must notify the Director in advance of any changes to the bypass schedule;
 - (3) Description of specific measures to be taken to minimize environmental and public health impacts;
 - (4) A notification plan sufficient to alert all downstream users, the public and others reasonably expected to be impacted by the bypass;
 - (5) A water quality assessment plan to include sufficient monitoring of the receiving water before, during and following the bypass to enable evaluation of public health risks and environmental impacts; and,
 - (6) Any additional information requested by the Director.
 - b. *Emergency Bypass.* Where ninety days advance notice is not possible, the permittee must notify the Director, and the Director of the Department of Natural Resources, as soon as it becomes aware of the need to bypass and provide to the Director the information in *section VI.G.3.a.(1) through (6)* to the extent practicable.

PART VI
DISCHARGE PERMIT NO. UT0021636
BIOSOLIDS PERMIT NO. UTL-021636

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

H. Upset Conditions.

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of paragraph 2 of this section are met. Director's administrative determination regarding a claim of upset cannot be judiciously challenged by the permittee until such time as an action is initiated for noncompliance.
2. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - a. An upset occurred and that the permittee can identify the cause(s) of the upset;
 - b. The permitted facility was at the time being properly operated;
 - c. The permittee submitted notice of the upset as required under *Part V.H, Twenty-four Hour Notice of Noncompliance Reporting;* and,
 - d. The permittee complied with any remedial measures required under *Part VI.D, Duty to Mitigate.*
3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

PART VII
DISCHARGE PERMIT NO. UT0021636
BIOSOLIDS PERMIT NO. UTL-021636

VII. GENERAL REQUIREMENTS

- A. Planned Changes. The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when the alteration or addition could significantly change the nature or increase the quantity of parameters discharged or pollutant sold or given away. This notification applies to pollutants, which are not subject to effluent limitations in the permit. In addition, if there are any planned substantial changes to the permittee's existing sludge facilities or their manner of operation or to current sludge management practices of storage and disposal, the permittee shall give notice to the Director of any planned changes at least 30 days prior to their implementation.
- B. Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements.
- C. Permit Actions. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.
- D. Duty to Reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee shall apply for and obtain a new permit. The application shall be submitted at least 180 days before the expiration date of this permit.
- E. Duty to Provide Information. The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.
- F. Other Information. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts or information.
- G. Signatory Requirements. All applications, reports or information submitted to the Director shall be signed and certified.
1. All permit applications shall be signed by either a principal executive officer or ranking elected official.
 2. All reports required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described above and submitted to the Director, and,
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. A duly authorized representative may thus be either a named individual or any individual occupying a named position.

PART VII
DISCHARGE PERMIT NO. UT0021636
BIOSOLIDS PERMIT NO. UTL-021636

3. Changes to authorization. If an authorization under *paragraph VII.G.2* is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of *paragraph VII.G.2* must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.

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

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

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

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

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

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

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

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

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

PART VII
DISCHARGE PERMIT NO. UT0021636
BIOSOLIDS PERMIT NO. UTL-021636

2. The notice includes a written agreement between the existing and new permittee's containing a specific date for transfer of permit responsibility, coverage, and liability between them; and,
 3. The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify, or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph 2 above.
- N. State or Federal Laws. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by *UCA 19-5-117* and *Section 510* of the *Act* or any applicable Federal or State transportation regulations, such as but not limited to the Department of Transportation regulations.
- O. Water Quality - Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limitations and compliance schedule, if necessary, if one or more of the following events occurs:
1. Water Quality Standards for the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than contained in this permit.
 2. A final wasteload allocation is developed and approved by the State and/or EPA for incorporation in this permit.
 3. Revisions to the current CWA § 208 areawide treatment management plans or promulgations/revisions to TMDLs (40 CFR 130.7) approved by the EPA and adopted by DWQ which calls for different effluent limitations than contained in this permit.
- P. Biosolids – Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate biosolids limitations (and compliance schedule, if necessary), management practices, other appropriate requirements to protect public health and the environment, or if there have been substantial changes (or such changes are planned) in biosolids use or disposal practices; applicable management practices or numerical limitations for pollutants in biosolids have been promulgated which are more stringent than the requirements in this permit; and/or it has been determined that the permittees biosolids use or land application practices do not comply with existing applicable state or federal regulations.
- Q. Toxicity Limitation - Reopener Provision. Use the following paragraph if WET testing is required at the facility:
- 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.

PART VII
DISCHARGE PERMIT NO. UT0021636
BIOSOLIDS PERMIT NO. UTL-021636

2. The TRE results indicate that the toxicant(s) represent pollutant(s) or pollutant parameter(s) that may be controlled with specific numerical limits, and the Director concludes that numerical controls are appropriate.
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.

Use the following paragraph if there is no WET testing is required at the facility:

This permit may be reopened and modified (following proper administrative procedures) to include WET testing, a WET limitation, a compliance schedule, a compliance date, additional or modified numerical limitations, or any other conditions related to the control of toxicants if toxicity is detected during the life of this permit.

VIII. DEFINITIONS

A. Wastewater.

1. The "7-day (and weekly) average", other than for *E. coli* bacteria, fecal coliform bacteria, and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. Geometric means shall be calculated for *E. coli* bacteria, fecal coliform bacteria, and total coliform bacteria. The 7-day and weekly averages are applicable only to those effluent characteristics for which there are 7-day average effluent limitations. The calendar week, which begins on Sunday and ends on Saturday, shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms. Weekly averages shall be calculated for all calendar weeks with Saturdays in the month. If a calendar week overlaps two months (i.e., the Sunday is in one month and the Saturday in the following month), the weekly average calculated for that calendar week shall be included in the data for the month that contains Saturday.
2. The "30-day (and monthly) average," other than for *E. coli* bacteria, fecal coliform bacteria and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 30-day period or calendar month, whichever is applicable. Geometric means shall be calculated for *E. coli* bacteria, fecal coliform bacteria and total coliform bacteria. The calendar month shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms.
3. "Act," means the *Utah Water Quality Act*.
4. "Acute toxicity" occurs when 50 percent or more mortality is observed for either test species at any effluent concentration (lethal concentration or "LC₅₀").
5. "Annual Loading Cap" is the highest allowable phosphorus loading discharged over a calendar year, calculated as the sum of all the monthly loading discharges measured during a calendar year divided by the number of monthly discharges measured during that year.
6. "Bypass," means the diversion of waste streams from any portion of a treatment facility.
7. "Chronic toxicity" occurs when the IC₂₅ < 63% effluent. The 63% effluent is the concentration of the effluent in the receiving water, at the end of the mixing zone expressed as per cent effluent.
8. "IC₂₅" is the concentration of toxicant (given in % effluent) that would cause a 25% reduction in mean young per female, or a 25% reduction in overall growth for the test population.
9. "Composite Samples" shall be flow proportioned. The composite sample shall, as a minimum, contain at least four (4) samples collected over the compositing period. Unless otherwise specified, the time between the collection of the first sample and the last sample shall not be less than six (6) hours nor more than 24 hours. Acceptable methods for preparation of composite samples are as follows:

PART VIII
DISCHARGE PERMIT NO. UT0021636
BIOSOLIDS PERMIT NO. UTL-021636

- a. Constant time interval between samples, sample volume proportional to flow rate at time of sampling;
 - b. Constant time interval between samples, sample volume proportional to total flow (volume) since last sample. For the first sample, the flow rate at the time the sample was collected may be used;
 - c. Constant sample volume, time interval between samples proportional to flow (i.e., sample taken every "X" gallons of flow); and,
 - d. Continuous sample volume, with sample collection rate proportional to flow rate.
10. "CWA" means *The Federal Water Pollution Control Act*, as amended, by *The Clean Water Act of 1987*.
 11. "Daily Maximum" (Daily Max.) is the maximum value allowable in any single sample or instantaneous measurement.
 12. "EPA," means the United States Environmental Protection Agency.
 13. "Director," means Director of the Division of Water Quality.
 14. A "grab" sample, for monitoring requirements, is defined as a single "dip and take" sample collected at a representative point in the discharge stream.
 15. An "instantaneous" measurement, for monitoring requirements, is defined as a single reading, observation, or measurement.
 16. "Severe Property Damage," means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
 17. "Upset," means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.
- B. Biosolids.
1. "Biosolids," means any material or material derived from sewage solids that have been biologically treated.
 2. "Dry Weight-Basis," means 100 percent solids (i.e. zero percent moisture).
 3. "Land Application" is the spraying or spreading of biosolids onto the land surface; the injection of biosolids below the land surface; or the incorporation of biosolids into the land

PART VIII
DISCHARGE PERMIT NO. UT0021636
BIOSOLIDS PERMIT NO. UTL-021636

so that the biosolids can either condition the soil or fertilize crops or vegetation grown in the soil. Land application includes distribution and marketing (i.e. the selling or giving away of the biosolids).

4. "Pathogen," means an organism that is capable of producing an infection or disease in a susceptible host.
5. "Pollutant" for the purposes of this permit is an organic substance, an inorganic substance, a combination of organic and inorganic substances, or pathogenic organisms that after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism either directly from the environment or indirectly by ingestion through the food-chain, could on the basis of information available to the Administrator of EPA, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunction in reproduction), or physical deformations in either organisms or offspring of the organisms.
6. "Runoff" is rainwater, leachate, or other liquid that drains over any part of a land surface and runs off the land surface.
7. "Similar Container" is either an open or closed receptacle. This includes, but is not limited to, a bucket, a box, a carton, and a vehicle or trailer with a load capacity of one metric ton or less.
8. "Total Solids" are the materials in the biosolids that remain as a residue if the biosolids are dried at 103° or 105° Celsius.
9. "Treatment Works" are either Federally owned, publicly owned, or privately owned devices or systems used to treat (including recycling and reclamation) either domestic sewage or a combination of domestic sewage and industrial waste or liquid manure.
10. "Vector Attraction" is the characteristic of biosolids that attracts rodents, flies, mosquitos or other organisms capable of transporting infectious agents.
11. "Animals" for the purpose of this permit are domestic livestock.
12. "Annual Whole Sludge Application Rate" is the amount of sewage sludge (dry-weight basis) that can be applied to a unit area of land during a cropping cycle.
13. "Agronomic Rate" is the whole sludge application rate (dry-weight basis) designed to: (1) provide the amount of nitrogen needed by the crop or vegetation grown on the land; and (2) minimize the amount of nitrogen in the sewage sludge that passes below the root zone of the crop or vegetation grown on the land to the ground water.
14. "Annual Pollutant Loading Rate" is the maximum amount of a pollutant (dry-weight basis) that can be applied to a unit area of land during a 365-day period.
15. "Application Site or Land Application Site" means all contiguous areas of a users' property intended for sludge application.

PART VIII
DISCHARGE PERMIT NO. UT0021636
BIOSOLIDS PERMIT NO. UTL-021636

16. "Cumulative Pollutant Loading Rate" is the maximum amount of an inorganic pollutant (dry-weight basis) that can be applied to a unit area of land.
17. "Grit and Screenings" are sand, gravel, cinders, other materials with a high specific gravity and relatively large materials such as rags generated during preliminary treatment of domestic sewage at a treatment works and shall be disposed of according to *40 CFR 258*.
18. "High Potential for Public Contact Site" is land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.
19. "Low Potential for Public Contact Site" is the land with a low potential for contact by the public. This includes, but is not limited to, farms, ranches, reclamation areas, and other lands which are private lands, restricted public lands, or lands which are not generally accessible to or used by the public.
20. "Monthly Average" is the arithmetic mean of all measurements taken during the month.
21. "Volatile Solids" is the amount of the total solids in sewage sludge lost when the sludge is combusted at 550 degrees Celsius for 15-20 minutes in the presence of excess air.

**FACT SHEET AND STATEMENT OF BASIS
SOUTH DAVIS SEWER DISTRICT NORTH TREATMENT PLANT
PERMIT MODIFICATION
UPDES PERMIT NUMBER: UT0021636
MAJOR MUNICIPAL**

FACILITY CONTACTS

Person Name: Matthew Myers
 Position: General Manager
 Phone Number: (801) 295 -3469

Permittee: South Davis Sewer District (SDSD)
 Facility Name: South Davis Sewer District North Treatment Plant
 Mailing Address: PO Box 140111
 Salt Lake City, UT 84114-4870

Telephone: (801) 295-3469
 Actual Address: 1800 West 1200 North
 West Bountiful, UT 84087

DESCRIPTION OF PERMIT MODIFICATION

The SDSD North Treatment Plant serves the cities of Centerville, Woods Cross, West Bountiful, and portions of Bountiful with a daily average design flow of 12 million gallons per day (MGD) and a design population equivalent of 75,000. The current UPDES permit was issued on October 1, 2022, expiring at midnight on December 8, 2026.

In April 2023, by request of SDSD, the Division of Water Quality ran a Wasteload Analysis (WLA) (DWQ-2023-005597) for the SDSD North Plant that incorporated site-specific chronic ammonia criteria with mussels absent. This WLA produced relaxed limits for ammonia, specifically in regard to the maximum monthly limits, which have been incorporated into this modification. This modification does not change the daily maximum limits currently in the permit. The Ammonia Limit Summary table from the WLA is shown below:

Effluent Constituent	Early Life Stages	Averaging Period	Concentration (mg/L)
Ammonia Chronic		Monthly	
Summer (Jun-Aug)	Present		9.0
Fall (Sep-Oct)	Present		9.0
Fall (Nov)	Absent		10.0
Winter (Dec-Feb)	Absent		12.0
Spring (Mar-May)	Present		6.0

These modifications are reflected below and in *Part I.C.2* and *Part I.C.3.a* of the permit. Bolded values

have been modified with this modification.

Date	Permit Limits for Ammonia (as N)				
	Maximum Monthly Average		Maximum Monthly Load	Daily Maximum	
	Season	mg/L	lbs/day	Season	mg/L
Modification Issue - August 31, 2026*	Summer (Jun-Aug)	9.0	--	Summer (Jun-Aug)	31.7
	Fall (Sep-Oct)	10.0	--	Fall (Sep-Oct)	16.2
	Fall (Nov)	10.0	--	Fall (Nov)	16.2
	Winter (Dec-Feb)	--	1,202	Winter (Dec-Feb)	23.4
	Spring (Mar-May)	12.0	--	Spring (Mar-May)	26.8
September 1, 2026	Summer (Jun-Aug)	9.0	--	Summer (Jun-Aug)	24.0
	Fall (Sep-Oct)	9.0	--	Fall (Sep-Oct)	16.2
	Fall (Nov)	10.0	--	Fall (Nov)	16.2
	Winter (Dec-Feb)	12.0	--	Winter (Dec-Feb)	13.0
	Spring (Mar-May)	6.0	--	Spring (Mar-May)	15.0

*The mass-based limit will only extend through the final compliance date of September 1, 2026.

PERMIT DURATION

It is recommended that this permit modification be effective through the current permit expiration date, December 8, 2026.

Drafted by
 Danielle Lenz, Environmental Scientist
 Utah Division of Water Quality
 Permit Modification Drafted August, 2023

PUBLIC NOTICE

Began: September 26, 2023
 Ended: October 26, 2023

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

The Public Noticed of the draft permit was published on the DEQ webpage.

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

ADDENDUM TO FSSOB

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

RESPONSIVENESS SUMMARY

There were no comments received during the Public Notice comment period.

DWQ-2023-121091

**Utah Division of Water Quality
Statement of Basis
Wasteload Analysis for Chronic Ammonia**

Date: April 13, 2023

Prepared by: Nicholas von Stackelberg, P.E.
Watershed Protection Section

Facility: South Davis Sewer District
North Wastewater Treatment Plant
UPDES Permit UT0021636

Pollutant: Chronic Ammonia

Receiving water: State Canal

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.

This addendum modifies the chronic ammonia limits in UPDES discharge permit UT0021636 dated September 27, 2022.

Discharge

The wasteload allocation is for South Davis Sewer District’s (SDSD) North Wastewater Treatment Plant (WWTP). UAC R317-8-4.3(2)(a) states: In the case of POTWs, permit effluent limitations, standards, or prohibitions will be calculated based on design flow. The maximum monthly average discharge at design capacity was used in this wasteload allocation (Table 1), as provided by South Davis Sewer District.

Table 1: Design capacity discharge

Facility	Monthly Average (MGD)
SDSD North WWTP	12.0

Effluent water quality data were obtained from UDWQ monitoring, Wasatch Front Water Quality Council (WFWQC) monitoring, and Discharge Monitoring Reports (DMR) and Monthly Operating Reports (MOR) from each facility.

**Utah Division of Water Quality
Wasteload Analysis - Ammonia
South Davis Sewer District – North Wastewater Treatment Plant**

Receiving Water

The receiving water for this wasteload allocation is the State Canal. Per UAC R317-2-14, the designated beneficial uses for the State Canal is shown in Table 2.

Table 2: Beneficial uses for receiving waters

Facility	Receiving Water	Beneficial Uses
SDSD North WWTP	State Canal, from Farmington Bay to confluence with the Jordan River	2B, 3B*,3D, 4
* Site specific criteria for dissolved oxygen. See UAC R317.2.14 Table 2.14.5.		

Per UAC R317-2-6, following is the description for each beneficial use listed in Table 2.

- *Class 2B - Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.*
- *Class 3B - Protected for warm water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain.*
- *Class 3D - Protected for waterfowl, shore birds and other water-oriented wildlife not included in Classes 3A, 3B, or 3C, including the necessary aquatic organisms in their food chain.*
- *Class 4 - Protected for agricultural uses including irrigation of crops and stock watering.*

Impaired Waters and Total Maximum Daily Load (TMDL)

In *Utah's 2022 Integrated Report*, the State Canal from Farmington Bay to confluence with the Jordan River (Assessment Unit UT16020204-034_00) was listed on the 303(d) as impaired for Total Ammonia as N, Dissolved Oxygen, and Total Dissolved Solids.

Ammonia Criteria and Fish Early Life Stages

A site-specific standard for ammonia for the State Canal was adopted into rule per UAC R317-2-14. The water quality criterion for chronic ammonia toxicity is dependent on temperature and pH. The chronic ammonia criterion is also dependent on the presence or absence of fish early life stages (ELS). An evaluation was conducted to determine the presence or absence of ELS in the lower Jordan River and State Canal. The determination was that ELS are absent in the lower Jordan River and State Canal from November through February.

Methods

The methods for this WLA are the same as those for the *Wasteload Analysis for Jordan River Publicly Owned Treatment Works (POTW)* dated December 9, 2021, with the following exceptions:

1. The site-specific criterion for chronic ammonia for the State Canal was applied.
2. Due to the DO impairment in the State Canal and ammonia acting as an oxygen demand on the receiving water through nitrification, ammonia limits were not allowed to exceed the limits that were effective when the listing was made. Through the TMDL process, the ammonia limits may be lowered in the future to order to meet the DO endpoint.

**Utah Division of Water Quality
Wasteload Analysis - Ammonia
South Davis Sewer District – North Wastewater Treatment Plant**

Ammonia Limits

The water quality based effluent limits determined as part of this combined wasteload allocation are summarized in Table 3.

Table 3: Ammonia Limits Summary

Effluent Constituent	Early Life Stages	Averaging Period	Concentration (mg/L)
Ammonia Chronic		Monthly	
Summer (Jun-Aug)	Present		9.0
Fall (Sep-Oct)	Present		9.0
Fall (Nov)	Absent		10.0
Winter (Dec-Feb)	Absent		12.0
Spring (Mar-May)	Present		6.0

QUAL2Kw rates, input and output are summarized in Appendix A.

Models and supporting documentation are available for review upon request.

Files:

WLA Document: *sdsdnorth_potw_nh3_wla_mod_2023-04-13.docx*
 QUAL2Kw Calibration Model: *jordan_aug2009_q2kw_calib_2010-8-26.xls*
 QUAL2Kw Validation Model: *jordan_q2kw_synoptic_2014-07-22.xlsm*
 QUAL2Kw Wasteload Model: *jordan_potw_q2kw_wla_2023.xlsm*

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WASTELOAD ANALYSIS [WLA]

Date: 4/13/2023

Appendix A: QUAL2Kw Analysis for Ammonia

Discharging Facility: Jordan River POTWs
 Receiving Water: Jordan River and State Canal

Fully Mixed: Yes
 Acute River Width: 100%
 Chronic River Width: 100%

Modeling Information

A QUAL2Kw model was used to determine these effluent limits.

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

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

Model Inputs

The following were utilized as inputs for the analysis.

Headwater - Utah Lake	Summer	Fall	Winter	Spring
Flow (cfs)	222.0	6.4	3.2	7.7
Temperature, Mean (deg C)	22.3	13.9	2.7	11.4
Temperature, Diel Range (deg C)	3.0	2.5	2.0	2.5
Specific Conductance (µmhos)	1593	1689	1817	1513
Inorganic Suspended Solids (mg/L)	66.2	53.8	7.6	48.1
Dissolved Oxygen, Mean (mg/L)	6.9	8.5	23.2	14.2
Dissolved Oxygen, Diel Range (mg/L)	2.5	2.0	1.5	2.0
CBOD ₅ (mg/L)	1.8	2.7	2.3	2.0
Organic Nitrogen (mg/L)	0.426	0.396	0.533	0.441
NH ₄ -Nitrogen (mg/L)	0.056	0.176	0.232	0.073
NO ₃ -Nitrogen (mg/L)	0.061	0.275	0.586	0.178
Organic Phosphorus (mg/L)	0.047	0.051	0.019	0.031
Inorganic Ortho-Phosphorus (mg/L)	0.038	0.040	0.039	0.035
Phytoplankton (µg/L)	20.3	22.0	15.6	10.2
Detritus [POM] (mg/L)	14.0	10.4	4.7	8.5
Alkalinity (mg/L)	200	191	220	200
pH	8.4	8.2	8.1	8.3

Discharge Information - Jordan Basin WRF

Chronic	Summer	Fall	Winter	Spring
Flow (MGD)	6.6	6.6	7.6	7.3
Temperature (deg C)	22.1	18.7	15.6	18.3
Specific Conductance (µmhos)	1791	1791	1791	1791
Inorganic Suspended Solids (mg/L)	1.7	1.7	1.7	1.7
Dissolved Oxygen (mg/L)	5.0	5.0	5.0	5.0
CBOD ₅ (mg/L)	15.0	15.0	15.0	15.0
Organic Nitrogen (mg/L)	0.383	0.791	0.719	0.913
NH ₄ -Nitrogen (mg/L)	0.620	0.058	0.084	0.074
NO ₃ -Nitrogen (mg/L)	9.886	9.796	9.204	9.143
Organic Phosphorus (mg/L)	0.500	0.500	0.500	0.500
Inorganic Ortho-Phosphorus (mg/L)	0.500	0.500	0.500	0.500
Phytoplankton (µg/L)	0.000	0.000	0.000	0.000
Detritus [POM] (mg/L)	0.5	0.5	0.5	0.5
Alkalinity (mg/L)	200	200	200	200
pH	7.6	7.5	7.4	7.4

Acute	Summer	Fall	Winter	Spring
Flow (MGD)	6.6	6.6	7.6	7.3
pH	7.6	7.5	7.4	7.4

Utah Division of Water Quality

Discharge Information - South Valley WRF

Chronic	Summer	Fall	Winter	Spring
Flow (MGD)	21.2	20.5	19.8	19.8
Temperature (deg C)	21.6	20.0	14.7	16.7
Specific Conductance (µmhos)	1517	1444	1543	1459
Inorganic Suspended Solids (mg/L)	0.0	0.4	2.0	1.1
Dissolved Oxygen (mg/L)	5.0	5.0	5.0	5.0
CBOD ₅ (mg/L)	15.0	15.0	15.0	15.0
Organic Nitrogen (mg/L)	1.862	1.447	1.624	1.559
NH ₄ -Nitrogen (mg/L)	0.108	0.103	0.340	0.188
NO ₃ -Nitrogen (mg/L)	6.654	7.117	7.093	6.960
Organic Phosphorus (mg/L)	0.500	0.500	0.500	0.500
Inorganic Ortho-Phosphorus (mg/L)	0.500	0.500	0.500	0.500
Phytoplankton (µg/L)	0.000	0.000	0.000	0.000
Detritus [POM] (mg/L)	4.1	4.2	4.8	4.4
Alkalinity (mg/L)	189	184	170	173
pH	7.7	7.7	7.6	7.6

Acute	Summer	Fall	Winter	Spring
Flow (MGD)	21.2	20.5	19.8	19.8
pH	7.7	7.7	7.6	7.6

Discharge Information - Central Valley WRF

Chronic	Summer	Fall	Winter	Spring
Flow (MGD)	47.4	43.5	44.1	46.5
Temperature (deg C)	21.2	18.4	12.7	14.8
Specific Conductance (µmhos)	1330	1271	1422	1422
Inorganic Suspended Solids (mg/L)	1.1	0.0	0.4	0.3
Dissolved Oxygen (mg/L)	5.0	5.0	5.0	5.0
CBOD ₅ (mg/L)	27.0	28.0	28.0	28.0
Organic Nitrogen (mg/L)	3.207	0.119	0.033	1.678
NH ₄ -Nitrogen (mg/L)	0.681	1.297	1.842	1.794
NO ₃ -Nitrogen (mg/L)	16.579	17.817	17.525	13.829
Organic Phosphorus (mg/L)	0.955	1.082	1.532	1.611
Inorganic Ortho-Phosphorus (mg/L)	3.045	2.918	2.468	2.389
Phytoplankton (µg/L)	0.000	0.000	0.000	0.000
Detritus [POM] (mg/L)	4.5	6.7	5.6	4.1
Alkalinity (mg/L)	172	164	173	179
pH	7.4	7.4	7.3	7.2

Acute	Summer	Fall	Winter	Spring
Flow (MGD)	75.0	75.0	75.0	75.0
pH	7.4	7.4	7.3	7.2

Discharge Information - South Davis Sewer District South WWTP

Chronic	Summer	Fall	Winter	Spring
Flow (MGD)	2.0	2.0	2.5	2.5
Temperature (deg C)	22.0	19.6	12.1	16.6
Specific Conductance (µmhos)	2658	2659	2913	2852
Inorganic Suspended Solids (mg/L)	6.8	6.6	5.9	6.7
Dissolved Oxygen (mg/L)	5.0	5.0	5.0	5.0
CBOD ₅ (mg/L)	20.0	25.0	25.0	25.0
Organic Nitrogen (mg/L)	5.174	3.692	1.908	1.114
NH ₄ -Nitrogen (mg/L)	7.685	13.067	27.675	16.446
NO ₃ -Nitrogen (mg/L)	7.685	13.067	27.675	16.446
Organic Phosphorus (mg/L)	0.500	0.500	0.500	0.500
Inorganic Ortho-Phosphorus (mg/L)	0.500	0.500	0.500	0.500
Phytoplankton (µg/L)	0.000	0.000	0.000	0.000
Detritus [POM] (mg/L)	4.9	4.5	7.0	6.4
Alkalinity (mg/L)	282	292	328	323
pH	7.7	7.6	7.7	7.7

Acute	Summer	Fall	Winter	Spring
Flow (MGD)	2.0	2.0	2.5	2.5
pH	7.7	7.6	7.7	7.7

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Discharge Information - South Davis Sewer District North WWTP

Chronic	Summer	Fall	Winter	Spring
Flow (MGD)	4.8	4.8	4.8	4.9
Temperature (deg C)	22.5	20.5	12.9	16.4
Specific Conductance (µmhos)	1986	2017	2258	1981
Inorganic Suspended Solids (mg/L)	6.0	6.0	6.9	6.6
Dissolved Oxygen (mg/L)	5.0	5.0	5.0	5.0
CBOD ₅ (mg/L)	20.0	25.0	25.0	25.0
Organic Nitrogen (mg/L)	2.108	1.267	0.908	3.754
NH ₄ -Nitrogen (mg/L)	7.938	8.583	14.175	9.446
NO ₃ -Nitrogen (mg/L)	10.351	10.170	9.671	10.839
Organic Phosphorus (mg/L)	0.500	0.500	0.500	0.500
Inorganic Ortho-Phosphorus (mg/L)	0.500	0.500	0.500	0.500
Phytoplankton (µg/L)	0.000	0.000	0.000	0.000
Detritus [POM] (mg/L)	4.9	7.8	9.2	8.9
Alkalinity (mg/L)	324	324	324	324
pH	7.2	7.2	7.4	7.4

Acute	Summer	Fall	Winter	Spring
Flow (MGD)	4.8	4.8	4.8	4.9
pH	7.2	7.2	7.4	7.4

Tributary - Little Cottonwood Creek

	Summer	Fall	Winter	Spring
Flow (cfs)	8.5	1.6	1.4	1.4
Temperature, Mean (deg C)	16.1	11.5	3.3	9.0
Temperature, Diel Range (deg C)	0.0	0.0	0.0	0.0
Specific Conductance (µmhos)	1085	1214	2554	815
Inorganic Suspended Solids (mg/L)	33.9	15.1	9.6	12.9
Dissolved Oxygen, Mean (mg/L)	8.1	9.3	11.4	10.7
Dissolved Oxygen, Diel Range (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	1.5	1.9	3.9	1.5
Organic Nitrogen (mg/L)	0.230	0.425	0.385	0.010
NH ₄ -Nitrogen (mg/L)	0.022	0.032	0.098	0.058
NO ₃ -Nitrogen (mg/L)	0.424	0.647	1.040	0.591
Organic Phosphorus (mg/L)	0.039	0.016	0.010	0.016
Inorganic Ortho-Phosphorus (mg/L)	0.032	0.029	0.021	0.025
Phytoplankton (µg/L)	17.2	17.6	6.0	16.1
Detritus [POM] (mg/L)	6.1	3.8	8.1	5.1
Alkalinity (mg/L)	118	238	232	165
pH	8.2	8.1	7.8	8.2

Tributary - Big Cottonwood Creek

	Summer	Fall	Winter	Spring
Flow (cfs)	21.7	10.8	5.9	7.9
Temperature, Mean (deg C)	17.0	12.1	4.5	8.8
Temperature, Diel Range (deg C)	0.0	0.0	0.0	0.0
Specific Conductance (µmhos)	1026	1088	1406	655
Inorganic Suspended Solids (mg/L)	23.9	12.9	8.7	19.3
Dissolved Oxygen, Mean (mg/L)	8.3	9.4	11.3	10.9
Dissolved Oxygen, Diel Range (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	1.5	1.8	3.3	1.5
Organic Nitrogen (mg/L)	0.417	0.300	0.285	0.160
NH ₄ -Nitrogen (mg/L)	0.023	0.023	0.050	0.036
NO ₃ -Nitrogen (mg/L)	0.325	0.408	0.716	0.389
Organic Phosphorus (mg/L)	0.015	0.006	0.011	0.016
Inorganic Ortho-Phosphorus (mg/L)	0.036	0.027	0.022	0.024
Phytoplankton (µg/L)	14.7	13.2	6.5	10.3
Detritus [POM] (mg/L)	6.2	4.5	8.4	4.9
Alkalinity (mg/L)	142	211	221	155
pH	8.3	8.2	8.1	8.2

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Tributary - Mill Creek above CVWRF	Summer	Fall	Winter	Spring
Flow (cfs)	21.4	10.1	3.0	10.1
Temperature, Mean (deg C)	17.9	11.9	6.7	11.0
Temperature, Diel Range (deg C)	0.0	0.0	0.0	0.0
Specific Conductance (µmhos)	1103	1086	1068	1017
Inorganic Suspended Solids (mg/L)	14.4	14.6	21.6	11.8
Dissolved Oxygen, Mean (mg/L)	8.3	8.5	10.9	9.7
Dissolved Oxygen, Diel Range (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	1.5	1.5	1.5	2.4
Organic Nitrogen (mg/L)	0.264	0.400	0.311	0.054
NH ₄ -Nitrogen (mg/L)	0.025	0.027	0.030	0.030
NO ₃ -Nitrogen (mg/L)	1.063	1.411	1.765	1.341
Organic Phosphorus (mg/L)	0.018	0.025	0.018	0.010
Inorganic Ortho-Phosphorus (mg/L)	0.035	0.028	0.032	0.036
Phytoplankton (µg/L)	4.1	5.4	5.2	2.7
Detritus [POM] (mg/L)	4.0	4.3	10.3	4.6
Alkalinity (mg/L)	207	237	245	213
pH	7.9	7.9	7.7	7.8
Tributary - Decker Lake Outlet	Summer	Fall	Winter	Spring
Flow (cfs)	1.9	0.4	0.3	0.3
Temperature, Mean (deg C)	21.3	10.0	2.8	12.7
Temperature, Diel Range (deg C)	0.0	0.0	0.0	0.0
Specific Conductance (µmhos)	1711	1908	2660	1798
Inorganic Suspended Solids (mg/L)	52.5	41.8	19.6	26.0
Dissolved Oxygen, Mean (mg/L)	5.9	9.6	12.3	10.6
Dissolved Oxygen, Diel Range (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	3.9	1.9	2.0	3.8
Organic Nitrogen (mg/L)	0.682	0.408	0.389	0.511
NH ₄ -Nitrogen (mg/L)	0.180	0.107	0.131	0.139
NO ₃ -Nitrogen (mg/L)	0.568	1.085	1.444	0.580
Organic Phosphorus (mg/L)	0.022	0.023	0.024	0.037
Inorganic Ortho-Phosphorus (mg/L)	0.061	0.054	0.042	0.050
Phytoplankton (µg/L)	19.2	16.8	14.1	25.4
Detritus [POM] (mg/L)	7.6	7.1	9.1	6.9
Alkalinity (mg/L)	230	246	258	218
pH	8.1	8.3	8.3	8.2
Tributary - 1300 South Drain	Summer	Fall	Winter	Spring
Flow (cfs)	17.6	0.6	2.3	2.3
Temperature, Mean (deg C)	19.9	13.5	8.7	13.3
Temperature, Diel Range (deg C)	0.0	0.0	0.0	0.0
Specific Conductance (µmhos)	1928	2223	2275	1968
Inorganic Suspended Solids (mg/L)	54.6	42.7	39.0	48.4
Dissolved Oxygen, Mean (mg/L)	7.9	9.1	10.2	10.2
Dissolved Oxygen, Diel Range (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	2.3	2.5	1.6	1.6
Organic Nitrogen (mg/L)	0.346	0.322	0.000	-0.081
NH ₄ -Nitrogen (mg/L)	0.029	0.031	0.065	0.038
NO ₃ -Nitrogen (mg/L)	1.237	2.153	3.486	2.444
Organic Phosphorus (mg/L)	0.050	0.041	0.038	0.050
Inorganic Ortho-Phosphorus (mg/L)	0.076	0.056	0.046	0.043
Phytoplankton (µg/L)	0.0	0.0	0.0	0.0
Detritus [POM] (mg/L)	7.1	6.2	5.3	6.2
Alkalinity (mg/L)	251	296	343	286
pH	8.0	8.1	8.0	8.2

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Tributary - North Temple Drain	Summer	Fall	Winter	Spring
Flow (cfs)	1.6	0.1	0.2	2.1
Temperature, Mean (deg C)	18.6	12.1	7.9	10.1
Temperature, Diel Range (deg C)	0.0	0.0	0.0	0.0
Specific Conductance (µmhos)	946	1031	1680	680
Inorganic Suspended Solids (mg/L)	5.9	0.2	3.9	10.7
Dissolved Oxygen, Mean (mg/L)	7.7	7.7	9.8	9.5
Dissolved Oxygen, Diel Range (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	2.1	2.4	1.5	1.7
Organic Nitrogen (mg/L)	0.161	0.000	0.058	0.184
NH ₄ -Nitrogen (mg/L)	0.026	0.038	0.031	0.054
NO ₃ -Nitrogen (mg/L)	2.280	2.645	2.148	0.920
Organic Phosphorus (mg/L)	0.005	0.000	0.000	0.020
Inorganic Ortho-Phosphorus (mg/L)	0.030	0.022	0.020	0.033
Phytoplankton (µg/L)	2.4	2.4	0.8	0.4
Detritus [POM] (mg/L)	2.5	2.5	2.5	2.5
Alkalinity (mg/L)	237	237	257	221
pH	8.1	8.5	8.2	8.2

Minor Tributaries - Quality	Summer	Fall	Winter	Spring
Temperature, Mean (deg C)	19.9	13.5	8.7	13.3
Temperature, Diel Range (deg C)	0.0	0.0	0.0	0.0
Specific Conductance (µmhos)	1928	2223	2275	1968
Inorganic Suspended Solids (mg/L)	54.6	42.7	39.0	48.4
Dissolved Oxygen, Mean (mg/L)	7.9	9.1	10.2	10.2
Dissolved Oxygen, Diel Range (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	2.3	2.5	1.6	1.6
Organic Nitrogen (mg/L)	0.346	0.322	0.000	-0.081
NH ₄ -Nitrogen (mg/L)	0.029	0.031	0.065	0.038
NO ₃ -Nitrogen (mg/L)	1.237	2.153	3.486	2.444
Organic Phosphorus (mg/L)	0.050	0.041	0.038	0.050
Inorganic Ortho-Phosphorus (mg/L)	0.076	0.056	0.046	0.043
Phytoplankton (µg/L)	0.0	0.0	0.0	0.0
Detritus [POM] (mg/L)	7.1	6.2	5.3	6.2
Alkalinity (mg/L)	251	296	343	286
pH	8.0	8.1	8.0	8.2

Minor Tributaries - Flow (MGD)	Summer	Fall	Winter	Spring
Corner Canyon Creek	0.0	0.0	0.0	0.0
Midas Creek (Butterfield)	0.0	0.3	0.3	0.2
Willow Creek	0.6	0.4	0.5	0.8
Dry Creek	0.2	0.1	0.2	0.3
9000 South Conduit	0.0	0.0	0.0	0.0
Bingham Creek	4.7	1.0	0.9	0.4

Diversions - Flow (cfs)	Summer	Fall	Winter	Spring
Jordan Valley Pump Station	15.6	3.0	0.0	0.0
Utah Lake Distribution Canal	27.2	0.0	0.0	0.0
Utah & Salt Lake Canal	62.3	0.0	0.0	0.0
East Jordan & Draper Canal	40.8	0.0	0.0	0.0
South Jordan Canal	15.1	0.0	0.0	0.0
Jordan & Salt Lake Canal	39.6	0.0	0.0	0.0
Beckstead Ditch	0.0	0.0	0.0	0.0
North Jordan Canal	17.1	23.9	35.8	38.6
Gardner Mill Race	0.0	0.0	0.0	0.0
Brighton Canal	0.0	0.0	0.0	0.0
Surplus Canal	241.4	120.5	175.2	183.9
Jordan River at Burnham Dam	96.0	76.0	41.0	49.0

Utah Division of Water Quality

Groundwater - Quality	Summer	Fall	Winter	Spring
Temperature, Mean (deg C)	16.0	16.0	16.0	16.0
Specific Conductance (µmhos)	2000	2000	2000	2000
Inorganic Suspended Solids (mg/L)	0.0	0.0	0.0	0.0
Dissolved Oxygen, Mean (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	2.0	2.0	2.0	2.0
Organic Nitrogen (mg/L)	0.500	0.500	0.500	0.500
NH ₄ -Nitrogen (mg/L)	0.500	0.500	0.500	0.500
NO ₃ -Nitrogen (mg/L)	2.000	2.000	2.000	2.000
Organic Phosphorus (mg/L)	0.050	0.050	0.050	0.050
Inorganic Ortho-Phosphorus (mg/L)	0.100	0.100	0.100	0.100
Phytoplankton (µg/L)	0.0	0.0	0.0	0.0
Detritus [POM] (mg/L)	0.0	0.0	0.0	0.0
Alkalinity (mg/L)	300	300	300	300
pH	8.0	8.0	8.0	8.0

Groundwater - Flow (cfs)	Summer	Fall	Winter	Spring
Segment 1-32	0.5	0.0	0.0	0.0
Segment 32-51	4.9	14.1	20.3	21.6
Segment 51-76	6.5	18.5	26.7	28.5
Segment 76-84	14.9	12.5	12.2	7.6
Segment 84-111	50.3	42.0	41.3	25.7
Segment 111-115	7.5	6.2	6.1	3.8
Segment 115-118	2.8	2.8	2.8	2.8
Segment 118-133	77.8	3.0	12.5	37.0
Segment 133-151	11.2	11.2	11.2	11.2
Segment 151-162	6.8	6.8	6.8	6.8
State Canal 162-171	5.6	5.6	5.6	5.6
State Canal 171-172	0.6	0.6	0.6	0.6

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

Utah Division of Water Quality

Effluent Limitations

Effluent Limitations based upon Water Quality Standards for Ammonia

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

Chronic	Summer	Fall	Fall	Winter	Spring
	Jun-Aug	Sep-Oct	Nov	Dec-Feb	Mar-May
Flow (MGD)					
Jordan Basin WRF	15.0	15.0	15.0	15.0	15.0
South Valley WRF	50.0	50.0	50.0	50.0	50.0
Central Valley WRF	75.0	75.0	75.0	75.0	75.0
SDSD South WWTP	4.0	4.0	4.0	4.0	4.0
SDSD North WWTP	12.0	12.0	12.0	12.0	12.0
NH4-Nitrogen (mg/L)					
Jordan Basin WRF	1.5	2.5	2.5	3.0	2.5
South Valley WRF	1.5	3.0	3.0	4.0	3.0
Central Valley WRF	3.7	4.5	5.9	5.8	5.3
SDSD South WWTP	8.0	20.0	20.0	14.0	12.0
SDSD North WWTP	9.0	9.0	10.0	12.0	6.0
Acute					
	Summer	Fall		Winter	Spring
	Jun-Aug	Sep-Nov		Dec-Feb	Mar-May
Flow (MGD)					
Jordan Basin WRF	15.0	15.0		15.0	15.0
South Valley WRF	50.0	50.0		50.0	50.0
Central Valley WRF	75.0	75.0		75.0	75.0
SDSD South WWTP	4.0	4.0		4.0	4.0
SDSD North WWTP	12.0	12.0		12.0	12.0
NH4-Nitrogen (mg/L)					
Jordan Basin WRF	6.0	6.0		9.0	8.0
South Valley WRF	6.0	9.0		9.4	7.4
Central Valley WRF	13.1	15.9		12.3	15.9
SDSD South WWTP	30.0	40.0		17.0	26.0
SDSD North WWTP	24.0	16.2		13.0	15.0

Summary Comments

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

Utah Division of Water Quality

Coefficients and Other Model Information

<i>Parameter</i>	<i>Value</i>	<i>Units</i>
<i>Stoichiometry:</i>		
Carbon	40	gC
Nitrogen	7.2	gN
Phosphorus	1	gP
Dry weight	100	gD
Chlorophyll	1	gA
<i>Inorganic suspended solids:</i>		
Settling velocity	0.001	m/d
<i>Oxygen:</i>		
Reaeration model	Internal	
Temp correction	1.024	
Reaeration wind effect	None	
O2 for carbon oxidation	2.69	gO2/gC
O2 for NH4 nitrification	4.57	gO2/gN
Oxygen inhib model CBOD oxidation	Exponential	
Oxygen inhib parameter CBOD oxidation	0.60	L/mgO2
Oxygen inhib model nitrification	Exponential	
Oxygen inhib parameter nitrification	0.60	L/mgO2
Oxygen enhance model denitrification	Exponential	
Oxygen enhance parameter denitrification	0.60	L/mgO2
Oxygen inhib model phyto resp	Exponential	
Oxygen inhib parameter phyto resp	0.60	L/mgO2
Oxygen enhance model bot alg resp	Exponential	
Oxygen enhance parameter bot alg resp	0.60	L/mgO2
<i>Slow CBOD:</i>		
Hydrolysis rate	0	/d
Temp correction	1.047	
Oxidation rate	0.2	/d
Temp correction	1.047	
<i>Fast CBOD:</i>		
Oxidation rate	10	/d
Temp correction	1.047	
<i>Organic N:</i>		
Hydrolysis	0.4	/d
Temp correction	1.07	
Settling velocity	0.05	m/d
<i>Ammonium:</i>		
Nitrification	2	/d
Temp correction	1.07	
<i>Nitrate:</i>		
Denitrification	0.05	/d
Temp correction	1.07	
Sed denitrification transfer coeff	0.05	m/d
Temp correction	1.07	
<i>Organic P:</i>		
Hydrolysis	0.05	/d
Temp correction	1.07	
Settling velocity	0.05	m/d
<i>Inorganic P:</i>		
Settling velocity	0.5	m/d
Sed P oxygen attenuation half sat constant	0.05	mgO2/L

Utah Division of Water Quality

Phytoplankton:			
Max Growth rate	2	/d	
Temp correction	1.07		
Respiration rate	0.1	/d	
Temp correction	1.07		
Death rate	0.1	/d	
Temp correction	1		
Nitrogen half sat constant	15	ugN/L	
Phosphorus half sat constant	2	ugP/L	
Inorganic carbon half sat constant	1.30E-05	moles/L	
Phytoplankton use HCO ₃ ⁻ as substrate	Yes		
Light model	Smith		
Light constant	57.6	langleys/d	
Ammonia preference	25	ugN/L	
Settling velocity	0.05	m/d	
Bottom Plants:			
Growth model	Zero-order		
Max Growth rate	50	gD/m ² /d or /d	
Temp correction	1.07		
First-order model carrying capacity	50	gD/m ²	
Basal respiration rate	0.042	/d	
Photo-respiration rate parameter	0.389	unitless	
Temp correction	1.07		
Excretion rate	0.1	/d	
Temp correction	1.05		
Death rate	0.1	/d	
Temp correction	1.07		
External nitrogen half sat constant	163	ugN/L	
External phosphorus half sat constant	48	ugP/L	
Inorganic carbon half sat constant	1.30E-05	moles/L	
Bottom algae use HCO ₃ ⁻ as substrate	Yes		
Light model	Half saturation		
Light constant	50	langleys/d	
Ammonia preference	1	ugN/L	
Subsistence quota for nitrogen	30	mgN/gD	
Subsistence quota for phosphorus	0.4	mgP/gD	
Maximum uptake rate for nitrogen	447	mgN/gD/d	
Maximum uptake rate for phosphorus	114	mgP/gD/d	
Internal nitrogen half sat ratio	2.9		
Internal phosphorus half sat ratio	1.8		
Nitrogen uptake water column fraction	1		
Phosphorus uptake water column fraction	1		
Detritus (POM):			
Dissolution rate	0.1	/d	
Temp correction	1.07		
Settling velocity	0.1	m/d	
pH:			
Partial pressure of carbon dioxide	347	ppm	
TRC:			
Decay rate	0.8	/d	

Atmospheric Inputs:	Summer	Fall	Winter	Spring
Min. Air Temperature, F	63.4	40.4	20.4	38.3
Max. Air Temperature, F	92.8	65.7	37.3	61.4
Dew Point, Temp., F	60.2	43.6	26.8	41.6
Wind, ft./sec. @ 21 ft.	9.5	8.2	6.9	9.8
Cloud Cover, %	10%	10%	10%	10%