

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. **UT0021628**
Storm Water Permit No. **UTR000000**

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 – SOUTH PLANT

is hereby authorized to discharge from its wastewater treatment facility to receiving waters named **JORDAN RIVER**,

and to discharge storm water,

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

This **modified** permit shall become effective on January 3, 2020.

This permit expires at midnight on November 30, 2021.

Signed this 3rd day of January, 2020.



Erica Brown Gaddis, PhD
Director

DWQ-2019-019654

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I. DISCHARGE LIMITATIONS AND REPORTING REQUIREMENTS

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

Outfall Number
001

Location of Discharge Outfall
A 46" pipe on the west side of the facility discharges to the Jordan River at Latitude 40°50'33" and Longitude 111°56'30".

- 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 chronic toxicity in Outfall 001 as defined in *Part VII*, and determined by test procedures described in *Part I. C.3.a* of this permit.
 2. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from Outfall 001. Such discharges shall be limited and monitored by the permittee as specified below:

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Parameter	Effluent Limitations *a			
	Maximum Monthly Avg.	Maximum Weekly Avg.	Daily Minimum	Daily Maximum
Flow, MGD	4.0	NA	NA	NA
BOD ₅ , mg/L				
Summer (Jul-Sep)	20.0	27.0	NA	NA
Fall (Oct-Dec)	25.0	35.0	NA	NA
Winter (Jan-Mar)	25.0	35.0	NA	NA
Spring (Apr-Jun)	25.0	35.0	NA	NA
BOD ₅ Min. % Removal	85.0	NA	NA	NA
TSS, mg/L	25.0	35.0	NA	NA
TSS Min. % Removal	85.0	NA	NA	NA
Dissolved Oxygen, mg/L	NA	NA	5.0	NA
Total Ammonia (as N), mg/L				
Summer (Jul-Sep)	8.0	NA	NA	30.0
Fall (October)	20.0	NA	NA	40.0
(effective date of this permit – November 1, 2019)				
Fall (October)	See *h	NA	NA	40.0
(November 1, 2019-expiration date of this permit)				
Fall (Nov-Dec)	20.0	NA	NA	40.0
Winter (Jan-Feb)	15.0	NA	NA	40.0
Winter (March)	15.0	NA	NA	40.0
(effective date of this permit – November 1, 2019)				
Winter (March)	See *h	NA	NA	40.0
(November 1, 2019 – expiration date of this permit)				
Spring (Apr-Jun)	12.0	NA	NA	30.0
<i>E. coli</i> , No./100mL	126	157	NA	NA
TRC, mg/L				
Summer (Jul-Sep)	NA	NA	NA	0.310
Fall (Oct-Dec)	NA	NA	NA	0.180
Winter (Jan-Mar)	NA	NA	NA	0.170
Spring (Apr-Jun)	NA	NA	NA	0.070
WET, Chronic Biomonitoring	NA	NA	NA	IC ₂₅ > 7% effluent
Oil & Grease, mg/L	NA	NA	NA	10.0
pH, Standard Units	NA	NA	6.5	9

NA – Not Applicable

Parameter	Limit, Annual Average
Total Phosphorous, mg/L	1.0

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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), *g	Monthly	Composite	mg/L
DO	Daily	Grab	mg/L
TRC	Daily	Grab	mg/L
WET - Biomonitoring			
Ceriodaphnia - Chronic	1 st & 3 rd Quarter	Composite	Pass/Fail
Fathead Minnows - Chronic	2 nd & 4 th Quarter	Composite	Pass/Fail
Oil & Grease *f	Monthly If Sheen Is Observed	Grab	mg/L
Orthophosphate, (as P) *g	Monthly	Composite	mg/L
Effluent			
Phosphorus, Total *g			
Influent	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Total Kjeldahl Nitrogen, TKN (as N) *g			
Influent	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Nitrate + Nitrite *g	Monthly	Composite	mg/L
Metals, Influent *e	Quarterly	Composite	mg/L
Effluent	Quarterly	Composite	mg/L
Organic Toxics	Yearly	Grab	mg/L

*a See Definitions, *Part VII*, 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 In addition to the influent and effluent quarterly sampling for metals, SDSDN will be required to sample for metals on a quarterly basis at a location upstream from the outfall location.

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- *f Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report NA.
- *g These reflect changes required with the adoption of UCA R317-1-3.3, Technology-based Phosphorus Effluent Limit rule.
- *h Total ammonia compliance schedule:

Date	Milestone
June 30, 2017	Submit a plan for ELS determination in the Jordan River for the months of March and October for DWQ approval.
September 30, 2019	Submit a report to DWQ summarizing the findings of the ELS determination study in the Jordan River for the months of March and October.
November 1, 2019	Determination of ELS. If it has been determined by DWQ that ELS are present; the Total Ammonia Effluent Maximum Monthly Average Limit for the months of March and/or October is 8.0 mg/L. If it is has been determined by DWQ that ELS are not present for the month of March and/or October; the Total Ammonia Effluent Maximum Monthly Average Limit is 20.0 mg/L for the month of October and/or 15.0 mg/L for the month of March

3. Chronic Whole Effluent Toxicity (WET) Testing.

- a. *Whole Effluent Testing – Chronic Toxicity.* Starting on the effective date of the permit, the permittee shall quarterly conduct chronic short-term toxicity tests on a composite sample of the final effluent. The sample shall be collected at outfall 001.

The monitoring frequency shall be quarterly. Samples shall be collected on a two-day progression; i.e., if the first sample is on a Monday, during the next sampling period, sampling shall be on a Wednesday. A five dilution test plus the control shall be used. If chronic toxicity is detected, the test shall be repeated in less than four weeks from the date the initial sample was taken. The need for any additional samples and/or a Toxicity Reduction Evaluation (TRE), see *Part I.C.3.b*, shall be determined by the Director. If the second test shows no chronic toxicity, routine monitoring shall be resumed.

The chronic toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, 4th Edition*, (EPA 821/R-02-13), October 2002 as per 40 CFR

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136.3(a) *TABLE 1A-LIST OF APPROVED BIOLOGICAL METHODS*, and the *Region VIII EPA NPDES Chronic Test Conditions - Static Renewal Whole Effluent Toxicity Test*). 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.

Chronic toxicity occurs when the IC₂₅ is less than 7% effluent. If any of the acceptable control performance criteria are not met, the test shall be considered invalid. IC₂₅ is the inhibition 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.

Quarterly test results shall be reported along with the (DMR) submitted for the end of the reporting calendar quarter (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). All test results shall be reported along with the DMR submitted for that reporting period. The format for the report shall be consistent with the latest revision of the *Region VIII Guidance for Chronic Whole Effluent Reporting* and shall include all the physical testing as specified.

The current Utah whole effluent toxicity (WET) policy is in the process of being updated and revised to assure its consistency with the Environmental Protection Agency's national and regional WET policy. When said revised WET policy has been finalized and officially adopted, this permit will be reopened and modified to incorporate satisfactory follow-up chronic toxicity language (chronic pattern of toxicity, PTI and/or TIE/TRE, etc.) without a public notice, as warranted and appropriate.

- b. *Toxicity Reduction Evaluation (TRE)*. If toxicity is detected during the life of this permit and it is determined by the Director that a TRE is necessary, the permittee shall be so notified and shall initiate a TRE immediately thereafter. The purpose of the TRE will be to establish the cause of toxicity, locate the source(s) of the toxicity, and control or provide treatment for the toxicity.

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

- (1) Phase I – Toxicity Characterization
- (2) Phase II – Toxicity Identification Procedures
- (3) Phase III – Toxicity Control Procedures
- (4) Any other appropriate procedures for toxicity source elimination and control.

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

- (a) Submit an alternative control program for compliance with the numerical requirements.
- (b) If necessary, provide a modified biomonitoring protocol, which compensates for the pollutant(s) being controlled numerically.

If acceptable to the Director, 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 a modified biomonitoring protocol.

Failure to conduct an adequate TRE, or failure to submit a 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.

- D. Reporting of Wastewater Monitoring Results. Monitoring results obtained during the previous month shall be summarized for each month and reported on a Discharge Monitoring Report Form (EPA No. 3320-1) or by NetDMR¹, post-marked or entered into NetDMR no later than the 28th day of the month following the completed reporting period. If no discharge occurs during the reporting period, "no discharge" shall be reported. Legible copies of these, and all other reports 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

¹ 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 permittee's 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)*;

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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
 - 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 permittee's pretreatment program activities over the previous calendar year. Reports shall be submitted no later than March 28 of each year. These annual reports shall, at a minimum, include:
1. An updated listing of the permittee's 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 permittee's industrial users and the effectiveness of the permittee's Pretreatment Program in meeting its needs and objectives.
 4. A summary of all sampling data taken of the influent and effluent for those pollutants listed in *Part II.H*.
 5. A description of all substantive changes made to the permittee's pretreatment program referenced in *Section B* of this section. Substantive changes include, but are not limited to, any change in any ordinance, major modification in the

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program's administrative structure or operating agreement(s), a significant reduction in monitoring, or a change in the method of funding the program.

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, waste streams 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;
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, non-biodegradable 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 A and 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. 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

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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.

G. 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.

H. Self-Monitoring and Reporting Requirements.

1. Influent and Effluent Monitoring and Reporting Requirements. The permittee shall sample and analyze both the influent and effluent quarterly, for the following parameters.

Metals Monitoring for Pretreatment Program				
Parameter	Sample Type	Frequency	Units	Test Limits a*
Total Aluminum	Composite	Quarterly	ug/L	5597
Total Arsenic				743
Total Cadmium				7.8
Total Chromium				746.7
Total Copper				285
Total Lead				183.9
Total Mercury	Composite/Grab			.361
Total Molybdenum	Composite			
Total Nickel				1912
Total Selenium				52.0
Total Silver				195.2
Total Zinc				2190
Total Cyanide	Grab			354.6

a* The minimum detection limit (MDL) of the test method used for analysis must be below this limit, if a test method is not available the permittee must submit documentation to the Director regarding the method that will be used.

In addition, the permittee shall analyze the treatment facility influent and effluent for the presence of the toxic pollutants listed in *40 CFR 122 Appendix D Table II (Organic Toxic Pollutants)* yearly. The pesticides fraction of *Appendix D, Table II* is suspended unless pesticides are expected to be present.

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.

2. 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

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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 *Utah Model industrial Pretreatment Program, Section 4, Local Limits*. If a technical evaluation, which may be based on the *Utah Model Industrial Pretreatment Program, Section 4, Local Limits*, 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 Division's determination that a revision is necessary.

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 solids are stabilized in primary and secondary anaerobic digesters with a mean cell residence time of at least 15 days with a minimum temperature of at least 95° F (35° C). The biosolids are de-watered with belt presses to about 15 percent solids.
- b. The biosolids are composted to meet Class A standards through the windrow method of composting or static aerated pile method of composting.
- c. The biosolids are tested for salmonella or fecal coliform bacteria, enteric viruses, and viable helminth ova in lieu of treatment to further reduce pathogens.
- d. 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.

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.

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

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removal of any biosolids treatment units (i.e., digesters, drying beds, belt presses, etc.) and/or any other change.

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.

Pollutant Limits, (40 CFR Part 503.13(b)) Dry Mass Basis				
Heavy Metals	Table 1	Table 2	Table 3	Table 4
	Ceiling Conc. Limits, (mg/kg)	CPLR, (mg/ha)	Pollutant Conc. Limits, (mg/kg)	APLR, (mg/ha-yr)
Total Arsenic	75	41	41	41
Total Cadmium	85	39	39	39
Total Copper	4300	1500	1500	1500
Total Lead	840	300	300	300
Total Mercury	57	17	17	17
Total Molybdenum	75	N/A	N/A	N/A
Total Nickel	420	420	420	420
Total Selenium	100	100	100	100
Total Zinc	7500	2800	2800	2800

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 the pathogen measurement requirements in the following Pathogen Control Class table or the following two requirements:
 - (1) The salmonella must be less than 3 most probable number per 4 grams of total solids or less than 1,000 most probable number of fecal coliform per gram of total solids, and
 - (2) The biosolids shall be treated by a process to further reduce pathogens as stipulated in 40 CFR Part 503.32(a)(7) – Class A Alternative 5
 - 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. 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.
 - (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.
- c. The salmonella shall be less than 3 most probable number per 4 grams of biosolids or the fecal coliform shall be less than 1000 most probable number per gram of total solids.
 - d. The density of enteric viruses in the biosolids shall be less than 1 plaque-forming unit per 4 grams of total solids.
 - e. The density of viable helminth ova in the biosolids shall be less than 1 per 4 grams total solids.

Pathogen Control Class	
Class A	Class B
B Salmonella species –less than three (3) per four (4) grams total solids (or less than 1,000 fecal coliforms per gram total solids)	Fecal Coliforms –less than 2,000,000 colony forming units (CFU) per gram total solids
Enteric viruses –less than one (1) MPN (or plaque forming unit) per four (4) grams total solids	
Viable helminth ova –less than one (1) MPN per four (4) grams total solids	
MPN –Most Probable Number	

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.
 - (1) The permittee is meeting vector attraction reduction through a 38% reduction of the volatile solids through anaerobic digestion or through the solids being treated through composting with a temperature of 40oC (104oF) or higher for at least 14 days with an average temperature over 45oC (113oF).

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 ²
> 1,650 to < 16,500	> 1,500 to < 15,000	Bi-Monthly or Six Times
> 16,500	> 15,000	Monthly or Twelve Times

- 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

² SDSDS Plant disposed of 347 Dry Metric Tons of biosolids in 2014; therefore they are required to sample a minimum of quarterly, or four times per year.

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 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.

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.

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- (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, D., 6 and 7 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.
- (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.4.b. 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 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

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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.
- (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.

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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 at the following addresses:

Original to: Biosolids Coordinator
Utah Division of Water Quality
PO Box 144870
Salt Lake City Utah, 84114-4870

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:

"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.

IV. STORM WATER REQUIREMENTS.

- A. Coverage of This Section. The requirements listed under this section shall apply to storm water discharges. Storm water discharges from the following portions of the facility may be eligible for coverage under this permit: biosolids drying beds, haul or access roads on which transportation of biosolids may occur, grit screen cleaning areas, chemical loading, unloading and storage areas, salt or sand storage areas, vehicle or equipment storage and maintenance areas, or any other wastewater treatment device or system, used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including lands dedicated to the disposal of sewage sludge that are located within the confines of the facility that may have a reasonable expectation to contribute to pollutants in a storm water discharge.
- B. Prohibition of Non-Storm Water Discharges. Except for discharges identified in *Part I.*, and discharges described below in this paragraph, non-storm water discharges are prohibited. The following non-storm water discharges may be authorized under this permit provided the non-storm water component of the discharge is in compliance with this section; discharges from firefighting activities; fire hydrant flushing; potable water sources including waterline flushing; drinking fountain water; irrigation drainage and lawn watering; routine external building wash down water where detergents or other compounds have not been used in the process; pavement wash waters where spills or leaks of toxic or hazardous materials (including oils and fuels) have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; uncontaminated compressor condensate; uncontaminated springs; uncontaminated ground water; and foundation or footing drains where flows are not contaminated with process materials such as solvents.
- C. Storm Water Pollution Prevention Plan Requirements. The permittee must have (on site) or develop and implement a storm water pollution prevention plan as a condition of this permit.
1. Contents of the Plan. The plan shall include, at a minimum, the following items:
 - a. *Pollution Prevention Team.* Each plan shall identify a specific individual or individuals within the facility organization as members of a storm water Pollution Prevention Team who are responsible for developing the storm water pollution prevention plan and assisting the facility or plant manager in its implementation, maintenance, and revision. The plan shall clearly identify the responsibilities of each team member. The activities and responsibilities of the team shall address all aspects of the facility's storm water pollution prevention plan.
 - b. *Description of Potential Pollutant Sources.* Each plan shall provide a description of potential sources which may reasonably be expected to add significant amounts of pollutants to storm water discharges or which may result in the discharge of pollutants during dry weather from separate storm sewers draining the facility. Each plan shall identify all activities and significant materials, which may be reasonably expected to have the potential as a significant pollutant source. Each plan shall include, at a minimum:

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- (1) *Drainage.* A site map indicating drainage areas and storm water outfalls. For each area of the facility that generates storm water discharges associated with the waste water treatment related activity with a reasonable potential for containing significant amounts of pollutants, a prediction of the direction of flow and an identification of the types of pollutants that are likely to be present in storm water discharges associated with the activity. Factors to consider include the toxicity of the pollutant; quantity of chemicals used, produced or discharged; the likelihood of contact with storm water; and history of significant leaks or spills of toxic or hazardous pollutants. Flows with a significant potential for causing erosion shall be identified. The site map shall include but not be limited to:
- (a) Drainage direction and discharge points from all wastewater associated activities including but not limited to grit screen cleaning, bio-solids drying beds and transport, chemical/material loading, unloading and storage areas, vehicle maintenance areas, salt or sand storage areas.
 - (b) Location of any erosion and sediment control structure or other control measures utilized for reducing pollutants in storm water runoff.
 - (c) Location of bio-solids drying beds were exposed to precipitation or where the transportation of bio-solids may be spilled onto internal roadways or tracked off site.
 - (d) Location where grit screen cleaning or other routinely performed industrial activities are located and are exposed to precipitation.
 - (e) Location of any handling, loading, unloading or storage of chemicals or potential pollutants such as caustics, hydraulic fluids, lubricants, solvents or other petroleum products, or hazardous wastes and where these may be exposed to precipitation.
 - (f) Locations where any major spills or leaks of toxic or hazardous materials have occurred.
 - (g) Location of any sand or salt piles.
 - (h) Location of fueling stations or vehicle and equipment maintenance and cleaning areas that are exposed to precipitation.
 - (i) Location of receiving streams or other surface water bodies.
 - (j) Locations of outfalls and the types of discharges contained in the drainage areas of the outfalls.

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- (2) *Inventory of Exposed Materials.* An inventory of the types of materials handled at the site that potentially may be exposed to precipitation. Such inventory shall include a narrative description of significant materials that have been handled, treated, stored or disposed in a manner to allow exposure to storm water between the time of 3 years prior to the effective date of this permit and the present; method and location of onsite storage or disposal; materials management practices employed to minimize contact of materials with storm water runoff between the time of 3 years prior to the effective date of this permit and the present; the location and a description of existing structural and nonstructural control measures to reduce pollutants in storm water runoff; and a description of any treatment the storm water receives.
- (3) *Spills and Leaks.* A list of significant spills and significant leaks of toxic or hazardous pollutants that occurred at areas that are exposed to precipitation or that otherwise drain to a storm water conveyance at the facility after the date of 3 years prior to the effective date of this permit. Such list shall be updated as appropriate during the term of the permit.
- (4) *Sampling Data.* A summary of existing discharge sampling data describing pollutants in storm water discharges from the facility, including a summary of sampling data collected during the term of this permit.
- (5) *Summary of Potential Pollutant Sources and Risk Assessment.* A narrative description of the potential pollutant sources from the following activities associated with treatment works: access roads/rail lines; loading and unloading operations; outdoor storage activities; material handling sites; outdoor vehicle storage or maintenance sites; significant dust or particulate generating processes; and onsite waste disposal practices. Specific potential pollutants shall be identified where known.
- (6) *Measures and Controls.* The permittee shall develop a description of storm water management controls appropriate for the facility, and implement such controls. The appropriateness and priorities of controls in a plan shall reflect identified potential sources of pollutants at the facility. The description of storm water management controls shall address the following minimum components, including a schedule for implementing such controls:
- (7) *Good Housekeeping.* All areas that may contribute pollutants to storm waters discharges shall be maintained in a clean, orderly manner. These are practices that would minimize the generation of pollutants at the source or before it would be necessary to employ sediment ponds or other control measures at the discharge outlets. Where applicable, such measures or other equivalent measures would include the following: sweepers and covered storage to minimize dust generation and storm runoff; conservation of vegetation where possible to minimize erosion;

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sweeping of haul roads, bio-solids access points, and exits to reduce or eliminate off site tracking; sweeping of sand or salt storage areas to minimize entrainment in storm water runoff; collection, removal, and proper disposal of waste oils and other fluids resulting from vehicle and equipment maintenance; other equivalent measures to address identified potential sources of pollution.

- (8) *Preventive Maintenance.* A preventive maintenance program shall involve timely inspection and maintenance of storm water management devices (e.g., cleaning oil/water separators, catch basins) as well as inspecting and testing facility equipment and systems to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants to surface waters, and ensuring appropriate maintenance of such equipment and systems.
- (9) *Spill Prevention and Response Procedures.* Areas where potential spills that can contribute pollutants to storm water discharges can occur, and their accompanying drainage points, shall be identified clearly in the storm water pollution prevention plan. Where appropriate, specifying material handling procedures, storage requirements, and use of equipment such as diversion valves in the plan should be considered. Procedures and equipment for cleaning up spills shall be identified in the plan and made available to the appropriate personnel.
- (10) *Inspections.* In addition to the comprehensive site evaluation required under paragraph (*Part IV.C.1.b.(16)*) of this section, qualified facility personnel shall be identified to inspect designated equipment and areas of the facility on a periodic basis. The following areas shall be included in all inspections: access roads/rail lines, equipment storage and maintenance areas (both indoor and outdoor areas); fueling; material handling areas, residual treatment, storage, and disposal areas; and wastewater treatment areas. A set of tracking or follow-up procedures shall be used to ensure that appropriate actions are taken in response to the inspections. Records of inspections shall be maintained. The use of a checklist developed by the facility is encouraged.
- (11) *Employee Training.* Employee training programs shall inform personnel responsible for implementing activities identified in the storm water pollution prevention plan or otherwise responsible for storm water management at all levels of responsibility of the components and goals of the storm water pollution prevention plan. Training should address topics such as spill response, good housekeeping and material management practices. The pollution prevention plan shall identify how often training will take place, but training should be held at least annually (once per calendar year). Employee training must, at a minimum, address the following areas when applicable to a facility: petroleum product management; process chemical management; spill prevention and control; fueling procedures; general good housekeeping

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practices; proper procedures for using fertilizers, herbicides and pesticides.

(12) *Record keeping and Internal Reporting Procedures.* A description of incidents (such as spills, or other discharges), along with other information describing the quality and quantity of storm water discharges shall be included in the plan required under this part. Inspections and maintenance activities shall be documented and records of such activities shall be incorporated into the plan.

(13) *Non-storm Water Discharges.*

(a) *Certification.* The plan shall include a certification that the discharge has been tested or evaluated for the presence of non-storm water discharges. The certification shall include the identification of potential significant sources of non-storm water at the site, a description of the results of any test and/or evaluation for the presence of non-storm water discharges, the evaluation criteria or testing method used, the date of any testing and/or evaluation, and the onsite drainage points that were directly observed during the test. Certifications shall be signed in accordance with *Part VII.G* of this permit.

(b) *Exceptions.* Except for flows from firefighting activities, sources of non-storm water listed in *Part IV.B.* (Prohibition of Non-storm Water Discharges) of this permit that are combined with storm water discharges associated with industrial activity must be identified in the plan. The plan shall identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge.

(c) *Failure to Certify.* Any facility that is unable to provide the certification required (testing for non-storm water discharges), must notify the *Director* within 180 days after the effective date of this permit. If the failure to certify is caused by the inability to perform adequate tests or evaluations, such notification shall describe: the procedure of any test conducted for the presence of non-storm water discharges; the results of such test or other relevant observations; potential sources of non-storm water discharges to the storm sewer; and why adequate tests for such storm sewers were not feasible. Non-storm water discharges to waters of the State, which are not, authorized by a *UPDES* permit are unlawful, and must be terminated.

(14) *Sediment and Erosion Control.* The plan shall identify areas, which, due to topography, activities, or other factors, have a high potential for significant soil erosion, and identify structural, vegetative, and/or stabilization measures to be used to limit erosion.

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- (15) *Management of Runoff*. The plan shall contain a narrative consideration of the appropriateness of traditional storm water management practices (practices other than those which control the generation or source(s) of pollutants) used to divert, infiltrate, reuse, or otherwise manage storm water runoff in a manner that reduces pollutants in storm water discharges from the site. The plan shall provide that measures that the permittee determines to be reasonable and appropriate shall be implemented and maintained. The potential of various sources at the facility to contribute pollutants to storm water discharges associated with industrial activity *Part IV.C.1.b* (Description of Potential Pollutant Sources) of this permit] shall be considered when determining reasonable and appropriate measures. Appropriate measures or other equivalent measures may include: vegetative swales and practices, reuse of collected storm water (such as for a process or as an irrigation source), inlet controls (such as oil/water separators), snow management activities, infiltration devices, wet detention/retention devices and discharging storm water through the waste water facility for treatment.
- (16) *Comprehensive Site Compliance Evaluation*. Qualified personnel shall conduct site compliance evaluations at appropriate intervals specified in the plan, but in no case less than once a year. Such evaluations shall provide:
- (a) Areas contributing to a storm water discharge associated with industrial activity shall be visually inspected for evidence of, or the potential for, pollutants entering the drainage system. Measures to reduce pollutant loadings shall be evaluated to determine whether they are adequate and properly implemented in accordance with the terms of the permit or whether additional control measures are needed. Structural storm water management measures, sediment and erosion control measures, and other structural pollution prevention measures identified in the plan shall be observed to ensure that they are operating correctly. A visual inspection of equipment needed to implement the plan, such as spill response equipment, shall be made.
 - (b) Based on the results of the evaluation, the description of potential pollutant sources identified in the plan in accordance with *Part IV.C.1.b* (Description of Potential Pollutant Sources) of this section and pollution prevention measures and controls identified in the plan in accordance with *Part IV.C.1.b.(6)* (Measures and Controls) of this section shall be revised as appropriate within 2 weeks of such evaluation and shall provide for implementation of any changes to the plan in a timely manner, but in no case more than 12 weeks after the evaluation.
 - (c) A report summarizing the scope of the evaluation, personnel making the evaluation, the date(s) of the evaluation, major observations relating to the implementation of the storm water pollution

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prevention plan, and actions taken in accordance with paragraph *i.* (above) shall be made and retained as part of the storm water pollution prevention plan for at least 3 years after the date of the evaluation. The report shall identify any incidents of noncompliance. Where a report does not identify any incidents of noncompliance, the report shall contain a certification that the facility is in compliance with the storm water pollution prevention plan and this permit. The report shall be signed in accordance with *Part VII.G* (Signatory Requirements) of this permit.

(17) *Deadlines for Plan Preparation and Compliance.* The permittee shall prepare and implement a plan in compliance with the provisions of this section within 270 days of the effective date of this permit. If the permittee already has a plan, it shall be revised according to *Part IV.C.1.b.(16)*, Comprehensive Site Evaluation.

(18) *Keeping Plans Current.* The permittee shall amend the plan whenever there is a change in design, construction, operation, or maintenance, that has a significant effect on the potential for the discharge of pollutants to the waters of the state or if the storm water pollution prevention plan proves to be ineffective in eliminating or significantly minimizing pollutants from sources identified by the plan, or in otherwise achieving the general objective of controlling pollutants in storm water discharges associated with the activities at the facility.

D. Monitoring and Reporting Requirements.

1. Quarterly Visual Examination of Storm Water Quality. Facilities shall perform and document a visual examination of a storm water discharge associated with industrial activity from each outfall, except discharges exempted below. The examination must be made at least once in each of the following designated periods during daylight hours unless there is insufficient rainfall or snow melt to produce a runoff event: January through March; April through June; July through September; and October through December.

a. *Sample and Data Collection.* Examinations shall be made of samples collected within the first 30 minutes (or as soon thereafter as practical, but not to exceed 1 hour) of when the runoff or snowmelt begins discharging. The examinations shall document observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution. The examination must be conducted in a well-lit area. No analytical tests are required to be performed on the samples. All such samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. Where practicable, the same individual should carry out the collection and examination of discharges for entire permit term.

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- b. *Visual Storm Water Discharge Examination Reports.* Visual examination reports must be maintained onsite in the pollution prevention plan. The report shall include the examination date and time, examination personnel, the nature of the discharge (i.e., runoff or snow melt), visual quality of the storm water discharge (including observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution), and probable sources of any observed storm water contamination.
- c. *Representative Discharge.* When the permittee has two or more outfalls that, based on a consideration of industrial activity, significant materials, and management practices and activities within the area drained by the outfall, the permittee reasonably believes discharge substantially identical effluents, the permittee may collect a sample of effluent of one of such outfalls and report that the observation data also applies to the substantially identical outfall(s) provided that the permittee includes in the storm water pollution prevention plan a description of the location of the outfalls and explains in detail why the outfalls are expected to discharge substantially identical effluents. In addition, for each outfall that the permittee believes is representative, an estimate of the size of the drainage area (in square feet) and an estimate of the runoff coefficient of the drainage area [e.g., low (under 40 percent), medium (40 to 65 percent), or high (above 65 percent)] shall be provided in the plan.
- d. *Adverse Conditions.* When a discharger is unable to collect samples over the course of the visual examination period as a result of adverse climatic conditions, the discharger must document the reason for not performing the visual examination and retain this documentation onsite with the results of the visual examination. Adverse weather conditions, which may prohibit the collection of samples, include weather conditions that create dangerous conditions for personnel (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.) or otherwise make the collection of a sample impracticable (drought, extended frozen conditions, etc.).
- e. *Inactive and Unstaffed Site.* When a discharger is unable to conduct visual storm water examinations at an inactive and unstaffed site, the operator of the facility may exercise a waiver of the monitoring requirement as long as the facility remains inactive and unstaffed. The facility must maintain a certification with the pollution prevention plan stating that the site is inactive and unstaffed so that performing visual examinations during a qualifying event is not feasible.

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V. MONITORING, RECORDING & GENERAL REPORTING REQUIREMENTS

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

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Director at any time. A copy of this UPDES permit must be maintained on site during the duration of activity at the permitted location

H. Twenty-four Hour Notice of Noncompliance Reporting.

1. The permittee shall (orally) report any noncompliance including transportation accidents, spills, and uncontrolled runoff from biosolids transfer or land application sites which may seriously endanger health or environment, as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of circumstances. The report shall be made to the Division of Water Quality, (801) 536-4300, or 24-hour answering service (801) 536-4123.
2. The following occurrences of noncompliance shall be reported by telephone (801) 536-4300 as soon as possible but no later than 24 hours from the time the permittee becomes aware of the circumstances:
 - a. Any noncompliance which may endanger health or the environment;
 - b. Any unanticipated bypass, which exceeds any effluent limitation in the permit (See *Part V.G, Bypass of Treatment Facilities.*);
 - c. Any upset which exceeds any effluent limitation in the permit (See *Part V.H, Upset Conditions.*);
 - d. Violation of a maximum daily discharge limitation for any of the pollutants listed in the permit; or,
 - e. Violation of any of the Table 3 metals limits, the pathogen limits, the vector attraction reduction limits or the management practices for biosolids that have been sold or given away.
3. A written submission shall also be provided within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:
 - a. A description of the noncompliance and its cause;
 - b. The period of noncompliance, including exact dates and times;
 - c. The estimated time noncompliance is expected to continue if it has not been corrected;
 - d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and,
 - e. Steps taken, if any, to mitigate the adverse impacts on the environment and human health during the noncompliance period.

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4. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Division of Water Quality, (801) 536-4300.
5. Reports shall be submitted to the addresses in *Part I.D, Reporting of Monitoring Results*.
- I. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for *Part I.D* are submitted. The reports shall contain the information listed in *Part V.H.3*
- J. Inspection and Entry The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:
 1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
 2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, including but not limited to, biosolids treatment, collection, storage facilities or area, transport vehicles and containers, and land application sites;
 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.

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VI. COMPLIANCE RESPONSIBILITIES

- A. Duty to Comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements.
- B. Penalties for Violations of Permit Conditions. The *Act* provides that any person who violates a permit condition implementing provisions of the *Act* is subject to a civil penalty not to exceed \$10,000 per day of such violation. Any person who willfully or negligently violates permit conditions or the *Act* is subject to a fine not exceeding \$25,000 per day of violation. Any person convicted under *UCA 19-5-115(2)* a second time shall be punished by a fine not exceeding \$50,000 per day. Except as provided at *Part VI.G, Bypass of Treatment Facilities* and *Part VI.H, Upset Conditions*, nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.
- C. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- D. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit, which has a reasonable likelihood of adversely affecting human health or the environment. The permittee shall also take all reasonable steps to minimize or prevent any land application in violation of this permit.
- E. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems, which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
- F. Removed Substances. Collected screening, grit, solids, sludge, or other pollutants removed in the course of treatment shall be disposed of in such a manner so as to prevent any pollutant from entering any waters of the state or creating a health hazard. Sludge/digester supernatant and filter backwash shall not directly enter either the final effluent or waters of the state by any other direct route.

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G. Bypass of Treatment Facilities.

1. Bypass Not Exceeding Limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to paragraph 2 and 3 of this section.
2. Prohibition of Bypass.
 - a. Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:
 - (1) Bypass was unavoidable to prevent loss of human life, personal injury, or severe property damage;
 - (2) There were no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance, and
 - (3) The permittee submitted notices as required under *section 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;

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

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3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

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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.

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2. All reports required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described above and submitted to the Director, and,
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. A duly authorized representative may thus be either a named individual or any individual occupying a named position.
3. Changes to authorization. If an authorization under *paragraph 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

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available for public inspection at the office of Director. As required by the *Act*, permit applications, permits and effluent data shall not be considered confidential.

- J. Oil and Hazardous Substance Liability. Nothing in this permit shall be construed to preclude the permittee of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under the *Act*.
- K. Property Rights. The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.
- L. Severability. The provisions of this permit are severable, and if any provisions of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.
- M. Transfers. This permit may be automatically transferred to a new permittee if:
1. The current permittee notifies the Director at least 20 days in advance of the proposed transfer date;
 2. The notice includes a written agreement between the existing and new permittee's containing a specific date for transfer of permit responsibility, coverage, and liability between them; and,
 3. The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify, or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph 2 above.
- N. State or Federal Laws. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by *UCA 19-5-117* and *Section 510* of the *Act* or any applicable Federal or State transportation regulations, such as but not limited to the Department of Transportation regulations.
- O. Water Quality - Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limitations and compliance schedule, if necessary, if one or more of the following events occurs:

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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 area wide treatment management plans or promulgations/revisions to TMDLs (40 CFR 130.7) approved by the EPA and adopted by DWQ which calls for different effluent limitations than contained in this permit.
- P. Biosolids – Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate biosolids limitations (and compliance schedule, if necessary), management practices, other appropriate requirements to protect public health and the environment, or if there have been substantial changes (or such changes are planned) in biosolids use or disposal practices; applicable management practices or numerical limitations for pollutants in biosolids have been promulgated which are more stringent than the requirements in this permit; and/or it has been determined that the permittees biosolids use or land application practices do not comply with existing applicable state or federal regulations.
- Q. Toxicity Limitation - Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include, whole effluent toxicity (WET) limitations, a compliance date, a compliance schedule, a change in the whole effluent toxicity (biomonitoring) protocol, additional or modified numerical limitations, or any other conditions related to the control of toxicants if one or more of the following events occur;
1. Toxicity is detected, as per *Part I.C.3.a* of this permit, during the duration of this permit.
 2. The TRE results indicate that the toxicant(s) represent pollutant(s) that may be controlled with specific numerical limits, and the Director agrees that numerical controls are the most appropriate course of action.
 3. Following the implementation of numerical control(s) of toxicant(s), the Director agrees that a modified biomonitoring protocol is necessary to compensate for those toxicants that are controlled numerically.

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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.
- R. Storm Water-Reopener Provision. At any time during the duration (life) of this permit, this permit may be reopened and modified (following proper administrative procedures) as per *UAC R317.8*, to include, any applicable storm water provisions and requirements, a storm water pollution prevention plan, a compliance schedule, a compliance date, monitoring and/or reporting requirements, or any other conditions related to the control of storm water discharges to "waters-of-State".

VIII. DEFINITIONS

A. Wastewater.

1. The "7-day (and weekly) average", other than for *E. coli* bacteria, fecal coliform bacteria, and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. Geometric means shall be calculated for *E. coli* bacteria, fecal coliform bacteria, and total coliform bacteria. The 7-day and weekly averages are applicable only to those effluent characteristics for which there are 7-day average effluent limitations. The calendar week, which begins on Sunday and ends on Saturday, shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms. Weekly averages shall be calculated for all calendar weeks with Saturdays in the month. If a calendar week overlaps two months (i.e., the Sunday is in one month and the Saturday in the following month), the weekly average calculated for that calendar week shall be included in the data for the month that contains Saturday.
2. The "30-day (and monthly) average," other than for *E. coli* bacteria, fecal coliform bacteria and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 30-day period or calendar month, whichever is applicable. Geometric means shall be calculated for *E. coli* bacteria, fecal coliform bacteria and total coliform bacteria. The calendar month shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms.
3. "Act," means the *Utah Water Quality Act*.
4. "Acute toxicity" occurs when 50 percent or more mortality is observed for either test species at any effluent concentration (lethal concentration or "LC₅₀").
5. "Bypass," means the diversion of waste streams from any portion of a treatment facility.
6. "Chronic toxicity" occurs when the IC₂₅ is less than 7% effluent. "Chronic toxicity" occurs when the IC₂₅ is less than 7% effluent
7. "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.
8. "Composite Samples" shall be flow proportioned. The composite sample shall, as a minimum, contain at least four (4) samples collected over the compositing period. Unless otherwise specified, the time between the collection of the first

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sample and the last sample shall not be less than six (6) hours nor more than 24 hours. Acceptable methods for preparation of composite samples are as follows:

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

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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 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.

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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.
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.

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C. Storm Water.

1. “Best Management Practices” (“BMPs”) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the State. BMPs also include treatment requirements, operating procedures, and practices to control facility site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.
2. “Coal pile runoff” means the rainfall runoff from or through any coal storage pile.
3. “Co-located industrial activity” means when a facility has industrial activities being conducted onsite that are described under more than one of the coverage sections of *Appendix II* in the General Multi-Sector Permit for Storm Water Discharges Associated with Industrial Activity. Facilities with co-located industrial activities shall comply with all applicable monitoring and pollution prevention plan requirements of each section in which a co-located industrial activity is described.
4. “Commercial Treatment and Disposal Facilities” means facilities that receive, on a commercial basis, any produced hazardous waste (not their own) and treat or dispose of those wastes as a service to the generators. Such facilities treating and/or disposing exclusively residential hazardous wastes are not included in this definition.
5. “Landfill” means an area of land or an excavation in which wastes are placed for permanent disposal and that is not a land application unit, surface impoundment, injection well, or waste pile.
6. “Land application unit” means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for treatment or disposal.
7. “Municipal separate storm sewer system” (large and/or medium) means all municipal separate storm sewers that are either:
 - a. Located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (at the issuance date of this permit, Salt Lake City is the only city in Utah that falls in this category); or
 - b. Located in the counties with unincorporated urbanized populations of 100,000 or more, except municipal separate storm sewers that are located in the

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incorporated places, townships or towns within such counties (at the issuance date of this permit Salt Lake County is the only county that falls in this category); or

- c. Owned or operated by a municipality other than those described in paragraph *a.* or *b.* (above) and that are designated by the *Director* as part of the large or medium municipal separate storm sewer system.
8. “NOI” means “notice of intent”, it is an application form that is used to obtain coverage under the General Multi-Sector Permit for Storm Water Discharges Associated with Industrial Activity.
9. “NOT” means “notice of termination”, it is a form used to terminate coverage under the General Multi-Sector Permit for Storm Water Discharges Associated with Industrial Activity.
10. “Point source” means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.
11. “Section 313 water priority chemical” means a chemical or chemical categories that:
- a. Are listed at *40 CFR 372.65* pursuant to *Section 313* of the *Emergency Planning and Community Right-to-Know Act (EPCRA)* (also known as *Title III of the Superfund Amendments and Reauthorization Act (SARA)* of 1986);
 - b. Are present at or above threshold levels at a facility subject to *EPCRA Section 313* reporting requirements; and
 - c. Meet at least one of the following criteria:
 - (1) Are listed in *Appendix D* of *40 CFR Part 122* on either Table II (organic priority pollutants), Table III (certain metals, cyanides, and phenols) or Table V (certain toxic pollutants and hazardous substances);
 - (2) Are listed as a hazardous substance pursuant to *Section 311(b)(2)(A)* of the *CWA* at *40 CFR 116.4*; or
 - (3) Are pollutants for which EPA has published acute or chronic water quality criteria. See *Appendix III* of this permit. This appendix was

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revised based on final rulemaking EPA published in the *Federal Register*
November 30, 1994.

12. “Significant materials” includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under *Section 101(14) of CERCLA*; any chemical the facility is required to report pursuant to *EPCRA Section 313*; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with storm water discharges.
13. “Significant spills” includes, but is not limited to: releases of oil or hazardous substances in excess of reportable quantities under *Section 311 of the Clean Water Act* (see *40 CFR 110.10* and *CFR 117.21*) or *Section 102 of CERCLA* (see *40 CFR 302.4*).
14. “Storm water” means storm water runoff, snowmelt runoff, and surface runoff and drainage.
15. “SWDMR” means “storm water discharge monitoring report”, a report of the results of storm water monitoring required by the permit. The Division of Water Quality provides the storm water discharge monitoring report form.
16. “Storm water associated with industrial activity” (*UAC R317-8-3.8(6)(c) & (d)*) means the discharge from any conveyance that is used for collecting and conveying storm water and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the *UPDES* program. For the categories of industries identified in paragraphs (a) through (j) of this definition, the term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters (as defined in *40 CFR Part 401*); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. For the categories of industries identified in paragraph (k) of this definition, the term includes only storm water discharges from all areas (except access roads and rail lines) listed in the previous sentence where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to

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storm water. For the purposes of this paragraph, material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are Federally, State, or municipally owned or operated that meet the description of the facilities listed in paragraphs (a) to (k) of this definition) include those facilities designated under *UAC R317-8-3.8(1)(a)5*. The following categories of facilities are considered to be engaging in "industrial activity" for purposes of this subsection:

- a. Facilities subject to storm water effluent limitations guidelines, new source performance standards, or toxic pollutant effluent standards under *40 CFR Subchapter N* (except facilities with toxic pollutant effluent standards that are exempted under category (k) of this definition);
- b. Facilities classified as Standard Industrial Classifications 24 (except 2434), 26 (except 265 and 267), 28 (except 283 and 285), 29, 311, 32 (except 323), 33, 3441, 373;
- c. Facilities classified as Standard Industrial Classifications 10 through 14 (mineral industry) including active or inactive mining operations (except for areas of coal mining operations no longer meeting the definition of a reclamation area under *40 CFR 434.11(l)* because the performance bond issued to the facility by the appropriate SMCRA authority has been released, or except for areas of non-coal mining operations that have been released from applicable State or Federal reclamation requirements after December 17, 1990) and oil and gas exploration, production, processing, or treatment operations, or transmission facilities that discharge storm water contaminated by contact with or that has come into contact with, any overburden, raw material, intermediate products, finished products, byproducts or waste products located on the site of such operations; inactive mining operations are mining sites that are not being actively mined, but that have an identifiable owner/operator;
- d. Hazardous waste treatment, storage, or disposal facilities, including those that are operating under interim status or a permit under Subtitle C of RCRA;
- e. Landfills, land application sites, and open dumps that have received any industrial wastes (waste that is received from any of the facilities described under this subsection) including those that are subject to regulation under *Subtitle D of RCRA*;

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- f. Facilities involved in the recycling of materials, including metal scrapyards, battery reclaimers, salvage yards, and automobile junkyards, including but limited to those classified as Standard Industrial Classification 5015 and 5093;
 - g. Steam electric power generating facilities, including coal handling sites;
 - h. Transportation facilities classified as Standard Industrial Classifications 40, 41, 42 (except 4221-25), 43, 44, 45 and 5171 that have vehicle maintenance shops, equipment cleaning operations, or airport deicing operations. Only those portions of the facility that are either involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, airport deicing operations, or that are otherwise identified under paragraphs (a) to (g) or (I) to (k) of this subsection are associated with industrial activity;
 - i. Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that are located within the confines of the facility, with a design flow of 1.0 mgd or more, or required to have an approved pretreatment program under *40 CFR Part 403*. Not included are farm lands, domestic gardens or lands used for sludge management where sludge is beneficially reused and that are not physically located in the confines of the facility, or areas that are in compliance with *40 CFR Part 503*;
 - j. Construction activity including clearing, grading and excavation activities except: operations that result in the disturbance of less than 5 acres of total land area that are not part of a larger common plan of development or sale;
 - k. Facilities under Standard Industrial Classifications 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 285, 30, 31 (except 311), 323, 34 (except 3441), 35, 36, 37 (except 373), 38, 39, 4221-25, (and that are not otherwise included within categories (a) to (j))
17. "Waste pile" means any non-containerized accumulation of solid, non-flowing waste that is used for treatment or storage.

**FACT SHEET STATEMENT OF BASIS
SOUTH DAVIS SEWER DISTRICT SOUTH TREATMENT PLANT
PERMIT MODIFICATION
UPDES PERMIT NUMBER: UT0021628
MAJOR MUNICIPAL FACILITY**

FACILITY CONTACTS

Contact: Dal D. Wayment, P.E., General Manager
(801) 295-3469

Mailing Address: PO Box 140111
Salt Lake City, UT 84114-4870

Facility Address: 1800 West 1200 North
West Bountiful, UT 84087

DESCRIPTION OF PERMIT MODIFICATION

The Water Quality Board adopted UAC R317-1-3.3, *Technology-Based Phosphorus Effluent Limit (TBPEL)* Rule in 2014. The TBPEL requires that all non-lagoon wastewater treatment works discharging wastewater to surface waters of the state provide treatment processes which would produce effluent less than or equal to an annual mean of 1.0 mg/L for total phosphorus. This TBPEL shall be achieved by January 1, 2020, unless facility was granted a permit variance or existing Total Maximum Daily Load (TMDL). This permit modification addresses the above rule.

Parameter	Effluent Limitation Changes	
	Old Annual Average	New Annual Average Effective January 1, 2020
Total Phosphorous, mg/L	No Limit	1.0

PERMIT DURATION

It is recommended that this permit modification be effective through the current permit expiration date, November 30, 2021.

Drafted by
Leanna Littler
Environmental Scientist
Utah Division of Water Quality
(801) 536-4397

PUBLIC NOTICE

Began: November 25, 2019

Ended: December 23, 2019

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

The Public Noticed of the draft permit was published in the The Tribune or Deseret News.

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

DWQ-2019-019652

**FACT SHEET STATEMENT OF BASIS
SOUTH DAVIS SEWER DISTRICT SOUTH TREATMENT PLANT
PERMIT MODIFICATION
UPDES PERMIT NUMBER: UT0021628
MAJOR MUNICIPAL FACILITY**

FACILITY INFORMATION

Contact: Dal D. Wayment, P.E., General Manager
(801) 936-8005

Mailing Address: PO Box 140111
Salt Lake City, UT 84114-0111

Facility Address: 1380 West Center Street
North Salt Lake City, UT 84054

DESCRIPTION OF FACILITY

The South Davis Sewer District South Plant (SDSDS) serves the cities of North Salt Lake, Woods Cross and a portion of Bountiful with a daily average design flow of 4 million gallons per day (MGD) and a design population equivalent of 27,000. The facility functions in a two-stage trickling filter mode. Unit operations and processes include influent pumping, screening, grit removal, primary, intermediate and secondary clarification and biological processing using trickling filters, chlorination and dechlorination prior to release into the Jordan River. Sludge generated during unit processes is stabilized in two-stage mesophilic anaerobic digesters and dried in drying beds. The facility is located in North Salt Lake City, Davis County, with Outfall 001 which discharges to the Jordan River at latitude 40° 50' 33" and longitude 111° 56'30" and STORET Number 499181.

SUMMARY OF PERMIT MODIFICATIONS

The proposed modifications to the existing UPDES permit are the date changes from 2018 to 2019 in Part I.C.2., specifically under footnote *h (see the highlighted compliance schedule herein). This date change became necessary as the Early Life Stages (ELS) study was not able to begin until the spring of 2018 due to circumstances out of the facility's control and will last through the spring of 2019. Therefore, the original 2018 compliance dates were not achievable. SDSDS should be able to comply with the compliance dates as modified. All other permit conditions remain unchanged.

DESCRIPTION OF DISCHARGE

<u>Outfall</u>	<u>Description of Discharge Point</u>
001	Located at latitude 40°50'33" and longitude 111°56'30". The discharge is through a concrete pipe leading from the chlorine contact basin directly to the Jordan River.

RECEIVING WATERS AND STREAM CLASSIFICATION

The discharge flows into the Jordan River before entering the Great Salt Lake. The Jordan River is Class 2B, 3B, 3D, and 4 according to *Utah Administrative Code (UAC) R317-2-13*:

EFFLUENT LIMITATIONS

Parameter	Effluent Limitations *a			
	Maximum Monthly Avg.	Maximum Weekly Avg.	Daily Minimum	Daily Maximum
Flow, MGD	4.0	NA	NA	NA
BOD ₅ , mg/L				
Summer (Jul-Sep)	20.0	27.0	NA	NA
Fall (Oct-Dec)	25.0	35.0	NA	NA
Winter (Jan-Mar)	25.0	35.0	NA	NA
Spring (Apr-Jun)	25.0	35.0	NA	NA
BOD ₅ Min. % Removal	85.0	NA	NA	NA
TSS, mg/L	25.0	35.0	NA	NA
TSS Min. % Removal	85.0	NA	NA	NA
Dissolved Oxygen, mg/L	NA	NA	5.0	NA
Total Ammonia (as N), mg/L				
Summer (Jul-Sep)	8.0	NA	NA	30.0
Fall (October)	20.0	NA	NA	40.0
(effective date of this permit – November 1, 2019)				
Fall (October)	See *h	NA	NA	40.0
(November 1, 2019-expiration date of this permit)				
Fall (Nov-Dec)	20.0	NA	NA	40.0
Winter (Jan-Feb)	15.0	NA	NA	40.0
Winter (March)	15.0	NA	NA	40.0
(effective date of this permit – November 1, 2019)				
Winter (March)	See *h	NA	NA	40.0
(November 1, 2019 – expiration date of this permit)				
Spring (Apr-Jun)	12.0	NA	NA	30.0
<i>E. coli</i> , No./100mL	126	157	NA	NA
TRC, mg/L				
Summer (Jul-Sep)	NA	NA	NA	0.310
Fall (Oct-Dec)	NA	NA	NA	0.180
Winter (Jan-Mar)	NA	NA	NA	0.170
Spring (Apr-Jun)	NA	NA	NA	0.070

WET, Chronic Biomonitoring	NA	NA	NA	IC ₂₅ > 7% effluent
Oil & Grease, mg/L	NA	NA	NA	10.0
pH, Standard Units	NA	NA	6.5	9

NA – Not Applicable.

SELF-MONITORING AND REPORTING REQUIREMENTS

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), *g	Monthly	Composite	mg/L
DO	Daily	Grab	mg/L
TRC	Daily	Grab	mg/L
WET - Biomonitoring	1 st & 3 rd Quarter 2 nd & 4 th Quarter	Composite	Pass/Fail
Ceriodaphnia - Chronic		Composite	Pass/Fail
Fathead Minnows - Chronic			
Oil & Grease *f	Monthly If Sheen Is Observed	Grab	mg/L
Orthophosphate, (as P) *g	Monthly	Composite	mg/L
Effluent			
Phosphorus, Total *g	Monthly Monthly	Composite	mg/L
Influent		Composite	mg/L
Effluent			
Total Kjeldahl Nitrogen, TKN (as N) *g	Monthly Monthly	Composite	mg/L
Influent		Composite	mg/L
Effluent			
Nitrate + Nitrite *g	Monthly	Composite	mg/L
Metals, Influent *e	Quarterly	Composite	mg/L
Effluent	Quarterly	Composite	mg/L
Organic Toxics	Yearly	Grab	mg/L

*a See Definitions, *Part VII*, 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 In addition to the influent and effluent quarterly sampling for metals, SDSDS will be required to sample for metals on a quarterly basis at a location upstream from the outfall location.
- *f Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report NA.
- *g These reflect changes required with the adoption of UCA R317-1-3.3, Technology-based Phosphorus Effluent Limits rule.
- *h Total ammonia compliance schedule:

Date	Milestone
June 30, 2017	Submit a plan for ELS determination in the Jordan River for the months of March and October for DWQ approval.
September 30, 2019	Submit a report to DWQ summarizing the findings of the ELS determination study in the Jordan River for the months of March and October.
November 1, 2019	Determination of ELS. If it has been determined by DWQ that ELS are present; the Total Ammonia Effluent Maximum Monthly Average Limit for the months of March and/or October is 8.0 mg/L. If it is has been determined by DWQ that ELS are not present for the month of March and/or October; the Total Ammonia Effluent Maximum Monthly Average Limit is 20.0 mg/L for the month of October and/or 15.0 mg/L for the month of March

PERMIT DURATION

It is recommended that this permit modification be effective for the remainder of the current permit cycle, which is scheduled to expire November 30, 2021.

Drafted by
Jeff Studenka
Environmental Scientist
Utah Division of Water Quality
801-536-4395
June 25, 2018

PUBLIC NOTICE INFORMATION (updated August 14, 2018)

Began: July 13, 2018

Ended: August 13, 2018

Public Noticed in The Salt Lake Tribune and Deseret News

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

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

No comments were received during the public comment period. Staff recommends issuance of the permit modification as drafted. All other conditions of the permit remain unchanged.

DWQ-2018-006648

FACT SHEET STATEMENT OF BASIS
SOUTH DAVIS SEWER DISTRICT SOUTH TREATMENT PLANT
RENEWAL PERMIT: DISCHARGE, BIOSOLIDS & STORM WATER
UPDES PERMIT NUMBER: UT0021628
UPDES BIOSOLIDS PERMIT NUMBER: UTL-021628
UPDES MULTI-SECTOR STORM WATER GENERAL PERMIT NUMBER: UTR000000
MAJOR MUNICIPAL

FACILITY CONTACTS

Dal D. Wayment, P.E., General Manager

(801) 936-8005

Mailing Address: P.O. Box 140111
Salt Lake City, UT 84114-0111

Facility Address: 1380 West Center Street
North Salt Lake City, UT 84054

DESCRIPTION OF FACILITY

The South Davis Sewer District South Plant (SDSDS) serves the cities of North Salt Lake, Woods Cross and a portion of Bountiful with a daily average design flow of 4 million gallons per day (MGD) and a design population equivalent of 27,000. The facility functions in a two-stage trickling filter mode. Unit operations and processes include influent pumping, screening, grit removal, primary, intermediate and secondary clarification and biological processing using trickling filters, chlorination and dechlorination prior to release into the Jordan River. Sludge generated during unit processes is stabilized in two-stage mesophilic anaerobic digesters and dried in drying beds. The facility is located in North Salt Lake City, Davis County, with Outfall 001 which discharges to the Jordan River at latitude 40° 50' 33" and longitude 111° 56'30" and STORET Number 499181.

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

Consistent with the Division of Water Quality (DWQ) process and EPA policy, an effluent flow limit is now included in the permit.

A new model is used by DWQ to develop a waste load allocation (WLA) for dischargers to Waters of the State. In preparing for using this model for the Jordan River, DWQ determined that the receiving stream should have a synoptic study completed to improve the understanding of the waterway and improve the WLA. This study was conducted during the summer of 2014.

The BOD effluent limits for the Jordan River dischargers were not modeled this permit cycle as the waste load analyst indicated that the previous limits are sufficiently protective.

Water Quality adopted UAC R317-1-3.3, Technology-Based Phosphorus Effluent Limit (TBPEL) Rule in 2014. The TBPEL rule as it relates to "non-lagoon" wastewater treatment plants establishes new regulations for the discharge of phosphorus to surface waters and is self-implementing. The TBPEL rule includes the following requirements for non-lagoon wastewater treatment plants:

The TBPEL requires that all non-lagoon wastewater treatment works discharging wastewater to surface waters of the state shall provide treatment processes which will produce effluent less than or equal to an annual mean of 1.0 mg/L for total phosphorus. This TBPEL shall be achieved by January 1, 2020.

The TBPEL discharging treatment works are required to implement, at a minimum, monthly monitoring of the following beginning July 1, 2015:

R317-1-3.3, D, 1 Influent for total phosphorus (as P) and total Kjeldahl nitrogen (as N) concentrations;

R317-1-3.3, D, 2. Effluent for total phosphorus and orthophosphate (as P), ammonia, nitrate-nitrite and total Kjeldahl nitrogen (as N);

In R317-1-3.3, D, 3 the rule states that all monitoring shall be based on 24-hour composite samples by use of an automatic sampler or a minimum of four grab samples collected a minimum of two hours apart.

In addition to the influent and effluent quarterly sampling for metals, SDSDS will be required to sample for metals on a quarterly basis at a location upstream from the outfall location.

A daily max effluent limit for ammonia is included in the renewal permit to more appropriately reflect the acute averaging period as specified in R317-2-7, Water Quality Standards. Previously, the permit included a weekly average effluent limit for ammonia.

DISCHARGE

DESCRIPTION OF DISCHARGE

SDSDS has been reporting self-monitoring results on discharge monitoring reports on a monthly basis. There have not been significant violations during that time.

<u>Outfall</u>	<u>Description of Discharge Point</u>
001	Located at latitude 40°50'33" and longitude 111°56'30". The discharge is through a concrete pipe leading from the chlorine contact basin directly to the Jordan River.

RECEIVING WATERS AND STREAM CLASSIFICATION

The discharge flows into the Jordan River before entering the Great Salt Lake. The Jordan River is Class 2B, 3B, 3D, and 4 according to *Utah Administrative Code (UAC) R317-2-13*:

- Class 2B - Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.
- Class 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.

BASIS FOR EFFLUENT LIMITATIONS

Limitations on total suspended solids (TSS), *E. coli*, pH and percent removal for biochemical oxygen demand (BOD₅), and TSS are based on current Utah Secondary Treatment Standards, UAC R317-1-3.2. The dissolved oxygen (DO), BOD₅, copper, ammonia, total residual chlorine (TRC) and WET testing limits are based upon water quality standards obtained from the waste load analysis (WLA). The chronic ammonia criterion is dependent on the presence or absence of ELS in the Jordan River. The provisional determination was that ELS are absent in the Jordan River from November through February. SDSDS may complete an ELS determination study for the months of March and October. SDSDS will have an interim limit, which is the limit from the previous permit for the months of March and October, for total ammonia until the ELS determination study is complete or until the date listed in the compliance schedule. The WLA indicates that these limitations should be sufficiently protective of water quality, in order to meet State water quality standards in the receiving waters. The oil and grease is based on best professional judgment (BPJ).

Reasonable Potential Analysis

Since January 1, 2016, DWQ has conducted reasonable potential analysis (RP) on all new and renewal applications received after that date. RP for this permit renewal was conducted following DWQ's September 10, 2015 Reasonable Potential Analysis Guidance (RP Guidance). There are four outcomes defined in the RP Guidance: Outcome A, B, C, or D. These Outcomes provide a frame work for what routine monitoring or effluent limitations are required. Initial screening for metals values that were submitted through the discharge monitoring reports showed that there was not a reasonable potential for any of the metals to exceed the standard. However, a quantitative RP analysis was performed on copper to determine if there was reasonable potential for the discharge to exceed the applicable water quality standards. Based on the RP analysis, the following parameters exceeded the most stringent chronic water quality standard or were determined to have a reasonable potential to exceed the standard: none. A copy of the initial screening is included at the end of this Fact Sheet.

Parameter	Effluent Limitations * <u>a</u>			
	Maximum Monthly Avg.	Maximum Weekly Avg.	Daily Minimum	Daily Maximum
Flow, MGD	4.0	NA	NA	NA
BOD ₅ , mg/L				
Summer (Jul-Sep)	20.0	27.0	NA	NA
Fall (Oct-Dec)	25.0	35.0	NA	NA
Winter (Jan-Mar)	25.0	35.0	NA	NA
Spring (Apr-Jun)	25.0	35.0	NA	NA
BOD ₅ Min. % Removal	85.0	NA	NA	NA
TSS, mg/L	25.0	35.0	NA	NA
TSS Min. % Removal	85.0	NA	NA	NA
Dissolved Oxygen, mg/L	NA	NA	5.0	NA
Total Ammonia (as N), mg/L				
Summer (Jul-Sep)	8.0	NA	NA	30.0
Fall (October)	20.0	NA	NA	40.0
(effective date of this permit – March 31, 2018)				
Fall (October)	See *h	NA	NA	40.0
(May 1, 2018-expiration date of this permit)				
Fall (Nov-Dec)	20.0	NA	NA	40.0
Winter (Jan-Feb)	15.0	NA	NA	40.0
Winter (March)	15.0	NA	NA	40.0
(effective date of this permit – March 31, 2018)				
Winter (March)	See *h	NA	NA	40.0
(May 1, 2018 – expiration date of this permit)				
Spring (Apr-Jun)	12.0	NA	NA	30.0
<i>E. coli</i> , No./100mL	126	157	NA	NA
TRC, mg/L				
Summer (Jul-Sep)	NA	NA	NA	0.310
Fall (Oct-Dec)	NA	NA	NA	0.180
Winter (Jan-Mar)	NA	NA	NA	0.170
Spring (Apr-Jun)	NA	NA	NA	0.070
WET, Chronic Biomonitoring	NA	NA	NA	IC ₂₅ > 7% effluent
Oil & Grease, mg/L	NA	NA	NA	10.0
pH, Standard Units	NA	NA	6.5	9

NA – Not Applicable.

SELF-MONITORING AND REPORTING REQUIREMENTS

The following self-monitoring requirements are similar to the previous permit. Monitoring for parameters associated with UCA R317-1-3.3(Technology-based Phosphorus Effluent Limits rule) have been added or modified. The permit will require reports to be submitted monthly and annually, as applicable, on Discharge Monitoring Report or NetDMR (DMR) no later than the 28th day of the month following the completed reporting period. Lab sheets for biomonitoring must be attached to the biomonitoring DMR. Lab sheets for metals and toxic organics must be attached to the DMR.

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), *g	Monthly	Composite	mg/L
DO	Daily	Grab	mg/L
TRC	Daily	Grab	mg/L
WET - Biomonitoring	1 st & 3 rd Quarter 2 nd & 4 th Quarter	Composite	Pass/Fail
Ceriodaphnia - Chronic		Composite	Pass/Fail
Fathead Minnows - Chronic			
Oil & Grease *f	Monthly If Sheen Is Observed	Grab	mg/L
Orthophosphate, (as P) *g	Monthly	Composite	mg/L
Effluent			
Phosphorus, Total *g	Monthly Monthly	Composite	mg/L
Influent		Composite	mg/L
Effluent			
Total Kjeldahl Nitrogen, TKN (as N) *g	Monthly Monthly	Composite	mg/L
Influent		Composite	mg/L
Effluent			
Nitrate + Nitrite *g	Monthly	Composite	mg/L
Metals, Influent *e	Quarterly	Composite	mg/L
Effluent	Quarterly	Composite	mg/L
Organic Toxics	Yearly	Grab	mg/L

- *a See Definitions, *Part VII*, 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 In addition to the influent and effluent quarterly sampling for metals, SDSDS will be required to sample for metals on a quarterly basis at a location upstream from the outfall location.
- *f Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report NA.
- *g These reflect changes required with the adoption of UCA R317-1-3.3, Technology-based Phosphorus Effluent Limits rule.

*h Total ammonia compliance schedule:

Date	Milestone
June 30, 2017	Submit a plan for ELS determination in the Jordan River for the months of March and October for DWQ approval.
September 30, 2018	Submit a report to DWQ summarizing the findings of the ELS determination study in the Jordan River for the months of March and October.
November 1, 2018	<p style="text-align: center;">Determination of ELS.</p> <p>If it has been determined by DWQ that ELS are present; the Total Ammonia Effluent Maximum Monthly Average Limit for the months of March and/or October is 8.0 mg/L.</p> <p>If it is has been determined by DWQ that ELS are not present for the month of March and/or October; the Total Ammonia Effluent Maximum Monthly Average Limit is</p> <p style="text-align: center;">20.0 mg/L for the month of October and/or 15.0 mg/L for the month of March</p>

BIOSOLIDS

For clarification purposes, sewage sludge is considered solids, until treatment or testing shows that the solids are safe, and meet beneficial use standards. After the solids are tested or treated, the solids are then known as biosolids. Class A biosolids may be used for high public contact sites, such as home lawns and gardens, parks, or playing fields, etc. Class B biosolids may be used for low public contact sites, such as farms, rangeland, or reclamation sites, etc.

DESCRIPTION OF TREATMENT, BENEFICIAL USE AND DISPOSAL

The SDSDS submitted their 2014 annual biosolids report on March 3, 2015. The report states South Davis disposed of 347 Dry Metric Tons (DMT) of solids 2014. Of the 347 DMT of solids disposed of, 185 DMT were stored from 2013, and 162 were from 2014. The remaining 289 DMT produced in 2014 are being stored. All of the Biosolids were disposed of Bay Area Refuse Disposal site in Davis County.

The SDSDS facility functions in single-stage trickling filter mode. Sludge generated during unit processes is stabilized in two-stage mesophilic anaerobic digesters with a solids retention time of at least 30 days. After stabilization, the Class B biosolids are wasted to drying beds for dewatering before the biosolids are land applied for beneficial use.

SELF-MONITORING REQUIREMENTS

Under *40 CFR 503.16(a)(1)*, the self-monitoring requirements are based upon the amount of biosolids disposed per year and shall be monitored according to the chart below.

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	Bi-Monthly or Six Times
> 16,500	> 15,000	Monthly or Twelve Times

In 2014, SDSDS disposed of 347 DMT of biosolids. Therefore the biosolids shall be monitored at least four times per year.

Landfill Monitoring

Under 40 CFR 258, the landfill monitoring requirements include a paint filter test. If the biosolids do not pass a paint filter test, the biosolids cannot be disposed in the sanitary landfill (*40 CFR 258.28(c)(1)*).SDSDS disposed all the biosolids at the Bay Area Refuse Disposal site in Davis County. All Biosolids passed the Paint Filter Test.

BIOSOLIDS LIMITATIONS

Heavy Metals

Class A Biosolids for Home Lawn and Garden Use

The intent of the heavy metals regulations of Table 3, 40 CFR 503.13 is to ensure the heavy metals do not build up in the soil in home lawn and gardens to the point where the heavy metals become phytotoxic to plants. The permittee will be required to produce an information sheet (see Part III. C. of the permit) to be made available to all people who are receiving and land applying Class A biosolids to their lawns and gardens. If the instructions of the information sheet are followed to any reasonable degree, the Class A biosolids will be able to be land applied year after year, to the same lawns and garden plots without any deleterious effects to the environment. The information sheet must be provided to the public, because the permittee is not required, nor able to track the quantity of Class A biosolids that are land applied to home lawns and gardens.

Class A Requirements With Regards to Heavy Metals

If the biosolids are to be applied to a lawn or home garden, the biosolids shall not exceed the maximum heavy metals in Table 1 and the monthly average pollutant concentrations in Table 3 (see Table 1 and Table 3 below). If the biosolids do not meet these requirements, the biosolids cannot be sold or given away for applications to home lawns and gardens.

Class B Requirements for Agriculture and Reclamation Sites

The intent of the heavy metals regulations of Tables 1, 2 and 3, of 40 CFR 503.13 is to ensure that heavy metals do not build up in the soil at farms, forest land, and land reclamation sites to the point where the heavy metals become phytotoxic to plants. The permittee will be required to produce an information sheet (see Part III. C. of the permit) to be handed out to all people who are receiving and land applying Class B biosolids to farms, ranches, and land reclamation sites (if biosolids are only applied to land owned by the permittee, the information sheet requirements are waived). If the biosolids are land applied according to the regulations of 40 CFR 503.13, to any reasonable degree, the Class B biosolids will be able to be land applied year after year, to the same farms, ranches, and land reclamation sites without any deleterious effects to the environment.

Class B Requirements With Regards to Heavy Metals

If the biosolids are to be land applied to agricultural land, forest land, a public contact site or a reclamation site it must meet at all times:

The maximum heavy metals listed in Table 1 and the heavy metals loading rates in Table 2; or

The maximum heavy metals in Table 1 and the monthly heavy metals concentrations in Table 3.

Tables 1, 2, and 3 of Heavy Metal Limitations

Pollutant Limits, (40 CFR Part 503.13)			
Heavy Metals	Table 1	Table 2	Table 3
All heavy metals concentrations shall be measured and reported	Daily Maximum mg/Kg *a, *b, *c	Cumulative Loading Rate Kg/Ha	Monthly Average Concentration mg/Kg *a, *b, *c,
Total Arsenic	75	41	41
Total Cadmium	85	39	39
Total Copper	4300	1500	1500
Total Lead	840	300	300
Total Mercury	57	17	17
Total Molybdenum	75	N/A	N/A
Total Nickel	420	420	420
Total Selenium	100	100	100
Total Zinc	7500	2800	2800

*a, The limitations represent the maximum allowable levels of heavy metals in any biosolids intended for land application.

*c, Any violation of these limitations shall be reported in accordance with the requirements of Part III.F.1. of the permit.

*d, These limitations represent the maximum allowable levels of heavy metals based on an average of all samples taken during a 30-day period.

If the biosolids do not meet these requirements they cannot be land applied.

Pathogens

The Pathogen Control class listed in the table below must be met;

Pathogen Control Class	
Class A (40 CFR Part 503.32 (a), (3-8))	Class B (40 CFR Part 503.32 (b), (2))
<i>Salmonella</i> species -less than three (3) per four (4) grams total solids (or less than 1,000 fecal coliforms per gram total solids)	Fecal Coliforms –less than 2,000,000 colony forming units (CFU) per gram total solids
Enteric viruses -less than one (1) MPN (or plaque forming unit) per four (4) grams total solids	
Viable helminth ova -less than one (1) MPN per four (4) grams total solids	
MPN –Most Probable Number	

Class A Requirements Land Application

If biosolids are to be land applied, the biosolids need to be treated by a specific process to further reduce pathogens (PFRP), and meet a microbiological limit of less than less than 3 most probable number (MPN) of *Salmonella* per 4 grams of total solids (or less than 1,000 most probable number (MPN/g) of fecal coliform per gram of total solids) to be considered Class A biosolids. SDSDS choses to accomplish this in the following way:

1. *Class A, Alternative 4* - This additional testing requires SDSDS to monitor for viable helminth ova (tape worms and round worm eggs that could hatch), enteric viruses (viruses of the gut), as well as fecal coliform or *Salmonella*. (40 CFR 503.32(a) (6) (iii)).
2. Composting- For either the within-vessel composting method or the static aerated pile composting method, the temperature of the sewage sludge is maintained at 55° C (131°F) or higher for three (3) days, and tested for either fecal coliform or *Salmonella*. For the windrow composting method, the temperature of the sewage sludge is maintained at 55° C (131°F) or higher or higher for 15 days or longer. During the period when the compost is maintained at 55 degrees or higher, there shall be a minimum of five (5) turnings of the windrow, and tested for either fecal coliform or *Salmonella*. (40 CFR 503.32(a) (7) (iii), 40 CFR 503 Appendix B, B, 1)

The practice of sale or giveaway to the public is an acceptable use of biosolids of this quality as long as the biosolids continue to meet Class A standards with respect to pathogens. If the biosolids do not meet Class A pathogen standards described above the biosolids cannot be sold or given away to the public, and the SDSDS will need find another method of beneficial use or disposal.

Class B Requirements Land Application

If biosolids are to be land applied for agriculture or land reclamation the solids need to be treated by a specific process to significantly reduce pathogens (PSRP) found under 40 CFR 503.32 (b). SDSDS choses to accomplish this in the following way

1. Testing - the biosolids and must be tested and meet a microbiological limit of less than 2,000,000 MPN of fecal coliform per gram for the biosolids to be considered Class B biosolids with respect to pathogens. Under *40 CFR 503.32 (b)(2)*,
2. Anaerobic Digestion - The PSRP may be accomplished through anaerobic digesters that have a minimum retention time of 15 days at 95° F (35° C) or 60 days at 68° F (20°C). Under *40 CFR 503.32 (b)(3)*

Vector Attraction Reduction (VAR) Requirements

If the biosolids are land applied, South Davis North will be required to meet a method of vector attraction reduction under 40 CFR 503.33. SDSDS intends to accomplish the VAR through the method below:

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

If the permittee intends to use another one of the listed 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 notice

Landfill Monitoring

Under *40 CFR 258*, the landfill monitoring requirements include a paint filter test to determine if the biosolids exhibit free liquid. If the biosolids do not pass a paint filter test, the biosolids cannot be disposed in the sanitary landfill (*40 CFR 258.28(c)(1)*).

Record Keeping

The record keeping requirements from *40 CFR 503.17* are included under *Part III.G.* of the permit. The amount of time the records must be maintained are dependent on the quality of the biosolids in regards to the metals concentrations. If the biosolids continue to meet the metals limits of *Table 3* of *40 CFR 503.13*, and are sold or given away the records must be retained for a minimum of five years. If the biosolids are disposed in a landfill the records must retained for a minimum of five years.

Reporting

SDSDS must report annually as required in *40 CFR 503.18*. This report is to include the results of all monitoring performed in accordance with *Part II.C* of the permit, information on management practices, biosolids treatment, and certifications. This report is due no later than

February 19 of each year. Each report is for the previous calendar year. Due to the similar nature of the South Davis Sewer District Plants the district submits the data for both the North and South plants in one report.

MONITORING DATA

METALS MONITORING DATA

SDSDS sampled the biosolids for heavy metals four times in 2014. The data below shows that SDSDS met the requirements for exceptional quality biosolids, with respect to heavy metals, whether the biosolids were Class A, or Class B with respect to pathogen reduction. The monitoring data is below.

SDSDS Metals Monitoring Data, 2014			
Parameter	Table 3, (Exceptional Quality) mg/kg	Average, mg/kg	Maximum, mg/kg
Arsenic	41.0	72.9* ¹	92.8* ¹
Cadmium	39.0	1.91	2.77
Copper	1,500.0	610	786
Lead	300.0	18.1	28.1
Mercury	17.0	2.79	6.00
Molybdenum	75.0	13.4	18.6
Nickel	400.0	28.9	36.8
Selenium	36.0	26.4	51.6* ¹
Zinc	2,800.0	2098	2730

*1 As a result of the 2014 values being higher than the Table 3 limits, SDSDS disposed of all the biosolids at the Bay Area Refuse Disposal site.

PATHOGEN MONITORING DATA

SDSDS was not required to sample for either fecal coliform or *Salmonella* if the biosolids have met a process to significantly reduce pathogens (PSRP). The PSRP was met through the anaerobic digesters, therefore the SDSDS did not sample for pathogens.

STORM WATER

STORMWATER REQUIREMENTS

Storm water provisions are included in this combined UPDES permit.

The storm water requirements are based on the UPDES Multi-Sector General Permit for Storm Water Discharges for Industrial Activity, General Permit No. UTR000000 (MSGP). All sections

of the MSGP that pertain to discharges from wastewater treatment plants have been included and sections which are redundant or do not pertain have been deleted.

The permit requires the preparation and implementation of a storm water pollution prevention plan for all areas within the confines of the plant. Elements of this plan are required to include:

1. The development of a pollution prevention team:
2. Development of drainage maps and materials stockpiles:
3. An inventory of exposed materials:
4. Spill reporting and response procedures:
5. A preventative maintenance program:
6. Employee training:
7. Certification that storm water discharges are not mixed with non-storm water discharges:
8. Compliance site evaluations and potential pollutant source identification, and:
9. Visual examinations of storm water discharges.

SDSDS is currently covered under the UPDES Multi Sector General Permit for Industrial Activities.

PRETREATMENT REQUIREMENTS

The pretreatment requirements remain the same as in the current permit. Any changes to the program must be submitted for approval to the Division of Water Quality. Authority to require a pretreatment program is provided for in 19-5-108 UCA, 1953 ann. and UAC R317-8-8.

The permittee is required to perform an evaluation of the need to revise or develop technically based local limits to implement the general and specific prohibitions of 40 CFR, Part 403.5(a) and Part 403.5(b). This evaluation may indicate that present local limits are sufficiently protective, or that they must be revised. As part of this evaluation, the permit requires quarterly influent and effluent monitoring for metals and organic toxics listed in R317-8-7.5 and sludge monitoring for potential pollutants listed in 40 CFR 503.

BIOMONITORING REQUIREMENTS

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

Since the permittee is classified as a major municipal discharger, the renewal permit will again require Whole Effluent Toxicity (WET) testing. Chronic toxicity tests will be conducted quarterly, alternating between Ceriodaphnia dubia and Pimephales promelas (fathead minnows) species, as detailed in the permit. Alternating species has been previously granted to the permittee, and will continue in this permit renewal as well, based upon the absence of confirmed

toxicity and the permitting authorities best professional judgment. A review of previous WET tests indicates only isolated chronic WET testing failures, which were followed up by passing chronic WET retests and no pattern of toxicity being established. Therefore, no changes are being proposed to the permittee's biomonitoring requirements.

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

PERMIT DURATION

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

Drafted by
Matthew Garn, P.E., Discharge
Nicholas vonStackelberg, WLA
Daniel Griffin, Biosolids
Jennifer Robinson, Pretreatment
Michael George, Storm Water
Utah Division of Water Quality
801-536-4300
September 29, 2016

PUBLIC NOTICE

Began: October 6, 2016
Ended: November 7, 2016
Public Noticed in The Salt Lake Tribune and Deseret News

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

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.

In an email received from SDSO on October 18, 2016, SDSO requested that the public comment period be extended. The public comment period was extended until November 17, 2016.

Comments were received from SDSD in a letter dated November 17, 2016. The comments were retracted by SDSD in a letter dated February 17, 2017.

DWQ-2015-007440

ATTACHMENT 1

Wasteload Analysis

ATTACHMENT 2

Reasonable Potential Analysis

Preliminary RP Results

[illegible]

Utah Division of Water Quality
Statement of Basis
Wasteload Analysis for Jordan River POTWs - FINAL

Date: March 10, 2016

Facility: Jordan River Publicly Owned Treatment Works (POTW)

Receiving water: Jordan River and 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.

Discharges

The following dischargers are considered in this combined wasteload analysis:

1. Jordan Basin Water Reclamation Facility (WRF)
2. South Valley Water Reclamation Facility (WRF)
3. Central Valley Water Reclamation Facility (WRF)
4. South Davis Sewer District South Wastewater Treatment Plant (WWTP)
5. South Davis Sewer District North Wastewater Treatment Plant (WWTP)

The receiving water and the maximum monthly average discharges used in this wasteload allocation are summarized in Table 1. The projected 5-year monthly average discharge was estimated by multiplying the current average discharge by 10% to account for growth in the service district. Jordan Basin WRF was assumed to operate at design capacity.

Table 1: Receiving waters and design discharge

Facility	Receiving Water	Monthly Ave (MGD)	
		Design Capacity	Projected 5-YR
Jordan Basin WRF	Jordan River, from confluence with Little Cottonwood Creek to Narrows Diversion	15	15
South Valley WRF	Jordan River, from confluence with Little Cottonwood Creek to Narrows Diversion	50	22.2
Central Valley WRF	Jordan River, from North Temple Street to confluence with Little Cottonwood Creek	75	56.2
SDSD South WWTP	Jordan River, from Farmington Bay to North Temple Street	4	3.4
SDSD North WWTP	State Canal, from Farmington Bay to confluence with the Jordan River	12	7.2

Utah Division of Water Quality
Wasteload Analysis
Jordan River POTWs

Effluent water quality data were obtained from UDWQ monitoring, Jordan River/Farmington Bay Water Quality Council (JRFBWQC) monitoring, and Discharge Monitoring Reports (DMR) and Monthly Operating Reports (MOR) from each facility.

Receiving Waters

The receiving waters for this wasteload allocation are the Jordan River and State Canal.

Per UAC R317-2-14, the designated beneficial uses for the Jordan River and State Canal are shown in Table 2.

Table 2: Beneficial uses for receiving waters

Receiving Water	Beneficial Uses
Jordan River, from Narrows Diversion to Utah Lake	1C, 2B, 3B, 4
Jordan River, from confluence with Little Cottonwood Creek to Narrows Diversion	2B, 3A, 4
Jordan River, from North Temple Street to confluence with Little Cottonwood Creek	2B, 3B*, 4
Jordan River, from Farmington Bay to North Temple Street	2B, 3B*, 3D, 4
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.*

Typically, the critical flow for the wasteload analysis is considered the lowest stream flow for seven consecutive days with a ten year return frequency (7Q10). The seasonal 7Q10 flows calculated in the *Jordan River Flow Analysis* report (Borup and Haws, 1999) were used for the critical low flows for the tributaries and diversions along the Jordan River. The groundwater flow in each reach of the Jordan River was modified to match the seasonal averages from the USGS groundwater model (Stantec 2010, UDWQ 2010), which match the groundwater flows used for the TMDL. The projected 5-year average flows for each POTW was used to determine upstream conditions. The critical low flows are summarized in Table 3.

Utah Division of Water Quality
Wasteload Analysis
Jordan River POTWs

Table 3: Critical low flows

POTWs at Projected 5-YR Average		River Mile	Source/Diversion Flow (cfs)				Jordan River/State Canal Flow (cfs)			
#	Source/Diversion		Summer	Fall	Winter	Spring	Summer	Fall	Winter	Spring
1	Headwater - Utah Lake	51.4	709.0	16.0	16.0	501.0	709.0	16.0	16.0	501.0
2	Groundwater Segment 8	51.4 - 41.9	0.0	0.0	0.0	0.0	709.0	16.0	16.0	501.0
3	Utah Lake Distribution Canal	41.9	-125.0	0.0	0.0	-81.0	584.0	16.0	16.0	420.0
4	Utah and Salt Lake Canal	41.8	-224.0	0.0	0.0	-145.0	360.0	16.0	16.0	275.0
5	East Jordan & Draper Canal	41.8	-222.0	0.0	0.0	-150.0	138.0	16.0	16.0	125.0
6	Jordan & Salt Lake Canal	64.7	-35.0	0.0	0.0	-30.0	103.0	16.0	16.0	95.0
7	South Jordan Canal	64.7	-63.0	0.0	0.0	-85.0	40.0	16.0	16.0	10.0
8	Groundwater Segment 7	41.9 - 37.6	22.6	22.0	17.3	20.9	62.6	38.0	33.3	30.9
9	Jordan Basin WRF	36.5	23.2	23.2	23.2	23.2	85.8	61.2	56.5	54.1
10	Corner Canyon Creek	35.5	2.0	0.0	0.0	3.0	87.8	61.2	56.5	57.1
11	Beckstead Ditch	33.2	-5.0	0.0	0.0	0.0	80.8	61.2	56.5	54.1
12	Butterfield/Midas Creek	31.5	1.0	1.0	1.0	2.0	81.8	62.2	57.5	56.1
13	Willow Creek	30.8	3.0	1.0	1.0	3.0	84.8	63.2	58.5	59.1
14	Groundwater Segment 6	37.6 - 26.4	85.5	83.2	65.4	79.1	170.3	146.4	123.9	138.3
15	North Jordan Canal	28.8	-61.0	-73.0	-63.0	-62.0	109.3	73.4	60.9	76.3
16	Gardner Mill Race	28.8	-3.0	0.0	0.0	0.0	106.3	73.4	60.9	76.3
17	Dry Creek	28.6	1.0	0.0	0.0	2.0	107.3	73.4	60.9	78.3
18	9000 South Conduit	28.1	1.0	0.0	0.0	1.0	108.3	73.4	60.9	79.3
19	Bingham Creek	27.2	2.0	0.0	1.0	2.0	110.3	73.4	61.9	81.3
20	South Valley WRF	25.7	34.3	34.3	34.3	34.3	144.7	107.7	96.3	115.6
21	Little Cottonwood Creek	21.6	7.0	2.0	2.0	7.0	151.7	109.7	98.3	122.6
22	Groundwater Segment 5	26.4 - 24.9	10.1	9.8	7.7	9.3	161.8	119.5	106.0	132.0
23	Brighton Canal	21.2	-30.0	0.0	0.0	-20.0	131.8	119.5	106.0	112.0
24	Big Cottonwood Creek	20.6	15.0	8.0	13.0	16.0	146.8	127.5	119.0	128.0
25	Mill Creek	17.2	19.0	17.0	18.0	24.0	165.8	144.5	137.0	152.0
26	Central Valley WRF	17.2	86.9	86.9	86.9	86.9	252.7	231.5	223.9	238.9
27	Decker Lake Outlet	17.0	1.0	1.0	1.0	1.0	253.7	232.5	224.9	239.9
28	Groundwater Segment 4	24.9 - 15.8	14.2	14.2	14.2	14.2	267.9	246.7	239.1	254.1
29	Surplus Canal	16.0	-173.9	-183.6	-184.1	-137.1	94.0	63.0	55.0	117.0
30	1300 South Conduit	14.2	8.0	7.0	4.0	6.0	102.0	70.0	59.0	123.0
31	North Temple Conduit	11.4	1.0	0.0	1.0	2.0	103.0	70.0	60.0	125.0
32	Groundwater Segment 3	15.8 - 11.5	17.3	16.8	13.2	16.0	120.3	86.9	73.2	141.0
33	Groundwater Segment 2	11.5 - 7.1	11.1	10.8	8.5	10.3	131.4	97.7	81.7	151.3
34	South Davis South WWTP	4.8	5.3	5.3	5.3	5.3	136.6	102.9	87.0	156.5
35	Groundwater Segment 1	7.1 - 0.0	7.5	7.3	5.8	7.0	144.2	110.3	92.7	163.5
36	Burnham Dam	JR 1.7/SC 3.5	-94.2	-60.3	-27.8	-98.5	50.0	50.0	65.0	65.0
37	South Davis North WWTP	SC 0.6	11.1	11.1	11.1	11.1	61.2	61.1	76.1	76.2

Receiving and tributary water quality data were obtained from UDWQ and JRFBWQC monitoring sites. The average seasonal value was calculated for each constituent with available data in the receiving water for the period 2004 - 2014.

TMDL

The 303(d) list of impairments of the Jordan River and State Canal in *Utah's 2014 Integrated Report* (Utah DWQ 2014) is summarized in Table 4. The dissolved oxygen impairment in the lower Jordan River (below Surplus Canal) was addressed by the *Jordan River Total Maximum Daily Load Water Quality Study – Phase 1* (Cirrus Ecological Solutions and Stantec Consultants 2013), which identified organic matter as the pollutant of concern and recommended additional studies to determine the sources and allocation.

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Table 4: List of impairments of Jordan River and State Canal

Assessment Unit	Assessment Unit Description	Parameter
State Canal	State Canal from Farmington Bay to confluence with the Jordan River	Dissolved Oxygen
Jordan River-1	Jordan River from Farmington Bay upstream contiguous with the Davis County line	Dissolved Oxygen Bioassessment
Jordan River 2	Jordan River from Davis County line upstream to North Temple Street	Dissolved Oxygen E. coli
Jordan River-3	Jordan River from North Temple to 2100 South	Dissolved Oxygen
Jordan River-4	Jordan River from 2100 South to the confluence with Little Cottonwood Creek	E. coli Bioassessment
Jordan River-5	Jordan River from the confluence with Little Cottonwood Creek to 7800 South	Temperature Total Dissolved Solids
Jordan River-6	Jordan River from 7800 South to Bluffdale at 14600 South	Dissolved Oxygen Selenium Temperature Total Dissolved Solids
Jordan River-7	Jordan River from Bluffdale at 14600 South to Narrows	Temperature
Jordan River-8	Jordan River from Narrows to Utah Lake	Arsenic Total Dissolved Solids

Mixing Zone

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

The actual length of the mixing zone was not determined; however, it was presumed to remain within the maximum allowable mixing zone dimensions for each discharge. Acute limits were calculated using 50% of the seasonal critical low flow.

Parameters of Concern

The parameters of concern considered in this wasteload allocation are total ammonia (TAN) and total recoverable metals. Due to ongoing studies related to the TMDL, this wasteload allocation does not address parameters related to dissolved oxygen, including biochemical oxygen demand (BOD), dissolved oxygen (DO), total nitrogen (TN), and total phosphorus (TP).

Water Quality Modeling

A QUAL2Kw model of the Jordan River was populated and calibrated as part of the TMDL study (Stantec Consulting 2010, UDWQ 2010). The model was subsequently validated to a synoptic survey conducted by UDWQ and the Jordan River/Farmington Bay Water Quality Council (JRFBWQC) during July 2014 (UDWQ 2015). The model validation identified areas for future improvement of the model; however, the model was considered suitable for application to the wasteload allocation for ammonia.

The TMDL model of the Jordan River extends 52.4 miles from the outlet of Utah Lake to Burton Dam. For the purposes of the WLA, the model was broken at Burnham Dam (approximately 1.7

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miles upstream of Burton Dam) and extended down State Canal to the Farmington Bay Waterfowl Management Area (approximately 3.5 miles downstream from Burnham Dam). The following point sources were added to the State Canal: A-1 Drain, South Davis Sewer District North WWTP, and outlet channel from Bountiful Pond (Mill Creek and Stone Creek). In addition, the Jordan Basin WRF discharge was added to the Jordan River, as this discharge was not active at the time of the TMDL model development.

The Jordan River WLA QUAL2Kw model was used for determining the WQBEL for ammonia. Effluent concentrations were adjusted up to the current permit limits so that water quality criteria were not exceeded in the receiving water. The current permit limits for DO and CBOD were used in the model and not modified due to the ongoing TMDL. Background condition for each plant was characterized by assuming each upstream plant was operating at average flow rate with average ammonia concentration in the effluent. For calculating the chronic ammonia criterion, fish early life stages (ELS) were assumed present during all seasons.

A simple mass balance spreadsheet tool was developed to calculate the WLA for conservative constituents such as metals. The limiting flow condition at each facility was the winter season, which was used for the allocation. Each plant was granted a full allocation at the point of discharge. Background condition for each plant was characterized by assuming each upstream plant was operating at the projected 5-year average flow rate with 80th percentile metal concentration in the effluent. Since in-stream and/or facility effluent concentrations were not available for chromium III, chromium VI, and cyanide, and the detection level was too high for mercury, effluent limits were not updated for these metals; therefore, the limits in the 2004 WLA are shown and monitoring should be required for these metals.

Since the critical low flows and design discharge remained the same as in the current WLA, the effluent limits for total residual chlorine (TRC) were not revised. TRC limits only apply to South Valley WRF, SDSD South WWTP and SDSD North WWTP.

The calibration, validation and wasteload models are available for review by request.

WET Limits

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

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Table 5: WET Limits for IC₂₅

Season	Percent Effluent
Jordan Basin WRFr	41%
South Valley WRF	53%
Central Valley WRF	40%
SDSD South WWTP	7%
SDSD North WWTP	22%

Effluent Limits

The water quality based effluent limits determined as part of this combined wasteload allocation are summarized in Table 6.

Table 6: Water Quality Based Effluent Limits Summary

Effluent Constituent	Averaging Period	Jordan Basin	South Valley	Central Valley	SDSD South WWTP	SDSD North WWTP
Flow (MGD)	Monthly	15	50	75	4	12
Ammonia Acute (mg/L)	Daily					
Summer (Jul-Sep)		13.0	10.8	13.1	30.0	31.7
Fall (Oct-Dec)		12.6	9.0	16.4	40.0	16.2
Winter (Jan-Mar)		13.0	9.4	13.3	40.0	23.4
Spring (Apr-Jun)		10.9	7.4	25.1	30.0	26.8
Ammonia Chronic (mg/L)	Monthly					
Summer (Jul-Sep)		3.7	4.0	5.8	8.0 ^b	8.0 ^b
Fall (Oct-Dec)		5.6	4.0	7.2	7.5 ^b	7.5 ^b
Winter (Jan-Mar)		4.4	4.0	5.8	7.0 ^b	7.0 ^b
Spring (Apr-Jun)		4.8	4.5	8.5	12.0 ^b	12.0 ^b
TRC Acute (mg/L)	Daily					
Summer (Jul-Sep)		N/A	0.030	N/A	0.310	0.090
Fall (Oct-Dec)		N/A	0.027	N/A	0.180	0.060
Winter (Jan-Mar)		N/A	0.028	N/A	0.170	0.070
Spring (Apr-Jun)		N/A	0.027	N/A	0.070	0.060
DO (mg/L)	Minimum	5.0	5.0	5.0	5.0	5.0
BOD ₅ /CBOD ₅ (mg/L)	Monthly	BOD ₅	BOD ₅	CBOD ₅	BOD ₅	BOD ₅
Summer (Jul-Sep)		15.0	15.0	16.0	20.0	20.0
Fall (Oct-Dec)		15.0	15.0	20.0	25.0	25.0
Winter (Jan-Mar)		15.0	15.0	20.0	25.0	25.0
Spring (Apr-Jun)		15.0	15.0	20.0	25.0	25.0
BOD ₅ /CBOD ₅ (mg/L)	Weekly	BOD ₅	BOD ₅	CBOD ₅	BOD ₅	BOD ₅
Summer (Jul-Sep)		21.0	21.0	27.0	27.0	27.0
Fall (Oct-Dec)		21.0	21.0	28.0	35.0	35.0
Winter (Jan-Mar)		21.0	21.0	28.0	35.0	35.0
Spring (Apr-Jun)		21.0	21.0	28.0	35.0	35.0
TDS (mg/L) ¹	Daily	1,200	1,200	---	---	---
Temperature (deg C) ^a	Maximum	20.0	20.0	---	---	---

a: Limit due to impairment of receiving segment.

b: Chronic ammonia allocation for SDSD plants to be superseded by wasteload analysis with revised assumptions.

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QUAL2Kw rates, input and output are summarized in Appendix A. The WQBELs for conservative constituents are summarized in Appendix B. Models and supporting documentation are available for review upon request.

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Standards and Technical Services Section**

Files:

WLA Document: *jordan_river_potw_wla_2015_final_2016-01-27.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_2015.xlsm*
Metals Wasteload Model: *jordan_potw_metals_wla_2015.xlsx*

References:

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WASTELOAD ANALYSIS [WLA]

Date: 1/27/2016

Appendix A: QUAL2Kw Analysis for Ammonia

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

Fully Mixed: No
Acute River Width: 50%
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)	709.0	16.0	16.0	501.0
Temperature, Mean (deg C)	21.5	9.7	4.2	15.2
Temperature, Diel Range (deg C)	3.0	2.5	2.0	2.5
Specific Conductance (µmhos)	1635	1750	1729	1374
Inorganic Suspended Solids (mg/L)	73.5	21.7	17.1	40.4
Dissolved Oxygen, Mean (mg/L)	6.1	9.0	11.7	8.0
Dissolved Oxygen, Diel Range (mg/L)	2.5	2.0	1.5	2.0
CBOD ₅ (mg/L)	3.0	3.0	3.0	3.0
Organic Nitrogen (mg/L)	0.900	0.900	0.900	0.900
NH ₄ -Nitrogen (mg/L)	0.297	0.290	0.165	0.104
NO ₃ -Nitrogen (mg/L)	0.800	0.800	0.800	0.800
Organic Phosphorus (mg/L)	0.052	0.012	0.018	0.017
Inorganic Ortho-Phosphorus (mg/L)	0.045	0.035	0.040	0.040
Phytoplankton (µg/L)	27.3	9.0	15.0	8.1
Detritus [POM] (mg/L)	17.9	6.3	7.9	9.3
Alkalinity (mg/L)	188	192	213	200
pH	8.4	8.0	8.1	8.4

Discharge Information - Jordan Basin WRF

Chronic	Summer	Fall	Winter	Spring
Flow (MGD)	10.1	10.5	9.9	9.3
Temperature (deg C)	22.1	18.7	15.6	18.3
Specific Conductance (µmhos)	1791	1791	1791	1791
Inorganic Suspended Solids (mg/L)	1.5	1.5	1.5	1.5
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)	0.500	0.500	0.500	0.500
NH ₄ -Nitrogen (mg/L)	0.158	0.158	0.158	0.158
NO ₃ -Nitrogen (mg/L)	7.800	7.800	7.800	7.800
Organic Phosphorus (mg/L)	0.080	0.080	0.080	0.080
Inorganic Ortho-Phosphorus (mg/L)	0.320	0.320	0.320	0.320
Phytoplankton (µg/L)	0.400	0.400	0.400	0.400
Detritus [POM] (mg/L)	0.5	0.5	0.5	0.5
Alkalinity (mg/L)	200	200	200	200
pH	7.5	7.5	7.5	7.5

Acute	Summer	Fall	Winter	Spring
Flow (MGD)	15.0	15.0	15.0	15.0
pH	8.8	7.6	7.6	7.8

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Discharge Information - South Valley WRF

Chronic	Summer	Fall	Winter	Spring
Flow (MGD)	21.7	20.7	20.2	20.3
Temperature (deg C)	22.0	18.1	14.4	18.0
Specific Conductance (µmhos)	1557	1487	1605	1517
Inorganic Suspended Solids (mg/L)	6.0	6.0	6.0	6.0
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)	1.250	1.250	1.250	1.250
NH ₄ -Nitrogen (mg/L)	0.086	0.113	0.135	0.113
NO ₃ -Nitrogen (mg/L)	17,000	17,000	17,000	17,000
Organic Phosphorus (mg/L)	0.400	0.200	0.300	0.500
Inorganic Ortho-Phosphorus (mg/L)	2,700	3,100	2,800	2,700
Phytoplankton (µg/L)	0.000	0.000	0.000	0.000
Detritus [POM] (mg/L)	0.0	0.0	0.0	0.0
Alkalinity (mg/L)	191	169	169	180
pH	7.5	7.5	7.5	7.5
Acute	Summer	Fall	Winter	Spring
Flow (MGD)	50.0	50.0	50.0	50.0
pH	7.9	7.9	7.9	8.2

Discharge Information - Central Valley WRF

Chronic	Summer	Fall	Winter	Spring
Flow (MGD)	51.8	49.7	51.1	56.9
Temperature (deg C)	21.8	16.1	12.8	16.9
Specific Conductance (µmhos)	1335	1314	1403	1403
Inorganic Suspended Solids (mg/L)	5.5	5.5	5.5	5.5
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)	2.000	2.000	2.000	2.000
NH ₄ -Nitrogen (mg/L)	1.247	1.269	2.266	0.990
NO ₃ -Nitrogen (mg/L)	12,500	12,500	12,500	12,500
Organic Phosphorus (mg/L)	0.200	0.200	0.400	0.300
Inorganic Ortho-Phosphorus (mg/L)	2,900	2,800	2,600	2,700
Phytoplankton (µg/L)	0.000	0.000	0.000	0.000
Detritus [POM] (mg/L)	0.0	0.0	0.0	0.0
Alkalinity (mg/L)	168	169	177	179
pH	7.3	7.4	7.2	7.2
Acute	Summer	Fall	Winter	Spring
Flow (MGD)	75.0	75.0	75.0	75.0
pH	7.5	7.6	7.6	7.7

Discharge Information - South Davis Sewer District South WWTP

Chronic	Summer	Fall	Winter	Spring
Flow (MGD)	4.0	4.0	4.0	4.0
Temperature (deg C)	23.0	16.7	12.6	18.7
Specific Conductance (µmhos)	2733	2722	2923	2808
Inorganic Suspended Solids (mg/L)	12.0	12.0	12.0	12.0
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)	2.000	2.000	2.000	2.000
NH ₄ -Nitrogen (mg/L)	8,000	7,500	7,000	12,000
NO ₃ -Nitrogen (mg/L)	10,000	10,000	10,000	10,000
Organic Phosphorus (mg/L)	0.500	0.400	0.800	0.500
Inorganic Ortho-Phosphorus (mg/L)	1,100	1,000	1,000	1,200
Phytoplankton (µg/L)	0.000	0.000	0.000	0.000
Detritus [POM] (mg/L)	0.0	0.0	0.0	0.0
Alkalinity (mg/L)	296	294	334	300
pH	7.5	7.4	7.5	7.6
Acute	Summer	Fall	Winter	Spring
Flow (MGD)	4.0	4.0	4.0	4.0
pH	7.8	7.7	7.7	7.9

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Discharge Information - South Davis Sewer District North WWTP

	Chronic	Summer	Fall	Winter	Spring
Flow (MGD)		12.0	12.0	12.0	12.0
Temperature (deg C)		23.4	18.2	12.4	17.4
Specific Conductance (µmhos)		1856	2047	2032	1908
Inorganic Suspended Solids (mg/L)		4.0	4.0	4.0	4.0
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)		3.500	3.500	3.500	3.500
NH ₄ -Nitrogen (mg/L)		8,000	7,500	7,000	12,000
NO ₃ -Nitrogen (mg/L)		8,000	8,000	8,000	8,000
Organic Phosphorus (mg/L)		0.822	2.007	1.607	0.666
Inorganic Ortho-Phosphorus (mg/L)		1.169	1.702	1.698	1.386
Phytoplankton (µg/L)		0.000	0.000	0.000	0.000
Detritus [POM] (mg/L)		14.0	14.0	14.0	14.0
Alkalinity (mg/L)		300	300	300	300
pH		7.1	7.2	7.2	7.3
	Acute	Summer	Fall	Winter	Spring
Flow (MGD)		12.0	12.0	12.0	12.0
pH		7.5	7.5	7.4	7.5

Tributary - Little Cottonwood Creek

	Summer	Fall	Winter	Spring
Flow (cfs)	7.0	2.0	2.0	7.0
Temperature, Mean (deg C)	17.9	6.4	4.4	9.2
Temperature, Diel Range (deg C)	0.0	0.0	0.0	0.0
Specific Conductance (µmhos)	1399	1348	1944	504
Inorganic Suspended Solids (mg/L)	27.1	8.4	6.6	25.1
Dissolved Oxygen, Mean (mg/L)	8.1	9.9	11.5	10.6
Dissolved Oxygen, Diel Range (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	3.2	3.2	4.5	3.0
Organic Nitrogen (mg/L)	0.650	0.650	0.650	0.650
NH ₄ -Nitrogen (mg/L)	0.100	0.100	0.100	0.100
NO ₃ -Nitrogen (mg/L)	0.700	0.700	0.700	0.700
Organic Phosphorus (mg/L)	0.020	0.010	0.010	0.020
Inorganic Ortho-Phosphorus (mg/L)	0.040	0.030	0.030	0.030
Phytoplankton (µg/L)	25.0	4.7	11.5	11.1
Detritus [POM] (mg/L)	8.3	7.8	10.3	7.8
Alkalinity (mg/L)	173	239	218	123
pH	8.3	8.0	7.9	8.2

Tributary - Big Cottonwood Creek

	Summer	Fall	Winter	Spring
Flow (cfs)	15.0	8.0	13.0	16.0
Temperature, Mean (deg C)	18.1	7.7	5.7	9.4
Temperature, Diel Range (deg C)	0.0	0.0	0.0	0.0
Specific Conductance (µmhos)	1241	1083	1554	449
Inorganic Suspended Solids (mg/L)	20.7	7.0	8.3	21.5
Dissolved Oxygen, Mean (mg/L)	8.7	10.2	11.1	10.3
Dissolved Oxygen, Diel Range (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	3.0	3.0	4.0	3.0
Organic Nitrogen (mg/L)	0.600	0.600	0.600	0.600
NH ₄ -Nitrogen (mg/L)	0.060	0.060	0.060	0.060
NO ₃ -Nitrogen (mg/L)	0.500	0.500	0.500	0.500
Organic Phosphorus (mg/L)	0.010	0.005	0.010	0.010
Inorganic Ortho-Phosphorus (mg/L)	0.040	0.025	0.030	0.030
Phytoplankton (µg/L)	19.4	5.6	9.1	7.5
Detritus [POM] (mg/L)	7.8	9.1	10.3	7.6
Alkalinity (mg/L)	186	197	224	121
pH	8.4	8.1	8.1	8.2

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Tributary - Mill Creek above CVWRF	Summer	Fall	Winter	Spring
Flow (cfs)	9.5	6.4	7.6	14.0
Temperature, Mean (deg C)	18.2	7.9	8.2	12.1
Temperature, Diel Range (deg C)	0.0	0.0	0.0	0.0
Specific Conductance (µmhos)	1128	1049	1028	902
Inorganic Suspended Solids (mg/L)	13.6	16.7	12.9	11.9
Dissolved Oxygen, Mean (mg/L)	8.0	9.7	11.9	9.4
Dissolved Oxygen, Diel Range (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	3.0	3.0	3.0	3.7
Organic Nitrogen (mg/L)	0.600	0.600	0.600	0.600
NH ₄ -Nitrogen (mg/L)	0.050	0.050	0.050	0.050
NO ₃ -Nitrogen (mg/L)	1.500	1.500	1.500	1.500
Organic Phosphorus (mg/L)	0.020	0.025	0.015	0.005
Inorganic Ortho-Phosphorus (mg/L)	0.040	0.025	0.030	0.045
Phytoplankton (µg/L)	8.0	2.2	4.4	3.1
Detritus [POM] (mg/L)	7.5	5.7	12.2	8.4
Alkalinity (mg/L)	218	244	238	200
pH	7.9	7.9	7.8	7.9

Tributary - Decker Lake Outlet	Summer	Fall	Winter	Spring
Flow (cfs)	8.5	8.5	8.5	8.5
Temperature, Mean (deg C)	20.2	6.8	5.0	16.1
Temperature, Diel Range (deg C)	0.0	0.0	0.0	0.0
Specific Conductance (µmhos)	1777	2248	2387	1661
Inorganic Suspended Solids (mg/L)	48.1	36.0	14.6	38.1
Dissolved Oxygen, Mean (mg/L)	6.5	10.7	13.7	8.0
Dissolved Oxygen, Diel Range (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	4.6	3.1	3.2	4.4
Organic Nitrogen (mg/L)	0.930	0.930	0.930	0.930
NH ₄ -Nitrogen (mg/L)	0.140	0.140	0.140	0.140
NO ₃ -Nitrogen (mg/L)	1.200	1.200	1.200	1.200
Organic Phosphorus (mg/L)	0.030	0.020	0.025	0.040
Inorganic Ortho-Phosphorus (mg/L)	0.070	0.050	0.040	0.050
Phytoplankton (µg/L)	19.0	19.0	19.0	19.0
Detritus [POM] (mg/L)	10.4	5.5	11.7	8.2
Alkalinity (mg/L)	235	255	252	214
pH	8.2	8.3	8.3	8.2

Tributary - 1300 South Drain	Summer	Fall	Winter	Spring
Flow (cfs)	2.0	1.5	1.0	1.5
Temperature, Mean (deg C)	19.5	12.3	9.0	12.3
Temperature, Diel Range (deg C)	0.0	0.0	0.0	0.0
Specific Conductance (µmhos)	1106	1061	1632	605
Inorganic Suspended Solids (mg/L)	11.0	11.0	11.0	11.0
Dissolved Oxygen, Mean (mg/L)	6.9	6.9	6.9	6.9
Dissolved Oxygen, Diel Range (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	2.3	2.3	2.3	2.3
Organic Nitrogen (mg/L)	0.370	0.370	0.370	0.370
NH ₄ -Nitrogen (mg/L)	0.020	0.020	0.020	0.020
NO ₃ -Nitrogen (mg/L)	0.850	0.850	0.850	0.850
Organic Phosphorus (mg/L)	0.050	0.050	0.050	0.050
Inorganic Ortho-Phosphorus (mg/L)	0.000	0.000	0.000	0.000
Phytoplankton (µg/L)	2.5	0.9	0.8	0.7
Detritus [POM] (mg/L)	3.4	3.4	3.4	3.4
Alkalinity (mg/L)	210	210	210	210
pH	8.1	8.1	8.1	8.1

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Tributary - 900 South Drain	Summer	Fall	Winter	Spring
Flow (cfs)	6.0	5.5	3.0	4.5
Temperature, Mean (deg C)	20.9	12.6	9.0	12.6
Temperature, Diel Range (deg C)	0.0	0.0	0.0	0.0
Specific Conductance (µmhos)	1106	1061	1632	605
Inorganic Suspended Solids (mg/L)	31.7	31.7	31.7	31.7
Dissolved Oxygen, Mean (mg/L)	7.5	7.5	7.5	7.5
Dissolved Oxygen, Diel Range (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	2.1	2.1	2.1	2.1
Organic Nitrogen (mg/L)	0.600	0.600	0.600	0.600
NH ₄ -Nitrogen (mg/L)	0.090	0.090	0.090	0.090
NO ₃ -Nitrogen (mg/L)	1.750	1.750	1.750	1.750
Organic Phosphorus (mg/L)	0.110	-0.890	-1.890	-2.890
Inorganic Ortho-Phosphorus (mg/L)	0.150	1.150	2.150	3.150
Phytoplankton (µg/L)	2.5	0.9	0.8	0.7
Detritus [POM] (mg/L)	8.1	8.1	8.1	8.1
Alkalinity (mg/L)	250	250	250	250
pH	7.9	7.9	7.9	7.9

Tributary - North Temple Drain	Summer	Fall	Winter	Spring
Flow (cfs)	1.0	0.0	1.0	2.0
Temperature, Mean (deg C)	19.3	9.1	9.6	10.7
Temperature, Diel Range (deg C)	0.0	0.0	0.0	0.0
Specific Conductance (µmhos)	1106	1061	1632	605
Inorganic Suspended Solids (mg/L)	4.8	1.9	5.5	12.8
Dissolved Oxygen, Mean (mg/L)	7.9	9.0	8.9	9.5
Dissolved Oxygen, Diel Range (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	3.0	3.3	3.0	3.2
Organic Nitrogen (mg/L)	0.700	0.700	0.700	0.700
NH ₄ -Nitrogen (mg/L)	0.050	0.050	0.050	0.050
NO ₃ -Nitrogen (mg/L)	1.200	1.200	1.200	1.200
Organic Phosphorus (mg/L)	0.010	0.005	0.000	0.010
Inorganic Ortho-Phosphorus (mg/L)	0.030	0.025	0.020	0.040
Phytoplankton (µg/L)	2.5	0.9	0.8	0.7
Detritus [POM] (mg/L)	2.5	2.5	2.5	2.5
Alkalinity (mg/L)	238	239	252	222
pH	8.0	8.5	8.1	8.3

Minor Tributaries - Quality	Summer	Fall	Winter	Spring
Temperature, Mean (deg C)	19.6	12.9	12.3	14.8
Temperature, Diel Range (deg C)	0.0	0.0	0.0	0.0
Specific Conductance (µmhos)	1671	2022	2281	1614
Inorganic Suspended Solids (mg/L)	63.3	31.2	18.8	86.8
Dissolved Oxygen, Mean (mg/L)	7.6	8.9	9.7	9.4
Dissolved Oxygen, Diel Range (mg/L)	0.0	0.0	0.0	0.0
CBOD ₅ (mg/L)	3.0	3.0	3.0	3.0
Organic Nitrogen (mg/L)	0.930	0.930	0.930	0.930
NH ₄ -Nitrogen (mg/L)	0.070	0.070	0.070	0.070
NO ₃ -Nitrogen (mg/L)	3.200	3.200	3.200	3.200
Organic Phosphorus (mg/L)	0.045	0.020	0.020	0.085
Inorganic Ortho-Phosphorus (mg/L)	0.055	0.050	0.040	0.050
Phytoplankton (µg/L)	0.0	0.0	0.0	0.0
Detritus [POM] (mg/L)	10.9	5.0	7.2	10.6
Alkalinity (mg/L)	252	325	362	277
pH	8.1	8.1	8.0	7.9

Minor Tributaries - Flow (MGD)	Summer	Fall	Winter	Spring
Corner Canyon Creek	2.0	0.0	0.0	3.0
Midas Creek (Butterfield)	1.0	1.0	1.0	2.0
Willow Creek	3.0	1.0	1.0	3.0
Dry Creek	1.0	0.0	0.0	2.0
9000 South Conduit	1.0	0.0	0.0	1.0
Bingham Creek	2.0	0.0	0.0	2.0

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Diversions - Flow (cfs)	Summer	Fall	Winter	Spring
Jordan Valley Pump Station	-14.5	-13.0	-13.0	-14.5
Utah Lake Distribution Canal	-125.0	0.0	0.0	-81.0
Utah & Salt Lake Canal	-224.0	0.0	0.0	-145.0
East Jordan & Draper Canal	-222.0	0.0	0.0	-150.0
South Jordan Canal	-63.0	0.0	0.0	-85.0
Jordan & Salt Lake Canal	-35.0	0.0	0.0	-30.0
Beckstead Ditch	-5.0	0.0	0.0	0.0
North Jordan Canal	-61.0	-73.0	-63.0	-62.0
Gardner Mill Race	-3.0	0.0	0.0	0.0
Brighton Canal	-30.0	0.0	0.0	-20.0
Surplus Canal	-239.2	-249.7	-274.2	-207.7
Jordan River at Burnham Dam	-76.0	-43.0	-17.5	-83.0
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 8	12.9	12.9	12.9	12.9
Segment 7	21.5	21.5	21.5	21.5
Segment 6	81.2	81.2	81.2	81.2
Segment 5	9.6	9.6	9.6	9.6
Segment 4	14.2	14.2	14.2	14.2
Segment 3	16.4	16.4	16.4	16.4
Segment 2	0.0	0.0	0.0	0.0
Segment 1	0.0	0.0	0.0	0.0

All model numerical inputs, intermediate calculations, outputs and graphs are available for discussion, inspection and copy at the 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	Standard	Summer	Fall	Winter	Spring
Flow (MGD)	N/A				
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)	Varies				
Jordan Basin WRF		3.7	5.6	4.4	4.8
South Valley WRF		4.0	4.0	4.0	4.5
Central Valley WRF		5.8	7.2	5.8	8.5
SDSD South WWTP		8.0	7.5	7.0	12.0
SDSD North WWTP		8.0	7.5	7.0	12.0
Acute	Standard	Summer	Fall	Winter	Spring
Flow (MGD)	N/A				
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)	Varies				
Jordan Basin WRF		13.0	12.6	13.0	10.9
South Valley WRF		10.6	8.9	9.4	7.2
Central Valley WRF		13.1	16.4	13.3	25.1
SDSD South WWTP		30.0	40.0	40.0	30.0
SDSD North WWTP		31.7	16.2	23.4	26.8

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.

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

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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 HCO3- 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/m2/d or /d		
Temp correction	1.07			
First-order model carrying capacity	50	gD/m2		
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 HCO3- 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:				
Min. Air Temperature, F	Summer	Fall	Winter	Spring
	61.9	29.9	24.9	46.3
Max. Air Temperature, F	90.4	50.0	43.4	72.0
Dew Point, Temp., F	58.6	35.0	30.3	48.5
Wind, ft./sec. @ 21 ft.	9.8	7.5	7.6	9.2
Cloud Cover, %	10%	10%	10%	10%

WASTELOAD ANALYSIS [WLA]

Date: 3/10/2016

Appendix B: Mass Balance Mixing Analysis for Conservative Constituents

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

Fully Mixed: NO
Acute River Width: 50%
Chronic River Width: 100%

Modeling Information

A mass balance 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.

Winter season was considered limiting conditions.

Model Inputs

The following were utilized as inputs for the analysis.

Discharge (MGD)	Design	Projected 5-YR Ave
Jordan Basin WRF	15	15
South Valley WRF	50	22.2
Central Valley WRF	75	56.2
SDSD South WWTP	4	3.4
SDSD North WWTP	12	7.2

Flow and Hardness		Jordan River/State Canal Flow (cfs)				Hardness (mg/L)	
Source	Type	Summer	Fall	Winter	Spring	Source	River
Headwater - Utah Lake	Source	709.0	16.0	16.0	501.0	381.3	381.3
Groundwater Segment 8	Source	709.0	16.0	16.0	501.0	300.0	381.3
Utah Lake Distribution Canal	Diversion	584.0	16.0	16.0	420.0		381.3
Utah and Salt Lake Canal	Diversion	360.0	16.0	16.0	275.0		381.3
East Jordan & Draper Canal	Diversion	138.0	16.0	16.0	125.0		381.3
Jordan & Salt Lake Canal	Diversion	103.0	16.0	16.0	95.0		381.3
South Jordan Canal	Diversion	40.0	16.0	16.0	10.0		381.3
Groundwater Segment 7	Source	62.6	38.0	33.3	30.9	300.0	339.1
Jordan Basin WRF	Source	85.8	61.2	56.5	54.1	294.2	345.6
Corner Canyon Creek	Source	87.8	61.2	56.5	57.1	300.0	381.3
Beckstead Ditch	Diversion	80.8	61.2	56.5	54.1		345.6
Butterfield/Midas Creek	Source	81.8	62.2	57.5	56.1	743.0	352.5
Willow Creek	Source	84.8	63.2	58.5	59.1	300.0	351.6
Groundwater Segment 6	Source	170.3	146.4	123.9	138.3	300.0	324.3
North Jordan Canal	Diversion	109.3	73.4	60.9	76.3		351.6
Gardner Mill Race	Diversion	106.3	73.4	60.9	76.3		351.6
Dry Creek	Source	107.3	73.4	60.9	78.3	300.0	351.6
9000 South Conduit	Source	108.3	73.4	60.9	79.3	300.0	351.6
Bingham Creek	Source	110.3	73.4	61.9	81.3	617.9	355.9
South Valley WRF	Source	144.7	107.7	96.3	115.6	294.2	333.9
Little Cottonwood Creek	Source	151.7	109.7	98.3	122.6	296.4	333.1
Groundwater Segment 5	Source	161.8	119.5	106.0	132.0	300.0	330.7
Brighton Canal	Diversion	131.8	119.5	106.0	112.0		330.7
Big Cottonwood Creek	Source	146.8	127.5	119.0	128.0	270.5	324.1
Mill Creek	Source	165.8	144.5	137.0	152.0	367.5	329.8
Central Valley WRF	Source	252.7	231.5	223.9	238.9	290.8	314.7
Decker Lake Outlet	Source	253.7	232.5	224.9	239.9	408.4	315.1
Groundwater Segment 4	Source	267.9	246.7	239.1	254.1	300.0	314.2
Surplus Canal	Diversion	94.0	63.0	55.0	117.0		314.2
1300 South Conduit	Source	102.0	70.0	59.0	123.0	300.0	313.2
North Temple Conduit	Source	103.0	70.0	60.0	125.0	344.1	313.8
Groundwater Segment 3	Source	120.3	86.9	73.2	141.0	300.0	311.3
Groundwater Segment 2	Source	131.4	97.7	81.7	151.3	300.0	310.1
South Davis South WWTP	Source	136.6	102.9	87.0	156.5	355.5	312.8
Groundwater Segment 1	Source	144.2	110.3	92.7	163.5	300.0	312.0
Burnham Dam	Diversion	50.0	50.0	65.0	65.0		312.0
South Davis North WWTP	Source	61.2	61.1	76.1	76.2	355.5	318.4

Effluent Limitations

Total Recoverable Metals (ug/L)

Facility	Metal	Chronic	Acute	Metal	Chronic	Acute
Jordan Basin	Aluminum	N/A	1,276	Iron	N/A	1,709
South Valley	Aluminum	N/A	1,045	Iron	N/A	1,395
Central Valley	Aluminum	N/A	1,184	Iron	N/A	1,575
South Davis South Plant	Aluminum	N/A	5,597	Iron	N/A	7,399
South Davis North Plant	Aluminum	N/A	2,035	Iron	N/A	2,691
Jordan Basin	Arsenic ^a	356	167	Lead	36.1	617
South Valley	Arsenic ^a	268	139	Lead	24.5	470
Central Valley	Arsenic ^a	323	157	Lead	28.6	531
South Davis South Plant	Arsenic ^a	2,096	743	Lead	183.9	2,586
South Davis North Plant	Arsenic ^a	661	268	Lead	60.4	970
Jordan Basin	Cadmium	1.5	11.9	Mercury ^b	0.035	0.405
South Valley	Cadmium	1.1	9.2	Mercury ^b	0.026	0.328
Central Valley	Cadmium	1.3	10.4	Mercury ^b	0.028	0.400
South Davis South Plant	Cadmium	7.8	50.1	Mercury ^b	0.361	4.685
South Davis North Plant	Cadmium	2.5	18.8	Mercury ^b	0.099	1.249
Jordan Basin	Chromium III ^b	651	9,178	Nickel	359	2,153
South Valley	Chromium III ^b	462	7,060	Nickel	250	1,685
Central Valley	Chromium III ^b	494	8,123	Nickel	294	1,902
South Davis South Plant	Chromium III ^b	6,406	71,450	Nickel	1,912	9,179
South Davis North Plant	Chromium III ^b	1,759	20,672	Nickel	621	3,420
Jordan Basin	Chromium VI ^b	24.3	27.4	Selenium	9.7	30.7
South Valley	Chromium VI ^b	19.3	23.1	Selenium	7.6	25.3
Central Valley	Chromium VI ^b	20.4	26.0	Selenium	8.7	28.4
South Davis South Plant	Chromium VI ^b	217.1	197.8	Selenium	52.0	132.5
South Davis North Plant	Chromium VI ^b	62.5	60.0	Selenium	16.8	48.4
Jordan Basin	Chromium ^a	N/A	170.3	Silver	N/A	48.0
South Valley	Chromium ^a	N/A	139.1	Silver	N/A	35.9
Central Valley	Chromium ^a	N/A	157.7	Silver	N/A	40.2
South Davis South Plant	Chromium ^a	N/A	746.7	Silver	N/A	195.2
South Davis North Plant	Chromium ^a	N/A	270.9	Silver	N/A	75.1
Jordan Basin	Copper	63.5	70.7	Zinc	816	543
South Valley	Copper	43.6	55.0	Zinc	569	425
Central Valley	Copper	49.7	61.0	Zinc	651	470
South Davis South Plant	Copper	309.6	285.0	Zinc	4,149	2,190
South Davis North Plant	Copper	102.0	108.2	Zinc	1,364	832
Jordan Basin	Cyanide ^b	15.1	42.9			
South Valley	Cyanide ^b	11.4	35.0			
Central Valley	Cyanide ^b	12.2	40.3			
South Davis South Plant	Cyanide ^b	354.6	354.6			
South Davis North Plant	Cyanide ^b	43.3	102.6			

a: Acute limit is to meet agricultural beneficial use

b: Limits are from 2004 WLA; monitoring required to update.