

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. **UT0021717**
Biosolids Permit No. **UTL021717**
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")*,

PROVO CITY

is hereby authorized to discharge from its wastewater treatment facility to receiving waters named **MILL RACE**,

to dispose of biosolids,

and to discharge storm water,

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

This permit shall become effective on April 1, 2016

This permit expires at midnight on March 31, 2021.

Signed this 17th day of March, 2016.



Leah Ann Lamb
Acting Director

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I. DISCHARGE LIMITATIONS AND REPORTING REQUIREMENTS

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

Outfall Number
001

Location of Discharge Outfall

The discharge point is located at latitude 40°12'45", longitude 111°39'00". The effluent is discharged into the Mill Race, thence to East Bay Golf Course then into Utah Lake. Total residual chlorine (TRC) can be sampled at the sampling port 60 feet downstream from Outfall 001 at the property boundary or at end of pipe before entering the receiving water.

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

C. Specific Limitations and Self-Monitoring Requirements.

1. Effective immediately, and lasting through the life of this permit, there shall be no acute or chronic toxicity in Outfall 001 as defined in *Part VIII*, and determined by test procedures described in *Part I. C.3.* 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 | | | | |
|---------------------------------|-------------------------|------------------------|----------------|---------------|---------------------------------------|
| | Monthly Average | Weekly Minimum Average | Weekly Average | Daily Minimum | Daily Maximum |
| Flow, MGD | 21.0 | NA | NA | NA | NA |
| BOD ₅ , mg/L | 25 | NA | 35 | NA | NA |
| BOD ₅ Min. % Removal | 85 | NA | NA | NA | NA |
| TSS, mg/L | 25 | NA | 35 | NA | NA |
| TSS Min. % Removal | 85 | NA | NA | NA | NA |
| E-Coli, No./100mL | 126 | NA | 157 | NA | NA |
| TRC, mg/L *j | 0.013 | NA | NA | NA | 0.022 |
| Ammonia, mg/L | | | | | |
| Summer (July – September) | 3.0 | NA | NA | NA | 8.0 |
| Fall (Oct – Dec) | 4.0 | NA | NA | NA | 12.0 |
| Winter (Jan – Mar) | 5.0 | NA | NA | NA | 20.0 |
| Spring (Apr – Jun) | 3.5 | NA | NA | NA | 12.0 |
| WET, Chronic Biomonitoring | | | | | |
| January – March | NA | NA | NA | NA | Pass, IC ₂₅ > 95% effluent |
| April — December | NA | NA | NA | NA | Pass, IC ₂₅ > 94% effluent |
| Oil & Grease, mg/L | NA | NA | NA | NA | 10 |
| pH, Standard Units | NA | NA | NA | 6.5 | 9.0 |
| Dissolved Oxygen (DO), mg/L | NA | 6.0 | NA | 5.0 | NA |

NA – Not Applicable

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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 Effluent | 5 x Weekly | Composite | mg/L |
| | 5 x Weekly | Composite | mg/L |
| TSS, Influent *d Effluent | 5 x Weekly | Composite | mg/L |
| | 5 x Weekly | Composite | mg/L |
| E. Coli | 5 x Weekly | Grab | No./100mL |
| TRC | Daily | Grab | mg/L |
| pH | 5 x Weekly | Grab | SU |
| Total Ammonia (as N) | 5 x Weekly | Grab | mg/L |
| DO | 5 x Weekly | Grab | mg/L |
| WET – Biomonitoring *f | Quarterly | Composite | Pass/Fail |
| Oil & Grease *e | When Sheen is Observed | Grab | mg/L |
| Total Dissolved Solids | Monthly | Composite | mg/L |
| Total Ammonia, *h | Monthly | Composite | mg/L |
| Orthophosphate, (as P) *h Effluent | Monthly | Composite | mg/L |
| Phosphorus, Total *h Influent Effluent | Monthly | Composite | mg/L |
| | Monthly | Composite | mg/L |
| Total Kjeldahl Nitrogen, TKN (as N) *h Influent Effluent | Monthly | Composite | mg/L |
| | Monthly | Composite | mg/L |
| Nitrite-Nitrate, NO ₃ *h | Monthly | Composite | mg/L |
| Metals, Influent *g, *i Effluent | Quarterly | Grab/Composite | mg/L |
| | Quarterly | Grab/Composite | mg/L |
| Organic Toxics, *i | Yearly | Grab | mg/L |

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

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

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

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

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- *e Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report NA.
- *f In the even calendar years Ceriodaphnia will be tested during the 1st and 3rd quarters and fathead minnows will be tested during the 2nd and 4th quarters. In the odd calendar years fathead minnows will be tested during the 1st and 3rd quarters and Ceriodaphnia will be tested during the 2nd and 4th quarters.
- *g No metal limits are required at this time.
- *h Composite samples shall be 24 hour composites collected by use of an automatic sampler or minimum of four grab samples collected a minimum of two hours apart. Unless the rule regarding sampling for nutrients is changed, then the rule must be followed.
- *i See Part II of this permit for additional requirements regarding sampling for metals and organic toxics.
- *j The TRC limitation will only be applicable if chlorine is being utilized as disinfection on the effluent.

3. Chronic Whole Effluent Toxicity (WET) Testing.

- a. *Whole Effluent Testing – Chronic Toxicity.* Starting immediately, 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. 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.c*, 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 136.3(a) *TABLE 1A-LIST OF APPROVED BIOLOGICAL METHODS*. Test species shall consist of Ceriodaphnia dubia and Pimephales promelas (fathead minnow).

Chronic toxicity occurs when the IC₂₅ is equal to or less than the 95 % effluent dilution. If any of the acceptable control performance criteria are not met, the test shall be considered invalid. IC₂₅ is the inhibition concentration

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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 Discharge Monitoring Report (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.

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.

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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 Monitoring Results.

1. Reporting of Wastewater Monitoring Results Monitoring results obtained during the previous month shall be summarized for each month and reported on a Discharge Monitoring Report Form (EPA No. 3320-1) or by NetDMR, post-marked or entered into NetDMR no later than the 28th day of the month following the completed reporting period. The first report is due on May 28, 2016. 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

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, wastestreams with a closed cup flashpoint of less than 140oF (60oC);
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, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;
7. Pollutants, which result in the presence of toxic gases, vapor, or fumes within the POTW in a quantity that may cause worker health or safety problems;
8. Any trucked or hauled pollutants, except at discharge points designated by the POTW; or
9. Any pollutant that causes pass through or interference at the POTW.
10. Any specific pollutant which exceeds any local limitation established by the POTW in accordance with the requirement of *40 CFR 403.5(c)* and *40 CFR 403.5(d)*.

E. Categorical Standards. In addition to the general and specific limitations expressed in *Part 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.

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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 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.

| Monitoring for Pretreatment Program | | | | |
|-------------------------------------|----------|----------------|-----------|-------|
| Parameter | MDL a* | Sample Type | Frequency | Units |
| Total Aluminum | 0.82 | Composite | Quarterly | mg/L |
| Total Arsenic | 0.16 | | | |
| Total Cadmium | 0.0006 | | | |
| Total Chromium | 0.20 | | | |
| Total Copper | 0.023 | | | |
| Total Cyanide | 0.005 | Grab | | |
| Total Lead | 0.011 | Composite | | |
| Total Mercury | 0.000012 | Composite/Grab | | |
| Total Molybdenum | NA | Composite | | |
| Total Nickel | 0.13 | | | |
| Total Selenium | 0.0048 | | | |
| Total Silver | 0.020 | | | |
| Total Zinc | 0.29 | | | |
| TTOs, b* | NA | Composite/Grab | Annually | |

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.

b* 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) quarterly. The pesticides fraction of Appendix D, Table II is suspended unless pesticides are expected to be present.

2. 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.

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3. In accordance with the requirements of *40 CFR Part 403.5(c)*, the permittee shall determine if there is a need to develop or revise its local limits in order to implement the general and specific prohibitions of *40 CFR Part 403.5 (a)* and *Part 403.5 (b)*. A technical evaluation of the need to develop or revise local limits shall be submitted to the Division within **12 months** of the effective date of this permit. This evaluation should be conducted in accordance with the latest revision of the *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. Under *40 CFR 503.32 (b)(3)Appendix (B)(3)*, 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).
- b. Under *40 CFR 503.32 (b)(2) - Alternative 1*, The PSRP may be accomplished through testing and the biosolids must 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.

2. Description of Biosolids Disposal Method

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

3. Changes in Treatment Systems and Disposal Practices.

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

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

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

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

| 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 one of the pathogen measurement requirements in the following Pathogen Control Class table or shall meet the requirements for a Process to Further Reduce Pathogens as defined in *40 CFR Part 503.32(a) Sewage Sludge – Class A*.
 - 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)*):

* CPLR -- Cumulative Pollutant Loading Rate

† APLR – Annual Pollutant Loading Rate

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- (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.

| Pathogen Control Class | |
|---|---|
| Class A | Class B |
| B Salmonella species –less than three (3) MPN [‡] 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. PWRF is meeting the requirements through the following methods.
- (1) Under 40 CFR 503.33(b)(1), the solids need to be treated through anaerobic digestion for at least 15 days at a temperature of at least 35° C (95° F) with a 38% reduction of volatile solids.
 - (2) PWRF transfers solids to another facility (Southern Utah Solid Waste District) where they are stabilized through composting to Class A, and distributed to the public and cities.

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

4. Self-Monitoring Requirements.

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

| Minimum Frequency of Monitoring (40 CFR Part 503.16, 503.26, and 503.46) | | |
|--|-------------------------------|------------------------------|
| Amount of Biosolids Disposed Per Year | | Monitoring Frequency |
| Dry US Tons | Dry Metric Tons | Per Year or Batch |
| > 0 to < 320 | > 0 to < 290 | Once Per Year or Batch |
| > 320 to < 1650 | > 290 to < 1,500 [§] | Once a Quarter or Four Times |
| > 1,650 to < 16,500 | > 1,500 to < 15,000 | 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 CFR 503 and/or other criteria specific to this permit. A metals analysis is to be performed using *Method SW 846* with *Method 3050* used for digestion. For the digestion procedure, an amount of biosolids equivalent to a dry weight of one gram shall be used. The methods are also described in the latest version of the *Region VIII Biosolids Management Handbook*.
- c. The Director may request additional monitoring for specific pollutants derived from biosolids if the data shows a potential for concern.

[§] Permittee produced 1,094 Dry Metric Tons in 2015. Accordingly, they will sample at least 4 times per year.

- d. After two (2) years of monitoring at the frequency specified, the permittee may request that the Director reduce the sampling frequency for the heavy metals. The frequency cannot be reduced to less than once per year for biosolids that are sold or given away to the public for any parameter. The frequency also cannot be reduced for any of the pathogen or vector attraction reduction requirements listed in this permit.

C. Management Practices of Biosolids.

1. Biosolids Distribution Information

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

2. Biosolids Application Site Storage

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

3. Land Application Practices

- a. The permittee shall operate and maintain the land application site operations in accordance with the following requirements:
 - (1) The permittee shall provide to the Director and the EPA within 90 days of the effective date of this permit a land application plan.
 - (2) Application of biosolids shall be conducted in a manner that will not contaminate the groundwater or impair the use classification for that water underlying the sites.
 - (3) Application of biosolids shall be conducted in a manner that will not cause a violation of any receiving water quality standard from discharges of surface runoff from the land application sites. Biosolids shall not be applied to land 10 meters or less from waters of the United States (as defined in 40 CFR 122.2).

- (4) No person shall apply biosolids for beneficial use to frozen, ice-covered, or snow-covered land where the slope of such land is greater than three percent and is less than or equal to six percent unless one of the following requirements is met:
 - (a) there is 80 percent vegetative ground cover; or,
 - (b) approval has been obtained based upon a plan demonstrating adequate runoff containment measures.
- (5) Application of biosolids is prohibited to frozen, ice-covered, or snow covered sites where the slope of the site exceeds six percent.
- (6) Agronomic Rate
 - (a) Application of biosolids shall be conducted in a manner that does not exceed the agronomic rate for available nitrogen of the crops grown on the site. At a minimum, the permittee is required to follow the methods for calculating agronomic rate outlined in the latest version of the *Region VIII Biosolids Management Handbook* (other methods may be approved by the Director). The treatment plant shall provide written notification to the applier of the biosolids of the concentration of total nitrogen (as N on a dry weight basis) in the biosolids. Written permission from the Director is required to exceed the agronomic rate.
 - (b) The permittee may request the limits of *Part III, C, 6* be modified if different limits would be justified based on local conditions. The limits are required to be developed in cooperation with the local agricultural extension office or university.
 - (c) Deep soil monitoring for nitrate-nitrogen is required for all land application sites (does not apply to sites where biosolids are applied less than once every five years). A minimum of six samples for each 320 (or less) acre area is to be collected. These samples are to be collected down to either a 5 foot depth, or the confining layer, whichever is shallower (sample at 1 foot, 2 foot, 3 foot, 4 foot and 5 foot intervals). Each of these one-foot interval samples shall be analyzed for nitrate-nitrogen. In addition to the one-foot interval samples, a composite sample of the 5 foot intervals shall be taken, and analyzed for nitrate-nitrogen as well. Samples are required to be taken once every five years for non-irrigated sites that receive more than 18 inches of precipitation annually or for irrigated sites
- (7) Biosolids shall not be applied to any site area with standing surface water. If the annual high groundwater level is known or suspected to be within five feet of the surface, additional deep soil monitoring for nitrate-

nitrogen as described in *Part III.C.(6),(c)*. is to be performed. At a minimum, this additional monitoring will involve a collection of more samples in the affected area and possibly more frequent sampling. The exact number of samples to be collected will be outlined in a deep soil monitoring plan to be submitted to the Director and the EPA within 90 days of the effective date of this permit. The plan is subject to approval by the Director.

- (8) The specified cover crop shall be planted during the next available planting season. If this does not occur, the permittee shall notify the Director in writing. Additional restrictions may be placed on the application of the biosolids on that site on a case-by-case basis to control nitrate movement. Deep soil monitoring may be increased under the discretion of the Director.
- (9) When weather and or soil conditions prevent adherence to the biosolids application procedure, biosolids shall not be applied on the site.
- (10) For biosolids that are sold or given away, an information sheet shall be provided to the person who receives the biosolids. The label or information sheet shall contain:
 - (a) The name and address of the person who prepared the biosolids for sale or give away for application to the land.
 - (b) A statement that prohibits the application of the biosolids to the land except in accordance with the instructions on the label or information sheet.
 - (c) The annual whole biosolids application rate for the biosolids that do not cause the metals loading rates in Tables 1, 2, and 3 (*Part III.B.1.*) to be exceeded.
- (11) Biosolids subject to the cumulative pollutant loading rates in Table 2 (*Part III.B.1.*) shall not be applied to agricultural land, forest, a public contact site, or a reclamation site if any of the cumulative pollutant loading rates in Table 2 have been reached.
- (12) If the treatment plant applies the biosolids, it shall provide the owner or leaseholder of the land on which the biosolids are applied notice and necessary information to comply with the requirements in this permit.
- (13) The permittee shall inspect the application of the biosolids to active sites to prevent malfunctions and deterioration, operator errors and discharges, which may cause or lead to the release of biosolids to the environment or a threat to human health. The permittee must conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment. The permittee shall keep an

inspection log or summary including at least the date and time of inspection, the printed name and the handwritten signature of the inspector, a notation of observations made and the date and nature of any repairs or corrective action.

- D. Special Conditions on Biosolids Storage. Permanent storage of biosolids is prohibited. Biosolids shall not be temporarily stored for more than two (2) years. Written permission to store biosolids for more than two years must be obtained from the Director. Storage of biosolids for more than two years will be allowed only if it is determined that significant treatment is occurring.
- E. Representative Sampling. Biosolids samples used to measure compliance with *Part III* of this Permit shall be collected at locations representative of the quality of biosolids generated at the treatment works and immediately prior to land application.
- F. Reporting of Monitoring Results.

1. Biosolids. The permittee shall provide the results of all monitoring performed in accordance with *Part III.B*, and information on management practices, biosolids treatment, site restrictions and certifications shall be provided no later than February 19 of each year. Each report is for the previous calendar year. If no biosolids were sold or given away during the reporting period, "no biosolids were sold or given away" shall be reported. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the *Signatory Requirements (see Part VII.G)*, and submitted to the Utah Division of Water Quality and the EPA at the following addresses:

Original to: Biosolids Coordinator
Utah Division of Water Quality
P. O. 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 fire fighting 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:

- (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 where 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.

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- (j) Locations of outfalls and the types of discharges contained in the drainage areas of the outfalls.
- (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; 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

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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 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 fire fighting 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.

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- (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.
- (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 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.

- 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.

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 VI.G, Bypass of Treatment Facilities.*);
 - c. Any upset which exceeds any effluent limitation in the permit (See *Part VI.H, Upset Conditions.*);
 - d. Violation of a 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,

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- e. Steps taken, if any, to mitigate the adverse impacts on the environment and human health during the noncompliance period.
4. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Division of Water Quality, (801) 536-4300.
5. Reports shall be submitted to the addresses in *Part I.D, Reporting of Monitoring Results*.
- I. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for *Part I.D* are submitted. The reports shall contain the information listed in *Part V.H.3*
- J. Inspection and Entry The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:
 1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
 2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, including but not limited to, biosolids treatment, collection, storage facilities or area, transport vehicles and containers, and land application sites;
 4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the *Act*, any substances or parameters at any location, including, but not limited to, digested biosolids before dewatering, dewatered biosolids, biosolids transfer or staging areas, any ground or surface waters at the land application sites or biosolids, soils, or vegetation on the land application sites; and,
 5. The permittee shall make the necessary arrangements with the landowner or leaseholder to obtain permission or clearance, the Director, or authorized representative, upon the presentation of credentials and other documents as may be required by law, will be permitted to enter without delay for the purposes of performing their responsibilities.

VI. COMPLIANCE RESPONSIBILITIES

- A. Duty to Comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements.
- B. Penalties for Violations of Permit Conditions. The *Act* provides that any person who violates a permit condition implementing provisions of the *Act* is subject to a civil penalty not to exceed \$10,000 per day of such violation. Any person who willfully or negligently violates permit conditions or the Act is subject to a fine not exceeding \$25,000 per day of violation. Any person convicted under *UCA 19-5-115(2)* a second time shall be punished by a fine not exceeding \$50,000 per day. Except as provided at *Part 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 judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance, and
 - (3) The permittee submitted notices as required under *section VI.G.3.*
 - b. The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed in *sections VI.G.2.a (1), (2) and (3).*

3. Notice.
 - a. *Anticipated bypass.* Except as provided above in *section VI.G.2* and below in *section VI.G.3.b*, if the permittee knows in advance of the need for a bypass, it shall submit prior notice, at least ninety days before the date of bypass. The prior notice shall include the following unless otherwise waived by the Director:
 - (1) Evaluation of alternative to bypass, including cost-benefit analysis containing an assessment of anticipated resource damages;
 - (2) A specific bypass plan describing the work to be performed including scheduled dates and times. The permittee must notify the Director in advance of any changes to the bypass schedule;

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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,

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- d. The permittee complied with any remedial measures required under *Part VI.D, Duty to Mitigate*.
3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

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 areawide treatment management plans or promulgations/revisions to TMDLs (40 CFR 130.7) approved by the EPA and adopted by DWQ which calls for different effluent limitations than contained in this permit.
- P. Biosolids – Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate biosolids limitations (and compliance schedule, if necessary), management practices, other appropriate requirements to protect public health and the environment, or if there have been substantial changes (or such changes are planned) in biosolids use or disposal practices; applicable management practices or numerical limitations for pollutants in biosolids have been promulgated which are more stringent than the requirements in this permit; and/or it has been determined that the permittees biosolids use or land application practices do not comply with existing applicable state of federal regulations.
- Q. Toxicity Limitation - Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include, whole effluent toxicity (WET) limitations, a compliance date, a compliance schedule, a change in the whole effluent toxicity (biomonitoring) protocol, additional or modified numerical limitations, or any other conditions related to the control of toxicants if one or more of the following events occur;
1. Toxicity is detected, as per *Part I.C.3.* 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 toxicant 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 survival, growth, or reproduction for either test species exposed to a specific percent effluent dilution is significantly less (at the 95 percent confidence level) than the survival, growth, or reproduction of the control specimens.
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.

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8. "Composite Samples" shall be flow proportioned. The composite sample shall, as a minimum, contain at least four (4) samples collected over the compositing period. Unless otherwise specified, the time between the collection of the first sample and the last sample shall not be less than six (6) hours nor more than 24 hours. Acceptable methods for preparation of composite samples are as follows:
 - a. Constant time interval between samples, sample volume proportional to flow rate at time of sampling;
 - b. Constant time interval between samples, sample volume proportional to total flow (volume) since last sample. For the first sample, the flow rate at the time the sample was collected may be used;
 - c. Constant sample volume, time interval between samples proportional to flow (i.e., sample taken every "X" gallons of flow); and,
 - d. Continuous sample volume, with sample collection rate proportional to flow rate.
9. "CWA," means *The Federal Water Pollution Control Act*, as amended, by *The Clean Water Act of 1987*.
10. "Daily Maximum" (Daily Max.) is the maximum value allowable in any single sample or instantaneous measurement.
11. "EPA," means the United States Environmental Protection Agency.
12. "Director," means Director of the Division of Water Quality.
13. A "grab" sample, for monitoring requirements, is defined as a single "dip and take" sample collected at a representative point in the discharge stream.
14. An "instantaneous" measurement, for monitoring requirements, is defined as a single reading, observation, or measurement.
15. "Severe Property Damage," means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
16. "Upset," means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does

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not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

B. Biosolids.

1. "Biosolids," means any material or material derived from sewage solids that have been biologically treated.
2. "Dry Weight-Basis," means 100 percent solids (i.e. zero percent moisture).
3. "Land Application" is the spraying or spreading of biosolids onto the land surface; the injection of biosolids below the land surface; or the incorporation of biosolids into the land 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.

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10. "Vector Attraction" is the characteristic of biosolids that attracts rodents, flies, mosquitos or other organisms capable of transporting infectious agents.
11. "Animals" for the purpose of this permit are domestic livestock.
12. "Annual Whole Sludge Application Rate" is the amount of sewage sludge (dry-weight basis) that can be applied to a unit area of land during a cropping cycle.
13. "Agronomic Rate" is the whole sludge application rate (dry-weight basis) designed to: (1) provide the amount of nitrogen needed by the crop or vegetation grown on the land; and (2) minimize the amount of nitrogen in the sewage sludge that passes below the root zone of the crop or vegetation grown on the land to the ground water.
14. "Annual Pollutant Loading Rate" is the maximum amount of a pollutant (dry-weight basis) that can be applied to a unit area of land during a 365-day period.
15. "Application Site or Land Application Site" means all contiguous areas of a users' property intended for sludge application.
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
PROVO WATER RECLAMATION FACILITY
RENEWAL PERMIT: DISCHARGE, BIOSOLIDS & STORMWATER
UPDES PERMIT NUMBER: UT0021717
UPDES BIOSOLIDS PERMIT NUMBER: UTL-000000
UPDES MULTI-SECTOR STORM WATER GENERAL PERMIT NUMBER: UTR000000
MAJOR MUNICIPAL**

FACILITY CONTACTS

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Facility Address
1685 South East Bay Boulevard
Provo, Utah 84606

Mailing Address
Provo City Water Reclamation
PO Box 1849
Provo, Utah 84603

DESCRIPTION OF FACILITY

Provo's wastewater treatment plant was originally constructed in 1954 and was upgraded in 1978. In 1998, the tertiary filters were rehabilitated. Permanent dechlorination facilities were operational in 1999. The facility consists of two bar screens and two aerated grit chambers followed by two primary sedimentation basins, two rock media trickling filters, two secondary clarifiers, four activated sludge aeration basins, four final clarifiers, six anthracite filters, and two chlorine contact basins. One of the two mechanical influent bar screens was converted to a fine screen device. This change to the process was made because of constant repairs and the fine screen adds improved screening to the treatment process.

Solids are handled by the following: one dissolved air flotation sludge thickener tank, two primary and two secondary anaerobic sludge digesters and a centrifuge. After the solids treatment the solids are land applied and/or composted.

The facility serves the City of Provo with an average design flow of 21 MGD, and a design population equivalent of 160,000. The facility is located at 1685 South East Bay Boulevard in Provo City, Utah County, Utah, latitude 40° 12' 45" and longitude 111° 39' 00", with STORET Number 499656.

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

UAC R317-1-3.3, Technology-based Phosphorus Effluent Limits (TBPEL), establishes new regulations for the discharge of phosphorus to surface waters. The TBPEL rule includes the following requirements for non-lagoon wastewater treatment plants:

1. All non-lagoon 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**.
2. The Director may authorize a variance to the TBPEL under the conditions listed in *UAC R317-3.3.C*. Demonstrations that a variance is applicable must be made by **January 1, 2018**.
3. All discharging treatment works are required to implement, at a minimum, monthly monitoring of the following **beginning July 1, 2015**:
 - a. Influent for total phosphorus (as P) and total Kjeldahl nitrogen (as N) concentrations;
 - b. Effluent for total phosphorus and orthophosphate (as P), ammonia, nitrate-nitrite and total Kjeldahl nitrogen (an N);
 - c. 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.
 - d. Discharge Monitoring Reports for your facility will be updated by DWQ to include the above mentioned parameters prior to the July 2015 monitoring period.

Therefore, the permit will include requirements for monthly composite sampling of total ammonia, orthophosphate, phosphorus, total kjeldahl nitrogen (TKN), and nitrate-nitrate.

The QUAL2Kw model was calibrated with data collect by DWQ staff in October and November 2014. The data is summarized in Appendix A of the wasteload analysis. Due to the data used to calibrate the model limits for BOD₅, ammonia, chlorine and chronic biomonitoring changed. The permittee has completed a Level II anti-degradation review (ADR) in order to allow for the relaxation of BOD₅ and ammonia limits. The ADR documentation is included with the permit documentation. The changes to the limits were incorporated into the permit.

The chronic ammonia standard is dependent on temperature and pH, the acute ammonia standard is dependent on pH. Due to the data inputted into the model the monthly average effluent limit for ammonia have changed from 1.5 mg/L for a monthly average limit and 6.1 mg/L for a daily maximum limit, to season limits as stated in the Effluent Limitation table, on page 4 of this document.

The BOD₅ limits have changed from seasonal water quality based limits to limits based on secondary standards. This change is due to the data inputted into the model.

The total residual chlorine limit has changed. The limit for the monthly average has changed from 0.015 mg/L to 0.013 mg/L. The limit for the daily maximum has changed from 0.026 mg/L to 0.022 mg/L. Currently the permittee is changing from chlorine disinfection to UV disinfection. The permittee will be allowed to stop sampling for chlorine once the chlorine is no longer being used for disinfection.

The limit for chronic biomonitoring has changed from an IC₂₅ of 87% to an IC₂₅ of 95% from January to March, and an IC₂₅ of 94% from April to December based on the new wasteload analysis.

Due to a new wasteload analysis, a limit for weekly average minimum has been added for dissolved oxygen (DO). The DO limit for the daily minimum has changed from a seasonal limit for summer of 6.0 mg/L and a spring, fall, and winter limit of 5.5 mg/L to a non-seasonal limit of 5.0 mg/L.

DISCHARGE

DESCRIPTION OF DISCHARGE

Provo City has been reporting self-monitoring results on Discharge Monitoring Reports on a monthly basis. In the last five years Provo City has had a good compliance history, with minimal violations. For more information regarding Provo City's compliance history see the following website echo.epa.gov/effluent-charts#UT0021717.

Outfall Number
001

Location of Discharge Point

After the chlorine contact basins at latitude 40°12'45", longitude 111°39'00". Total residual chlorine can be sampled at the sampling port 60 feet down stream from Outfall 001 at the property boundary or at end of pipe before the effluent enters the receiving water.

RECEIVING WATERS AND STREAM CLASSIFICATION

The discharge flows into the Mill Race and thence to Utah Lake. Mill Race is Class 2B, 3B, and 4, according to Utah Administrative Code (UAC) R317-2-13.5.c.:

- Class 2B - Protected for secondary contact recreation such as boating, wading, or similar uses.
- 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 4 - Protected for agricultural uses including irrigation of crops and stock watering.

TOTAL MAXIMUM DAILY LOAD (TMDL) CONSIDERATIONS

This facility ultimately discharges to Utah Lake which is listed on Utah's 2006 303(d) list of impaired waterbodies. Utah Lake has been identified as impaired for total phosphorous (TP) and total dissolved solids (TDS). Due to the listing of TDS the facility will be required to self-monitor for TDS on a monthly basis in order to better quantify loading of this pollutant of concern. The TP listing was based on an indicator of 0.25 mg/L.

Currently, a Utah Lake strategy is in the process of being developed. The process will include time frames for further assessment and decision points for developing a Use Attainability Analysis, TMDL, or site specific standards for TP. This process may result in pollutant load reductions and wasteload allocations. Wasteload allocations would then be translated to effluent limits in UPDES permits. It is therefore strongly recommended that the facility's staff participate in the process.

At this time there is not a water quality based standard. Based on a qualitative reasonable potential analysis for TP, the DWQ believes that Provo will not cause or contribute to the exceedance of the narrative standard. If additional data is gathered that indicates that a TP limit is needed, then the permit will be reopened and a TP limit will be included. In 2020, Provo will be required to meet the requirements of a 1 mg/L based on the TBPEL rule.

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 oil and grease is based on best professional judgment (BPJ). Total residual chlorine (TRC), whole effluent toxicity (WET), BOD₅, ammonia and dissolved oxygen (DO) are based on the WLA. The permit limitations are listed in the following table:

| Parameter | Effluent Limitations | | | | |
|---------------------------------|----------------------|------------------------|----------------|---------------|---------------------------------------|
| | Monthly Average | Weekly Minimum Average | Weekly Average | Daily Minimum | Daily Maximum |
| Flow, MGD | 21.0 | NA | NA | NA | NA |
| BOD ₅ , mg/L | 25 | NA | 35 | NA | NA |
| BOD ₅ Min. % Removal | 85 | NA | NA | NA | NA |
| TSS, mg/L | 25 | NA | 35 | NA | NA |
| TSS Min. % Removal | 85 | NA | NA | NA | NA |
| E-Coli, No./100mL | 126 | NA | 157 | NA | NA |
| TRC, mg/L | 0.013 | NA | NA | NA | 0.022 |
| Ammonia, mg/L | | | | | |
| Summer (July – September) | 3.0 | NA | NA | NA | 8.0 |
| Fall (Oct – Dec) | 4.0 | NA | NA | NA | 12.0 |
| Winter (Jan – Mar) | 5.0 | NA | NA | NA | 20.0 |
| Spring (Apr – Jun) | 3.5 | NA | NA | NA | 12.0 |
| WET, Chronic Biomonitoring | | | | | |
| January – March | NA | NA | NA | NA | Pass, IC ₂₅ > 95% effluent |
| April – December | NA | NA | NA | NA | Pass, IC ₂₅ > 94% effluent |
| Oil & Grease, mg/L | NA | NA | NA | NA | 10 |
| pH, Standard Units | NA | NA | NA | 6.5 | 9.0 |
| Dissolved Oxygen (DO), mg/L | NA | 6.0 | NA | 5.0 | NA |

NA – Not Applicable.

SELF-MONITORING AND REPORTING REQUIREMENTS

The self-monitoring requirements stated in the following table and are the same as in the previous permit.

The permit will require reports to be submitted monthly and quarterly, as applicable, on Discharge Monitoring Report (DMR) forms due 28 days after the end of the monitoring period. Lab sheets for biomonitoring must be attached to the biomonitoring DMR.

| Self-Monitoring and Reporting Requirements | | | |
|--|------------------------|-------------|-----------|
| Parameter | Frequency | Sample Type | Units |
| Flow | Continuous | Recorder | MGD |
| BOD ₅ , Influent | 5 x Weekly | Composite | mg/L |
| Effluent | 5 x Weekly | Composite | mg/L |
| TSS, Influent | 5 x Weekly | Composite | mg/L |
| Effluent | 5 x Weekly | Composite | mg/L |
| E. Coli | 5 x Weekly | Grab | No./100mL |
| TRC | Daily | Grab | mg/L |
| pH | 5 x Weekly | Grab | SU |
| Total Ammonia (as N) | 5 x Weekly | Grab | mg/L |
| DO | 5 x Weekly | Grab | mg/L |
| WET – Biomonitoring | Quarterly | Composite | Pass/Fail |
| Oil & Grease | When Sheen is Observed | Grab | mg/L |
| Total Dissolved Solids | Monthly | Composite | mg/L |
| Total Ammonia | Monthly | Composite | mg/L |
| Orthophosphate, (as P) | Monthly | Composite | mg/L |
| Phosphorus, Total | | | |
| Influent | Monthly | Composite | mg/L |
| Effluent | Monthly | Composite | mg/L |
| Total Kjeldahl Nitrogen, TKN (as N) | | | |
| Influent | Monthly | Composite | mg/L |
| Effluent | Monthly | Composite | mg/L |
| Nitrite-Nitrate | Monthly | Composite | mg/L |
| Metals, Influent | Quarterly | Composite | mg/L |
| Effluent | Quarterly | Composite | mg/L |
| Organic Toxics | Yearly | Grab | mg/L |

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 AND BENEFICIAL USE

The Permittee submitted their 2014 annual biosolids report on February 21, 2015. The report states the Permittee produced 1094 dry metric tons (DMT) of solids.

The solids from the primary settlement and activated sludge aeration basins are thickened by dissolved air flotation then 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).

After stabilization the biosolids are de-watered with a high-speed centrifuge to about twenty one percent solids. The facility still maintains drying beds for storage and back up dewatering when systems are down for maintenance.

In 2014 the PWRP produced 1,094 dry metric tons (DMT) of Class B biosolids. The biosolids met the heavy metals requirements to be considered Exceptional Quality and met Class B pathogen reduction requirements through time and temperature of the anaerobic digesters.

Of the 1,094 DMT produced in 151 DMT were stored on site, 715 DMT were land applied at agronomic rates at the Farmland Reserve Incorporated farm in Utah County, and 228 DMT were transported to the South Utah Valley Solid Waste District (SUVSWD), which composts the biosolids to meet Class A standards, then sold to the public. The SUVSWD has a valid UPDES permit and is responsible for the biosolids after the PWRP releases the biosolids to the SUVSWD under *UAC R317-8-4.1 (1) Duty to Comply*.

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, the PWRP produced of 1,094 DMT of biosolids, therefore they need to sample at least four times a 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)*). No biosolids were landfilled in 2014.

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(b)) Dry Mass Basis | | | | |
|--|---|-----------------------------|---------------------------------|--|
| Heavy Metals | Table 1 | Table 2 | Table 3 | Table 4 |
| | Ceiling Conc. Limits, (mg/kg) *a, *b, *c | CPLR ¹ , (mg/ha) | Pollutant Conc. Limits, (mg/kg) | APLR ² , (mg/ha-yr) *a, *b, *c |
| 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 |

*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;

1 CPLR -- Cumulative Pollutant Loading Rate
2 APLR -- Annual Pollutant Loading Rate

| Pathogen Control Class | |
|---|---|
| Class A | Class B |
| B Salmonella species –less than three (3) MPN 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 | |

Class A Pathogen Requirements for Home Lawn and Garden Use

If biosolids are land applied to home lawns and gardens, 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. PWRF transfers the biosolids to the Southern Utah Solid Waste District (Permit #ULT-025585) for further processing to Class A through composting prior to distribution to the public.

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 the biosolids cannot be sold or given away to the public, and the permittee will need find another method of beneficial use or disposal.

Class B Pathogen Requirements for 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). The PSRP for PWRF will be accomplished through Anaerobic Digesters:

1. Under *40 CFR 503.32 (b)(3)Appendix (B)(3)*, 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).
2. Under *40 CFR 503.32 (b)(2) - Alternative 1*, The PSRP may be accomplished through testing and the biosolids must 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.

Vector Attraction Reduction (VAR)

If the biosolids are land applied PWRF will be required to meet VAR through the use of a method of listed under *40 CFR 503.33*. PWRF intends to meet the vector attraction reduction requirements through one of the methods listed below.

3 MPN –Most Probable Number

1. Under *40 CFR 503.33(b)(1)*, the solids need to be treated through anaerobic digestion for at least 15 days at a temperature of at least 35° C (95° F) with a 38% reduction of volatile solids.
2. PWRF transfers solids to another facility (Southern Utah Solid Waste District) where they are stabilized through composting to Class A, and distributed to the public and cities.

If the biosolids do not meet a method of VAR, the biosolids cannot be land applied.

If the permittee intends to use another one of the listed alternatives in *40 CFR 503.33*, 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 be retained for a minimum of five years.

Reporting

The PWRF 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 III.B.* 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.

MONITORING DATA

METALS MONITORING DATA

The PWRF was required to sample for metals at least four times in 2014. All biosolids land applied in 2014 met *Table 3* of *40 CFR 503.13*, therefore the PWRF biosolids qualify as EQ with regards to metals. The monitoring data is below.

PWRF Metals Monitoring Data 2014

| PERMITTEE Metals Monitoring Data, 2014 (Land Application) | | | |
|---|---|----------------|----------------|
| Parameter | Table 3, mg/kg (Exceptional Quality) | Average, mg/kg | Maximum, mg/kg |
| Arsenic | 41.0 | 12.98 | 25 |
| Cadmium | 39.0 | 1.91 | 2.11 |
| Copper | 1,500.0 | 778.25 | 891 |
| Lead | 300.0 | 1.21 | 1.02 |
| Mercury | 17.0 | 8.97 | 9.5 |
| Molybdenum | 75.0 | 22.13 | 23.3 |
| Nickel | 400.0 | 20.15 | 20.4 |
| Selenium | 36.0 | 18.45 | 20.7 |
| Zinc | 2,800.0 | 1039.5 | 1170 |

PATHOGEN MONITORING DATA (Anaerobic Cake)

The PWRF was not required to monitor the anaerobic biosolids (sludge cake) for pathogens. Therefore, there is not any monitoring data for the Class B biosolids. All biosolids land applied in 2014 met the Class B pathogen standards through anaerobic digestion.

PATHOGEN MONITORING DATA (Centrifuge Cake)

The PWRF was required to monitor the Centrifuge Cake for pathogens at least four times in 2014. The PWRF had the choice to sample for *fecal* coliform or *salmonella*, and the PWRF chose *fecal* coliform. Each monitoring episode needs to consist of seven samples, for a total 28 samples. All biosolids land applied in 2014 met the Class B pathogen standards through anaerobic digestion and testing. The monitoring data is below.

PWRF Fecal Coliform Monitoring Data 2014 (Centrifuge Cake)

| | |
|--|---|
| Geometric Mean of 28 Samples, Most Probable Number Per Gram (2014) | Maximum of 28 Samples, Most Probable Number Per Gram (2014) |
| 130,210 | 794,000 |

STORM WATER REQUIREMENTS

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.

Provo City 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 with the permittee administering an approved pretreatment program. Changes to the program must be submitted 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 will be required to perform an annual 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.

The permit requires quarterly influent and effluent monitoring for metals and yearly organic toxics listed in *R317-8-7.5* and sludge monitoring for potential pollutants listed in *40 CFR 503*. All metals testing must use a low enough MDL to insure that the metals are not above the allowable levels determined by the wastelaod analysis. A summary of the MDLs for the metals can be found in Part II of the permit. If a test method is not available then the lowest test method available must be used, following approval by the Director of the DWQ.

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 a major municipal discharger, the renewal permit will again require WET testing. A review of the past three years of WET testing results indicates that no toxicity has been reported. Therefore, the permittee will continue Chronic WET testing using one species quarterly, alternating between Ceriodaphnia dubia and Pimephales promelas (fathead minnow). The permit will contain the standard requirements for re-testing upon failure of a WET test, and for a Toxicity Reduction Evaluation (TRE) as appropriate.

Chronic toxicity occurs when the survival, growth, or reproduction for either test species, when exposed to a dilution of 95 percent effluent or lower, is significantly less (at 95% confidence level) than that of the control specimens. The 95% effluent dilution criterion is based upon the waste load analysis and is consistent with previous permit conditions. 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.

PUBLIC NOTICE

The public noticing of this permit occurred from January 6, 2016 to February 8, 2016 and was published in the Daily Herald. No comments were received during the public notice. Therefore, the final version is the same as the version public noticed.

Drafted by
Jennifer Robinson, Discharge
Daniel Griffin, Biosolids
Jennifer Robinson, Pretreatment
Michael George, Storm Water
Mike Herkimer, WET
Utah Division of Water Quality

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

Date: December 14, 2015

Facility: Provo City Water Reclamation Facility
UPDES No. UT0021717

Receiving water: Mill Race (2B, 3B, 4)

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

Discharge

Outfall 001: Mill Race → Provo Bay in Utah Lake

The maximum daily design discharge is 28.0 MGD and the maximum monthly design discharge is 21.0 MGD for the facility.

Receiving Water

The receiving water for Outfall 001 is Mill Race, which is tributary to Provo Bay in Utah Lake.

Per UAC R317-2-13.5.c, the designated beneficial uses for Mill Race from Interstate Highway 15 to the Provo City wastewater treatment plant discharge are 2B, 3B, and 4.

- *Class 2B - Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.*
- *Class 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 4 - Protected for agricultural uses including irrigation of crops and stock watering.*

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Wasteload Analysis
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UPDES No. UT0021717

Typically, the critical flow for the wasteload analysis is considered the lowest stream flow for seven consecutive days with a ten year return frequency (7Q10). Due to a lack of flow records for Mill Race, the 20th percentile of flow measurements from sampling station 4996570 Mill Race above Provo WWTP was calculated to estimate annual critical flow in the receiving water (Table 1).

Table 1: Annual critical low flow

| Season | Flow (cfs) |
|--------|------------|
| Summer | 2.0 |
| Fall | 2.0 |
| Winter | 1.8 |
| Spring | 2.0 |

TMDL

Mill Race was not listed as impaired for any parameters according to the 2010 303(d) list. Utah Lake was listed as impaired for Total Dissolved Solids, Total Phosphorus and PCBs in Fish Tissue in the 2010 303(d) list Integrated Report (DWQ, 2010).

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 discharge is considered instantaneously fully mixed since the effluent discharge is twice the background receiving water flow; therefore, no mixing zone is allowed per UAC R317-2-5.

Parameters of Concern

The potential parameters of concern identified for the discharge/receiving water were total suspended solids (TSS), dissolved oxygen (DO), BOD₅, total phosphorus (TP), total nitrogen (TN), total ammonia (TAN), total residual chlorine (TRC), and pH as determined in consultation with the UPDES Permit Writer.

Water Quality Modeling

A QUAL2Kw model of the receiving water was built and calibrated to synoptic survey data collected by DWQ staff in October and November of 2014 using standard operating procedures (DWQ 2012). The model of Mill Race extends 4.2 kilometers downstream from the treatment facility outfall to the open waters of Provo Bay.

Ambient receiving water quality data were obtained from monitoring site 4996570 Mill Race above Provo WWTP. The average seasonal value was calculated for each constituent with available data in the receiving water. Effluent parameters were characterized using data from monitoring site 4996560 Provo WWTP.

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The QUAL2Kw model was used for determining the WQBELs for parameters related to eutrophication and in-stream DO criteria, as well as ammonia toxicity. Effluent concentrations were adjusted so that water quality standards were not exceeded in the receiving water. Where WQBELs exceeded secondary standards or technology based effluent limits (TBEL), the concentration in the model was set at the secondary standard or TBEL.

The QUAL2Kw model was also used to determine the limits for ammonia. The water quality standard for chronic ammonia toxicity is dependent on temperature and pH, and the water quality standard for acute ammonia toxicity is dependent on pH. QUAL2Kw rates, input and output for DO and eutrophication related constituents are summarized in Appendix A.

A mass balance mixing analysis was conducted for conservative constituents such as dissolved metals. The WQBELs for conservative constituents are summarized in Appendix B.

The limits for total residual chlorine were determined assuming a decay rate of 20 /day (at 20 °C) and a travel time in the outlet pipe of 5 minutes prior to discharge to Mill Race. The analysis for TRC is summarized in Appendix C.

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

Whole Effluent Toxicity (WET) Limits

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

Table 2: WET Limits for IC₂₅

| Season | Percent Effluent |
|--------|------------------|
| Summer | 94% |
| Fall | 94% |
| Winter | 95% |
| Spring | 94% |

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Effluent Limits

The effect of the effluent on the DO in the receiving water was evaluated using the QUAL2Kw model. Based on secondary standards for BOD₅ and minimum DO limits, the DO sag downstream of the plant discharge in Mill Race was predicted to remain above the minimum instream criteria (Table 3). New ammonia limits were determined for chronic and acute conditions.

Table 3: Water Quality Based Effluent Limits Summary

| Effluent Constituent | Acute | | | Chronic | | |
|--------------------------------|----------|-------|------------------|----------|-------|------------------|
| | Standard | Limit | Averaging Period | Standard | Limit | Averaging Period |
| Flow (MGD) | N/A | 28.0 | 1 day | N/A | 21.0 | 30 days |
| Ammonia (mg/L) | Varies | 8.0* | 1 hour | Varies | 3.0* | 30 days |
| Summer (Jul-Sep) | | 12.0* | | | 4.0* | |
| Fall (Oct-Dec) | | 20.0* | | | 5.0* | |
| Winter (Jan-Mar) | | 12.0* | | | 3.5* | |
| Spring (Apr-Jun) | | | | | | |
| Total Residual Chlorine (mg/L) | 0.019 | 0.022 | 1 hour | 0.011 | 0.013 | 4 days |
| Min. Dissolved Oxygen (mg/L) | 5.0 | | Instantaneous | | | |
| Summer (Jul-Sep) | | 5.0 | | | | |
| Fall (Oct-Dec) | | 5.0 | | | | |
| Winter (Jan-Mar) | | 5.0 | | | | |
| Spring (Apr-Jun) | | 5.0 | | | | |
| Min. Dissolved Oxygen (mg/L) | 6.0 | | 7 days | 5.5 | | 30 days |
| Summer (Jul-Sep) | | 6.0 | | | 5.5 | |
| Fall (Oct-Dec) | | 6.0 | | | 5.5 | |
| Winter (Jan-Mar) | | 6.0 | | | 5.5 | |
| Spring (Apr-Jun) | | 6.0 | | | 5.5 | |
| BOD ₅ (mg/L) | N/A | | 7 days | N/A | | 30 days |
| Summer (Jul-Sep) | | 35.0* | | | 25.0* | |
| Fall (Oct-Dec) | | 35.0* | | | 25.0* | |
| Winter (Jan-Mar) | | 35.0* | | | 25.0* | |
| Spring (Apr-Jun) | | 35.0* | | | 25.0* | |

*Higher limit as compared to current permit limit.

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Antidegradation Level I Review

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

A Level II Antidegradation Review (ADR) is required if any of the pollutant concentration or load limits are raised from the current permit.

Prepared by: Nicholas von Stackelberg, P.E.
Standards and Technical Services Section

Documents

WLA Document: *provo_potw_wla_2015_final_2015-12-14.docx*
QUAL2Kw Calibration Model: *provo_potw_q2kw_cal_2015.xlsm*
QUAL2Kw Wasteload Model: *provo_potw_q2kw_wla_2015_v3.xlsm*

References

Utah 2010 Integrated Report. 2010. Utah Division of Water Quality.

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

Field Data Collection for QUAL2Kw Model Build and Calibration Standard Operating Procedures Version 1.0. 2012. Utah Division of Water Quality.

Using QUAL2K Modeling to Support Nutrient Criteria Development and Wasteload Analyses in Utah. 2012. Neilson, B.T., A.J. Hobson, N. von Stackelberg, M. Shupryt, and J.D. Ostermiller.

Utah Division of Water Quality

WASTELOAD ANALYSIS [WLA]

Date: 12/13/2015

Appendix A: QUAL2Kw Analysis for Eutrophication

Discharging Facility: Provo WWTP
 UPDES No: UT-0021717
 Permit Flow [MGD]: 21.00 Maximum Monthly Flow
 28.00 Maximum Daily Flow

Receiving Water: Mill Race
 Stream Classification: 2B, 3B, 4
 Stream Flows [cfs]: 2.0 Summer (July-Sept) Critical Low Flow
 2.0 Fall (Oct-Dec)
 1.8 Winter (Jan-Mar)
 2.0 Spring (Apr-June)

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

Modeling Information

A QUAL2Kw model was used to determine these effluent limits.

Model Inputs

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

| Headwater/Upstream Information | Summer | Fall | Winter | Spring |
|-----------------------------------|--------|-------|--------|--------|
| Flow (cfs) | 2.0 | 2.0 | 1.8 | 2.0 |
| Temperature (deg C) | 25.0 | 14.3 | 9.9 | 13.9 |
| Specific Conductance (µmhos) | 850 | 882 | 998 | 824 |
| Inorganic Suspended Solids (mg/L) | 2.9 | 6.5 | 10.2 | 6.1 |
| Dissolved Oxygen (mg/L) | 10.6 | 9.9 | 12.1 | 11.2 |
| CBOD ₅ (mg/L) | 2.5 | 2.7 | 2.7 | 1.9 |
| Organic Nitrogen (mg/L) | 0.376 | 0.488 | 0.251 | 0.263 |
| NH ₄ -Nitrogen (mg/L) | 0.030 | 0.044 | 0.052 | 0.051 |
| NO ₃ -Nitrogen (mg/L) | 2.366 | 2.643 | 2.675 | 2.011 |
| Organic Phosphorus (mg/L) | 0.000 | 0.000 | 0.000 | 0.000 |
| Inorganic Ortho-Phosphorus (mg/L) | 0.090 | 0.082 | 0.215 | 0.075 |
| Phytoplankton (µg/L) | 0.0 | 0.0 | 0.0 | 0.0 |
| Detritus [POM] (mg/L) | 0.3 | 0.7 | 1.1 | 0.7 |
| Alkalinity (mg/L) | 294 | 300 | 300 | 261 |
| pH | 8.2 | 8.3 | 8.5 | 8.6 |

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| Discharge Information | | | | | |
|-----------------------------------|---------------|-------------|---------------|---------------|--|
| Chronic | Summer | Fall | Winter | Spring | |
| Flow (cfs) | 21.0 | 21.0 | 21.0 | 21.0 | |
| Temperature (deg C) | 22.1 | 18.3 | 13.1 | 16.2 | |
| Inorganic Suspended Solids (mg/L) | 0.0 | 0.0 | 0.0 | 0.0 | |
| Organic Nitrogen (mg/L) | 2.020 | 4.154 | 2.778 | 3.413 | |
| NO3-Nitrogen (mg/L) | 18.072 | 22.396 | 23.500 | 20.367 | |
| Organic Phosphorus (mg/L) | 0.000 | 0.000 | 0.224 | 0.242 | |
| Inorganic Phosphorus (mg/L) | 2.737 | 2.907 | 2.846 | 2.191 | |
| Alkalinity (mg/L) | 158 | 141 | 134 | 161 | |
| pH | 7.3 | 7.2 | 7.1 | 7.4 | |

| Acute | Summer | Fall | Winter | Spring | |
|-----------------------------------|---------------|-------------|---------------|---------------|--|
| Flow (cfs) | 28.0 | 28.0 | 28.0 | 28.0 | |
| Temperature (deg C) | 22.1 | 18.3 | 13.1 | 16.2 | |
| Inorganic Suspended Solids (mg/L) | 0.0 | 0.0 | 0.0 | 0.0 | |
| Organic Nitrogen (mg/L) | 2.020 | 4.154 | 2.778 | 3.413 | |
| NO3-Nitrogen (mg/L) | 18.072 | 22.396 | 23.500 | 20.367 | |
| Organic Phosphorus (mg/L) | 0.000 | 0.000 | 0.224 | 0.242 | |
| Inorganic Phosphorus (mg/L) | 2.737 | 2.907 | 2.846 | 2.191 | |
| Alkalinity (mg/L) | 158 | 141 | 134 | 161 | |
| pH | 7.7 | 7.4 | 7.4 | 8.2 | |

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

Effluent Limitations

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

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

Effluent Limitations based upon Water Quality Standards for DO and Ammonia Toxicity

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

| Chronic | Time Period | Standard | Summer | Fall | Winter | Spring |
|-----------------------------------|--------------------|-----------------|---------------|-------------|---------------|---------------|
| Flow (MGD) | Monthly | N/A | 21.0 | 21.0 | 21.0 | 21.0 |
| NH4-Nitrogen (mg/L) | 30 day | Varies | 3.0 | 4.0 | 5.0 | 3.5 |
| CBOD ₅ (mg/L) | 7 day | N/A | 35.0 | 35.0 | 35.0 | 35.0 |
| CBOD ₅ (mg/L) | 30 day | N/A | 25.0 | 25.0 | 25.0 | 25.0 |
| Dissolved Oxygen [Minimum] (mg/L) | 7 day | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 |
| Dissolved Oxygen [Minimum] (mg/L) | 30 day | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 |

| Acute | Time Period | Standard | Summer | Fall | Winter | Spring |
|-----------------------------------|--------------------|-----------------|---------------|-------------|---------------|---------------|
| Flow (MGD) | Daily | N/A | 28.0 | 28.0 | 28.0 | 28.0 |
| NH4-Nitrogen (mg/L) | 1 hour | Varies | 8.0 | 12.0 | 20.0 | 12.0 |
| Dissolved Oxygen [Minimum] (mg/L) | Instantaneous | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |

Summary Comments

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

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Coefficients and Other Model Information

| <i>Parameter</i> | <i>Value</i> | <i>Units</i> |
|--|------------------|--------------|
| Stoichiometry: | | |
| Carbon | 40 | gC |
| Nitrogen | 7.2 | gN |
| Phosphorus | 1 | gP |
| Dry weight | 100 | gD |
| Chlorophyll | 1 | gA |
| Inorganic suspended solids: | | |
| Settling velocity | 0.001 | m/d |
| Oxygen: | | |
| Reaeration model | Thackston-Dawson | |
| 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 |
| Slow CBOD: | | |
| Hydrolysis rate | 0 | /d |
| Temp correction | 1.047 | |
| Oxidation rate | 0.103 | /d |
| Temp correction | 1.047 | |
| Fast CBOD: | | |
| Oxidation rate | 10 | /d |
| Temp correction | 1.047 | |
| Organic N: | | |
| Hydrolysis | 0.88487524 | /d |
| Temp correction | 1.07 | |
| Settling velocity | 0.001617 | m/d |
| Ammonium: | | |
| Nitrification | 0.9748342 | /d |
| Temp correction | 1.07 | |
| Nitrate: | | |
| Denitrification | 0.90803306 | /d |
| Temp correction | 1.07 | |
| Sed denitrification transfer coeff | 0.072025 | m/d |
| Temp correction | 1.07 | |
| Organic P: | | |
| Hydrolysis | 0.79654366 | /d |
| Temp correction | 1.07 | |
| Settling velocity | 0.068508 | m/d |
| Inorganic P: | | |
| Settling velocity | 0.04166 | m/d |
| Sed P oxygen attenuation half sat constant | 0.59075 | mgO2/L |

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| | | | |
|---|------------|---------------------|--|
| Phytoplankton: | | | |
| Max Growth rate | 2.8944 | /d | |
| Temp correction | 1.07 | | |
| Respiration rate | 0.480803 | /d | |
| Temp correction | 1.07 | | |
| Death rate | 0.86518 | /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 | 25.4151 | ugN/L | |
| Settling velocity | 0.468545 | m/d | |
| Bottom Plants: | | | |
| Growth model | Zero-order | | |
| Max Growth rate | 6.069185 | gD/m2/d or /d | |
| Temp correction | 1.07 | | |
| First-order model carrying capacity | 100 | gD/m2 | |
| Basal respiration rate | 0.037745 | /d | |
| Photo-respiration rate parameter | 0.01 | unitless | |
| Temp correction | 1.07 | | |
| Excretion rate | 0.195178 | /d | |
| Temp correction | 1.07 | | |
| Death rate | 0.370024 | /d | |
| Temp correction | 1.07 | | |
| External nitrogen half sat constant | 723.2564 | ugN/L | |
| External phosphorus half sat constant | 127.5683 | ugP/L | |
| Inorganic carbon half sat constant | 7.48E-06 | moles/L | |
| Bottom algae use HCO3- as substrate | Yes | | |
| Light model | Smith | | |
| Light constant | 64.836 | mgO ² /L | |
| Ammonia preference | 28.13175 | ugN/L | |
| Subsistence quota for nitrogen | 17.6252 | mgN/gD | |
| Subsistence quota for phosphorus | 3.101765 | mgP/gD | |
| Maximum uptake rate for nitrogen | 109.4795 | mgN/gD/d | |
| Maximum uptake rate for phosphorus | 128.6696 | mgP/gD/d | |
| Internal nitrogen half sat ratio | 2.358872 | | |
| Internal phosphorus half sat ratio | 3.7871525 | | |
| Nitrogen uptake water column fraction | 1 | | |
| Phosphorus uptake water column fraction | 1 | | |
| Detritus (POM): | | | |
| Dissolution rate | 0.658467 | /d | |
| Temp correction | 1.07 | | |
| Settling velocity | 0.61912 | m/d | |
| pH: | | | |
| Partial pressure of carbon dioxide | 370 | ppm | |

| Atmospheric Inputs: | Summer | Fall | Winter | Spring |
|-------------------------|--------|------|--------|--------|
| Min. Air Temperature, F | 89.5 | 49.4 | 42.5 | 74.1 |
| Max. Air Temperature, F | 61.6 | 31.4 | 24.5 | 48.4 |
| Dew Point, Temp., F | 58.6 | 35.0 | 30.3 | 48.5 |
| Wind, ft./sec. @ 21 ft. | 6.6 | 5.2 | 6.0 | 7.4 |
| Cloud Cover, % | 10% | 10% | 10% | 10% |

| Other Inputs: | |
|--|------|
| Bottom Algae Coverage | 100% |
| Bottom SOD Coverage | 100% |
| Prescribed SOD, gO ₂ /m ² /day | 0 |

WASTELOAD ANALYSIS [WLA]

Date: 12/13/2015

Appendix B: Mass Balance Mixing Analysis for Conservative Constituents

| | | | |
|------------------------|------------|----------------------|-------------------|
| Discharging Facility: | Provo WWTP | | |
| UPDES No: | UT-0021717 | | |
| Permit Flow [MGD]: | 21.00 | Maximum Monthly Flow | |
| | 28.00 | Maximum Daily Flow | |
| Receiving Water: | Mill Race | | |
| Stream Classification: | 2B, 3B, 4 | | |
| Stream Flows [cfs]: | 2.0 | Summer (July-Sept) | Critical Low Flow |
| | 2.0 | Fall (Oct-Dec) | |
| | 1.8 | Winter (Jan-Mar) | |
| | 2.0 | Spring (Apr-June) | |
| Acute River Width: | 100.0% | | |
| Chronic River Width: | 100.0% | | |

Modeling Information

A simple mixing analysis was used to determine these effluent limits.

Model Inputs

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

Headwater/Upstream Information

| 7Q10 Flow | |
|------------------|-----|
| cfs | |
| Summer | 2.0 |
| Fall | 2.0 |
| Winter | 1.8 |
| Spring | 2.0 |

Discharge Information

| Flow | |
|-----------------|------|
| MGD | |
| Maximum Daily | 28.0 |
| Maximum Monthly | 21.0 |

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

Effluent Limitations

- 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.

Utah Division of Water Quality

Effluent Limitations for Protection of Recreation (Class 2B Waters)

| Parameter | Maximum Concentration |
|---------------------------------|-----------------------|
| Physical | |
| pH Minimum | 6.5 |
| pH Maximum | 9.0 |
| Bacteriological | |
| E. coli (30 Day Geometric Mean) | 206 (#/100 mL) |
| E. coli (Maximum) | 668 (#/100 mL) |

Effluent Limitations for Protection of Aquatic Wildlife (Class 3B Waters)

| Parameter | Maximum Concentration | |
|----------------------------------|----------------------------------|---------------------------------|
| Physical | | |
| Inorganics | | |
| | Chronic Standard (4 Day Average) | Acute Standard (1 Hour Average) |
| | Standard | Limit |
| Phenol | | 0.010 |
| Hydrogen Sulfide (Undissociated) | | 0.010 mg/L |
| | | 0.002 |
| | | 0.002 mg/L |

Total Recoverable Metals

| Parameter (µg/L) | Chronic Standard (4 Day Average) | | | Acute Standard (1 Hour Average) | | |
|------------------|----------------------------------|-------------------------|-------|---------------------------------|-------------------------|-------|
| | Standard ¹ | Background ² | Limit | Standard ¹ | Background ² | Limit |
| Aluminum | N/A ³ | 20.6 | N/A | 750 | 20.6 | 802 |
| Arsenic | 150 | 2.8 | 164 | 340 | 2.8 | 364 |
| Cadmium | 0.5 | 0.2 | 0.6 | 5.6 | 0.2 | 6.0 |
| Chromium VI | 11.0 | 2.9 | 11.8 | 16.0 | 2.9 | 16.9 |
| Chromium III | 188 | 2.9 | 206 | 3,931 | 2.9 | 4,212 |
| Copper | 21.0 | 3.4 | 22.7 | 34.3 | 3.4 | 36.5 |
| Cyanide | 5.2 | 3.5 | 5.4 | 22.0 | 3.5 | 23.3 |
| Iron | | | | 1,000 | 19.3 | 1,070 |
| Lead | 10.7 | 0.6 | 11.6 | 274.2 | 0.6 | 294 |
| Mercury | 0.012 | 0.008 | 0.012 | 2.4 | 0.008 | 2.6 |
| Nickel | 117 | 3.7 | 127 | 1,050 | 3.7 | 1,124 |
| Selenium | 4.6 | 2.0 | 4.8 | 18.4 | 2.0 | 19.6 |
| Silver | | | | 19.4 | 9.7 | 20.1 |
| Tributyltin | 0.072 | 0.048 | 0.074 | 0.46 | 0.048 | 0.49 |
| Zinc | 268 | 13.0 | 293 | 268 | 13.0 | 287 |

1: Based upon a Hardness of 259 mg/l as CaCO₃

2: Background concentration assumed 67% of chronic standard

3: Where the pH is equal to or greater than 7.0 and the hardness is equal to or greater than 50 ppm as CaCO₃ in the receiving water after mixing, the 87 ug/L chronic criterion (expressed as total recoverable) will not apply, and aluminum will be regulated based on compliance with the 750 ug/L acute aluminum criterion (expressed as total recoverable).

Utah Division of Water Quality

Organics [Pesticides]

| Parameter (µg/L) | Chronic Standard (4 Day Average) | | | Acute Standard (1 Hour Average) | | |
|-------------------------|----------------------------------|------------|------------|---------------------------------|------------|--------|
| | Standard | Background | Limit | Standard | Background | Limit |
| Aldrin | | | | 1.500 | 1.000 | 1.536 |
| Chlordane | 0.0043 | 0.0029 | 0.0044 | 1.200 | 0.003 | 1.286 |
| DDT, DDE | 0.001 | 0.0007 | 0.0010 | 0.550 | 0.001 | 0.589 |
| Diazinon | 0.17 | 0.1133 | 0.175 | 0.17 | 0.113 | 0.174 |
| Dieldrin | 0.0056 | 0.0037 | 0.0058 | 0.240 | 0.004 | 0.257 |
| Endosulfan, a & b | 0.056 | 0.0373 | 0.058 | 0.110 | 0.037 | 0.115 |
| Endrin | 0.036 | 0.0240 | 0.037 | 0.086 | 0.024 | 0.090 |
| Heptachlor & H. epoxide | 0.0038 | 0.0025 | 0.0039 | 0.260 | 0.003 | 0.278 |
| Lindane | 0.08 | 0.0533 | 0.08 | 1.000 | 0.053 | 1.068 |
| Methoxychlor | | | | 0.030 | 0.020 | 0.031 |
| Mirex | | | | 0.001 | 0.001 | 0.001 |
| Nonylphenol | 6.6 | 4.4 | 6.8 | 28.0 | 4.4 | 29.7 |
| Parathion | 0.0130 | 0.0087 | 0.0134 | 0.066 | 0.009 | 0.070 |
| PCB's | 0.014 | 0.0093 | 0.014 | | | |
| Pentachlorophenol | 15.00 | 10 | 15.5 | 19.000 | 10.0 | 19.643 |
| Toxephene | 0.0002 | 0.0001 | 0.00020635 | 0.730 | 0.0001 | 0.782 |

Radiological

| Parameter | Maximum Concentration |
|-------------|-----------------------|
| Gross Alpha | 15 pCi/L |

Effluent Limitation for Protection of Agriculture (Class 4 Waters)

| Parameter | Maximum Concentration | | |
|-------------------------------|-----------------------|------------|-------|
| | Standard | Background | Limit |
| Total Dissolved Solids (mg/L) | 1,200 | 521 | 1,249 |
| Boron (µg/L) | 750 | 110 | 796 |
| Arsenic (µg/L) | 100 | 2.8 | 107 |
| Cadmium (µg/L) | 10 | 0.2 | 10.7 |
| Chromium (µg/L) | 100 | 2.9 | 107 |
| Copper (µg/L) | 200 | 3.4 | 214 |
| Lead (µg/L) | 100 | 0.6 | 107 |
| Selenium (µg/L) | 50 | 2.0 | 53.4 |
| Gross Alpha (pCi/L) | 15 | 10 | 15.4 |

Utah Division of Water Quality

WASTELOAD ANALYSIS [WLA]
Appendix C: Total Residual Chlorine

Date: 12/13/2015

Discharging Facility: Provo WWTP
 UPDES No: UT-0021717

CHRONIC

| | Season | Receiving Water | Standard | Total Effluent | Mixing Zone Boundary | Effluent Limit Without Decay | Temperature (°C) | Decay Rate (/day) | | Travel Time (min) | Decay Coefficient | Effluent Limit |
|-----------------|--------|-----------------|----------|----------------|----------------------|------------------------------|------------------|-------------------|-----------|-------------------|-------------------|----------------|
| | | | | | | | | @ 20 deg C | @ T deg C | | | |
| Discharge (cfs) | Summer | 2.0 | | 32.5 | 34.5 | | | | | | | |
| | Fall | 2.0 | | 32.5 | 34.5 | | | | | | | |
| | Winter | 1.8 | | 32.5 | 34.3 | | | | | | | |
| | Spring | 2.0 | | 32.5 | 34.4 | | | | | | | |
| TRC (mg/L) | Summer | 0.000 | 0.011 | | | 0.012 | 22.1 | 29.86 | 32.8 | 5 | 0.8923 | 0.013 |
| | Fall | 0.000 | 0.011 | | | 0.012 | 18.3 | 29.86 | 27.6 | 5 | 0.9087 | 0.013 |
| | Winter | 0.000 | 0.011 | | | 0.012 | 13.1 | 29.86 | 21.8 | 5 | 0.9272 | 0.013 |
| | Spring | 0.000 | 0.011 | | | 0.012 | 16.2 | 29.86 | 25.0 | 5 | 0.9168 | 0.013 |

ACUTE

| | Season | Receiving Water | Standard | Total Effluent | Mixing Zone Boundary | Effluent Limit Without Decay | Temperature (°C) | Decay Rate (/day) | | Travel Time (min) | Decay Coefficient | Effluent Limit |
|-----------------|--------|-----------------|----------|----------------|----------------------|------------------------------|------------------|-------------------|--------|-------------------|-------------------|----------------|
| | | | | | | | | @ 20 °C | @ T °C | | | |
| Discharge (cfs) | Summer | 2.0 | | 43.3 | 45.3 | | | | | | | |
| | Fall | 2.0 | | 43.3 | 45.3 | | | | | | | |
| | Winter | 1.8 | | 43.3 | 45.1 | | | | | | | |
| | Spring | 2.0 | | 43.3 | 45.3 | | | | | | | |
| TRC (mg/L) | Summer | 0.000 | 0.019 | | | 0.020 | 22.1 | 29.86 | 32.8 | 5 | 0.8923 | 0.022 |
| | Fall | 0.000 | 0.019 | | | 0.020 | 18.3 | 29.86 | 27.6 | 5 | 0.9087 | 0.022 |
| | Winter | 0.000 | 0.019 | | | 0.020 | 13.1 | 29.86 | 21.8 | 5 | 0.9272 | 0.021 |
| | Spring | 0.000 | 0.019 | | | 0.020 | 16.2 | 29.86 | 25.0 | 5 | 0.9168 | 0.022 |

ANTIDEGRADATION REVIEW FORM

UTAH DIVISION OF WATER QUALITY

Instructions

The objective of antidegradation rules and policies is to protect existing high quality waters and set forth a process for determining where and how much degradation is allowable for socially and/or economically important reasons. In accordance with Utah Administrative Code (UAC R317-2-3), an antidegradation review (ADR) is a permit requirement for any project that will increase the level of pollutants in waters of the state. The rule outlines requirements for both Level I and Level II ADRs, as well as public comment procedures. This review form is intended to assist the applicant and Division of Water Quality (DWQ) staff in complying with the rule but is not a substitute for the complete rule in R317-2-3.5. Additional details can be found in the *Utah Antidegradation Implementation Guidance* and relevant sections of the guidance are cited in this review form.

ADRs should be among the first steps of an application for a UPDES permit because the review helps establish treatment expectations. The level of effort and amount of information required for the ADR depends on the nature of the project and the characteristics of the receiving water. To avoid unnecessary delays in permit issuance, the Division of Water Quality (DWQ) recommends that the process be initiated at least one year prior to the date a final approved permit is required.

DWQ will determine if the project will impair beneficial uses (Level I ADR) using information provided by the applicant and whether a Level II ADR is required. The applicant is responsible for conducting the Level II ADR. For the permit to be approved, the Level II ADR must document that all feasible measures have been undertaken to minimize pollution for socially, environmentally or economically beneficial projects resulting in an increase in pollution to waters of the state.

For permits requiring a Level II ADR, this antidegradation form must be completed and approved by DWQ before any UPDES permit can be issued. Typically, the ADR form is completed in an iterative manner in consultation with DWQ. The applicant should first complete the statement of social, environmental and economic importance (SEEI) in Part C and determine the parameters of concern (POC) in Part D. Once the POCs are agreed upon by DWQ, the alternatives analysis and selection of preferred alternative in Part E can be conducted based on minimizing degradation resulting from discharge of the POCs. Once the applicant and DWQ agree upon the preferred alternative, the review is considered complete, and the form must be signed, dated, and submitted to DWQ.

For additional clarification on the antidegradation review process and procedures, please contact Nicholas von Stackelberg (801-536-4374) or Jeff Ostermiller (801-536-4370).

Antidegradation Review Form

Part A: Applicant Information

Facility Name: Provo Water Reclamation

Facility Owner: Provo City

Facility Location: 1686 South East Bay Blvd. Provo UT 84606

Form Prepared By: Mark Ogren

Outfall Number: 001

Receiving Water: Mill Race

What Are the Designated Uses of the Receiving Water (R317-2-6)?

Domestic Water Supply: None
Recreation: 2B - Secondary Contact
Aquatic Life: 3B - Warm Water Aquatic Life
Agricultural Water Supply: 4
Great Salt Lake: None

Category of Receiving Water (R317-2-3.2, -3.3, and -3.4): Category 3

UPDES Permit Number (if applicable): UT0021717

Effluent Flow Reviewed: Design 21 MGD

Typically, this should be the maximum daily discharge at the design capacity of the facility. Exceptions should be noted.

What is the application for? (check all that apply)

- A UPDES permit for a new facility, project, or outfall.
- A UPDES permit renewal with an expansion or modification of an existing wastewater treatment works.
- A UPDES permit renewal requiring limits for a pollutant not covered by the previous permit and/or an increase to existing permit limits.
- A UPDES permit renewal with no changes in facility operations.

Part B. Is a Level II ADR required?

This section of the form is intended to help applicants determine if a Level II ADR is required for specific permitted activities. In addition, the Executive Secretary may require a Level II ADR for an activity with the potential for major impact on the quality of waters of the state (R317-2-3.5a.1).

B1. The receiving water or downstream water is a Class 1C drinking water source.

Yes A Level II ADR is required (Proceed to Part C of the Form)

No (Proceed to Part B2 of the Form)

B2. The UPDES permit is new or is being renewed and the proposed effluent concentration and loading limits are higher than the concentration and loading limits in the previous permit and any previous antidegradation review(s).

Yes (Proceed to Part B3 of the Form)

No No Level II ADR is required and there is no need to proceed further with review questions.

B3. Will any pollutants use assimilative capacity of the receiving water, i.e. do the pollutant concentrations in the effluent exceed those in the receiving waters at critical conditions? For most pollutants, effluent concentrations that are higher than the ambient concentrations require an antidegradation review? For a few pollutants such as dissolved oxygen, an antidegradation review is required if the effluent concentrations are less than the ambient concentrations in the receiving water. (Section 3.3.3 of Implementation Guidance)

Yes (Proceed to Part B4 of the Form)

No No Level II ADR is required and there is no need to proceed further with review questions.

B4. Are water quality impacts of the proposed project temporary and limited (Section 3.3.4 of Implementation Guidance)? Proposed projects that will have temporary and limited effects on water quality can be exempted from a Level II ADR.

- Yes Identify the reasons used to justify this determination in Part B4.1 and proceed to Part G. No Level II ADR is required.
- No A Level II ADR is required (Proceed to Part C)

B4.1 Complete this question only if the applicant is requesting a Level II review exclusion for temporary and limited projects (see R317-2-3.5(b)(3) and R317-2-3.5(b)(4)). For projects requesting a temporary and limited exclusion please indicate the factor(s) used to justify this determination (check all that apply and provide details as appropriate) (Section 3.3.4 of Implementation Guidance):

- Water quality impacts will be temporary and related exclusively to sediment or turbidity and fish spawning will not be impaired.

Factors to be considered in determining whether water quality impacts will be temporary and limited:

- a) The length of time during which water quality will be lowered:
- b) The percent change in ambient concentrations of pollutants:
- c) Pollutants affected:
- d) Likelihood for long-term water quality benefits:
- e) Potential for any residual long-term influences on existing uses:
- f) Impairment of fish spawning, survival and development of aquatic fauna excluding fish removal efforts:

Additional justification, as needed:

Level II ADR

Part C, D, E, and F of the form constitute the Level II ADR Review. The applicant must provide as much detail as necessary for DWQ to perform the antidegradation review. Questions are provided for the convenience of applicants; however, for more complex permits it may be more effective to provide the required information in a separate report. Applicants that prefer a separate report should record the report name here and proceed to Part G of the form.

Optional Report Name:

Part C. Is the degradation from the project socially and economically necessary to accommodate important social or economic development in the area in which the waters are located? *The applicant must provide as much detail as necessary for DWQ to concur that the project is socially and economically necessary when answering the questions in this section. More information is available in Section 6.2 of the Implementation Guidance.*

C1. Describe the social and economic benefits that would be realized through the proposed project, including the number and nature of jobs created and anticipated tax revenues.

Part C: The proposed project is raising the effluent limits for ammonia and BOD, which have been determined by the wasteload analysis to be protective of the designated uses of the receiving waters. No changes to the treatment process or operations are proposed, and the additional allowable degradation would only occur during upset conditions. Upset conditions are not anticipated to occur or only occur very infrequently; therefore, additional assimilative capacity would not be used through raising the effluent limits. There will not be any social or economic benefits for adjusting Provo's effluent limits. Less strict limits will allow Provo to direct their resources towards nutrient removal and allow for any unforeseen process upsets.

C2. Describe any environmental benefits to be realized through implementation of the proposed project.

The proposed limits are comparable to other local POTWs discharging to Utah Lake. There would not be any environmental impact on the Mill Race and/or Utah Lake.

C3. Describe any social and economic losses that may result from the project, including impacts to recreation or commercial development.

No social or economic impact is projected by allowing secondary effluent standards from Provo's Water Reclamation facility.

C4. Summarize any supporting information from the affected communities on preserving assimilative capacity to support future growth and development.

The current treatment process at the plant protects the assimilative capacity of the receiving waters and downstream affected communities. There are seven (7) POTW's with secondary effluent standards that currently discharge to Utah Lake. Provo's effluent will not affect the communities around Utah Lake. The Mill Race ditch is not a natural waterway. It was developed for diverting river water for surface irrigation and industrial processes in Provo City. Those uses are no longer practiced. Today the ditch is used to collect and convey storm water away from the City to Utah Lake.

C5. Please describe any structures or equipment associated with the project that will be placed within or adjacent to the receiving water.

None, no additional structures or equipment will be required. Provo will be able to meet Secondary Effluent Standards.

Part D. Identify and rank (from increasing to decreasing potential threat to designated uses) the parameters of concern. *Parameters of concern are parameters in the effluent at concentrations greater than ambient concentrations in the receiving water. The applicant is responsible for identifying parameter concentrations in the effluent and DWQ will provide parameter concentrations for the receiving water. More information is available in Section 3.3.3 of the Implementation Guidance.*

Parameters of Concern:

| Rank | Pollutant | Ambient Concentration | Effluent Concentration |
|------|-----------|-----------------------|------------------------|
| 1 | BOD | | Limit 25-35 mg/L |
| 2 | Ammonia | | Limit 3-8 mg/L |
| 3 | D.O. | | Limit 5.0-6.0 mg/L |
| 4 | | | |
| 5 | | | |

Pollutants Evaluated that are not Considered Parameters of Concern:

| Pollutant | Ambient Concentration | Effluent Concentration | Justification |
|-----------|-----------------------|------------------------|-------------------------|
| W.E.T | | | Needs to be kept at 87% |
| | | | |
| | | | |

Part E. Alternative Analysis Requirements of a Level II

Antidegradation Review. *Level II ADRs require the applicant to determine whether there are feasible less-degrading alternatives to the proposed project. More information is available in Section 5.5 and 5.6 of the Implementation Guidance.*

E1. The UPDES permit is being renewed without any changes to flow or concentrations. Alternative treatment and discharge options including changes to operations and maintenance were considered and compared to the current processes. No economically feasible treatment or discharge alternatives were identified that were not previously considered for any previous antidegradation review(s).

Yes (Proceed to Part F)

No or Does Not Apply (Proceed to E2)

E2. Attach as an appendix to this form a report that describes the following factors for all alternative treatment options (see 1) a technical description of the treatment process, including construction costs and continued operation and maintenance expenses, 2) the mass and concentration of discharge constituents, and 3) a description of the reliability of the system, including the frequency where recurring operation and maintenance may lead to temporary increases in discharged pollutants. Most of this information is typically available from a Facility Plan, if available.

Report Name: *Modify last sentence to read "No additional degradation of Mill Race is anticipated to result from raising the permit limits for BOD and ammonia, as no changes to the treatment process or operations are proposed." The higher discharge limits were a result of a newly calculated Waste load analysis. Provo's Water Reclamation Plant is/has achieved lower discharge concentrations than the new permit allows. No change in Plant operations will occur, the high quality effluent will continue with low pollutant concentrations. The Secondary Standard limits will allow Provo a buffer in the event of an up-set process condition. No degradation of the Mill Race has occurred and none is foreseen in the future.*

E3. Describe the proposed method and cost of the baseline treatment alternative. The baseline treatment alternative is the minimum treatment required to meet water quality based effluent limits (WQBEL) as determined by the preliminary or final wasteload analysis (WLA) and any secondary or categorical effluent limits.

E4. Were any of the following alternatives feasible and affordable?

| Alternative | Feasible | Reason Not Feasible/Affordable |
|----------------------------------|-----------------|---------------------------------------|
| Pollutant Trading | Not Applicable | |
| Water Recycling/Reuse | Not Applicable | |
| Land Application | Not Applicable | |
| Connection to Other Facilities | Not Applicable | |
| Upgrade to Existing Facility | Not Applicable | |
| Total Containment | Not Applicable | |
| Improved O&M of Existing Systems | Not Applicable | |
| Seasonal or Controlled Discharge | Not Applicable | |
| New Construction | Not Applicable | |
| No Discharge | Not Applicable | |

E5. From the applicant's perspective, what is the preferred treatment option?

Not Applicable

E6. Is the preferred option also the least polluting feasible alternative?

Yes

No

If no, what were less degrading feasible alternative(s)? **Not Applicable**

If no, provide a summary of the justification for not selecting the least polluting feasible alternative and if appropriate, provide a more detailed justification as an attachment.

Not Applicable

Part F. Optional Information

F1. Does the applicant want to conduct optional public review(s) in addition to the mandatory public review? Level II ADRs are public noticed for a thirty day comment period. More information is available in Section 3.7.1 of the Implementation Guidance.

No

Yes

F2. Does the project include an optional mitigation plan to compensate for the proposed water quality degradation?

No

Yes

Report Name: Not Applicable

Part G. Certification of Antidegradation Review

G1. Applicant Certification

The form should be signed by the same responsible person who signed the accompanying permit application or certification.

Based on my inquiry of the person(s) who manage the system or those persons directly responsible for gathering the information, the information in this form and associated documents is, to the best of my knowledge and belief, true, accurate, and complete.

Print Name: BART SIMONS

Signature: Bart Simons

Date: 12-10-15

G2. DWO Approval

To the best of my knowledge, the ADR was conducted in accordance with the rules and regulations outlined in UACR-317-2-3.

Water Quality Management Section

Print Name: JODI GARDBERG

Signature: Jodi Gardberg

Date: 12/17/2015