

**FACT SHEET
STATEMENT OF BASIS
PROVO CITY WATER ADVANCED TREATMENT RESOURCE RECOVERY
RENEWAL PERMIT: DISCHARGE, BIOSOLIDS & STORMWATER
UPDES PERMIT NUMBER: UT0021717
UPDES BIOSOLIDS PERMIT NUMBER: UTL-000000
MAJOR MUNICIPAL**

FACILITY CONTACTS

Facility Address

1685 South East Bay Boulevard
Provo, Utah 84606

Mailing Address

Provo City Water Advanced Treatment Resource
Recovery (WATRR)
1377 South 350 East
Provo, Utah 84606

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DESCRIPTION OF FACILITY

The Provo City Water Advanced Treatment Resource Recovery (WATRR) or “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. Provo’s wastewater treatment plant was originally constructed in 1954 and was upgraded in 1978 and 1988 and is currently undergoing an upgrade.

The final build out for the current upgrade will include the installation of a membrane bioreactor system including new process basins, associated piping and equipment, and the repurposing of the four existing aeration basins for equalization and surge storage. The existing trickling filters and the existing secondary clarifiers are to be demolished. The existing final clarifiers, filter building, and backwash tank will be decommissioned. The majority of the plant’s influent will flow to the existing influent junction structure, where the flow will be directed to the existing headworks facilities. A new, in-plant lift station will be constructed to receive additional sanitary sewer flows from the area southwest of the facility. Flow received at the new lift stations will be pumped directly to the existing headworks facility.

The existing 6mm headworks screens and grit removal facilities would continue to be used. The solids processing facilities would be refurbished as necessary for continued use, including the primary sludge pump station, primary and secondary digesters, dissolved air flotation thickener

(DAFT) tank, and dewatering facility. A biosolids vacuum struvite control system would be added to the existing solids stream process to promote the removal of phosphorous from the plant and to prevent struvite scaling.

Solids are handled by the following: one dissolved air flotation sludge thickener tank, two primary anaerobic sludge digesters with linear mixers, one unmixed secondary anaerobic sludge digester, a final secondary anaerobic sludge digester with a linear mixer, and two centrifuges. After treatment the solids are land applied.

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

The QUAL2Kw model was calibrated with data collect by DWQ. 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 to a daily maximum in the winter months (January – March) to 14.0 mg/L. No other ammonia limits have changed based upon the QUAL2K model.

The permittee is changing from chlorine to UV disinfection. The TRC limitation will only be applicable if chlorine is being utilized as disinfection on the effluent.

Storm Water permit provisions have been removed as part of a programmatic separation of the previously combined UPDES Industrial permit. Provo will now be required to apply for and obtain separate UPDES Industrial Storm Water Permit coverage under the MSGP No. UTR000000, or an applicable exemption, as described further in the Storm Water Requirements section of this Fact Sheet.

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 UV channels at latitude 40°12'45", longitude 111°39'00". If the facility is utilizing 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 the effluent enters the receiving water.

RECEIVING WATERS AND STREAM CLASSIFICATION

The discharge flows into the Mill Race and then 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.

IMPAIRED WATERS CONSIDERATIONS

This facility ultimately discharges to Provo Bay and Utah Lake which is listed on Utah's 2016 303(d) list of impaired waterbodies. Provo Bay has been identified as impaired for PCB in fish tissue, pH, ammonia and total phosphorus. Utah Lake has been identified as impaired for harmful algal blooms, PCB in fish tissue, 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 0.025 mg/L in 2004.

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 phosphorus and/or nitrogen. This process may result in pollutant load reductions and wasteload allocations. Wasteload allocations would then be translated to effluent limits in UPDES permits.

At this time there is not a water quality based standard for nutrients. Provo City applied for and received a variance to the Total Based Phosphorus Effluent Limit rule. They will be required to meet the requirements of a 1 mg/L based on the TBPEL rule on January 1, 2025.

BASIS FOR EFFLUENT LIMITATIONS

Limitations on total suspended solids (TSS), biochemical oxygen demand (BOD5), E. coli, pH and percent removal for 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). A wasteload Analysis is attached for this discharge into the receiving water. It has been determined that this discharge will not cause a violation of water quality standards. An Antidegradation Level II review is required because of the upgrades to the facility. The Antidegradation Level II forms submitted by the facility can be found in the appendix at the end of this document. The permittee is expected to be able to comply with these limitations. Total residual chlorine (TRC), whole effluent toxicity (WET), ammonia, and dissolved oxygen (DO) are based on the WLA.

Reasonable Potential Analysis

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

A quantitative RP analysis was performed on metals to determine if there was reasonable potential for the discharge to exceed the applicable water quality standards. Based on the RP analysis, none of the analyzed metals exceeded the most stringent chronic water quality standard or were determined to have a reasonable potential to exceed the standard. A copy of the RP analysis is included at the end of this Fact Sheet.

The permit limitations are listed in the following table:

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	14.0
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

Effluent Limitations Changes		
Parameter	Current Annual Average	New Annual Average
Interim Total Phosphorous, mg/L (Effective Jan 1, 2020 – December 31, 2024)	No Limit	3.5 (Interim limit)
Final Total Phosphorous, mg/L, (Effective Jan 1, 2025)	No Limit	1.0 (Final Limit)

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 *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	Monthly	Composite Composite	mg/L mg/L

Influent Effluent	Monthly		
Nitrite-Nitrate, NO3 *h	Monthly	Composite	mg/L
Metals, Influent *g, *i Effluent	Quarterly Quarterly	Grab/Composite Grab/Composite	mg/L 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.
- *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.

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 2020 annual biosolids report on February 16, 2021. The report states the Permittee produced 881 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.

The WATRR has been producing on average 940 metric tons (DMT) of Class B biosolids over the last 10 years. But the annual amount is trending upwards with them producing 1003 DMT in 2018 and 1165 DMT in 2019. They will not have to increase the minimum frequency of monitoring until they expect to exceed 1500 DMT annual production. 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.

The WATRR beneficially reuses the biosolids through land application at the Farmland Reserve Incorporated farm in Utah County. They also have the ability to transport the biosolids to the South Utah Valley Solid Waste District (SUVSWD).

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.

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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

Over the last decade, the WATRR has produced on average 940 DMT of biosolids annually, 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)*).

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 ^{1, 2} (mg/kg)	CPLR ³ , (mg/ha)	Pollutant Conc. Limits ^{1, 2} , (mg/kg)	APLR ⁴ , (mg/ha-yr)
Total Arsenic	75	41	41	2.0
Total Cadmium	85	39	39	1.9
Total Copper	4300	1500	1500	75
Total Lead	840	300	300	15
Total Mercury	57	17	17	0.85
Total Molybdenum	75	N/A	N/A	N/A
Total Nickel	420	420	420	21
Total Selenium	100	100	100	5.0
Total Zinc	7500	2800	2800	140

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

Pathogens

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

Pathogen Control Class	
503.32 (a)(1) - (5), (7),-(8), Class A	503.32 (b)(1) - (5), Class B
B Salmonella species –less than three (3) MPN ⁵ per four (4) grams total solids (DWB) ⁶ or Fecal Coliforms – less than 1,000 MPN per gram total solids (DWB).	Fecal Coliforms – Geometric mean less than 2,000,000 MPN or CFU ⁷ per gram total solids (DWB).
503.32 (a)(6) Class A—Alternative 4	
B Salmonella species –less than three (3) MPN per four (4) grams total solids (DWB) or less than 1,000 MPN Fecal Coliforms per gram total solids (DWB),	
And - Enteric viruses –less than one (1) plaque forming unit per four (4) grams total solids (DWB)	

¹ The limitations represent the maximum allowable levels of heavy metals in any biosolids intended for land application

² These limitations represent the maximum allowable levels of heavy metals based on an average of all samples taken during a 30-day period.

³ CPLR -- Cumulative Pollutant Loading Rate

⁴ APLR – Annual Pollutant Loading Rate

⁵ MPN – Most Probable Number

⁶ DWB – Dry Weight Basis.

⁷ CFU – Colony Forming Units

Pathogen Control Class	
503.32 (a)(1) - (5), (7),-(8), Class A	503.32 (b)(1) - (5), Class B
And - Viable helminth ova –less than one (1) per four (4) grams total solids (DWB)	

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. WATRRC 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 WATRRC has chosen to achieve a PSRP 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 WATRRC will be required to meet VAR through the use of a method of listed under *40 CFR 503.33*. WATRRC intends to meet the vector attraction reduction requirements through one of the methods listed below.

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 a least 35° C (95° F) with a 38% reduction of volatile solids.

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 WATRR 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 WATRR is required to sample for metals at least four times annually. All biosolids land applied over the last decade have met *Table 3* of *40 CFR 503.13*, therefore the WATRR biosolids qualify as EQ with regards to metals. The monitoring data is summarized below.

WATRR Metals Monitoring Data

Provo Monitoring Data, 2012 - 2020 (Land Application)			
Parameter	Table 3, mg/kg (Exceptional Quality)	Average, mg/kg	Maximum, mg/kg
Arsenic	41	8.8	25
Cadmium	39	2.1	5
Copper	1,500	715.3	891
Lead	300	18.1	27.6
Mercury	17	1.0	1.98
Molybdenum	NA	20.0	42.1
Nickel	420	30.9	287
Selenium	100	21.7	52.8
Zinc	2,800	948.5	1400

PATHOGEN MONITORING DATA

The WATRR is required to monitor the Centrifuge Cake for pathogens at least four times annually. The WATRR had the choice to sample for *fecal* coliform or *salmonella*, and the WATRR chose *fecal* coliform. Each monitoring episode needs to consist of seven samples, for a total 28 samples. All biosolids land applied in 2since 2016 met the Class B pathogen standards through anaerobic digestion and testing. The monitoring data is below.

WATRR Fecal Coliform Monitoring Data 2016 - 2019 (Centrifuge Cake)

Geometric Mean of 28 Samples, Most Probable Number Per Gram	
2019	159658
2018	562829
2017	22066
2016	59988

STORM WATER REQUIREMENTS

As mentioned previously, the Storm Water provisions have been omitted from this UPDES permit. However, based on the type of industrial activities occurring at the facility, the permittee is required to maintain separate permit coverage, or an appropriate exclusion, under the Multi-Sector General Permit (MSGP) for Storm Water Discharges Associated with Industrial Activities (UTR000000). If the facility has not already done so, it has 30 days from when this permit is issued to submit the appropriate Notice of Intent (NOI) for the MSGP, or exclusion documentation. This can be accomplished online at: <https://deq.utah.gov/water-quality/general-multi-sector-industrial-storm-water-permit-updes-permits>.

In addition, separate permit coverage under the Construction General Storm Water Permit (CGP) may be required for any construction at the facility which disturbs an acre or more of land, or is part of a common plan of development or sale that is an acre or greater. A Notice of Intent (NOI) is required to obtain a construction storm water permit prior to the period of construction. This can also be accomplished online: <https://deq.utah.gov/water-quality/general-construction-storm-water-updes-permits>.

PRETREATMENT REQUIREMENTS

The pretreatment requirements, regarding administering an approved pretreatment program, remain the same as in the current permit. Any substantial and/or non-substantial changes to the program as defined in 40 CFR 403.18, must be submitted for approval to the Division of Water Quality. Authority to require a pretreatment program is provided for in 19-5-108 UCA, 1953 ann. and UAC R317-8-8.

The sampling of metals will be conducted quarterly and the sampling of organic toxics yearly, see Part II of the UPDES Permit. This is consistent with the guidance developed by the Division of

Water Quality. Additional requirements have been added to the permit to ensure that if the allowable headworks loading is above the value calculated for the local limit development that additional monitoring and notification must occur.

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 initial evaluation is due twelve months after the effective date of the permit. The permittee should utilize the EPA Local Limits Development Guidance to justify the re-evaluation of the local limits.

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 renewed 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% 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.

Drafted by
Lonnie Shull, Discharge, Biomonitoring
Daniel Griffin, Biosolids
Jennifer Robinson/Sarah Ward Pretreatment
Carl Adams, Storm Water
Nick von Stackelberg, Wasteload Analysis
Utah Division of Water Quality, (801) 536-4300

PUBLIC NOTICE

Began: Month Day, Year

Ended: Month Day, Year

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

The Public Noticed of the draft permit was published in the (NEWSPAPER OF RECORD FOR AREA).

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

ADDENDUM TO FSSOB

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

Responsiveness Summary

(Explain any comments received and response sent. Actual letters can be referenced, but not required to be included).

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ATTACHMENT 1

Industrial Waste Survey

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Industrial Pretreatment Wastewater Survey



Do you periodically experience any of the following treatment works problems:

- foam, floaties or unusual colors
- plugged collection lines caused by grease, sand, flour, etc.
- discharging excessive suspended solids, even in the winter
- smells unusually bad
- waste treatment facility doesn't seem to be treating the waste right

Perhaps the solution to a problem like one of these may lie in investigating the types and amounts of wastewater entering the sewer system from industrial users.

An industrial user (IU) is defined as a non-domestic user discharging to the waste treatment facility which meets any of the following criteria:

1. **has a lot of process wastewater (5% of the flow at the waste treatment facility or more than 25,000 gallons per work day.)**

Examples: Food processor, dairy, slaughterhouse, industrial laundry.

2. **is subject to Federal Categorical Pretreatment Standards;**

Examples: metal plating, cleaning or coating of metals, blueing of metals, aluminum extruding, circuit board manufacturing, tanning animal skins, pesticide formulating or packaging, and pharmaceutical manufacturing or packaging,

3. **is a concern to the POTW.**

Examples: septage hauler, restaurant and food service, car wash, hospital, photo lab, carpet cleaner, commercial laundry.

All users of the water treatment facility are **prohibited** from making the following types of discharges:

1. A discharge which creates a fire or explosion hazard in the collection system.
2. A discharge which creates toxic gases, vapor or fumes in the collection system.
3. A discharge of solids or thick liquids which creates flow obstructions in the collection system.
4. An acidic discharge (low pH) which causes corrosive damage to the collection system.
5. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause problems in the collection system or at the waste treatment facility.
6. Waste haulers are prohibited from discharging without permission. (No midnight dumping!)

When the solution to a sewer system problem may be found by investigating the types and amounts of wastewater entering the sewer system discharged from IUs, it's appropriate to conduct an Industrial Waste Survey.

An Industrial Waste Survey consists of:

Step 1: Identify Industrial Users

Make a list of all the commercial and industrial sewer connections.

Sources for the list:

business license, building permits, water and wastewater billing, Chamber of Commerce, newspaper, telephone book, yellow pages.

Split the list into two groups:

domestic wastewater only--no further information needed
everyone else (IUs)

Step 2: Preliminary Inspection

Go visit each IU identified on the "everybody else" list.

Fill out the **Preliminary Inspection Form** during the site visit.

Step 3: Informing the State

Please fax or send a copy of the Preliminary inspection form (both sides) to:

Jennifer Robinson

Division of Water Quality
288 North 1460 West
PO Box 144870
Salt Lake City, UT 84114-4870

Phone: (801) 536-4383
Fax: (801) 536-4301
E-mail: jenrobinson@utah.gov

PRELIMINARY INSPECTION FORM

INSPECTION DATE ___ / ___ /

Name of Business _____ Person Contacted _____
Address _____ Phone Number _____

Description of Business _____

Principal product or service: _____

Raw Materials used: _____

Production process is: Batch Continuous Both

Is production subject to seasonal variation? yes no

If yes, briefly describe seasonal production cycle.

This facility generates the following types of wastes (check all that apply):

- | | |
|---|--|
| 1. <input type="checkbox"/> Domestic wastes | (Restrooms, employee showers, etc.) |
| 2. <input type="checkbox"/> Cooling water, non-contact | 3. <input type="checkbox"/> Boiler/Tower blowdown |
| 4. <input type="checkbox"/> Cooling water, contact | 5. <input type="checkbox"/> Process |
| 6. <input type="checkbox"/> Equipment/Facility washdown | 7. <input type="checkbox"/> Air Pollution Control Unit |
| 8. <input type="checkbox"/> Storm water runoff to sewer | 9. <input type="checkbox"/> Other describe |

Wastes are discharged to (check all that apply):

- | | |
|---|---------------------------------------|
| <input type="checkbox"/> Sanitary sewer | <input type="checkbox"/> Storm sewer |
| <input type="checkbox"/> Surface water | <input type="checkbox"/> Ground water |
| <input type="checkbox"/> Waste haulers | <input type="checkbox"/> Evaporation |
| <input type="checkbox"/> Other (describe) | |

Name of waste hauler(s), if used

Is a grease trap installed? Yes No

Is it operational? Yes No

Does the business discharge a lot of process wastewater?

- More than 5% of the flow to the waste treatment facility? Yes No
- More than 25,000 gallons per work day? Yes No

Does the business do any of the following:

- | | |
|---|--|
| <input type="checkbox"/> Adhesives | <input type="checkbox"/> Car Wash |
| <input type="checkbox"/> Aluminum Forming | <input type="checkbox"/> Carpet Cleaner |
| <input type="checkbox"/> Battery Manufacturing | <input type="checkbox"/> Dairy |
| <input type="checkbox"/> Copper Forming | <input type="checkbox"/> Food Processor |
| <input type="checkbox"/> Electric & Electronic Components | <input type="checkbox"/> Hospital |
| <input type="checkbox"/> Explosives Manufacturing | <input type="checkbox"/> Laundries |
| <input type="checkbox"/> Foundries | <input type="checkbox"/> Photo Lab |
| <input type="checkbox"/> Inorganic Chemicals Mfg. or Packaging | <input type="checkbox"/> Restaurant & Food Service |
| <input type="checkbox"/> Industrial Porcelain Ceramic Manufacturing | <input type="checkbox"/> Septage Hauler |
| <input type="checkbox"/> Iron & Steel | <input type="checkbox"/> Slaughter House |
| <input type="checkbox"/> Metal Finishing, Coating or Cleaning | |
| <input type="checkbox"/> Mining | |
| <input type="checkbox"/> Nonferrous Metals Manufacturing | |
| <input type="checkbox"/> Organic Chemicals Manufacturing or Packaging | |
| <input type="checkbox"/> Paint & Ink Manufacturing | |
| <input type="checkbox"/> Pesticides Formulating or Packaging | |
| <input type="checkbox"/> Petroleum Refining | |
| <input type="checkbox"/> Pharmaceuticals Manufacturing or Packaging | |
| <input type="checkbox"/> Plastics Manufacturing | |
| <input type="checkbox"/> Rubber Manufacturing | |
| <input type="checkbox"/> Soaps & Detergents Manufacturing | |
| <input type="checkbox"/> Steam Electric Generation | |
| <input type="checkbox"/> Tanning Animal Skins | |
| <input type="checkbox"/> Textile Mills | |

Are any process changes or expansions planned during the next three years? Yes No
If yes, attach a separate sheet to this form describing the nature of planned changes or expansions.

Inspector

Waste Treatment Facility

Please send a copy of the preliminary inspection form (both sides) to:

Jennifer Robinson
Division of Water Quality
PO Box 144870
Salt Lake City, Utah 84114-4870

Phone: (801) 536-4383
Fax: (801) 536-4301
E-Mail: jenrobinson@utah.gov

	Industrial User	Jurisdiction	SIC Codes	Categorical Standard Number	Total Average Process Flow (gpd)	Total Average Facility Flow (gpd)	Facility Description
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							

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ATTACHMENT 2

Wasteload Analysis

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ATTACHMENT 3

Reasonable Potential Analysis

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REASONABLE POTENTIAL ANALYSIS

Water Quality has worked to improve our reasonable potential analysis (RP) for the inclusion of limits for parameters in the permit by using an EPA provided model. As a result of the model, more parameters may be included in the renewal permit. A Copy of the Reasonable Potential Analysis Guidance (RP Guide) is available at water Quality. There are four outcomes for the RP Analysis⁸. They are;

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

(REASONABLE POTENTIAL LANGUAGE)

The RP model was run on (metal) using the most recent data back through 2015. This resulted in 22 data points. Reviewing the original dataset showed that there could be at least one outlier in the data by a significant margin, so we contacted the facility to check the validity of the data. The facility provided the original laboratory bench sheets which were checked against the dataset in ICIS. It was revealed that the data had be entered incorrectly into ICIS. Adjustments were made to the data set and RP was run.

The results of the model are that there is not acute and/or chronic Reasonable Potential at 95% confidence, and there is not acute and/or chronic RP at 99% Confidence. This result indicates that the inclusion of an effluent limit for individual metals is not required at this time, and that routine quarterly monitoring requirements for influent and effluent metals should be continued in the permit. (Outcome C from Reasonable Potential Guide)

RP input/output summary

All data points are reported in ug/L.

RP Procedure Output	Outfall Number: 001	
	Data Units: µg/L	
Parameter	Arsenic	Cadmium
Distribution	Lognormal	Lognormal
Reporting Limit	10	10
Significant Figures	2	3
Effluent Data Points	23	23
Maximum Reported Effluent Conc.	1.9	0.5
Coefficient of Variation (CV)	0.279	0.193
Acute Criterion	364	5.08
Chronic Criterion	164	0.6
Confidence Interval	95	95
Projected Maximum Effluent Conc. (MEC)	2.17	0.548
RP Multiplier	1.14	1.1
RP for Acute?	NO	NO
RP for Chronic?	NO	NO
Outcome	C	C

⁸ See Reasonable Potential Analysis Guidance for definitions of terms

RP Procedure Output	Outfall Number: 001 Data Units: µg/L	
Parameter	Chromium	Copper
Distribution	Lognormal	Lognormal
Reporting Limit	10	10
Significant Figures	2	2
Effluent Data Points	23	23
Maximum Reported Effluent Conc.	5	13
Coefficient of Variation (CV)	0.744	0.324
Acute Criterion	4212	36.5
Chronic Criterion	206	22.7
Confidence Interval	95	95
Projected Maximum Effluent Conc. (MEC)	6.88	15.1
RP Multiplier	1.38	1.16
RP for Acute?	NO	NO
RP for Chronic?	NO	NO
Outcome	C	C

RP Procedure Output	Outfall Number: 001 Data Units: ug/L	
Parameter	Cyanide	Lead
Distribution	Lognormal	Lognormal
Reporting Limit	10	0.5
Significant Figures	2	2
Effluent Data Points	14	23
Maximum Reported Effluent Conc.	2	1
Coefficient of Variation (CV)	NA	0.149
Acute Criterion	23.3	294
Chronic Criterion	5.4	11.6
Confidence Interval	95	95
Projected Maximum Effluent Conc. (MEC)	2	1.08
RP Multiplier	1	1.08
RP for Acute?	NO	NO
RP for Chronic?	NO	NO
Outcome	C	C

RP Procedure Output	Outfall Number: 001 Data Units: µg/L	
Parameter	Mercury	Mercury (Outlier Removed)
Distribution	Lognormal	Lognormal
Reporting Limit	0.0001	0.0001
Significant Figures	2	2
Effluent Data Points	23	23
Maximum Reported Effluent Conc.	0.5	0.005
Coefficient of Variation (CV)	3.77	1.19
Acute Criterion	2.4	2.4
Chronic Criterion	0.012	0.012
Confidence Interval	95	95
Projected Maximum Effluent Conc. (MEC)	0.024	0.00846
RP Multiplier	2	1.69
RP for Acute?	NO	NO
RP for Chronic?	YES	NO
Outcome	A	C

*The EPA ProUCL model was used to evaluate the data for outliers.

Dixon's Outlier Test for Mercury	
Number of Observations = 23	Observation Value 0.5 µg/L is a Potential Outlier (Upper Tail)?
Test Statistic = 0.990	
10% Critical Value = 0.374	For 10% significance level, 0.5 µg/L is an outlier.
5% Critical Value = 0.421	For 5% significance level, 0.5 µg/L is an outlier.
1% Critical Value = 0.505	For 1% significance level, 0.5 µg/L is an outlier.

RP Procedure Output	Outfall Number: 002 Data Units: ug/L	
Parameter	Nickel	Selenium
Distribution	Lognormal	Lognormal
Reporting Limit	10	10
Significant Figures	2	2
Effluent Data Points	23	23
Maximum Reported Effluent Conc.	6.4	2.1
Coefficient of Variation (CV)	0.425	0.272
Acute Criterion	1124	19.6
Chronic Criterion	127	4.8
Confidence Interval	95	95
Projected Maximum Effluent Conc. (MEC)	7.86	2.39
RP Multiplier	1.23	1.14
RP for Acute?	NO	NO
RP for Chronic?	NO	NO
Outcome	C	C

RP Procedure Output	Outfall Number: 001 Data Units: ug/L	
Parameter	Silver	Zinc
Distribution	Lognormal	Lognormal
Reporting Limit	10	10
Significant Figures	2	2
Effluent Data Points	23	23
Maximum Reported Effluent Conc.	0.58	70
Coefficient of Variation (CV)	0.031	0.557
Acute Criterion	20.1	287
Chronic Criterion	NA	293
Confidence Interval	95	95
Projected Maximum Effluent Conc. (MEC)	0.589	89.9
RP Multiplier	1.02	1.28
RP for Acute?	NO	NO
RP for Chronic?	NO	NO
Outcome	C	C

Metals Monitoring and RP Check

See Attached Worksheets

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ATTACHMENT 4

Antidegradation Level II Form