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**FACT SHEET/STATEMENT OF BASIS
HYRUM WASTEWATER TREATMENT PLANT
PERMIT RENEWAL
UPDES PERMIT NUMBER: UT0023205
UPDES BIOSOLIDS PERMIT NUMBER: UTL-023205
UPDES MULTI-SECTOR STORM WATER GENERAL PERMIT NUMBER: UTR000000
MAJOR MUNICIPAL**

FACILITY CONTACTS

Person Name:	Kevin Maughan
Position:	Plant Superintendent
Person Name:	Jeff Jorgensen
Position:	Plant Operator
Person Name:	Tom Broadbent
Position:	Plant Operator
Facility Name:	Hyrum City Wastewater Treatment Plant
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DESCRIPTION OF FACILITY

The Hyrum City Wastewater Treatment Plant (HWTP) serves the City of Hyrum with a population of approximately 7,200 and is located in Cache County.

The HWTP utilizes a membrane bioreactor treatment (MBR) process and consists of screening, two parallel anoxic basins, an aerated channel, three aeration basins and membrane filtration followed by ultraviolet disinfection.

During the non-irrigation season, the final effluent is discharged to an unnamed ditch which flows to Spring Creek and then to the Little Bear River. During the irrigation season, effluent from the HWTP is reused in the City's irrigation system.

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

In an effort to improve the water quality of Spring Creek during the critical summer months and to reduce the chemical costs associated with meeting a stringent phosphorus effluent limit, Hyrum City now utilizes all of the effluent flow from the HWTP during the irrigation season in the City's irrigation system or the irrigation storage reservoir located on the east bench of Hyrum City, depending upon demand. The plant produces Type I quality effluent for irrigation of public landscapes, landscapes at individual homes and agricultural lands.

The HWTP permit was modified in 2011 to include Type I effluent limits and reuse provisions as per *UAC R317-3-11*.

In addition, Hyrum City has requested that the renewal permit no longer contain pretreatment provisions. Hyrum City was originally required to develop and implement an approved pretreatment program as part of a settlement agreement resulting from an upset at the HWTP due to an industrial user. Hyrum City met all of the terms of the settlement agreement and has successfully administered the pretreatment program for over 10 years.

Hyrum City will continue to administer its existing pretreatment program and have requested that they do so without DWQ oversight. Because the HWTP does not meet the requirements for a pretreatment program as per *UAC R317-8.8*, the renewal permit will not contain the requirement for Hyrum City to maintain its pretreatment program.

DISCHARGE

DESCRIPTION OF DISCHARGE

The HWTP has been reporting self-monitoring results on Discharge Monitoring Reports on a monthly basis. A summary of the last 3 years of data is attached.

<u>Outfall Number</u>	<u>Location of Discharge Outfall</u>
001	The Hyrum Wastewater Treatment Plant (HWTP) discharges directly into an unnamed irrigation ditch from a 24-inch concrete pipe immediately north of the facility at latitude 41°39'06" and longitude 111°52'50".
001R	The reuse pump station located at the HWTP.

RECEIVING WATERS AND STREAM CLASSIFICATION

The receiving water is an unnamed irrigation ditch, which flows approximately three miles to Spring Creek, and from there to the Little Bear River.

The irrigation ditch is classified as Class 4. The Little Bear River and its tributaries from Cutler Reservoir to its headwaters are classified as 2B, 3A, 3D, and 4 according to Utah Administrative Code R317-2-12.7

- Class 2B -Protected for secondary contact recreation such as boating, wading, or similar uses.
- Class 3A -Protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain.
- Class 3D -Protected for waterfowl, shore birds and other water oriented wildlife not included in Class 3A, 3B, or 3C, including the necessary aquatic organisms in their food chain.
- Class 4 -Protected for agricultural uses including irrigation of crops and stock watering.

BASIS FOR EFFLUENT LIMITATIONS

Limitations on total suspended solids (TSS), 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 total ammonia limits are based upon the Wasteload Analysis. The oil and grease limitation is based on best professional judgment (BPJ). The phosphorus effluent limits are consistent with the Spring Creek TMDL and protective of Spring Creek during the critical months of the year. The Wasteload Analysis indicates that these limits will be protective of water quality standards. The permit limitations are:

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Parameter	Outfall 001: Effluent Limitations					
	Max Monthly Average	Max Weekly Average	Daily Min	Daily Max	Annual Max	Max 90-day Mean
Flow, MGD	2.0					
BOD ₅ , mg/L	25	35				
BOD ₅ Min. % Removal	85	NA				
TSS, mg/L	25	35				
TSS Min. % Removal	85	NA				
Ammonia, mg/L						
Summer (July through Sept.)	5.0			10.9		
Fall (Oct. through Dec.)	4.9			9.8		
Winter (Jan. through March)	4.1			9.4		
Spring (April through June)	4.3			9.8		
Total Phosphorus, mg/L	1.0					
Fall, Winter and Spring						
Total Phosphorus, mg/L						0.1
Summer						
Total Phosphorus, kg/yr					563	
E coli, No./100mL	126	158				
Oil & Grease, mg/L				10		
pH, Standard Units			6.5	9.0		
WET, Acute Biomonitoring				LC50 > EOP		
WET, Chronic Biomonitoring				IC25 > 87.5% Effluent		

NA – Not Applicable.

Parameter	Outfall 001R: Type I Reuse Limitations				
	Maximum Monthly Avg	Max Weekly median	Daily Min	Daily Avg	Daily Max
Turbidity, NTU	NA	NA	NA	2	5
BOD ₅ , mg/L	10	NA	NA	NA	NA
E-Coli, No./100mL	NA	ND	NA	NA	9
pH, Standard Units	NA	NA	6	NA	9

SELF-MONITORING AND REPORTING REQUIREMENTS

The following self-monitoring requirements 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.

Outfall 001: Self-Monitoring and Reporting Requirements			
Parameter	Frequency	Sample Type	Units
Total Flow	Continuous	Recorder	MGD
BOD ₅ , Influent ^{2,4} Effluent	2 x Weekly	Composite	mg/L
	2 x Weekly	Composite	mg/L
TSS, Influent ^{2,4} Effluent	2 x Weekly	Composite	mg/L
	2 x Weekly	Composite	mg/L
Ammonia	2 x Weekly	Grab	mg/L
Phosphorus ³	Monthly	Grab	mg/L
E-Coli	2 x Weekly	Grab	No./100mL
Oil & Grease	Monthly if sheen is observed	Grab	mg/L
pH	Weekly	Grab	SU
WET, Acute (alternating specie)	2 x Year	Composite	LC50 > EOP Effluent
WET, Chronic (alternating specie)	2 x Year	Composite	IC25 > 87.5% Effluent
Metals, Influent Effluent	2 x Year	Composite ⁶	mg/L
	2 x Year	Composite ⁶	mg/L
Organic Toxics Influent Effluent	Every other year	Grab	mg/L
	Every other year	Grab	mg/L

Outfall 001R: Self-Monitoring and Reporting Requirements for Type I Reuse			
Parameter	Frequency	Sample Type	Units
Total Flow	Continuous	Recorder	MGD
BOD ₅	Once per week	Composite	mg/L
Turbidity	Continuous	Recorder	NTU
E-Coli.	Daily	Grab	No./100mL
TRC	Continuous	Recorder	mg/L
pH	Daily/Continuous	Grab/Recorder	SU

BIOSOLIDS

DESCRIPTION OF BIOSOLIDS TREATMENT

After the influent is screened the solids are stabilized by the activated sludge process with a mean cell residence time of approximately 45 days. The biosolids are then de-watered with a belt press, and dried in concrete drying beds until the biosolids have met a process to significantly reduce pathogens, and have met a method of vector attraction reduction.

DESCRIPTION OF BIOSOLIDS DISPOSAL METHOD

Even though the biosolids produced by HWTP meet exceptional quality standards for heavy metals through testing, and the biosolids have met a process to **significantly** reduce pathogens, the biosolids **have not** met a process to **further** reduce pathogens. Therefore, the biosolids do not meet the pathogen reduction requirements for the biosolids to be considered Class A for sale or giveaway to the general public for home lawn and garden use.

However, since the biosolids have met a method of a “process to significantly reduce pathogens”, and a method of vector attraction reduction, the biosolids **do** meet the requirements for Class B pathogen reduction standards and may be used for agriculture or land reclamation purposes.

In 2012 the Hyrum Wastewater Treatment Plant (HWTP) land applied 274 dry metric tons of Class B biosolids to city owned property for agriculture production. At this time the HWTP intends to dispose of their biosolids in this manner for the life of this permit.

SELF-MONITORING DATA

Heavy Metals Monitoring

The HWTP was required to sample once for heavy metals in 2007. The table below shows the HWTP was in compliance and met the exceptional quality standards for heavy metals. However, the limited monitoring data of the past shows the arsenic levels in the biosolids have been rising. If the arsenic levels exceed table 3 below, the biosolids will not qualify as exceptional quality, and further record keeping and land application requirements may change.

METALS MONITORING DATA, 2007

Parameter	Table 1 Limitations, mg/Kg	HWTP, Average mg/Kg (2007)	HWTP, Maximum, mg/Kg (2007)
Arsenic	41.0	36.7	36.7
Cadmium	39.0	<1.0	<1.0
Copper	1,500.0	190	190
Lead	300.0	9.95	9.95
Mercury	17.0	0.78	0.78
Molybdenum	75.0	4.0	4.0
Nickel	420.0	9.52	9.52
Selenium	36.0	<1.0	<1.0
Zinc	2,800.0	551	551

Vector Attraction Reduction Monitoring

The total solids content must be at least 75%. The HWTP's monitoring data show's the total solids content was 89.0%

Pathogen Reduction Monitoring

Because the HWTP used a process to significantly reduce pathogens, sampling for pathogens was not required, therefore there is no data.

LIMITATIONS AND 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	
Dry Metric Tons of Biosolids Disposed Per Year	Monitoring Frequency
≥ 0 to < 290	Once Per Year
> 290 to < 1,500	Four Times Per Year
> 1,500 to < 15,000	Six Times Per Year

Accordingly, the HWTP needs to monitor at least once per year.

CLASS B REQUIREMENTS (Heavy Metals)

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.D.11.* 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 the biosolids are land applied and meet the heavy metals limitations under *40 CFR 503.13*, 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 due to heavy metals.

If the biosolids are to be land applied to agricultural land, forest land, a low 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.

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

Tables 1, 2, and 3 of Heavy Metal Limitations

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

- a/ See Part VIII. of the permit for definition of terms.
- b/ 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.G.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.

CLASS B REQUIREMENTS (Pathogens)

Hyrum intends to achieve Class B biosolids in one of three different ways with regards to pathogens:

1. Under *40 CFR 503.32 (b)(2)* Hyrum may test the biosolids and it 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. Under *40 CFR 503.32 (b)(3), Appendix B.2*. Hyrum must meet one of the processes to significantly reduce pathogens. Hyrum intends to meet a process to significantly reduce pathogens by using the air drying method of pathogen reduction. The biosolids are applied to an impervious surface and dried at a depth of no more than 9 inches (23 cm) deep. The biosolids are allowed to dry for a minimum of 3 months. During 2 of the 3 months, the ambient average daily temperature is above 32° F (0° C)

3. Under *40 CFR 503.32 (b)(3), Appendix B.4*. Hyrum must meet one of the processes to significantly reduce pathogens. Hyrum intends to meet a process to significantly reduce pathogens by using the windrow method of composting. To achieve this, the temperature must be above 40° C (104° F) or higher, and remain at 40° C or higher for a minimum of five days. For four hours, during the five days, the temperature needs to exceed 55° C (131° F).

Vector Attraction Reduction

If the biosolids are land applied Hyrum will be required to meet a method of vector attraction reduction under *40 CFR 503.33*. Hyrum intends to meet one of the vector attraction reduction requirements below.

1. Aerobic treatment of the biosolids for at least 14 days at over 40° C (104° F) with an average temperature of at least 45° C (113° F) *503.33(b)(5)*.
2. Solids are equal to or greater than 75% total solids when primary solids are **not** present prior to land application *503.33(b)(7)*.
3. Solids are equal to or greater than 90% total solids when primary solids are present prior to land application *503.33(b)(8)*.
4. All Class B biosolids land applied shall be incorporated into the soil within 6 hours after land application *503.33(b)(10)*.

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.

REPORTING AND RECORD KEEPING REQUIREMENTS

Record keeping

The record keeping requirements from *40 CFR 503.17* are included under *Part III.F.* of the permit. The amount of time the records need to 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 need to be retained for a minimum of five years. If the biosolids are disposed in a landfill the records need to be retained for a minimum of five years.

Reporting

The HWTP needs to 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.C.* of the permit, information on management practices, biosolids treatment, and certifications. This report is due no later than February 19 of each year. Each report is for the previous calendar year.

STORM WATER

Storm water provisions are included in this permit.

The storm water requirements are based on the UPDES Multi-Sector General Permit for Storm Water Discharges for Industrial Activity, General Permit No. UTR000000 (MSGP). All sections of the MSGP that pertain to discharges from wastewater treatment plants have been included and sections which are redundant or do not pertain have been deleted.

The permit requires the preparation and implementation of a storm water pollution prevention plan for all areas within the confines of the plant. Elements of this plan are required to include: (1) the development of a pollution prevention team, (2) development of drainage maps and materials stockpiles, (3) an inventory of exposed materials, (4) spill reporting and response procedures, (5) a preventative maintenance program, (6) employee training, (7) certification that storm water discharges are not mixed with non-storm water discharges, (8) compliance site evaluations and potential pollutant source identification, and, (9) visual examinations of storm water discharges.

Hyrum City WWTP is currently covered under the UPDES Multi Sector General Permit for Industrial Activities.

PRETREATMENT REQUIREMENTS

Although the permittee had a developed State-approved pretreatment program it is no longer designated for a pretreatment program because it does not meet conditions which necessitate a full program. The flow through the plant is less than five (5) MGD, there are no categorical industries discharging to the treatment facility, and there is no indication of pass through or interference with the operation of the treatment facility by an industrial user. If any of these conditions change the permit could be modified to include the requirement of a pretreatment program.

Although the permittee no longer has a State-approved pretreatment program, any wastewater discharges to the sanitary sewer are subject to Federal, State and local regulations. Pursuant to Section 307 of the Clean Water Act, the permittee shall comply with all applicable Federal General Pretreatment Regulations promulgated, found in 40 CFR 403 and the State Pretreatment Requirements found in UAC R317-8-8.

An industrial waste survey (IWS) is required of the permittee as stated in Part II of the permit. The IWS is to assess the needs of the permittee regarding pretreatment assistance. The IWS is required to be submitted within sixty (60) days after the issuance of the permit. If an Industrial User begins to discharge or an existing Industrial User changes their discharge the permittee must resubmit an IWS no later than sixty days following the introduction or change as stated in Part II of the permit.

It is recommended that the permittee perform an annual evaluation of the need to revise or develop technically based local limits for pollutants of concern, to implement the general and specific prohibitions 40 CFR, Part 403.5(a) and Part 403.5(b). This

evaluation may indicate that present local limits are sufficiently protective, need to be revised or should be developed. It is required that the permittee submit for review any local limits that are developed to the Division of Water Quality. If local limits are developed they must be public noticed.

All metals testing must use a low enough MDL to insure that the metals are not above the allowable levels determined by the WLA for this permittee. If a test is not available then the lowest test available must be used.

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 require whole effluent toxicity (WET) testing. A review of the past five years of WET data indicates no toxicity has been reported. Therefore, the permittee will continue their quarterly WET testing procedures, including alternating acute and chronic testing, with alternating species as well, and no WET limit requirements. However, the permit will contain a toxicity limitation re-opener provision. This provision allows for modification of the permit to include WET limitations and/or increased WET monitoring, should additional information indicate the presence of toxicity in the discharge.

The permit will contain the standard requirements for accelerated testing upon failure of an acute WET test and a PTI (Preliminary Toxicity Investigation) and TRE (Toxicity Reduction Evaluation) as necessary.

PERMIT DURATION

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

Drafted by:

Kim Shelley, Discharge and Reuse
Dan Griffin, Biosolids
Mike Herkimer, WET
Mike George, Storm Water
Jennifer Robinson, Pretreatment
Utah Division of Water Quality

PUBLIC NOTICE

Began:

Ended:

Public Noticed in The Logan Herald Journal

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