

**FACT SHEET STATEMENT OF BASIS
MAGNA WATER AND SEWER DISTRICT
RENEWAL PERMIT: DISCHARGE, BIOSOLIDS & STORM WATER
UPDES PERMIT NUMBER: UT0021440
MAJOR MUNICIPAL**

FACILITY CONTACTS

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DESCRIPTION OF FACILITY

The Magna Water Reclamation Facility (MWRF) is located northeast of the City of Magna. The outfall is located at latitude 40° 43' 30" and longitude 112° 04' 26". The facility serves the City of Magna. The daily average design flow is 3.3 MGD. The facility consists of (2) fine screens, followed by (2) grit traps, Fischer/Porter influent flow meters (3) influent lift pumps, (2) oxidation ditches, (2) secondary clarifiers, a chlorine contact chamber with (2) sections, effluent 12 inch Parshall flume, and a Fischer/Porter effluent flow meter. A 3.75 MGD BIOBROx system which removes perchlorate from an EDR concentrate stream from the treatment of a contaminated drinking water well. The solids handling consists of a screw press.

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

The wasteload analysis (WLA) for the previous permit stated that the discharge would not cause a violation of water quality standards in downstream receiving waters, and a wasteload allocation was not required. As a result, the permit limits of the previous permit were based on the Utah Secondary Treatment Standards. After analyzing the effluent and the receiving water it was determined that a wasteload allocation would be needed to protect downstream receiving waters.

A preliminary wasteload analysis was completed, which showed that ammonia and total residual chlorine (TRC) would now have to have an allocation, and limits would need to be added to the permit. Insufficient observed data was available to properly calibrate the QUAL2Kw model. DWQ will be collecting data, that will be used to calibrate the model so the WLA can be finalized, which is expected to take approximately 12 months.

The permit for MWFR will be renewed using the permit limits from the previous permit and will be effective for a period of 3 years. This will allow time for the WLA to be completed, and time for MWRF to collect data to verify that the limits set forth by the WLA can be met. MWFR will begin a process optimization for the removal of ammonia and TRC in this permit period.

Sampling for ammonia will be included as monitoring only during the duration of this permit.

DISCHARGE

DESCRIPTION OF DISCHARGE

<u>Outfall</u>	<u>Description of Discharge Point</u>
001	Located at latitude 40° 43' 30" and longitude 112° 04' 26". The effluent discharge is to the east into Kersey Creek.

RECEIVING WATERS AND STREAM CLASSIFICATION

The final discharge from MWRF flows into Kersey Creek. Kersey Creek is classified as 2B, 3D according to *Utah Administrative Code (UAC) R317-2-12.7*:

- | | |
|----------|--|
| 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 3D | Protected for waterfowl, shore birds and other water-oriented wildlife not included in Classes 3A, 3B, or 3C, including the necessary aquatic organisms in their food chain. |

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 and total residual chlorine (TRC) is based on best professional judgment (BPJ). The permit limitations are:

Effluent Limitations a/				
Parameter	Monthly Average	Maximum Weekly Average	Daily Minimum	Daily Maximum
BOD ₅ , mg/L	25	35	NA	NA
BOD ₅ , Minimum % Removal	85	NA	NA	NA
TSS, mg/L	25	35	NA	NA
TSS, Minimum % Removal	85	NA	NA	NA
E. Coli, no./100mL	126	158	NA	NA
TRC, mg/L	NA	NA	NA	1
Oil & Grease, mg/L	NA	NA	NA	10.0
pH, Standard Units	NA	NA	6.5	9.0

NA – Not Applicable.

SELF-MONITORING AND REPORTING REQUIREMENTS

The following self-monitoring requirements are the same as in the previous permit with the exception that ammonia has been added to the monitoring requirements. The reporting requirements will be submitted on 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.

Self-Monitoring and Reporting Requirements			
Parameter	Frequency	Sample Type	Units
Total Flow b/ c/	Continuous	Recorder	MGD
BOD ₅ , Influent	2 x Week	Composite	mg/L
BOD ₅ , Effluent	2 x Week	Composite	mg/L
BOD ₅ , Minimum % Removal	2 x Week	Calculation	%
TSS, mg/L Influent	2 x Week	Composite	mg/L
TSS, mg/L Effluent	2 x Week	Composite	mg/L
TSS, Minimum % Removal	2 x Week	Calculation	%
E. Coli	2 x Week	Grab	no./100mL
Ammonia	Weekly	Grab	mg/L
TRC	Monthly	Grab	mg/L
Oil & Grease	Monthly (If seen is observed)	Grab	mg/L
Ph	Daily	Grab	SU
WET, Acute Biomonitoring	Quarterly	Composite	Report
Metals	2 x Year	e/	mg/L
Organics	d/	Grab	mg/L

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

b/ Flow measurements of influent/effluent volume shall be made in such a manner that MWRP 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/ Testing must be performed in the second and fourth year of the permit cycle. A list of the organics to be tested can be found in 40CFR122 appendix D table II. If results of metal analysis are detectable, more frequent sampling of the metals may be required.

e/ See Metals Monitoring table in part II.A.1 of this permit

WASTE LOAD ANALYSIS AND ANTIDegradation REVIEW

Effluent limitations may also be derived using a WLA. The WLA incorporated Secondary Treatment Standards, Water Quality Standards, Antidegradation Reviews (ADR), as appropriate and

designated uses into a water quality model that projects the effects of discharge concentrations on receiving water quality. Effluent limitations are those that the model demonstrates are sufficient to meet State water quality standards in the receiving waters. During the UPDES renewal development, a WLA and ADR were performed. An ADR Level I review was performed and concluded that an ADR Level II review was not required. The WLA indicates that the effluent limitations should be sufficiently protective of water quality, in order to meet State water quality standards in the receiving waters.

BIOSOLIDS

DESCRIPTION OF BIOSOLIDS TREATMENT AND DISPOSAL

The solids at the MWRf are stabilized in an oxidation ditch. The mean cell residence time of the solids is about fifty days. In 2012, the MWRf disposed of 604 dry metric tons (DMT) of biosolids.

After dewatering, the solids are transported on a conveyor belt and loaded into a trailer that will be picked up and hauled to ET technologies. ET Technologies operates under a processing facility permit issued from the Salt Lake Valley Health Department. All biosolids hauled to ET Technologies are weighed and the drivers are given a manifest. The biosolids must pass a toxicity characteristic leaching procedure (TCLP), are screened for radiation and “sniffed” for volatile organic compounds. ET Technologies is a soil regeneration site and mixes the solids with soil, contaminated soil from petroleum spills, saw dust, sump waste, fly ash, and other waste. It is buried for approximately one year for pathogen reduction, dug up and used for final cover at the adjacent Salt Lake Valley Solid Waste Management Facility for land reclamation purposes with very good results.

Since the solids produced at the MWRf fail to meet Class A or Class B standards for land application with respect to pathogens, all solids will need to be further treated, and monitored by the processing facility to meet the land application requirements of *40 CFR 503* before any of the solids are land applied.

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	
Amount 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 MWRf shall monitor at least four times per year (or when the solids are disposed). However, in accordance to *40 CFR 503.16* MWRf requested a reduction in frequency to once per year since the biosolids produced are sent to a soil regeneration site that is also permitted.

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.

Metals Monitoring

If the biosolids are to be land applied, the MWRF will need to sample prior to the time of land application.

Pathogen Monitoring for Class B Biosolids

If the Class B biosolids are to be land applied, the MWRF will need to meet a process to significantly reduce pathogens (PSRP) or be sampled for *fecal* coliform prior to land application.

Vector Attraction Reduction Monitoring

If the biosolids are to be land applied, the MWRF will need to meet a method of vector attraction reduction (VAR) prior to land application.

MONITORING DATA

Pathogen Monitoring Data 2012

The MWRF recently sampled for fecal coliform from one of their two screw presses. The fecal coliform was greater than 24,000,000 most probable number per gram (MPN/g). To meet Class B standards through sampling the fecal coliform would need to be less than 2,000,000 MPN/g on a consistent basis. This sample shows that the MWRF will probably not meet the requirements of *40 CFR 503.32 (a)*, for Class B biosolids without further treatment.

Metals Monitoring Data

The MWRF was required to sample the biosolids disposed in 2012 for heavy metals. The monitoring shows that the biosolids meet the requirements of *Table 3, 40 CFR 503.13*, which is considered exceptional quality (EQ) biosolids with regards to heavy metals. The results of the biosolids monitoring are shown below.

MWRF Metals Monitoring Data, 2012		
Parameter	Table 3, (EQ) mg/kg	Magna Values, mg/kg
Arsenic	41.0	19.8
Cadmium	39.0	0.68
Copper	1,500.0	481.0
Lead	300.0	11.7
Mercury	17.0	0.91
Molybdenum	75.0	8.55
Nickel	400.0	11.4
Selenium	100.0	12.6
Zinc	2,800.0	567.0

BIOSOLIDS LIMITATIONS

Pathogens (Class B)

For biosolids to be considered Class B with respect to pathogens, the total solids will need to meet a microbiological limit of less than 2,000,000 most probable number per gram of total solids (*40 CFR 503.32(b)(2)*), or be treated by a PSRP (*40 CFR 503.32(b)(3)*). If the biosolids do not meet Class B pathogen standards, or a PSRP, the MWRF will need to find another method of disposal.

Heavy Metals

Prior to land application, all biosolids need to meet the heavy metals limits of *40 CFR 503.13*. For the biosolids to be considered Class A biosolids (EQ) in regards to heavy metals, the biosolids will need to meet *Table 3 of 40 CFR 503.13*. If the biosolids do not meet Table 3, EQ standards for metals, *Tables 1, 2, or 4 of 40 CFR 503.13* will need to be met before the biosolids are land applied. However, all biosolids produced from the MWRF have met EQ standards with respect to heavy metals during the life of the last permit, and it is expected that the MWRF will continue to meet EQ standards for the life of this permit. If the biosolids fail to meet any of the heavy metals standards of *40 CFR 503.13*, the biosolids cannot be land applied, and the biosolids will need to be disposed of in a landfill.

Vector Attraction Reduction

The biosolids will need to meet one of the vector attraction reduction requirements below under *40 CFR 503.33*.

1. The total solids content of the biosolids will need to be at least 90%, before the biosolids are land applied (*Option 8, 503.33(b)(8)*).
2. Biosolids that meet Class B pathogen standards that are land applied, will need to be incorporated into the soil within 6 hours after the biosolids are applied to the land (*Option 10, 503.33(b)(10)*).

RECORD KEEPING

The record keeping requirements from *40 CFR 503.17* are included under Part III.K. 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 *Table 3 of 40 CFR 503.13*, and are land applied, the records need to be retained for a minimum of five years.

REPORTING

The MWRF is required 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.B. of the permit, information on management practices, land application sites, and certifications and will be due no later than February 19 of each year. Each report is for the previous calendar year.

STORM WATER

STORMWATER REQUIREMENTS

Storm water provisions are included in this combined UPDES permit.

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

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

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

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

PRETREATMENT REQUIREMENTS

Although MWRF does not have to develop 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*, MWRF 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*.

MWRF has not been designated for pretreatment program development because it does not meet conditions which necessitate a full program. The flow through the plant is less than five (5) MGD and there is no indication of pass through or interference with the operation of the treatment facility such as upsets or violations of the POTW's UPDES permit limits. Authority to require a pretreatment program is provided for in *19-5-108 UCA, 1953 ann.* and *UAC R317-8-8*.

The permit requires 2 x year influent and effluent monitoring for metals, organic toxics listed in R317-8-7.5 will be monitored in the 2nd and 4th year of the permit, and sludge monitoring for potential pollutants listed in 40 CFR 503. MWRF is required to submit an industrial waste survey within 60 days of permit issuance, see Part II.B.1 of the permit for details.

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. Acute toxicity testing will be conducted using one species, alternating each quarter between *Ceriodaphnia dubia* and *Pimephales promelas* (fathead minnows). The renewal permit will contain the standard requirements for accelerated testing upon failure of a WET test, a Preliminary Toxicity Investigation (PTI) and Toxicity Reduction Evaluation (TRE) as necessary, and a toxicity limitation re-opener provision.

PERMIT DURATION

It is recommended that this permit be effective for a duration of three (3) years.

Drafted by
Matthew Garn
Utah Division of Water Quality
February 25, 2014

PUBLIC NOTICE

Began:
Ended:
Public Noticed in

DWQ-2014-003681

