

Official Draft Public Notice Version **March 27, 2015**

The findings, determinations, and assertions contained in this document are not final and subject to change following the public comment period.

**FACT SHEET AND STATEMENT OF BASIS
TIMPANOGOS SPECIAL SERVICE DISTRICT
RENEWAL PERMIT: DISCHARGE, BIOSOLIDS & STORM WATER
UPDES PERMIT NUMBER: UT0023639
UPDES BIOSOLIDS PERMIT NUMBER: UTL-0023639
UPDES MULTI-SECTOR STORM WATER GENERAL PERMIT NUMBER: UTR000000
MAJOR MUNICIPAL**

FACILITY CONTACTS

Person Name:	Jon Adams
Position:	District Manager
Facility Name:	Timpanogos Special Service District
Mailing Address:	P.O. Box 923 American Fork, Utah 84003
Telephone:	(801) 756-5231 Fax (801) 756-1472
Actual Address:	5050 West 6400 North Utah County, Utah

DESCRIPTION OF FACILITY

This facility is a publicly owned wastewater treatment works. It treats wastewater by use of aerated bioreactors, settling and disinfection. Timpanogos Special Service District (TSSD) has a permitted biosolids composting program, and an approved pretreatment program. This wastewater treatment plant was originally built in 1979. The design flow of TSSD is currently at 30.0 MGD. TSSD provides wastewater disposal services to the communities of Alpine, American Fork, Cedar Hills, Eagle Mountain, Highland, Lehi, Pleasant Grove, Vineyard, Suncrest, and Saratoga Springs, Utah.

Discharge from the plant UV unit goes through a six celled pond system before discharge to Utah Lake at a latitude of 40° 20' 26" and a longitude of 111° 46' 35". The point at which Utah Lake receives effluent from the pond system varies depending on the Lake level. There is a bypass of the wetlands, which extends from the UV process to Utah Lake.

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

TSSD has recently completed and upgrade of the plant. The upgrade has increased the design flow to 30.0 MGD.

The Division of 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 preliminary screening was performed on metals data that has been collected over the past three years from TSSD. The preliminary screening showed that there was not a reasonable potential to cause, or contribute to an excursion above the current water quality standard. Therefore, no additional effluent limits will be included in the renewal permit as a result of this analysis.

DISCHARGE

DESCRIPTION OF DISCHARGE

Timpanogos Special Service District has been reporting self-monitoring results on Discharge Monitoring Reports on a monthly basis. The previous 3 years of data show that there were no significant violations.

Outfall
001

Description of Discharge Point

The discharge outfall is located at latitude 40°20'26" and longitude 111°46'35" to an onsite wetlands area and then to Utah Lake.

RECEIVING WATERS AND STREAM CLASSIFICATION

The final discharge is to Utah Lake which is classified as 2B, 3B, 3D, and 4, according to the *Utah Administrative Code (UAC) 317-2-13*.

- Class 2B Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.
- Class 3B Protected for warm water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain.
- Class 3D Protected for waterfowl, shore birds and other water-oriented wildlife not included in Classes 3A, 3B, or 3C, including the necessary aquatic organisms in their food chain.
- Class 4 Protected for agricultural uses including irrigation of crops and stock watering.

BASIS FOR EFFLUENT LIMITATIONS

Limitations on total suspended solids (TSS), 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). Ammonia and dissolved oxygen is based on the wasteload analysis.

This facility currently discharges wastewater into an impaired waterbody listed in Utah's 303(d) list of impaired waters as defined in the Clean Water Act. As required under federal regulation, a TMDL will be developed for all listed waters. The TMDL will focus on developing limitations for those parameters of concern (POC) that were identified during the 305(b) and 303(d) assessment process. POC's are identified as those parameters in violation of water quality standards or where defined methodologies indicate impairment of a beneficial use (a major component of the water quality standards).

Specifically, Utah Lake has been identified as impaired for total dissolved solids (TDS) and total phosphorus (TP). Currently a TMDL evaluation is underway for Utah Lake. If the results of the TMDL process establishes effluent limits for either or both of these POC's, then effluent limits for these POC's will be included in UPDES permits as per 40 CFR Part 130. Therefore, it is strongly recommended that facility staff participate in the TMDL development process. The TMDL staff at the Division of Water Quality will be responsible for scheduling and notifying appropriate facilities personnel regarding TMDL meetings. In addition, please contact your UPDES permit writer for information on scheduled TMDL meetings.

The permit limitations are:

Parameter	Effluent Limitations a/			
	Maximum Monthly Average	Maximum Weekly Average	Daily Minimum	Daily Maximum
BOD ₅ , mg/L	25	35	NA	NA
BOD ₅ Min. % Removal	85	NA	NA	NA
TSS, mg/L	25	35	NA	NA
TSS Min. % Removal	85	NA	NA	NA
E. Coli., No./100mL	126	157	NA	NA
WET, Chronic Biomonitoring	NA	NA	NA	Pass, IC25 > 7.1% effluent
Oil & Grease, mg/L	NA	NA	NA	10
pH, Standard Units	NA	NA	6.5	9
Ammonia, mg/L	NA	NA	NA	13.7
Ammonia, lbs/day	NA	NA	NA	3416.4
Dissolved Oxygen (DO), mg/L	NA	NA	5.0	NA

NA – Not Applicable.

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 annually, 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. Lab sheets for metals and toxic organics must be attached to the DMRs.

Self-Monitoring and Reporting Requirements			
Parameter	Frequency	Sample Type	Units
Total Flow	Continuous	Recorder	MGD
BOD ₅ , Influent a/ Effluent	3 x Week	Composite	mg/L
	3 x Week	Composite	mg/L
TSS, Influent a/ Effluent	3 x Week	Composite	mg/L
	3 x Week	Composite	mg/L
E. Coli	3 x Week	Grab	No./100mL
WET, Chronic Biomonitoring	Quarterly	Composite	Pass/Fail
Oil & Grease	1 x Monthly Unless Sheen	Grab	mg/L
pH	3 x Week	Grab	SU
Metals, Influent Effluent	Quarterly	Composite	mg/L
	Quarterly	Composite	mg/L
Phosphorous, Total b/	Monthly	Grab	mg/L
Nitrate, NO ₃ b/	Monthly	Grab	mg/L
Nitrite, NO ₂ b/	Monthly	Grab	mg/L
Ammonia	3 x Week	Grab	mg/L

a/ 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.

b/ Total Phosphorus, Nitrate (NO₃), and Nitrite (NO₂) are being sampled in support of the work being done for the TMDL currently underway for Utah Lake. The Pollutants of Concern (POC's) will be monitored and reported by the facility on a monthly basis, but will not have a limit associated with them. Minimum sampling frequency requested is monthly, reporting the monthly average. If more sampling is done, an average value should be reported.

BIOSOLIDS

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

DESCRIPTION OF TREATMENT, BENEFICIAL USE AND DISPOSAL

The Timpanogos Special Services District (TSSD) submitted their 2013 annual biosolids report

on February 21, 2014. The report states the TSSD produced 3,219 dry metric tons (DMT) of solids. After the addition of wood chips and green waste, a total of 6,994 DMT of composted biosolids were produced and sold or given away to the public.

The solids are stabilized in activated sludge basins, with a solids retention time of 14-18 days in the basins. Solids wasted on a daily basis are sent to an aerobic digester with a solids detention of five (5) to ten (10) days. After stabilization, the solids are dewatered by belt presses to about 15 percent solids. After dewatering the untreated solids are composted to meet Class A standards and sold or given away.

Biosolids are processed using the Gore Covered Composting System, which is an In-Vessel Aerated Static Pile (IASP) windrow method to meet Class A biosolids requirements. The piles are maintained at minimum operating temperatures of 55° C (131° F) for at least three (3) days. Piles typically exceed the three (3) day temperature requirements. After leaving the IASP process, which is typically six (6) to eight (8) weeks, the composted solids are moved to curing piles for an additional eight (8) to twenty-four (24) weeks until no odor is present and final screening occurs. All composted material is tested for Salmonella in accordance to 503 Regulations.

Biosolids were hauled to the Wasatch Regional Landfill, Inc. by District employees. No contract hauler(s) were used. Approximately 957 DMT were hauled off-site to the landfill for disposal. See attached application and Letter of Authorization from Republic Services, operators of Wasatch Regional Landfill, Inc.

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

Accordingly, if the biosolids are to be land applied, the biosolids shall be monitored at least six times per year.

Landfill Monitoring

Under 40 CFR 258, the landfill monitoring requirements include a paint filter test. If the biosolids do not pass a paint filter test, the biosolids cannot be disposed in the sanitary landfill (40 CFR 258.28(c)(1)). Timpanogos disposed of 957 DMT of biosolids at the Wasatch regional Landfill.

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 that 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 on the information sheet are followed to any reasonable degree, the Class A biosolids will be able to be land applied year after year, to the same lawns and garden plots without any deleterious effects to the environment. The information sheet must be provided to the public, because the permittee is not required, nor able, to track the quantity of Class A biosolids that are land applied to home lawns and gardens.

Class A Requirements With Regards to Heavy Metals

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

Class B Requirements for Agriculture and Reclamation Sites

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

Class B Requirements With Regards to Heavy Metals

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

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

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

Tables 1, 2, and 3 of Heavy Metal Limitations

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

- *a, The limitations represent the maximum allowable levels of heavy metals in any biosolids intended for land application.
- *b, Any violation of these limitations shall be reported in accordance with the requirements of Part III.F.1. of the permit.
- *c, These limitations represent the maximum allowable levels of heavy metals based on an average of all samples taken during a 30-day period.

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

Pathogens

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

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

Class A 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 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. The PFRP will be accomplished through a method of composting.

1. Windrow Method- Using the windrow method of composting, the temperature needs to be maintained at 55 °C (131 °F) or higher for fifteen days, with a minimum of five turnings during those fifteen days,
2. Static Aerated Pile Method - composting using the static aerated pile method, the temperature of the biosolids is maintained at 55° C (131°F) or higher for at least 3 days).

Both of these composting methods are found under (40 CFR 503.32(a)(8)(ii)).

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.

Pathogens Class B

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 may be accomplished through composting:

1. Under *40 CFR 503.32 (b)(2)*, TSSD may test the biosolids and 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)* 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).
3. Under *40 CFR 503.32 (b)(3)* the PSRP may be accomplished through 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 (113° F).

Vector Attraction Reduction (VAR)

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

2. Under *40 CFR 503.33(b)(5)* the solids need treated through composting with a temperature of 40° C (104° F) or higher for at least 14 days with an average temperature of over 45° C (113° F).

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, the Director and the EPA must be informed at least thirty (30) days prior to its use. This change may be made without additional public notice.

Landfill Monitoring

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

Record Keeping

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

Reporting

TSSD must report annually as required in *40 CFR 503.18*. This report is to include the results of all monitoring performed in accordance with *Part II.C* of the permit, information on management practices, biosolids treatment, and certifications. This report is due no later than February 19 of each year. Each report is for the previous calendar year.

MONITORING DATA

METALS MONITORING DATA

The TSSD was required to sample for metals at least six times in 2013. TSSD sampled the Class A compost 6 times, and the Class B biosolids 4 times. All biosolids land applied in 2013 met *Table 3* of *40 CFR 503.13*, therefore the TSSD biosolids qualify as EQ with regards to metals. The monitoring data is below.

TSSD Metals Monitoring Data 2013

Timpanogos Metals Monitoring Data, 2013 (Land Application)			
Parameter	Table 3, mg/kg (Exceptional Quality)	Average, mg/kg	Maximum, mg/kg
Arsenic	41.0	5.11	8.99
Cadmium	39.0	1.55	5.67
Copper	1,500.0	244	386
Lead	300.0	16.6	24.7
Mercury	17.0	0.57	0.809
Molybdenum	75.0	20.1	58.6
Nickel	400.0	18.3	22.7
Selenium	36.0	7	9.15
Zinc	2,800.0	330	447

PATHOGEN MONITORING DATA (Anaerobic Cake)

The TSSD 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 2013 met the Class B pathogen standards through anaerobic digestion.

PATHOGEN MONITORING DATA (Aerobic Compost)

The TSSD was required to monitor the composted biosolids for pathogens at least six times in 2013. The TSSD had the choice to sample for *fecal* coliform or *salmonella*, and the TSSD chose *salmonella*. Each monitoring episode needs to consist of seven samples, for a total 42 samples. All compost sold or given away in 2013 met the Class A pathogen standards for compost. The monitoring data is below.

TSSD Salmonella Monitoring Data 2013 Compost)

Geometric Mean of 42 Samples, Most Probable Number Per Gram (2013)	Maximum of 42 Samples, Most Probable Number Per Gram (2013)
1.1	1.76

WASTE LOAD ANALYSIS AND ANTIDegradation REVIEW

Effluent limitations are also derived using a waste load analysis (WLA), which is appended to this statement of basis as ADDENDUM. The WLA incorporates 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 permit development, a WLA and ADR were performed. An ADR Level I review was performed and the conclusion was that an ADR level II review was required, because TSSD was increasing the flow capacity to the treatment plant. TSSD prepared a Level II ADR review report addressing all of the points required in R317-2, which was dated July 2, 2014. A copy of the ADR Level II is appended to this document.

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.

Timpanogos Special Service District 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. Any changes to the program must be submitted for approval to the Division of Water Quality. Authority to require a pretreatment program is provided for in *19-5-108 UCA, 1953 ann.* and *UAC R317-8-8.*

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

BIOMONITORING REQUIREMENTS

A nationwide effort to control toxic discharges where effluent toxicity is an existing or potential concern is regulated in accordance with the *State of Utah Permitting and Enforcement Guidance Document for Whole Effluent Toxicity Control (biomonitoring)*. Authority to require effluent

biomonitoring is provided in *Permit Conditions, UAC R317-8-4.2, Permit Provisions, UAC R317-8-5.3* and *Water Quality Standards, UAC R317-2-5* and *R317 -2-7.2*.

Since the permittee is a major municipal discharger, the renewal permit will require whole effluent toxicity (WET) testing. Chronic toxicity testing will be required using one species quarterly, alternating between Ceriodaphnia dubia and Pimephales promelas (fathead minnow). The permit will contain the standard requirements for accelerated testing upon failure of a WET test.

The permit will contain the standard requirements for accelerated testing upon failure of a 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 Matthew Garn
Utah Division of Water Quality
February 10, 2015

PUBLIC NOTICE

Began: March 27, 2015
Ended: April 27, 2015
Public Noticed in The Daily Herald Newspaper

DWQ-2015-003261