

*Draft Public Notice Version February 7, 2015*

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

**FACT SHEET/STATEMENT OF BASIS  
CENTRAL DAVIS SEWER DISTRICT  
RENEWAL PERMIT: DISCHARGE, BIOSOLIDS & STORM WATER  
UPDES PERMIT NUMBER: UT0020974  
UPDES BIOSOLIDS PERMIT NUMBER: UTL-020974  
UPDES MULTI-SECTOR STORM WATER GENERAL PERMIT NUMBER: UTR000000  
MAJOR MUNICIPAL**

**FACILITY CONTACTS**

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Facility Name:	Central Davis Sewer District
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**DESCRIPTION OF FACILITY**

The Central Davis Sewer District (CDS D) wastewater treatment facility was originally placed in service in 1961. The plant was constructed with one trickling filter, two rectangular clarifiers and an anaerobic digester.

The plant was upgraded in the 1970's with an additional secondary trickling filter, two circular clarifiers and additional digestion. In the 1980's a major upgrade was made which included a new headworks, the addition of an oxidation ditch and two final clarifiers, new chlorination equipment, contact basin and additional solids handling facilities including gravity belt thickeners and presses. In the 1990's CDS D expanded to meet the maximum population of the service area. This expansion included a second oxidation ditch, two clarifiers, additional chlorine equipment, a second contact basin and additional solids handling equipment.

The effluent from the wastewater treatment facility is discharged from outfall 001 to the Great Salt Lake. The design flow of the facility is 9.9 million gallons a day (MGD), with a design population equivalent of 65,000 people and an allowance for industrial waste. The discharge, Outfall 001, is located at latitude 40°59'54" and longitude 111°57'01". The CDS D serves the cities of Farmington, Fruit Heights, and Kaysville. The facility is located in Kaysville, Davis County, Utah.

**SUMMARY OF CHANGES FROM PREVIOUS PERMIT**

CDS D, on June 6, 2009, requested that the percent removal for BOD<sub>5</sub> and TSS be removed from the permit due to uncontrollable infiltration and inflow (I/I) into the sewer collection system. CDS D has attempted to eliminate sources of I/I but due to issues beyond the control of CDS D, it has been difficult for CDS D to find

and eliminate the sources. CDSO has determined that is cheaper to treat the I/I than to eliminate the sources and cause issues with home owners that do not have other means to prevent the ground water from entering their basements. The Executive Secretary of the Water Quality Board is in agreement, in a letter dated, January 20, 2010, the Executive Secretary required the permittee to meet 80 % removal rather than 85 % removal for BOD<sub>5</sub> and TSS.

Because the dilution of CDSO's effluent in the receiving waters is less than 20:1, CDSO will be required to complete 10 chronic WET tests to determine if chronic toxicity is occurring. This is being done as a screening tool to identify indicators that may require additional evaluation in accordance with the Interim Methods for Evaluating Use Support for Great Salt Lake, Utah Pollution Discharge Elimination System Permits (October 2014). The tests will be required to be completed quarterly. If the results consistently show no chronic toxicity, then additional testing will not be required beyond the 10 tests.

### DISCHARGE

#### DESCRIPTION OF DISCHARGE

<u>Outfall</u>	<u>Description of Discharge Point</u>
001	Located at latitude 40°59'54" and longitude 111°57'01", the discharge enters an unnamed channel on the permittee's property and proceeds northwest continuing on the permittee's property in said unnamed channel into wetlands on the permittee's property and from there to the Great Salt Lake Transitional Waters then into Farmington Bay.

#### RECEIVING WATERS AND STREAM CLASSIFICATION

The final discharge flows into the Great Salt Lake Transitional Waters then into Farmington Bay. The Great Salt Lake Transitional Waters are a Class 5E and the Great Salt Lake Farmington Bay is a Class 5D, according to Utah Administrative Code (UAC) R317-2-13.5.c:

Class 5E	-Great Salt Lake Transitional Waters are protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain.
Class 5D	-Great Salt Lake Farmington Bay is protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain.

#### BASIS FOR EFFLUENT LIMITATIONS

Limitations on total suspended solids (TSS), biochemical oxygen demand (BOD<sub>5</sub>), e-coli and pH are based on current Utah Secondary Treatment Standards, UAC R317-1-3.2. The oil and grease is based on best professional judgment (BPJ). As documented in Addendum 1, the DWQ determined that this discharge will not cause or contribute to a violation of water quality standards based on the reasonable potential analysis and Level I antidegradation review provided by CDSO as Addendum 2. A Level II antidegradation review is not required in accordance with UAC R317-2-3.5.b.1.(b) since water quality will not be further lowered by the discharge. The permit limitations are:

Parameter	Effluent Limitations			
	Maximum Monthly Average	Maximum Weekly Average	Daily Minimum	Daily Maximum
BOD <sub>5</sub> , mg/L	25	35	NA	NA
BOD <sub>5</sub> Min. % Removal	80	NA	NA	NA
TSS, mg/L	25	35	NA	NA
TSS Min. % Removal	80	NA	NA	NA
E-coli, No./100mL	126	157	NA	NA
Oil & Grease, mg/L	NA	NA	NA	10
pH, Standard Units	NA	NA	6.5	9.0

NA – Not Applicable.

**SELF-MONITORING AND REPORTING REQUIREMENTS**

The following self-monitoring requirements for BOD<sub>5</sub>, TSS, e-coli and pH have increased from twice a week to three times a week. The increase in monitoring is to be consistent with the Division of Water Quality’s guidelines for self-monitoring.

Ten chronic WET tests will be required. If the chronic WET testing consistently shows no toxicity then additional testing will not be required beyond the ten tests.

CDSO has been reporting self-monitoring results on Discharge Monitoring Reports on a monthly basis. There haven’t been any significant violations in the last three years. The permit will require reports to be submitted monthly, quarterly and yearly, as applicable, on Discharge Monitoring Report (DMR) forms due 28 days after the end of the monitoring period. Lab sheets for biomonitoring must be attached to the biomonitoring DMR.

Self-Monitoring and Reporting Requirements			
Parameter	Frequency	Sample Type	Units
Total Flow	Continuous	Recorder	MGD
BOD <sub>5</sub> , Influent Effluent	3 x Weekly	Composite	mg/L
	3 x Weekly	Composite	mg/L
TSS, Influent Effluent	3 x Weekly	Composite	mg/L
	3 x Weekly	Composite	mg/L
E-coli	3 x Weekly	Composite	No./100mL
pH	3 x Weekly	Grab	SU
Oil & Grease	Monthly	Grab	mg/L
WET, Acute Biomonitoring	Quarterly	Composite	Pass/Fail
WET, Chronic Biomonitoring (Screening Only)	Quarterly	Composite	Report IC Value
Metals, Influent Effluent	Quarterly	Composite	mg/L
	Quarterly	Composite	mg/L
Organic Toxics, Influent Effluent	Yearly	Grab	mg/L
	Yearly	Grab	mg/L

**BIOSOLIDS**

**DESCRIPTION OF TREATMENT AND BENEFICIAL USE**

The Central Davis Sewer District (CDS) submitted their 2013 annual biosolids report on January 3<sup>rd</sup>, 2014. The report states the CDS produced 2,498 dry metric tons of biosolids or a material derived from biosolids (compost) in 2013. The CDS has two waste streams at the plant. One is the oxidation ditches which produce the aerobic solids, and the other is the trickling filters that produce anaerobic biosolids. The aerobic solids will need some type of further treatment to meet Class B standards if the solids are to be land applied. The anaerobic biosolids qualify as Class B biosolids off of the belt presses. Separate descriptions of treatment and beneficial use methods are described below.

**Beneficial Use - Anaerobic Biosolids**

The solids are stabilized in three anaerobic digesters with mean cell residence time that fluctuates from 33 days to 47 days and operated at a temperature of at least 95° F (35° C). After stabilization, the biosolids are wasted to belt filter presses and de-watered to between 5-10% solids. In 2013 320 DMT were land applied at agronomic rates as a Class B product for hay production on land owned by the CDS. All site restrictions were met, and the property is fenced and posted as a biosolids (sewage sludge) land application site.

**Beneficial Use - Aerobic Biosolids**

The mean cell residence time for the solids in the oxidation ditches fluctuates from 26-28 days. After the biosolids are stabilized in the oxidation ditches, the biosolids are dewatered to about 10-15% percent solids, then mixed with wood chips and green waste and composted using the windrow method or the aerated static pile method composting to meet Class A standards, then sold or given away to the public.

**Inspection Results**

The last inspection conducted at the CDS of the compost operation and land application site was December 9, 2013. The inspections showed that the CDS was in compliance with all aspects of the biosolids management program.

**SUBSTANTIVE PERMIT CHANGES**

The only change to the permit is the CDS has changed from the windrow method of composting during the winter to the static aerated pile method of composting for additional odor control.

**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, the CDS shall monitor the biosolids produced at least six times per year.

## 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 CDS, 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. See Part VII. of the permit for definition of terms.

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

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

Pathogens

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

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 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 CDSO will need find another method of beneficial use or disposal.

Class B Requirements for Agriculture and Land Reclamation Use

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:

CDSO may achieve Class B biosolids in one of several different ways with regards to pathogens:

1. Under 40 CFR 503.32 (b)(2), CDSO 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

If the biosolids are land applied CDSO will be required to meet a method of vector attraction reduction under 40 CFR 503.33. The CDSO 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).

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

CDSO 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.

PND DRAFT

**MONITORING DATA**

**METALS MONITORING DATA**

The CDSO was required to sample for metals at least six times in 2013. CDSO 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 CDSO biosolids qualify as EQ with regards to metals. The monitoring data is below.

**CDSO Metals Monitoring Data 2013**

Compost			
Parameter	Table 3, mg/kg (Exceptional Quality)	Average, mg/kg	Maximum, mg/kg
Arsenic	41	13	15
Cadmium	39	1	1
Copper	1,500	426	502
Lead	300	13	25.4
Mercury	17	1	1
Molybdenum	NA	4	5
Nickel	420	7	9
Selenium	100	6	7
Zinc	2,800	273	337

Sludge Cake			
Parameter	Table 3, mg/kg (Exceptional Quality)	Average, mg/kg	Maximum, mg/kg
Arsenic	41	20	24
Cadmium	39	1	1
Copper	1,500	1050	1340
Lead	300	14	17
Mercury	17	2	2
Molybdenum	NA	12	15
Nickel	420	11	14
Selenium	100	9	11
Zinc	2,800	768	995

**PATHOGEN MONITORING DATA (Anaerobic Cake)**

The CDSO 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 CDSO was required to monitor the composted biosolids for pathogens at least six times in 2013. The CDSO had the choice to sample for *fecal coliform* or *salmonella*, and the CDSO 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.

**CDSO 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)
1.6	2.07

**STORM WATER**

**STORMWATER REQUIREMENTS**

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

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.

**PRETREATMENT REQUIREMENTS**

The pretreatment requirements remain the same as in the current permit with the permittee administering an approved pretreatment program. Any substantial 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 yearly 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 with an approved pretreatment program, the renewal permit will once again require acute whole effluent toxicity (WET) testing. The permittee has not failed an acute WET test in many years and does not have a significant industrial user discharging to their system. Therefore, reasonable potential for toxicity does not exist and no WET limits will be required in the renewal permit once again. Acute toxicity occurs when 50 percent or more mortality is observed for either species at any effluent concentration during the WET testing. Therefore, the permittee is required to "Pass" the Lethal Concentration criteria (LC<sub>50</sub>) for each WET monitoring period.

Acute and chronic (as stated on Page 2) WET tests will be conducted quarterly, alternating the two WET species Ceriodaphnia dubia and Pimephales promelas (fathead minnows), as detailed in the permit. Alternating species has been previously granted to the permittee, and will continue in this permit renewal as well, due to the absence of toxicity in their discharge for many years. The permit also contains standard requirements for accelerated testing upon failure of a WET test, and a PTI (Preliminary Toxicity Investigation) and TRE (Toxicity Reduction Evaluation) as necessary. The permit will also maintain the Toxicity Limitation Re-opener provision that allows for modification of the permit at any time to include additional WET testing requirements, limits and/or alternative test methods should additional information indicate the presence of toxicity in future discharges.

In October of 1998 CDSO was approved to de-chlorinate or take the biomonitoring samples before the chlorination this will continue to be an option for CDSO, if the chlorine concentration of the effluent exceeds 0.2 mg/L.

## **PERMIT DURATION**

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

## **PUBLIC NOTICE**

The public noticing of this permit occurred from February 7, 2015 to March 9, 2015 and was published in the Salt Lake Tribune and Deseret News. Additional information will be included in this section regarding comments received during the public notice.

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Utah Division of Water Quality  
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