

**FACT SHEET AND STATEMENT OF BASIS  
SPRINGVILLE CITY WASTEWATER TREATMENT PLANT  
RENEWAL PERMIT: DISCHARGE, BIOSOLIDS & STORM WATER  
UPDES PERMIT NUMBER: UT0020834  
UPDES BIOSOLIDS PERMIT NUMBER: UTL-020834  
UPDES MULTI-SECTOR STORM WATER GENERAL PERMIT NUMBER: UTR020834  
MAJOR MUNICIPAL**

**FACILITY CONTACTS**

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Facility Name:	Springville City Wastewater Treatment Plant
Mailing and Facility Address:	110 South Main Springville, Utah 84663
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Actual Address:	700 North 500 West

**DESCRIPTION OF FACILITY**

The population of Springville is about 28,000 people. Over the past 15 to 20 years Springville has been changing from a small town community to a suburban bedroom community to the Provo/Orem area about 55 miles south of the Salt Lake City area.

Nestle' USA-Food Division, Inc., contributes a significant portion of the wastewater flow to the plant and is located just inside the city limits on the north side of Springville. About 30% of the total flow is from Nestle', however, Nestle' contributes about 50% of the total organic loading to the plant. Due to the high percentage of loading coming from Nestle', the wastewater surcharge required of Nestle' has contributed financially to the construction of some of the treatment units operating at the plant.

Historically, after the Nestle' facility (the building is labeled with Stouffers, Stouffer is the food corporation of Nestle') was built (1985), the Springville wastewater treatment plant experienced severe problems with a grease load. Early on, the city constructed 2 dissolved air floatation (DAF) units to pretreat and remove the grease from the trunk line coming from Nestle'. About 15 years ago the city leased the pretreatment facilities to Nestle', and currently Nestle' operates and maintains the facilities (located within the boundaries of the wastewater treatment plant property).

Wastewater comes to the treatment plant from 2 trunk lines, one from Nestle' and the other is the City's main sewer trunk line. The Nestle' trunk line is treated with the two dissolved air floatation (DAF) units (350 gpm; with overflow rate 1 MGD), after which it goes directly to a roughing tower and then to a primary clarifier, bypassing the headworks. The plant operator can route the Nestle' flow through the headworks and primary clarifier, but they have chosen not to because of odor problems when it has been routed that way in the past. The roughing tower has counter current ventilation with blowers, plastic media (plastic blocks with square tunnels running diagonally top to bottom). Engineering specifications indicate it is capable of a 1 MGD flow and 8,340 lbs/day of BOD. The roughing tower takes only the waste stream from Nestle', unless Nestle' is shutdown. When the flow from Nestle' is interrupted the operator routes wastewater from the main sewer trunk line coming from the City to the roughing tower to keep the biologically active film alive until the waste stream from Nestle' resumes.

Under normal operating conditions, wastewater from the City's main sewer trunk line goes directly to the headworks and then to one or both of the primary clarifiers (there are two primary clarifiers). The headworks consist of a 36" Palmer-Bowlus flume, fine bar screens and an aerated grit chamber (detention time 7.6 minutes at 7.0 MGD). The primary clarifiers are circular that, combined, have a 4.0 hours detention time at 5.2 MGD with a weir loading of 10,358 gal/ft/day.

After the primary clarifiers, the wastewater goes to both trickling filters. The trickling filters are counter current (without blowers) with plastic media the same as the roughing tower. Trickling filter #1 is somewhat smaller than trickling filter #2. Together they can handle 6,200 lbs/day of BOD.

There are four secondary clarifiers (varying in size), all circular with a total detention time of 3.2 hours at 5.2 MGD, and a weir loading of 7,704 gal/ft/day.

Solids (sludge) are treated in an anaerobic digester that operates with a 56 days detention period. The sludge is dewatered with a belt press, and dried in drying beds. The sludge is composted and then sold to the public as a soil amendment.

From the secondary clarifiers the flow has the option of going through granular filters. The filters have been rehabilitated and have been on line for about 7 months. After the filters the flow is disinfected by a UV disinfection system, after which it is discharged.

A description of Springville's past history of plant modifications begins with a belt press and building added in 1995, a new primary clarifier was added in 1996, in 1998 the composting operation was doubled, and in 1999 a roughing tower added.

The design flow of the facility was 5.5 MGD. Springville was expanded during the 2002 permit cycle and the design flow was increased to 6.6 MGD.

The discharge outfall is located approximately a ¼ mile northwest of the treatment plant in a manhole in the middle of the road where South Pasture Road turns into Spring Creek Place at a right angle turn in the road, with a (latitude of 40° 10' 45.8" and a longitude 111° 37' 28.8" (NAD 1983)), with outfall STORET Number 499628.

The 2002 permit had a 30 day chronic ammonia limitation for summer of 5.6 mg/l, fall and spring of 6.2 mg/l, and winter of 7.3 mg/l. The 2007 permit had a 30 day chronic ammonia limitation for summer of 4.2 mg/l, and a fall, winter and spring limitation of 5.1 mg/l.

The 2002 permit had a 30 day average summer limitation for total residual chlorine (TRC) of 0.9 mg/l, fall and spring of 0.5 mg/l, and a winter limitation of 0.3 mg/l. The 2007 30 day TRC limitations are 0.019 mg/l all year long.

Both of the above parameters were more stringent because of two major changes in the 2007 permit compared to the 2002 permit:

1. The compliance point was changed:

The old compliance point was over a mile downstream at Big Spring Creek, this distance gave the ammonia and the TRC a chance to decay before Springville effluent reached the compliance point. The new compliance point is prior to the un-named irrigation ditch; this is consistent with "Standards of Quality for Waters of the State" R-317-2.2, which states "Tributary to Spring Creek (Utah County) which receives the Springville City WWTP effluent from the confluence with Spring Creek to headwaters). Even though the unnamed irrigation ditch is considered a Class 4 water (stock watering and agriculture) the more stringent standards for a cold water fishery and other aquatic wildlife were taken into consideration (2B and 3D) to protect downstream water use.

2. The design flow of Springville has increased from 5.5 MGD to 6.6 MGD.

The WLA for the last permit, and this permit was based on the where the effluent water enters the unnamed irrigation ditch, which has consistent flow of 7.5 cfs. This flow has not changed in the last five years. This is because the irrigation ditch is spring fed, and its flow is consistent year round.

Even though the EPA had recently relaxed the standards for ammonia, and the Division of Water Quality (DWQ) has taken the new AMTOX ammonia model into consideration for the 2002 Permit, the more stringent limitations for ammonia and TRC needed to be included in the renewal permit to meet water quality standards.

### **SUMMARY OF CHANGES FROM PREVIOUS PERMIT**

Since the last permit, Springville converted a secondary clarifier into a snail trap, the rectangular secondary clarifiers into the new pump station, removed chlorine and added the ultra-violet disinfection system, constructed 12 STM Aerotors, a 2 meter belt press, and 2 secondary clarifiers.

A chlorine limit was removed from the permit because chlorine disinfection was replaced by ultraviolet light disinfection. A flow limit was added to the permit to be in accordance with EPA requirements.



Parameter	Effluent Limitations			
	30 Day Monthly Avg	7 Day Weekly Avg	Daily Minimum	Daily Maximum
Flow, MGD	6.6	NA	NA	NA
Dissolved Oxygen, mg/L	NA	NA	5.0	NA
BOD <sub>5</sub> , mg/L	25	35	NA	NA
BOD <sub>5</sub> Min. % Removal	85	NA	NA	NA
TSS, mg/L	25	35	NA	NA
TSS Min. % Removal	85	NA	NA	NA
Ammonia, mg/L	1.8	NA	NA	8
Oil & Grease, mg/L	NA	NA	NA	10
E-Coli, No./100mL	126	158	NA	NA
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. 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 for Outfall 001 <sup>6</sup>			
Parameter	Frequency	Sample Type	Units
Total Flow <sup>1</sup>	Continuous	Recorder	MGD
Dissolved Oxygen	2 X Week	Grab	mg/L
BOD <sub>5</sub> , Influent <sup>2</sup>	2 X Week	Composite	mg/L
BOD <sub>5</sub> , Effluent <sup>2</sup>	2 X Week	Composite	mg/L
TSS, Influent <sup>2</sup>	2 X Week	Composite	mg/L
TSS, Effluent <sup>2</sup>	2 X Week	Composite	mg/L
E-Coli	2 X Week	Grab	No./100mL
pH	2 X Week	Grab	SU
Oil & Grease <sup>3</sup>	Monthly	Grab/Visual <sup>3</sup>	mg/L
Ammonia	2 X Week	Grab	mg/L
WET, Chronic Biomonitoring <sup>4</sup>	Quarterly	Composite	Pass/Fail
Influent Metals <sup>5</sup>	Quarterly	Composite	mg/L
Effluent Metals <sup>5</sup>	Quarterly	Composite	mg/L
Organic Toxics <sup>5</sup>	Yearly	Grab	mg/L

- 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. If the rate of discharge is controlled, the rate and duration of discharge shall be reported.

- 2 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.
- 3 A grab sample for Oil & Grease does not need to be taken nor analyzed when there is no visible oil sheen. If there is a visible oil sheen, a grab sample shall be taken and analyzed.
- 4 The Chronic WET must pass with an IC25 of > 55% effluent. If chronic toxicity occurs that might be or is believed to be due to an acute toxicity failure, then the facility may be required to test for acute toxicity. This acute testing will be done in a manner dictated by the Director. Monitoring for Chronic WET is quarterly, but the test may be performed on one species if the testing species are alternated each quarter using Ceriodaphnia dubia one quarter and Pimephales promelas (fathead minnow) the next quarter.
- 5 See Pretreatment Part II of the permit for a complete list of monitoring requirements.
- 6 See Definitions, *Part VIII of the permit*, for definition of terms

### BIOSOLIDS

#### **DESCRIPTION OF TREATMENT AND DISPOSAL**

The solids (sewage sludge) at Springville are stabilized in an anaerobic digester, and dewatered with a belt press. The dewatered solids are mixed with green waste and wood chips, then formed into windrows and composted to meet Class A biosolids composting requirements. After the composting process, the windrows are left to cure for odor reduction for an additional 60-90 days. In 2012 Springville produced 1471 dry metric tons of biosolids (compost) and sold or gave away 1421 dry metric tons (DMT) of Class A biosolids to the public, 50 DMT were stored.

#### **FUTURE DISPOSAL METHODS**

In the recent past (2006) Springville has weighed the possibility of land applying Class B biosolids to farm fields for agriculture production. Therefore, best land management practices, site restrictions and soil monitoring requirements are included in this permit for future disposal options.

#### **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.

<b>Minimum Frequency of Monitoring Based Upon DMT</b>	
Amount of Biosolids Disposed Per Year	Monitoring Frequency
> 0 to < 290 DMT	Once Per Year
> 290 to < 1,500 DMT	Four Times Per Year

In 2012, Springville sold or gave away a total of 1421 DMT of biosolids; therefore Springville is required to sample their biosolids at least four times a year prior to the sale or giveaway.

#### **LIMITATIONS**

##### Metals

Prior to disposal, all biosolids need to be sampled and meet the heavy metals limits of *Table 3, 40 CFR*

503.13 for the biosolids to be considered Class A exceptional quality (EQ) with respect to heavy metals. 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 EQ standards. If the biosolids do not meet EQ standards for heavy metals, the biosolids cannot be sold or given away, and will need to be disposed of in some other way. However, all biosolids produced from Springville have met EQ standards during the life of the last permit, and it is expected that Springville will continue to meet the EQ standards for heavy metals of 40 CFR Table 3.

Pathogens Class A

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 will need to meet a microbiological limit of less than 1,000 most probable number (MPN) of fecal coliform per gram of total solids to be considered Class A biosolids, or meet a microbiological limit of less than 3 MPN of *Salmonella* per 4 grams of total solids. The PFRP will be accomplished through a method of composting (40 CFR 503.32(a)) (appendix B4). 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, Springville will need to dispose of the biosolids in some other way.

Vector Attraction Reduction

Springville needs to meet a method of vector attraction reduction (VAR) if the biosolids are land applied. Springville intends to meet VAR by:

VAR will be accomplished through the windrow method of composting (40 CFR 503.33(b)(5), the solids need to be treated for at least 14 days at over 40° C (104° F) 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 (exhibit free liquid). If the biosolids do not pass a paint filter test, the biosolids cannot be disposed in the sanitary landfill.

**PATHOGEN MONITORING DATA 2006**

Aerobic Biosolids (Class A Compost)

All biosolids sold or given away in 2006 met a process to further reduce pathogens through the windrow method of composting. According to 40 CFR 503.32 Springville was required to monitor at least four times for pathogens, with each sampling episode consisting of seven samples of either fecal coliform or salmonella bacteria for total of at least 28 samples. Springville chose to sample for fecal coliform. All seven samples must be less than 1000 most probable number per gram (MPN/G) before the biosolids can be released to the public. The monitoring data shows that Springville met the Class A pathogen standards for biosolids through testing.

**Springville Fecal Coliform Monitoring Data 2012 (Compost)**

Sampling results of seven samples combined	Maximum of 7 Samples, Most Probable Number Per Gram	Geo mean per sampling episode
January, 2012	42	12.3
May, 2012	10	10.0
July, 2012	11	10.1
October, 2012	117	19.7

**HEAVY METALS MONITORING DATA 2012**

Springville sampled four times for heavy metals in 2012. The results of those four samples are below. The

monitoring data shows that the composted biosolids qualify as exceptional quality (EQ) biosolids with regards to heavy metals.

**Springville Heavy Metals Monitoring Data, Class A Biosolids 2012 (Compost)**

Parameter	Table 3, mg/Kg (Exceptional Quality)	Springville, Average of Four Quarters, mg/Kg	Springville, Maximum, mg/Kg
Arsenic	41.0	8.9	10
Cadmium	39.0	1.8	2
Copper	1,500.0	130.7	219
Lead	300.0	19.5	25.3
Mercury	17.0	0.6	0.7
Molybdenum	75.0	3.8	4.4
Nickel	420.0	14.5	21
Selenium	36.0	5.7	6.6
Zinc	2,800.0	495.5	657

**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 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 must be retained for a minimum of five years. If the biosolids are land filled, record keeping for heavy metals is not applicable.

**REPORTING**

Springville 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 I.C. 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.

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

### **PRETREATMENT REQUIREMENTS**

The pretreatment requirements remain the same as in the previous permit. Authority to require a pretreatment program is provided for in 19-5-108 UCA, 1953 ann. and UAC R317-8-8.

The permittee shall 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.

As part of this evaluation, the permit requires quarterly influent and effluent monitoring for metals and organic toxics yearly as listed in R317-8-7.5 and biosolids (sewage 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*.

Based on the “Permitting and Enforcement Guidance document for Whole Effluent Toxicity Control (Biomonitoring)”, February 15, 1991, Springville has a pretreatment program and as such there is reasonable potential that toxicity could occur. As a result the permit will require whole effluent acute and chronic limits with chronic toxicity testing. It is anticipated that the chronic testing will not only indicate chronic toxicity, but also screen for acute toxicity. The permit contains toxicity reopener language.

No chronic toxicity will be allowed in the effluent of this discharger. The tests shall alternate each quarter between *Ceriodaphnia dubia* and *Pimephales promelas* (fathead minnow). The permit will contain the standard requirements for follow-up testing upon failure of a WET test and a Toxicity Reduction Evaluation (TRE) as necessary

### **PERMIT DURATION**

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

Drafted by  
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### **ADDENDUM TO FSSOB**

A public notice for the draft permit was published in The Daily Herald on, XXX 2014. The comment period ended onXXX.

### **Responsiveness Summary**

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