FACT SHEET STATEMENT OF BASIS
ASHLEY VALLEY WATER RECLAMATION FACILITY
RENEWAL PERMIT: DISCHARGE, BIOSOLIDS & STORM WATER
UPDES PERMIT NUMBER: UT0025348
UPDES BIOSOLIDS PERMIT NUMBER: UTL-025348
UPDES MULTI-SECTOR STORM WATER GENERAL PERMIT NUMBER: UTR000000
MAJOR MUNICIPAL

FACILITY CONTACTS

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DESCRIPTION OF FACILITY

Ashley Valley Water Reclamation Facility (AVWRF) has a design flow rate of 4.7 million gallons per day (MGD) This facility has a loading of 4,510 pounds per day for both BOD_5 and TSS with a design population equivalent of 18, 540 that serves the Ashley Valley metropolitan area, consisting primarily of the cities of Vernal, Naples, and Maeser in Uintah County. The facility consists of a parshall flume, a mechanical bar screen, a vortex grit removal system, two oxidation ditches, two secondary clarifiers, and an ultraviolet (UV) disinfection system and cascade aeration. The solids handling consists of an aerated solids handling basin, one belt press for dewatering, and a biosolids storage pad. The latitude is 40°25'34" and longitude 109°27'26" with outfall STORET number 493741.

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

The interim TDS limitation has been changed to a final TDS limitation as described in a following section of this document. Ammonia limits have changed from a seasonal limit to a year-round limit, due to the change in the Waste Load Analysis. A reasonable potential procedure analysis was completed for Selenium. The study shows that there is no reasonable potential for Selenium to violate the water quality standard. However, Ashley Creek is impaired for Selenium. Selenium will not have a permit limit in this permit cycle, but it is required to be monitored on a monthly basis.

DISCHARGE

DESCRIPTION OF DISCHARGE

AVWRF 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 and there were no significant violations.

Outfall	Description of Discharge Point
001	Located at latitude 40°25'34" and longitude 109°27'26". The discharge is through a 30-inch diameter gravity flow pipe leading from the cascade aeration basin to an unnamed ditch and hence to Ashley Creek.

RECEIVING WATERS AND STREAM CLASSIFICATION

The final discharge from the AVWRF flows into Ashley Creek, thence to the Green River. Ashley Creek is classified as 2B, 3B, and 4, the Green River is classified as 1C, 2B, 3B, and 4 according to *Utah Administrative Code (UAC) R317-2-12.7:*

Class1C -Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water.

Class 2B -Protected for secondary contact recreation such as boating, wading, or similar uses.

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 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 (BOD_5), E. Coli, pH and percent removal for BOD_5 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). DO and Ammonia limits are based on the Waste Load Allocation.

TDS limitations are based upon Utah Water Quality Standards for concentration values and the Colorado River Basin Salinity Control Forum (CRBSCF) for mass loading values when applicable as authorized in *UAC R317-2-4*. CRBSCF has established a policy for the reasonable increase of salinity for municipal discharges to any portion of the Colorado River stream system that has an impact on the lower main stem. The CRBSCF Policy entitled "NPDES Permit Program Policy for Implementation of Colorado River Salinity Standards" (Policy), with the most current version dated October 2008, states that the incremental increase in salinity shall be 400 mg/L or less, which is considered to be a reasonable incremental increase above the flow weighted average salinity of the intake water supply. However, the permitting authority may allow a discharge in excess of the 400 mg/L incremental increase at the time of issuance or reissuance of the NPDES discharge permit, upon satisfactory demonstration by the permittee that it is not practicable to attain the 400 mg/L limit.

In a memorandum dated January 11, 2006 and in accordance with the CRBSCF policy, Ashley Valley Water Reclamation Facility (AVWRF) demonstrated that it was not practicable to attain the 400 mg/L limit at that time because of groundwater infiltration into the sewer system. Because of that demonstration the Division of Water Quality allowed a temporary or interim TDS maximum daily limit of 675 mg/L for the previous permit cycle, provided that AVWRF complete an inflow and infiltration study and monitored the TDS values for the culinary source and the effluent for at least 3 years, and begin reducing the TDS entering the system due to infiltration.

AVWRF submitted a technical memorandum dated April 20, 2010 summarizing the findings of the inflow and infiltration study, as well as the feasibility of implementing a TDS treatment system. As stated in the memo, the facility averages 426 mg/L incremental increase over the extremely low culinary source concentration of 89 mg/L. Even though effluent TDS concentrations are relatively low, the high flow volumes make it impracticable for the facility to meet a 1-ton/day or 366 tons/year loading requirement if that were to be included in their permit at any time in lieu of the incremental increase requirement.

In addition, the plant's effluent TDS concentration, which averages 515 mg/L, is not only very close to the CRBSCF fresh water waiver policy clause of 500 mg/L, but is also substantially less than the upstream TDS concentrations in the receiving waters of Ashley Creek. Further treatment costs are not practicable as demonstrated in the memo due to the high costs of RO operations. Upon review of this technical memorandum, the permitting authority has concluded that AVWRF has adequately demonstrated an exemption to the CRBSCF Policy requirement of achieving a 400 mg/L incremental increase for TDS at this time. Based upon these considerations and in the permitting authority's BPJ, the TDS incremental increase and loading requirements have not been included in AVWRF's permit.

Regarding a daily maximum TDS concentration limit for inclusion in their renewal permit, DWQ agrees that the proposed limit of 800 mg/L is reasonable based upon BPJ, which is significantly less than the current in stream TDS Water Quality Standard of 1,200 mg/L.

The permit limitations are as follows:

Effluent Limitations				
Parameter	Monthly Average	Maximum Weekly Average	Daily Minimum	Daily Maximum
Dissolved Oxygen, mg/L	NA	NA	5.5	NA
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	157	NA	NA
Ammonia as (N), mg/L	2.9	NA	NA	NA
TDS, mg/L	NA	NA	NA	800
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. 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.

Self-Monitoring and Reporting Requirements			
Parameter	Frequency	Sample Type	Units
Total Flow	Continuous	Recorder	MGD
Dissolved Oxygen	Daily	Grab	mg/L
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 as (N),	2 x Week	Grab	mg/L
TDS, Effluent	Monthly	Grab	mg/L
Selenium	Monthly	Grab	mg/L
Oil & Grease	Monthly	Grab	mg/L
pH	Daily	Grab	SU
WET, Acute Biomonitoring	2 x Year	Composite	Report

BIOSOLIDS

DESCRIPTION OF TREATMENT AND DISPOSAL

The solids (sewage sludge) are stabilized in an oxidation ditch with a mean cell residence time of 20-30 days. After stabilization, the solids are de-watered with a belt press to about 15 percent solids concentration. In 2010 the AVWRF sold or gave away of 806 dry metric tons (DMT) of Class A biosolids to the public. They have 607 DMT stored, with 563 DMT of the 607 DMT ready for testing, if the biosolids pass the testing requirements, it will probably be sold or given away this year.

The AVWRF obtains Class A biosolids through air drying. The treatment process consists of spreading the solids about a foot thick on an impermeable asphalt pad to initiate reduction of water content in the material. Then the process of mixing and forming the windrows for further treatment begins. The windrows are formed about 1-3 feet high and about 3-5 feet wide. The air drying and turning of the windrows de-waters the solids and reduces the pathogens and achieves the appropriate levels of vector attraction reduction. Once the moisture reduction is achieved the “old dried solids” are mixed with the “new wet solids” to accelerate the moisture reduction of the new solids. This process is ongoing until the AVWRF believes the solids will pass testing requirements to prove the product meets Class A or Class B biosolids standards for land application.

If the product meets Class A standards with respect to pathogens and vector attraction reduction, the biosolids may be sold or given away to the public or the biosolids may be land applied at agronomic rates for agricultural production. Should the product fail to meet the requirements of Class A standards, the product will probably meet Class B pathogen standards and may be used on farm fields, rangeland, reclamation sites and other low public contact sites, and must be land applied at agronomic rates. If the product does not meet at least Class B standards, the solids will need to be

disposed in a landfill that has a valid permit issued from the Utah Division of Solid and Hazardous Waste.

FUTURE DISPOSAL METHODS
During the winter months, the AVWRF has been storing the untreated solids on an asphalt pad to be treated in the spring once the temperature warms up. When the solids thaw out, they are anaerobic, and this produces odor problems for their neighbors. The AVWRF has submitted an application to the Division of Solid and Hazardous Waste (DSHW) to use part of their old sewage lagoon system as a landfill for the disposal of sludge during the winter months. At this time, it appears the DSHW will issue a permit for the AVWRF to use part of the old sewage lagoons as a landfill for solids.

SELF-MONITORING REQUIREMENTS
Under *40 CFR 503.16(a)(1),* the self-monitoring requirements are based upon the amount of biosolids beneficially used or disposed per year and shall be monitored according to the chart below.

Minimum Frequency of Monitoring Based Upon Dry Metric Tons (DMT)	
Amount of Biosolids Produced Per Year	Monitoring Frequency
> 0 to < 290 DMT	Once Per Year
> 290 to < 1,500 DMT	Four Times Per Year

In 2010, the AVWRF sold or gave away 806 DMT of biosolids. If the AVWRF sells or gives away more than 290 DMT, but less than 1,500 DMT each year during the next five years, they will need to sample four times a year under *40 CFR 503.16(a)(1).*

MONITORING DATA
The AVWRF sampled four times in 2010. The data below shows that the AVWRF met the requirements of their last permit with regards to heavy metals and pathogens.

HEAVY METALS MONITORING

AVWRF Metals Monitoring Data, 2010			
Parameter	Table 3, (Exceptional Quality) mg/kg	Average, mg/kg	Maximum, mg/kg
Arsenic	41.0	2.2	3.0
Cadmium	39.0	1.9	2.19
Copper	1,500.0	481.0	576.0
Lead	300.0	44.7	57.0
Mercury	17.0	2.1	1.6
Molybdenum	75.0	7.1	8.1
Nickel	400.0	14.5	16.0
Selenium	36.0	4.9	6.1
Zinc	2,800.0	595.0	735.0

PATHOGEN MONITORING DATA

AVWRF Pathogen Monitoring Data, 2010	
Salmonella, mpn/4g/total solids	<3.0 MPN/4g

Plaque forming unit per 4 grams of enteric virus	< pfu/4g
Viable Helminth Ova/4g/total solids	<1 Ovum/4g

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. D. 11. of the permit) to be handed out 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 meet the maximum heavy metals in Table 1 and the monthly average pollutant concentrations in Table 3 (see the 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. 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 according to the regulations of *40 CFR 501.13*, 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.

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 a/b/c/d/	Cumulative Loading Rate Kg/Ha a/	Monthly Average Concentration mg/Kg a/b/c/d/
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 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.

Pathogens

Class A Requirements for Home Lawn and Garden Use

The AVWRF intends to achieve Class A biosolids through testing for pathogens:

Under *40 CFR 503.32(6), Class A, Alternative 4(i),* AVWRF is allowed to do additional testing of pathogens in lieu of a process to further reduce pathogens (PFRP) to meet Class A standards. This additional testing requires the AVWRF to monitor for viable helminth ova (tape worms and round worm eggs that could hatch), enteric viruses (viruses of the gut), and either *fecal* coliform or *salmonella* bacteria.

Class B Requirements for Agriculture and Reclamation Sites
The AVWRF intends to achieve Class B biosolids in one of two different ways with regards to pathogens:

1. The biosolids are applied on 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^{o} F (0^{o} C).

2. Under *40 CFR 503.32 (b)(2*) *Appendix B,* AVWRF 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.

Vector Attraction Reduction
If the biosolids are land applied the AVWRF will be required to meet a method of vector attraction reduction under *40 CFR 503.33.* The AVWRF 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^{o}C (113° F) *503.33(b)(5).*

2. Solids are equal to or greater than 90% total solids when primary solids are present *503.33(b)(8).*

3. All Class B biosolids land applied shall be incorporated into the soil within 6 hours after land application *503.33(b)(10).*

4. All Class A biosolids land applied shall be incorporated into the soil within 8 hours after land application *503.33(b)(10).*

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 retained is dependent upon the quality of the biosolids with regard to the metals concentrations. If the biosolids exceed Table 3 values for any parameter that are land applied to a site, that site thereafter is subject to the heavy metals loading rates in Table 2. Records for those sites are to be retained in perpetuity.

Reporting
The AVWRF will be 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 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.

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

PRETREATMENT REQUIREMENTS

The permittee 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, there are no categorical industries discharging to the treatment facility, industrial discharges comprise less than 1 percent of the flow through the treatment facility, 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.

Although the permittee 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*, 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 recommended that the permittee submit for review any local limits that are developed to the Division of Water Quality for review.

The permit requires quarterly influent and effluent monitoring for metals and every other year influent and effluent monitoring for organic toxics monitoring listed in *R317-8-7.5*.

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. During the last permit cycle, Ashley Valley performed quarterly acute WET testing alternating each quarter between Ceriodaphnia dubia and Pimephales promelas (fathead minnows). The same WET testing frequency, with alternating species, will be continued in the renewal permit. Because no toxicity was detected during the last permit cycle and the facility has neither significant industrial users nor a pretreatment program, the reasonable potential for toxicity is not sufficient to require WET limits.

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
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