

**FACT SHEET AND STATEMENT OF BASIS  
GUNLOCK WATER TREATMENT FACILITY  
RENEWAL PERMIT: DISCHARGE  
UPDES PERMIT NUMBER: UT0026123  
MINOR INDUSTRIAL**

**FACILITY CONTACTS**

Person Name: Kade Bringhurst  
Position: Technical Services Manager  
Phone Number: (435) 627-4854

Person Name: Ted Hurst  
Position: Operator  
Phone Number: (435) 627-4850

Facility Name: Gunlock Water Treatment Plant  
Mailing Address: 175 East 200 North, St. George, Utah 84770  
Facility Address: Off Gunlock Drive, Dammeron Valley, UT 84783

**DESCRIPTION OF FACILITY**

The Gunlock Water Treatment Facility will be a newly constructed facility designed to primarily treat arsenic in groundwater. Arsenic and other contaminants will be removed through filter media. The main treatment process involves a pre-oxidation with chlorine, coagulation (ferric chloride) and pressure filtration with sand and anthracite media and air scour capabilities, followed by post-chlorination. Backwash waste flows will be pumped to one of two backwash clarifiers. Water within the clarifiers will be decanted and returned to the front of the plant. Periodically, the sludge in the tank bottom will be removed through a blowdown process and will be pumped to drying beds for further processing. Water within the drying beds will be removed through evaporation. However, in the event that the water production exceeds the evaporation rate, decanted water will be sent to a detention pond, which eventually runs to the Santa Clara River. Dried Sludge will be removed and hauled to a local landfill. The discharge is not anticipated to be year-round, but only during periods of low evaporation and high water production.

## DISCHARGE

### DESCRIPTION OF DISCHARGE

Gunlock Water Treatment Plant is a groundwater treatment facility that maintains a UPDES permit in the event that a discharge of drying bed decant water is necessary.

<u>Outfall Number(s)</u>	<u>Location of Discharge Outfall(s)</u>
001	Located at latitude 37° 13' 46" N and longitude 113° 46' 39" W. Intermittent discharge of decant drying water that discharges to a detention pond that eventually flows to the Santa Clara River offsite.

### RECEIVING WATERS AND STREAM CLASSIFICATION

If a discharge were to occur, it would discharge to a detention pond then the Santa Clara River, which is a Class 1C, 2B, 3B, and 4 according to *Utah Administrative Code (UAC) R317-2-13*:

- Class 1C -- Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water.
- 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 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<sub>5</sub>), *E. coli*, and pH are based on current Utah Secondary Treatment Standards, UAC R317-1-3.2. Limitations on dissolved oxygen (DO) and total residual chlorine (TRC) were based on the wasteload analysis (WLA). Whole Effluent Toxicity (WET) monitoring requirements were based on WET policy adopted in January 2018 and IC<sub>25</sub> is based on WLA. The oil and grease is based on best professional judgment (BPJ). Attached is a WLA for this discharge into the Santa Clara River.

Total Dissolved Solids (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*. In accordance with the CRBSCF the effluent will be limited to a maximum discharge of 1 ton per day. The Santa Clara River is on Utah's most current 303(d) list for TDS. The Santa Clara River is included in an approved TMDL for the Virgin River Watershed. The TMDL calls for a 24% reduction in TDS loading, but does not assign allocations to facilities. Since no allocations were identified in the TMDL, the facility will be required to meet the Virgin River's site specific criteria for TDS, which is 2,360 mg/L.

The Santa Clara River is also listed on Utah's most current 303(d) list for Selenium. The Santa Clara River was included in an approved TMDL for the Virgin River Watershed. The TMDL calls for a 9% reduction in Selenium loading, but does not provide any allocations to facilities. Because no allocation was provided the facility will be held to the 4.6 ug/L (0.0046 mg/L) standard, but is asked to report in mg/L.

Since this is a new UPDES permit and the discharge will use assimilative capacity of the receiving water, a Level II Antidegradation review (ADR) was required. The level II ADR was public noticed from **Month day, 2020 to Month day, 2020** as part of this permit. The permittee is expected to be able to comply with these limitations. It has been determined that this discharge will not cause a violation of water quality standards. The permit limitations are:

<b>Effluent Limitations <sup>a</sup></b>				
Parameter	Maximum Monthly Avg.	Maximum Weekly Avg.	Daily Minimum	Daily Maximum
Total Flow (MGD)	-	-	--	0.02
BOD <sub>5</sub> , mg/L	25	35	--	--
TSS, mg/L	25	35	--	--
Dissolved Oxygen, mg/L	--	--	5.0	--
TRC, mg/L				
Summer (Jul-Sep)	--	--	--	0.291
Fall (Oct-Dec)	--	--	--	0.205
Winter (Jan-Mar)	--	--	--	0.147
Spring (Apr-Jun)	--	--	--	0.227
<i>E. coli</i> , No./100mL	126	157	--	--
WET, Chronic Biomonitoring	--	--	--	IC <sub>25</sub> > 3.4% effluent
Selenium, mg/L <sup>k</sup>	--	--	--	0.0046
Oil & Grease, mg/L	--	--	--	10.0
pH, Standard Units	--	--	6.5	9
TDS, tons/day <sup>h</sup>	--	--	--	1.0
TDS, mg/L <sup>h</sup>	--	--	--	2,360

**REASONABLE POTENTIAL ANALYSIS**

Since January 1, 2016, DWQ has conducted reasonable potential analysis (RP) on all new and renewal applications received after that date. RP for this permit was not conducted following DWQ’s September 10, 2015 Reasonable Potential Analysis Guidance (RP Guidance) because there is inadequate data for use in a RP. As a result, monitoring for metals will be included in this permit. The monitoring will help establish a record of presence or absence of each pollutant. Monitoring for metals will be required 1 X during this permit cycle. To ensure that the metals sampling requirement is met during the permit cycle, the facility should consider collecting the samples as soon as they begin to discharge.

**SELF-MONITORING AND REPORTING REQUIREMENTS**

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. Effective January 1, 2017, monitoring results must be submitted using NetDMR unless the permittee has successfully petitioned for an exception. Lab sheets for biomonitoring must be attached to the biomonitoring DMR. Lab sheets for metals and toxic organics must be attached to the DMRs.

The applicant identified Arsenic, TSS, Iron, and Manganese as pollutants of concern. Since this facility currently doesn’t discharge, the concentrations of the parameters of concern (POC) in the effluent are not known. Monitoring only for Arsenic, Iron, and Manganese were included in this permit to determine if a future limit will be required. Based on the results the facility may receive limits, continue monitoring only, or have the monitoring requirements removed. At this time no limit for Arsenic, Manganese, and Iron were included.

The monitoring only for Temperature and Boron was included in this permit cycle because the Santa Clara River is listed on the 303(d) list for Temperature and Boron. Currently no TMDL was included for temperature or Boron, but TMDL development may take place in the future. Based on monitoring results, in the future the facility may receive limits, continue monitoring only, or have the monitoring requirements removed. At this time no limit was included for Temperature or Boron. The Santa Clara River is also listed on the 303 (d) list for Arsenic.

Self-monitoring and reporting requirements are listed below:

<b>Effluent Self-Monitoring and Reporting Requirements <sup>a</sup></b>			
Parameter	Frequency	Sample Type	Units
Total Flow <sup>b,c</sup>	Continuous	Recorder	MGD
BOD <sub>5</sub>	Monthly	Grab	mg/L
TSS	Monthly	Grab	mg/L
<i>E. coli</i>	Monthly	Grab	No./100mL
pH	Monthly	Grab	SU
DO	Monthly	Grab	mg/L
WET , Chronic Biomonitoring <sup>e, f</sup> <i>Ceriodaphnia dubia</i> <i>Pimephales promelas</i> (Fathead Minnows)	1 <sup>st</sup> & 3 <sup>rd</sup> Quarter 2 <sup>nd</sup> & 4 <sup>th</sup> Quarter	Composite Composite	Pass/Fail Pass/Fail
TRC, mg/L,	Daily	Grab	mg/L
Oil & Grease <sup>d</sup>	When Sheen Observed	Grab	mg/L
TDS <sup>g, h</sup>	Monthly	Composite	tons/day
TDS <sup>g, h</sup>	Monthly	Composite	mg/L
Temperature <sup>j</sup>	Monthly	Grab	°C
Total Arsenic <sup>i</sup>	Monthly	Grab	mg/L
Total Iron <sup>i</sup>	Monthly	Grab	mg/L
Total Manganese <sup>i</sup>	Monthly	Grab	mg/L
Total Selenium <sup>k</sup>	Monthly	Grab	mg/L
Total Boron <sup>k</sup>	Monthly	Grab	mg/L
Metals <sup>l</sup>	1 x in Permit Cycle	Composite	mg/L

<b>Metals to be Monitored</b>		
Parameter	Sample Type	Units
Total Arsenic	Composite	mg/L
Total Cadmium	Composite	mg/L
Total Chromium	Composite	mg/L
Total Copper	Composite	mg/L
Total Cyanide	Grab	mg/L
Total Lead	Composite	mg/L
Total Mercury	Grab/Composite	mg/L
Total Nickel	Composite	mg/L
Total Selenium	Composite	mg/L
Total Silver	Composite	mg/L
Total Zinc	Composite	mg/L

### **Table References**

See Definitions, Part VII, for definition of terms.

- A. 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.
- B. If the rate of discharge is controlled, the rate and duration of discharge shall be reported.
- C. Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report NA.
- D. If sampling procedures outlined in I.C.4.a, specifically, the ability to collect the three (3) required samples on a Monday, Wednesday, and Friday of a sampling period cannot be followed due to the frequency of discharge at the facility, the facility shall conduct the sampling following the below collection procedures. The facility must evaluate which option is most appropriate in the order they are listed, conducting the sampling following the first collection procedure they are able to meet.
  - 1) Collect the three samples in three (3) consecutive days.
  - 2) If enough water is available, collect the additional samples from the detention pond following a three (3) consecutive day procedure.
  - 3) Collect all three samples at the time of discharge on the same day.
- E. If no toxicity is observed for 10 consecutive tests, testing frequency may be reduced or removed is approved by the Director in accordance with administrative procedures for modifying the permit.
- F. If the facility is unable to collect a composite sample, then a grab should be taken.
- G. The facility has both concentration and mass limits for Total Dissolved Solids (TDS). The Santa Clara River is listed on Utah's current 303(d) list as impaired for TDS and has an approved TMDL. TDS mass limitations are based on Colorado Basin Salinity Control Forum and concentration based limits are based on the approved TMDL for the Virgin River Watershed and reflects the Virgin River site specific standard.
- H. Arsenic, Iron, Manganese are currently monitoring only. Monitoring is required for these parameters because they were identified as a pollutant of concern by the applicant. Data collected will be used to determine if a future limit is required, if more data is needed, or if there is no need for continued monitoring.
- I. The Santa Clara River is listed on Utah's current 303(d) list for Temperature, Boron, and Arsenic. At this time there is no approved TMDL for Temperature, Boron, or Arsenic but TMDL development may take place in the future.
- J. The Santa Clara River is listed on Utah's current 303(d) list for Selenium. The limit for Selenium is based on the approved TMDL for the Virgin River Watershed and reflects the standard.
- K. Metals sampling shall occur 1 time during the 5-year permit cycle.

### **End Table References**

### **PRETREATMENT REQUIREMENTS**

Any wastewater discharged to the sanitary sewer, either as a direct discharge or as a hauled waste, is subject to Federal, State and local pretreatment regulations. Pursuant to Section 307 of the CWA, the permittee shall comply with all applicable Federal Pretreatment Regulations promulgated at 40 CFR Part 403, the State Pretreatment Requirements at UAC R317-8-8, and any specific local discharge limitations developed by the Publicly Owned Treatment Works (POTW) accepting the wastewaters.

In addition, in accordance with 40 CFR Part 403.12(p)(1), the permittee must notify the POTW, the EPA Regional Waste Management Director, and the State hazardous waste authorities, in writing, if the permittee discharges any substance into a POTW which if otherwise disposed of would be considered a hazardous waste under 40 CFR Part 261. This notification must include the name of the hazardous waste, the EPA hazardous waste number, and the type of discharge (continuous or batch).

### **BIOSOLIDS**

The State of Utah has adopted the 40 CFR 503 federal regulations for the disposal of sewage sludge (biosolids) by reference. However, since this facility is a drinking water plant, there is not any regular sludge production. Therefore 40 CFR 503 does not apply at this time. In the future, if the sludge needs to be removed from the drying beds and is disposed in some way, the Division of Water Quality must be contacted prior to the removal of the sludge to ensure that all applicable state and federal regulations are met.

### **BIOMONITORING REQUIREMENTS**

A nationwide effort to control toxic discharges where effluent toxicity is an existing or potential concern is regulated in accordance with the Utah Pollutant Discharge Elimination System Permit and Enforcement Guidance Document for Whole Effluent Toxicity Control (biomonitoring), dated February 2018. 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 new facility, the permit will require whole effluent toxicity (WET) testing. For this permit cycle Gunlock Water Treatment Plant will be required to conduct Chronic Wet tests quarterly alternating between *Ceriodaphnia dubia* and *Pimephales promelas* (fathead minnows) test species. If no toxicity is observed for 10 consecutive tests, testing frequency may be reduced or removed if approved by the Director in accordance with administrative procedures for modifying the permit. Decisions on type of WET testing and species were based on the revised UPDES Permitting and Enforcement Guidance Document for Whole Effluent Toxicity Control dated February 2018. The permit will also contain the standard requirements for accelerated testing upon failure of a WET test and PTI (Preliminary Toxicity Investigation) and TRE (Toxicity Reduction Evaluation) as necessary.

#### **Alternative Wet Monitoring Procedures**

Gunlock Water Treatment Plant anticipated to discharge only during periods of low evaporation and high water production. The intermittent nature and unknown quantity of the discharge may prevent Gunlock from meeting sampling procedures outlined in I.C.4.a. of the permit. The below language was included in the permit to allow for Gunlock to have additional options to meet their Wet testing requirements:

If sampling procedures outlined in I.C.4.a, specifically, the ability to collect the three (3) required samples on a Monday, Wednesday, and Friday of a sampling period cannot be followed

due to the frequency of discharge at the facility, the facility shall conduct the sampling following the below collection procedures. The facility must evaluate which option is most appropriate in the order they are listed, conducting the sampling following the first collection procedure they are able to meet.

- (1) Collect the three samples in three (3) consecutive days.
- (2) If enough water is available, collect the additional samples from the detention pond following a three (3) consecutive day procedure.
- (3) Collect all three samples at the time of discharge on the same day.

P/N D R A F E T

**PERMIT DURATION**

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

Drafted by  
Leanna Littler, Discharge  
Dan Griffin, Biosolids  
Jeffery Studenka, Colorado Salinity Forum  
Lonnie Shull, Biomonitoring  
Jennifer Robinson, Pretreatment  
Suzan Tahir, Wasteload Analysis  
Amy Dickey, TMDL  
Utah Division of Water Quality, (801) 536-4300

**PUBLIC NOTICE**

Began: Month Day, Year  
Ended: Month Day, Year

Comments will be received at: 195 North 1950 West  
PO Box 144870  
Salt Lake City, UT 84114-4870

The Public Noticed of the draft permit was published on the Department Website.

During the public comment period provided under R317-8-6.5, any interested person may submit written comments on the draft permit and may request a public hearing, if no hearing has already been scheduled. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. All comments will be considered in making the final decision and shall be answered as provided in R317-8-6.12.

**ADDENDUM TO FSSOB**

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

**Responsiveness Summary**

(Explain any comments received and response sent. Actual letters can be referenced, but not required to be included).

DWQ-2020-022422



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**ATTACHMENT 1**

*Wasteload Analysis*

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