

STATE OF UTAH
DIVISION OF WATER QUALITY
DEPARTMENT OF ENVIRONMENTAL QUALITY
SALT LAKE CITY, UTAH

UTAH POLLUTANT DISCHARGE ELIMINATION SYSTEM (UPDES) PERMITS

Major Municipal Permit No. **UT0024392**
Biosolids Permit No. **UTL0243920**

In compliance with provisions of the Utah *Water Quality Act, Title 19, Chapter 5, Utah Code* (the "Act"),

CENTRAL VALLEY WATER RECLAMATION FACILITY

is hereby authorized to discharge from

CENTRAL VALLEY WATER RECLAMATION FACILITY

to receiving waters named **MILL CREEK** and to **JORDAN RIVER**,

to dispose biosolids,

and to distribute effluent for reuse,

in accordance with specific limitations, outfalls, and other conditions set forth herein.

This modified permit shall become effective on October 01, 2023

This modified permit expires at midnight on December 31, 2026.

Signed this 18th day of October, 2023.



John K. Mackey, P.E.
Director

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I. DISCHARGE LIMITATIONS AND REPORTING REQUIREMENTS

- A. Description of Discharge Points. The authorization to discharge wastewater provided under this part is limited to those outfalls specifically designated below as discharge locations. Discharges at any location not authorized under a UPDES permit are violations of the *Act* and may be subject to penalties under the *Act*. Knowingly discharging from an unauthorized location or failing to report an unauthorized discharge may be subject to criminal penalties as provided under the *Act*.

<u>Outfall Number</u>	<u>Location of Discharge Outfall</u>
001	Outfall 001 is a large concrete channel which discharges directly to Mill Creek, and is located immediately on the northwest side of the treatment plant at about latitude 40° 42' 30" and longitude 111° 54' 57", approximately 850 West and 2900 South in South Salt Lake City, Salt Lake County, Utah.

<u>Outfall Number</u>	<u>Location of Effluent Reuse Discharge Outfall and Description of Area for Use</u>
001R	Reuse Outfall 001R is approximately located at latitude 40° 42' 17" and longitude 111° 54' 56". The discharge is through a pipe to the west irrigation pond on the Central Valley Golf Course. The water is then used to irrigate the golf course. If an overflow from this pond was allowed to occur, it would go to the Vitro Ditch.
002R	Reuse Outfall 002R is approximately located at latitude 40° 42' 00" and longitude 111° 54' 41". The reuse water is used in the Central Valley Golf Course decorative ponds. The water flows through the ponds sequentially and then overflows to the Vitro Ditch.

- B. Narrative Standard. It shall be unlawful, and a violation of this permit, for the permittee to discharge or place any waste or other substance in such a way as will be or may become offensive such as unnatural deposits, floating debris, oil, scum, or other nuisances such as color, odor or taste, or cause conditions which produce undesirable aquatic life or which produce objectionable tastes in edible aquatic organisms; or result in concentrations or combinations of substances which produce undesirable physiological responses in desirable resident fish, or other desirable aquatic life, or undesirable human health effects, as determined by a bioassay or other tests performed in accordance with standard procedures.

C.

D. Specific Limitations and Self-Monitoring Requirements.

1. Effective June 12022, and lasting through the life of this permit, there shall be no acute or chronic toxicity in Outfall 001 as defined in *Part VIII*, and determined by test procedures described in *Part I. C.4.a & b* of this permit.

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2. a. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from Outfall 001. Such discharges shall be limited and monitored by the permittee as specified below:

Parameter	Effluent Limitations *a					
	Concentration					Mass, lbs
	Average Monthly	Average Weekly	Annual Average	Daily Minimum	Daily Maximum	Average Monthly
Interim Limits June 1, 2022 through June 30, 2026						
CBOD ₅ , mg/L						
Summer (Jul-Sep)	16.0	27.0	-	-	-	300,240
Fall (Oct-Dec)	20.0	28.0	-	-	-	375,300
Winter (Jan-Mar)	20.0	28.0	-	-	-	375,300
Spring (Apr-Jun)	20.0	28.0	-	-	-	375,300
BOD ₅ Min. % Removal	85	-	-	-	-	-
TSS, mg/L	25	35	-	-	-	-
TSS Min. % Removal	85	-	-	-	-	-
Dissolved Oxygen, mg/L	-	-	-	5.0	-	-
Total Ammonia (as N), mg/L						
Summer (Jul-Sep)	3.7	-	-	-	13.1	69,431
October	4.5	-	-	-	15.9	84,443
November-December	5.9	-	-	-	15.9	110,714
Winter (Jan-Mar)	5.8	-	-	-	12.3	108,837
Spring (Apr-Jun)	5.3	-	-	-	15.9	99,4555
Total Phosphorus, mg/L *c	-	-	4.0	-	-	-
<i>E. coli</i> , No./100mL	126	157	-	-	-	-
WET, Acute Biomonitoring	-	-	-	-	IC ₅₀ > 100% Effluent	-
WET, Chronic Biomonitoring	-	-	-	-	IC ₂₅ > RWC	-
Summer (Jul-Sep)	-	-	-	-	92% Eff.	-
Fall (Oct-Dec)	-	-	-	-	95% Eff.	-
Winter (Jan-Mar)	-	-	-	-	94% Eff.	-
Spring (Apr-Jun)	-	-	-	-	89% Eff.	-
Oil & Grease, mg/L	-	-	-	-	10.0	-
pH, Standard Units	-	-	-	6.5	9	-
Total Copper, mg/L	0.0233	-	-	-	-	437.2
Final Effluent Limits, July 1, 2026						
CBOD ₅ , mg/L						
Summer (Jul-Sep)	16.0	27.0	-	-	-	300,240
Fall (Oct-Dec)	20.0	28.0	-	-	-	375,300
Winter (Jan-Mar)	20.0	28.0	-	-	-	375,300
Spring (Apr-Jun)	20.0	28.0	-	-	-	375,300
BOD ₅ Min. % Removal	85	-	-	-	-	-
TSS, mg/L	25	35	-	-	-	-
TSS Min. % Removal	85	-	-	-	-	-
Dissolved Oxygen, mg/L	-	-	-	5.0	-	-

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Parameter	Effluent Limitations *a					
	Concentration					Mass, lbs
	Average Monthly	Average Weekly	Annual Average	Daily Minimum	Daily Maximum	Average Monthly
Total Ammonia (as N), mg/L						
Summer (Jun-Aug)	3.6	-	-	-	4.7	67,554
Fall (Sep - Nov)	3.8	-	-	-	5.4	71,307
Winter (Dec - Feb)	3.7	-	-	-	6.4	69,431
Spring (Mar -May)	3.8	-	-	-	5.4	71,307
Total Phosphorus, mg/L *d	-	-	1.0	-	-	-
<i>E. coli</i> , No./100mL	126	157	-	-	-	-
WET, Chronic Biomonitoring	-	-	-	-	IC ₂₅ > RWC	-
Summer (Jul-Sep)	-	-	-	-	85% Eff.	-
Fall (Oct-Dec)	-	-	-	-	92% Eff.	-
Winter (Jan-Mar)	-	-	-	-	97% Eff.	-
Spring (Apr-Jun)	-	-	-	-	92% Eff.	-
Oil & Grease, mg/L	-	-	-	-	10.0	-
pH, Standard Units	-	-	-	6.5	9	-
Total Copper, mg/L	0.0233	-	-	-	-	437.2
*a. See Definitions, Part VIII, for definition of terms						
*b. The chronic ammonia limit for October, and the acute ammonia limit for the Summer are from the Jordan River POTW WLA and are based on protection of downstream uses.						
*c. TBPEL of 4.0 mg/L went into effect on January 1, 2020.						
*d. The final phosphorus limit goes into effect on July 1, 2026.						

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Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
Total Flow *e, *f	Continuous	Recorder	MGD
Interim Requirements, June 1, 2022 through June 30, 2026			
CBOD ₅ , Influent *g Effluent	4 x Weekly 4 x Weekly	Composite Composite	mg/L, lbs mg/L, lbs
TSS, Influent *g Effluent	4 x Weekly 4 x Weekly	Composite Composite	mg/L mg/L
<i>E. coli</i>	4 x Weekly	Grab	No./100mL
pH	Daily	Grab	SU
Total Ammonia	4 x Weekly	Grab	mg/L, lbs
DO	Daily	Grab	mg/L
WET - Biomonitoring *h, *i Ceriodaphnia - Acute Ceriodaphnia - Chronic Fathead Minnows - Acute Fathead Minnows - Chronic	1 st , & 3 rd Quarter Quarterly 2 nd , & 4 th Quarter Quarterly	Composite Composite Composite Composite	Pass/Fail Pass/Fail Pass/Fail Pass/Fail
Total Ammonia (as N) *l	Monthly	Composite	mg/L
Orthophosphate (as P), *l Effluent	Monthly	Composite	mg/L
Total Phosphorus (as P), *l Influent Effluent	Monthly Monthly	Composite Composite	mg/L mg/L
Total Kjeldahl Nitrogen TKN (as N), *l Influent Effluent	Monthly Monthly	Composite Composite	mg/L mg/L
Nitrate, NO ₃ *l	Monthly	Composite	mg/L
Nitrite, NO ₂ *l	Monthly	Composite	mg/L
TDS	Monthly	Composite	mg/L
Temperature	Monthly	Grab	° C
Effluent Metals			
Total Copper *m	Monthly	Composite *n	mg/L, lbs
Total Selenium *m	Monthly	Composite *n	mg/L
Total Mercury *m	Monthly	Grab *n	mg/L
Influent Metals, Influent Effluent	6 x Yearly *o 6 x Yearly *o	Grab/Composite *n Grab/Composite *n	mg/L mg/L
Organic Toxics *p Influent Effluent	2 x Yearly *q 2 x Yearly *q	Grab/Composite *n Grab/Composite *n	mg/L mg/L
Final Requirements, July 1, 2026			
CBOD ₅ , Influent *g Effluent	4 x Weekly 4 x Weekly	Composite Composite	mg/L, lbs mg/L, lbs
TSS, Influent *g Effluent	4 x Weekly 4 x Weekly	Composite Composite	mg/L mg/L
<i>E. coli</i>	4 x Weekly	Grab	No./100mL
pH	Daily	Grab	SU

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Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
Total Ammonia	4 x Weekly	Grab	mg/L, lbs
DO	Daily	Grab	mg/L
WET - Biomonitoring *h, *i Ceriodaphnia - Chronic Fathead Minnows - Chronic	Monthly with Alternating Species *j	Composite Composite	Pass/Fail Pass/Fail
Oil & Grease *k	When Sheen Observed	Grab	mg/L
Total Ammonia (as N) *l	Monthly	Composite	mg/L
Orthophosphate (as P), *l Effluent	Monthly	Composite	mg/L
Total Phosphorus (as P), *l Influent Effluent	Monthly Monthly	Composite Composite	mg/L mg/L
Total Kjeldahl Nitrogen TKN (as N), *l Influent Effluent	Monthly Monthly	Composite Composite	mg/L mg/L
Nitrate, NO3 *l	Monthly	Composite	mg/L
Nitrite, NO2 *l	Monthly	Composite	mg/L
TDS	Monthly	Composite	mg/L
Temperature	Monthly	Grab	° C
Effluent Metals			
Total Copper *m	Monthly	Composite *n	mg/L, lbs
Total Selenium *m	Monthly	Composite *n	mg/L
Total Mercury *m	Monthly	Grab *n	mg/L
Free Cyanide *m	Monthly	Grab *n	mg/L
Total Cadmium *m	Monthly	Composite *n	mg/L
Influent Metals, Influent Effluent	6 x Yearly *o 6 x Yearly *o	Grab/Composite *n Grab/Composite *n	mg/L mg/L
Organic Toxics *p Influent Effluent	2 x Yearly *q 2 x Yearly *q	Grab/Composite *n Grab/Composite *n	mg/L mg/L
*a. See Definitions, Part VIII, for definition of terms			
*e. 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.			
*f. If the rate of discharge is controlled, the rate and duration of discharge shall be reported.			
*g. 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			
*h. Failure of an individual WET test does not constitute a violation of the permit, so long as an investigation is initiated in accordance with the permit. If an alternate species is approved for WET testing, the permit will be modified accordingly without a public comment period.			
*i. Receiving Water Concentration (RWC) refers to the target receiving water concentration for the chronic WET test			
*j. Chronic WET test on Ceriodaphnia and fathead minnows will be tested monthly, alternating between the two species.			
*k. Oil & Grease sampled when sheen is present or visible.			

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Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
*l. These reflect changes and additions required with the adoption of <i>UCA R317-1-3.3</i> , Technology-based Phosphorus Effluent Limit rule. The rule requires that all monitoring shall be based on 24-hour composite samples by use of an automatic sampler or a minimum of four grab samples collected a minimum of two hours a part. This collection method is only for the monthly samples being collected in compliance with the rule.			
*m. RP has shown that these metals need to be monitored for in the effluent at a higher frequency, and/or have an effluent limit associated with them.			
*n. Use the collection method for each parameter that is consistent with a corresponding EPA approved method stated in <i>40 CFR Part 136</i> or approved by the Director.			
*o. The pretreatment metals sampling must be done in January - February, March - April, May - June, July - August, September - October, and November - December of each year			
*p. The toxic pollutants are listed in <i>40 CFR 122 Appendix D Table II (Organic Toxic Pollutants) The pesticides fraction of Appendix D, Table II is suspended unless pesticides are expected to be present.</i>			
*q. The organic toxics must be sampled during the months of January - June and July - December each year.			

- b. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from Outfall 001R. Such discharges shall be limited and monitored by the permittee as specified below.

Parameter	Outfall 001R Effluent Limitations ^{a, b, c}				
	Max Monthly Average	Max Weekly Median	Max Daily Average	Minimum	Maximum
Turbidity, NTU ^b	--	--	2	--	5
TRC, mg/L ^c	--	--	--	1	--
BOD ₅ , mg/L	10	--	--	--	--
<i>E. coli</i> , No/100mL ^d	--	ND	--	--	9
pH, Standard Units	--	--	--	6.0	9.0

^{a.} See Definitions, Part VIII, for definition of terms.

^{b.} An alternative disposal option or diversion to storage must be automatically activated if turbidity exceeds the maximum instantaneous limit for more than 5 minutes, or chlorine residual drops below the instantaneous required value for more than 5 minutes, where chlorine disinfection is used.

^{c.} The facility is required to disinfect to destroy, inactivate or remove pathogenic microorganisms by chemical, physical, or biological means. Disinfection may be accomplished by chlorination, ozonation, other chemical disinfectants, UV radiation, or other approved processes.

^{d.} The weekly median *E. coli* concentration shall be non-detect.

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Reuse Outfall 001R Self-Monitoring and Reporting Requirements ^{a, b}			
Parameter	Frequency	Sample Type	Units
Total Flow, ^{c, d}	Continuous	Recorder	MGD
Turbidity ^e	Continuous	Recorder	NTU
TRC ^f	Continuous	Recorder	mg/L
BOD ₅	Weekly	Composite	mg/L
<i>E. coli</i> ^g	Daily	Grab	No./100mL
pH	Daily	Grab	SU
<p>^{a.} See Definitions, Part VIII, for definition of terms</p> <p>^{b.} Reuse monitoring results obtained during the previous month for reuse discharges shall be summarized for each month and reported on a Monthly Operational Report, post-marked no later than the 28th day of the month following the completed reporting period.</p> <p>^{c.} Flow is not a pollutant; it is in the permit to help determine loading levels. 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.</p> <p>^{d.} If the rate of discharge is controlled, the rate and duration of discharge shall be reported.</p> <p>^{e.} An alternative disposal option or diversion to storage must be automatically activated if turbidity exceeds the maximum instantaneous limit for more than 5 minutes, or chlorine residual drops below the instantaneous required value for more than 5 minutes, where chlorine disinfection is used.</p> <p>^{f.} The facility is required to disinfect to destroy, inactivate or remove pathogenic microorganisms by chemical, physical, or biological means. Disinfection may be accomplished by chlorination, ozonation, other chemical disinfectants, UV radiation, or other approved processes.</p> <p>^{g.} The weekly median <i>E. coli</i> concentration shall be non-detect</p>			

- a. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from Outfall 002R. Such discharges shall be limited and monitored by the permittee as specified below:

Parameter	Outfall 002R Effluent Limitations ^a				
	Max Monthly Average	Max Weekly Median	Max Daily Average	Minimum	Maximum
Flow ^b	-	-	-	-	-
<p>^{a.} See Definitions, Part VIII, for definition of terms.</p> <p>^{b.} There is no limit on flow from the golf course ponds</p>					

Reuse Outfall 002R Self-Monitoring and Reporting Requirements ^{a, b}			
Parameter	Frequency	Sample Type	Units
Total Flow	Monthly	Grab	Yes/No
<p>^{a.} See Definitions, Part VIII, for definition of terms</p> <p>^{b.} Reuse monitoring results obtained during the previous month for reuse discharges shall be summarized for each month and reported on a Monthly Operational Report, post-marked no later than the 28th day of the month following the completed reporting period.</p>			

2. Compliance Schedule

a. Compliance Schedule for the Variance to the TBPEL Rule.

- (1) Beginning no later than October 1, 2017, and for every year thereafter while this variance is in effect, CVWRF agrees to submit to DWQ an annual report relating to its phosphorus discharges (the “Annual Report”). The scope of the Annual Report shall include descriptions of all projects and work necessary, in reasonable detail, to achieve compliance with the TBPEL rule. The Annual Report will provide a summary of progress and milestones achieved in all construction, study, funding, planning, and design projects during the previous reporting period, projected progress and milestones scheduled to be completed during the following reporting period, and if the project(s) are on schedule. The Annual Report will also provide information on effluent phosphorus concentrations to determine CVWRF’s compliance with Parts 11.e. and 11.f. of the variance.
- (2) The Compliance Schedule for the Variance to the TBPEL will end as noted in the Variance on June 30, 2026. On July 1, 2026 the TBPEL will go into effect.

b. Compliance Schedule for the effluent limits and seasonal determination Variance to the TBPEL Rule.

- (1) The Annual Report required in Part I, C. 3. A. (1) of the permit is an ongoing requirement of the compliance schedule
- (2) The Compliance Schedule for the changes to monitoring requirements and effluent limits in the renewal Permit will end on June 30, 2026. On July 1, 2026 the new effluent limits and monitoring requirements will go into effect.

3. Acute/Chronic Whole Effluent Toxicity (WET) Testing.

a. *Whole Effluent Testing – Acute Toxicity.*

Starting on June 1, 2022 and continuing until June 30, 2026, the permittee shall quarterly conduct acute static renewal toxicity tests on a composite sample of the final effluent at Outfall 001. Starting on July 1, 2026, the permittee shall monthly conduct acute static renewal toxicity tests on a composite sample of the final effluent at Outfall 001. The sample shall be collected at the point of compliance before mixing with the receiving water.

The monitoring frequency for acute tests shall be as stated above unless a sample is found to be acutely toxic during a routine test. If that occurs, the monitoring frequency shall become weekly (See *Part I. C.4.c, Accelerated Testing*). Unless otherwise approved by the Director, samples shall be collected on a two-day progression; i.e., if the first sample is on a Monday, during the next sampling period, the sampling shall begin on a Wednesday, etc.

The static-renewal acute toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, Fifth Edition, October 2002, EPA-821-R-02-012 as per 40 CFR 136.3(a) TABLE IA-LIST OF APPROVED BIOLOGICAL METHODS. The permittee shall conduct the 48-

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hour static renewal toxicity test using *Ceriodaphnia dubia* (water flea) with a solution renewal every 24 hours, and the acute 96-hour static renewal toxicity test using *Pimephales promelas* (fathead minnow) with a solution renewal every 24 hours. Based on the Test Acceptability Criteria included in Utah Pollutant Discharge Elimination System (UPDES) Permit and Enforcement Guidance Document for Whole Effluent Toxicity Control (Biomonitoring) February, 2018, the Director may require acceptable variations in the test, i.e. temperature, carbon dioxide atmosphere, or any other acceptable variations in the testing procedure, as documented in the Fact Sheet Statement of Basis. If possible, dilution water should be taken from the receiving stream. A valid replacement test is required within the specified sampling period to remain in compliance.

Acute toxicity occurs when 50 percent or more mortality is observed for either species at any effluent concentration. Mortality in the control must simultaneously be 10 percent or less for the results to be considered valid. If more than 10 percent control mortality occurs, the test shall be repeated until satisfactory control mortality is achieved. The permittee shall meet all QA/QC requirements of the acute WET testing method listed in this Section of the permit.

If the permit contains a total residual chlorine limitation such that it may interfere with WET testing (>0.20 mg/L), the permittee may dechlorinate the sample in accordance with approved USEPA methods for WET testing the sample. If dechlorination is affecting the test, the permittee may collect the sample just before chlorination with Director approval.

Monthly/Quarterly test results shall be reported along with the Discharge Monitoring Report (DMR) submitted for the end of the required reporting period (month, quarter or semi-annual) e.g., biomonitoring results for the calendar quarter ending March 31 shall be reported with the DMR due April 28, with the remaining biomonitoring reports submitted with DMRs due each July 28, October 28, and January 28. Monthly test results shall be reported along with the DMR submitted for that month. The format for the report shall be consistent with Appendix C of “Utah Pollutant Discharge Elimination System (UPDES) Permitting and Enforcement Guidance Document for Whole Effluent Toxicity (Biomonitoring), Utah Division of Water Quality, February 2018.

If the results for ten consecutive tests indicate no acute toxicity, the permittee may request a reduction in acute toxicity testing by a reduction in monitoring frequency, alternating species, or using only the most sensitive species. The Director may approve or deny the request. If the request is approved, the test procedures are to be the same as specified above for the test species. Under no circumstances shall monitoring for WET at major facilities be reduced less than quarterly. Minor facilities may be less than quarterly at the discretion of the Director.

b. *Whole Effluent Testing – Chronic Toxicity.*

Starting on June 1, 2022 and continuing until **June 30, 2026**, the permittee shall quarterly conduct chronic static renewal toxicity tests on a composite sample of the final effluent at Outfall(s) 001. Starting on **July 1, 2026**, the permittee shall monthly conduct chronic static renewal toxicity tests on a composite sample of the final effluent at Outfall(s) 001. The sample shall be collected at the point of compliance before mixing with the receiving water

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Three samples are required and samples shall be collected on Monday, Wednesday and Friday of each sampling period or collected on a two-day progression for each sampling period. This may be changed with Director approval. The chronic toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, Fourth Edition*, October 2002, EPA—821-R-02-013 as per 40 CFR 136.3(a) TABLE IA-LIST OF APPROVED BIOLOGICAL METHODS. Test species shall consist of *Ceriodaphnia dubia* (water flea) and *Pimephales promelas* (fathead minnow). The facility shall alternate between the two species.

A multi dilution test consisting of at least five concentrations and a control is required at two dilutions below and two above the RWC, if possible. If test acceptability criteria are not met for control survival, growth, or reproduction, the test shall be considered invalid. A valid replacement test is required within the specified sampling period to remain in compliance with this permit. Chronic toxicity occurs when, during a chronic toxicity test, the 25% inhibition concentration (IC25) calculated on the basis of test organism survival and growth or survival and reproduction, is less than or equal to 39% effluent concentration (equivalent to the RWC). If a sample is found to be chronically toxic during a routine test, the monitoring frequency shall become biweekly (see Part I C.4.c, Accelerated Testing). (the Director may enter acceptable variations in the test procedure here as documented in the Fact Sheet Statement of Basis and based on the test acceptability criteria as contained in Utah Pollutant Discharge Elimination System (UPDES) Permitting and Enforcement Guidance Document for Whole Effluent Toxicity Control February, 2018). If possible, dilution water should be obtained from the receiving stream.

Seasonal Chronic WET RWC Limits, From WLA		
Season	Chronic WET IC ₂₅ RWC% Effluent	
	Interim RWC	Final RWC
Summer (Jul-Sep)	92% Eff.	85% Eff.
Fall (Oct-Dec)	95% Eff.	92% Eff.
Winter (Jan-Mar)	94% Eff.	97% Eff.
Spring (Apr-Jun)	89% Eff.	92% Eff.

If the permit contains a total residual chlorine limitation such that it may interfere with WET testing (>0.20 mg/L), the permittee may dechlorinate the sample in accordance with the standard method. If dechlorination is negatively affecting the test, the permittee may collect the sample just before chlorination with Director approval.

Monthly/Quarterly test results shall be reported along with the Discharge Monitoring Report (DMR) submitted for the end of the required reporting period (e.g., biomonitoring results for the calendar quarter ending March 31 shall be reported with the DMR due April 28, with the remaining biomonitoring reports submitted with DMRs due each July 28, October 28, and January 28). Monthly test results shall be reported along with the DMR submitted for that month. The format for the report shall be consistent with Appendix C of “Utah Pollutant Discharge Elimination System (UPDES) Permitting and Enforcement Guidance Document for Whole Effluent Toxicity, Utah Division of Water Quality, February, 2018.

If the results for ten consecutive tests indicate no chronic toxicity, the permittee may submit a request to the Director to allow a reduction in chronic toxicity testing by alternating species, or using only the most sensitive species. The permit issuing

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authority may approve or deny the request based on the results and other available information without public notice. If the request is approved, the test procedures are to be the same as specified above for the test species. Under no circumstances shall monitoring for WET at major facilities be reduced less than quarterly. Minor facilities may be less than quarterly at the discretion of the Director.

- c. *Accelerated Testing.* When whole effluent toxicity is indicated during routine WET testing as specified in this permit, the permittee shall notify the Director in writing within 5 days after becoming aware of the test result. The permittee shall perform an accelerated schedule of WET testing to establish whether a pattern of toxicity exists unless the permittee notifies the Director and commences a PTI, TIE, or a TRE. Accelerated testing or the PTI, TIE, or TRE will begin within fourteen days after the permittee becomes aware of the test result. Accelerated testing shall be conducted as specified under Part I. Pattern of Toxicity. If the accelerated testing demonstrates no pattern of toxicity, routine monitoring shall be resumed.
- d. *Pattern of Toxicity.* A pattern of toxicity is defined by the results of a series of up to five biomonitoring tests pursuant to the accelerated testing requirements using a full set of dilutions for acute (five plus the control) and five effluent dilutions for chronic (five plus the control), on the species found to be more sensitive, once every week for up to five consecutive weeks for acute and once every two weeks up to ten consecutive weeks for chronic.

If two (2) consecutive tests (not including the scheduled test which triggered the search for a pattern of toxicity) do not result in an exceedance of the acute or chronic toxicity criteria, no further accelerated testing will be required and no pattern of toxicity will be found to exist. The permittee will provide written verification to the Director within 5 days of determining no pattern of toxicity exists, and resume routine monitoring.

A pattern of toxicity may or may not be established based on the following:

WET tests should be run at least weekly (acute) or every two weeks (chronic) (note that only one test should be run at a time), for up to 5 tests, until either:

- 1) 2 consecutive tests fail, or 3 out of 5 tests fail, at which point a pattern of toxicity will have been identified, or
 - 2) 2 consecutive tests pass, or 3 out of 5 tests pass, in which case no pattern of toxicity is identified.
- e. *Preliminary Toxicity Investigation.*
- (1) When a pattern of toxicity is detected the permittee will notify the Director in writing within 5 days and begin an evaluation of the possible causes of the toxicity. The permittee will have 15 working days from demonstration of the pattern of toxicity to complete an optional Preliminary Toxicity Investigation (PTI) and submit a written report of the results to the Director. The PTI may include, but is not limited to: additional chemical and biological monitoring, examination of pretreatment program records, examination of discharge monitoring reports, a thorough review of the testing protocol, evaluation of treatment processes and chemical use, inspection of material storage and transfer areas to determine if any spill may have occurred.

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- (2) If the PTI identifies a probable toxicant and/or a probable source of toxicity, the permittee shall submit, as part of its final results, written notification of that effect to the Director. Within thirty days of completing the PTI the permittee shall submit to the Director for approval a control program to control effluent toxicity and shall proceed to implement such plan in accordance with the Director's approval. The control program, as submitted to or revised by the Director, will be incorporated into the permit. After final implementation, the permittee must demonstrate successful removal of toxicity by passing a two species WET test as outlined in this permit. With adequate justification, the Director may extend these deadlines.
 - (3) If no probable explanation for toxicity is identified in the PTI, the permittee shall notify the Director as part of its final report, along with a schedule for conducting a Phase I Toxicity Reduction Evaluation (TRE) (see Part I.C.4.f, Toxicity Reduction Evaluation)
 - (4) If toxicity spontaneously disappears during the PTI, the permittee shall submit written notification to that effect to the Director, with supporting testing evidence.
- f. *Toxicity Reduction Evaluation (TRE)*. If a pattern of toxicity is detected the permittee shall initiate a TIE/TRE within 7 days unless the Director has accepted the decision to complete a PTI. With adequate justification, the Director may extend the 7-day deadline. The purpose of the TIE portion of a TRE will be to establish the cause of the toxicity, locate the source(s) of the toxicity, and the TRE will control or provide treatment for the toxicity.

A TRE may include but is not limited to one, all, or a combination of the following:

- (1) Phase I – Toxicity Characterization
- (2) Phase II – Toxicity Identification Procedures
- (3) Phase III – Toxicity Control Procedures
- (4) Any other appropriate procedures for toxicity source elimination and control.

If the TRE establishes that the toxicity cannot be immediately eliminated, the permittee shall submit a proposed compliance plan to the Director. The plan shall include the proposed approach to control toxicity and a proposed compliance schedule for achieving control. If the approach and schedule are acceptable to the Director, this permit may be reopened and modified.

If toxicity spontaneously disappears during the TIE/TRE, the permittee shall submit written notification to that effect to the Director.

If the TRE shows that the toxicity is caused by a toxicant(s) that may be controlled with specific numerical limitations, the permittee shall submit the following:

- (a) An alternative control program for compliance with the numerical requirements.

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- (b) If necessary, as determined by the Director, provide a modified biomonitoring protocol which compensates for the pollutant(s) being controlled numerically.

This permit may be reopened and modified to incorporate any additional numerical limitations, a modified compliance schedule if judged necessary by the Director, and/or modified WET testing requirements without public notice.

Failure to conduct an adequate TIE/TRE plan or program as described above, or the submittal of a plan or program judged inadequate by the Director, shall be considered a violation of this permit. After implementation of TIE/TRE plan, the permittee must demonstrate successful removal of toxicity by passing a two species WET test as outlined in this permit.

B. Reporting of Monitoring Results.

1. Reporting of Wastewater Monitoring Results Monitoring results obtained during the previous month shall be summarized for each month and reported by NetDMR, entered into NetDMR no later than the 28th day of the month following the completed reporting period. The first report is due on November 28, 2023. If no discharge occurs during the reporting period, “no discharge” shall be reported. Legible copies of these, and all other reports including whole effluent toxicity (WET) test reports required herein, shall be signed and certified in accordance with the requirements of *Signatory Requirements (see Part VII.G)*, and submitted by NetDMR, or to the Division of Water Quality.
2. Reporting of Reuse Monitoring Results. Monitoring results obtained during the previous month shall be summarized for each month and reported on a Monthly Operational Report, post-marked no later than the 28th day of the month following the completed reporting period. The first report is due on November 28, 2023. If no reuse occurs during the reporting period, “no reuse” shall be reported for those applicable effluent parameters. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the requirements of *Signatory Requirements (see Part VII.G)*, and submitted to the Division of Water Quality at the following address:

Department of Environmental Quality
Division of Water Quality
PO Box 144870
Salt Lake City, Utah 84114-4870

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II. INDUSTRIAL PRETREATMENT PROGRAM

- A. Pretreatment Program Delegation. The permittee has been delegated primary responsibility for enforcing against discharges prohibited by *40 CFR 403.5* and applying and enforcing any national Pretreatment Standards established by the United States Environmental Protection Agency in accordance with Section 307 (b) and (c) of *The Clean Water Act (CWA)*, as amended by *The Water Quality Act (WQA)*, of 1987.

The permittee shall implement the Industrial Pretreatment Program in accordance with the legal authorities, policies, and procedures described in the Pre-Program that has been submitted to DWQ by the permittee. Such program commits the permittee to do the following:

1. Carry out inspection, surveillance, and monitoring procedures, which will determine, independent of information supplied by the industrial user, whether the industrial user is in compliance with the pretreatment standards. At a minimum, all significant industrial users shall be inspected and sampled by the permittee at least once per year;
2. Control through permit, order, or similar means, the contribution to the POTW by each industrial user to ensure compliance with applicable pretreatment standards and requirements;
3. Require development, as necessary, of compliance schedules by each industrial user for the installation of control technologies to meet applicable pretreatment standards;
4. Maintain and update industrial user information as necessary, to ensure that all IUs are properly permitted and/or controlled at all times;
5. Enforce all applicable pretreatment standards and requirements and obtain appropriate remedies for noncompliance by any industrial user;
6. Annually publish a list of industrial users that were determined to be in significant noncompliance during the previous year. The notice must be published before March 28 of the following year;
7. Maintain an adequate revenue structure and staffing level for continued implementation of the Pretreatment Program.
8. Evaluate all significant industrial users at least once every two years to determine if they need to develop a slug prevention plan. If a slug prevention plan is required, the permittee shall insure that the plan contains at least the minimum elements required in *40 CFR 403.8(f)(2)(v)*;
9. Notify all significant industrial users of their obligation to comply with applicable requirements under *Subtitles C and D* of the *Resource Conservation and Recovery Act (RCRA)*; and
10. Develop, implement, and maintain an enforcement response plan as required by *40 CFR 403.8(f)(5)* which shall, at a minimum,
 - a. Describe how the POTW will investigate instances of noncompliance;
 - b. Describe the types of escalating enforcement responses the POTW will take in response to all anticipated type of industrial user violations; and

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- c. Describe the time periods within which such responses will be taken and identify the POTW staff position(s) responsible for pursuing these actions.
11. Establish and enforce specific local limits as necessary to implement the provisions of the *40 CFR Parts 403.5(a)* and *(b)*, and as required by *40 CFR Part 403.5(c)*.
- B. Program Updates. The permittee is required to modify its pretreatment program, as necessary, to reflect changes in the regulations of *40 CFR 403*. Such modifications shall be completed within the time frame set forth by the applicable regulations. Modification of the approved pretreatment program must be done in accordance with the requirements of *40 CFR 403.18*. Modifications of the pretreatment program which are deemed substantial, either by the Director or *40 CFR 403.18*, shall not be implemented until after approval has been granted by the Director. Substantial changes include, but are not limited to, any change in any legal authority, major modification in the administrative structure for the pretreatment program or operating agreement(s), a reduction in sampling or inspecting of industrial users, or a change in the method of funding the program.
- C. Annual Report. The permittee shall provide the Division of Water Quality and EPA with an annual report briefly describing the pretreatment program activities over the previous calendar year. Reports shall be submitted no later than March 28 of each year. These annual reports shall, at a minimum, include:
1. An updated listing of industrial users within the service area for the POTW.
 2. A descriptive summary of the compliance activities including numbers of any major enforcement actions, i.e., administrative orders, penalties, civil actions, etc.
 3. An assessment of the compliance status of industrial users and the effectiveness of the Pretreatment Program in meeting its needs and objectives within the service area for the POTW.
 4. A summary of all sampling data taken of the influent and effluent for those pollutants listed in *Part II.F*.
 5. A description of all changes made to the pretreatment program implement by the permittee, per *Section B* of this section.
 6. Other information as may be determined necessary by the Director.
- D. General and Specific Prohibitions. Pretreatment standards (*40 CFR 403.5*) specifically prohibit the introduction of the following pollutants into the waste treatment system from any source of non-domestic discharge:
1. Pollutants which create a fire or explosion hazard in the publicly owned treatment works (POTW), including, but not limited to, waste streams with a closed cup flashpoint of less than 140°F (60°C);
 2. Pollutants, which will cause corrosive structural damage to the POTW, but in no case, discharges with a pH lower than 5.0;
 3. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in interference;

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4. Any pollutant, including oxygen demanding pollutants (BOD, etc.), released in a discharge at such volume or strength as to cause interference in the POTW;
 5. Heat in amounts, which will inhibit biological activity in the POTW, resulting in interference, but in no case, heat in such quantities that the influent to the sewage treatment works exceeds 104°F (40°C);
 6. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;
 7. Pollutants, which result in the presence of toxic gases, vapor, or fumes within the POTW in a quantity that may cause worker health or safety problems;
 8. Any trucked or hauled pollutants, except at discharge points designated by the POTW; or
 9. Any pollutant that causes pass through or interference at the POTW.
 10. Any specific pollutant which exceeds any local limitation established by the POTW in accordance with the requirement of 40 CFR 403.5(c) and 40 CFR 403.5(d).
- E. Categorical Standards. In addition to the general and specific limitations expressed in *Part D* of this section, applicable National Categorical Pretreatment Standards must be met by all industrial users of the POTW. These standards are published in the federal regulations at 40 CFR 405 et. seq.
- F. Self-Monitoring and Reporting Requirements.
1. Influent and Effluent Monitoring and Reporting Requirements. The permittee shall sample and analyze both the influent and effluent, for the parameters listed in the Monitoring for Pretreatment Program Table.

Monitoring for Pretreatment Program Table				
Parameter	Reporting Limit	Sample Type	Frequency	Units
Total Arsenic	0.177	Composite	6 X Yearly	mg/L
Total Cadmium	0.0023			
Total Chromium	0.0123			
Total Copper	0.0288			
Total Lead	0.0159			
Total Molybdenum	NA			
Total Nickel	0.160			
Total Selenium	0.0052			
Total Silver	0.029			
Total Zinc	0.341			
Total Cyanide	0.0061	Composite/Grab	2 X Yearly	
Total Mercury	0.000014			
TTOs	NA			

2. A test method must be used that has a reporting limit at or below the limit stated in the column. If a test method is not available the permittee must submit documentation to the Director regarding the method that will be used.

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3. The influent and effluent shall be analyzed by the permittee for total toxic pollutants (TTOs) listed in 40 CFR 122 Appendix D Table II (Organic Toxic Pollutants). The pesticides fraction of Appendix D, Table II is suspended unless pesticides are expected to be present.
 4. In accordance with the requirements of 40 CFR Part 403.5(c), the permittee shall determine if there is a need to develop or revise its local limits in order to implement the general and specific prohibitions of 40 CFR Part 403.5 (a) and Part 403.5 (b). A technical evaluation of the need to develop or revise local limits shall be submitted to the Director within 12 months of the effective date of this permit. This evaluation should be conducted in accordance with the latest revision of the EPA Local Limits Development Guidance. If a technical evaluation, reveals that development or revision of local limits is necessary, the permittee shall submit the proposed local limits revision to the Division of Water Quality for approval, and after approval implement the new local limits. Implementation of the local limits, must be completed per the approval by the Director.
 5. Revised local limits must be submitted per the requirements set forth by DWQ.
 6. The results of the analyses of metals, cyanide and toxic organics shall be submitted along with the Discharge Monitoring Report (DMR) at the end of the earliest possible reporting period. Also, the permittee must submit a copy of the toxic organics data to the Pretreatment Coordinator for DWQ via email.
 7. For local limit parameters it is recommended that the most sensitive method be used for analysis. This will determine if the parameter is present and provide removal efficiencies based on actual data rather than literature values. If a parameter load is greater than the allowable head works load, for any pollutant listed in Part II.F.1. or a pollutant of concern listed in the local limit development document, the permittee must report the exceedances to the Pretreatment Coordinator for DWQ. If the loading exceeds the allowable headworks load, increase sampling must occur based on the requirements given by the Pretreatment Coordinator for DWQ. If needed sampling may need to occur to find the source(s) of the increase. This may include sampling of the collection system. Notification regarding the exceedances of the allowable headworks loading can be provided via email.
- G. Enforcement Notice. *UCA 19-5-104* provides that the State may issue a notice to the POTW stating that a determination has been made that appropriate enforcement action must be taken against an industrial user for noncompliance with any pretreatment requirements within 30 days. The issuance of such notice shall not be construed to limit the authority of the Director.
- H. Formal Action. The Director retains the right to take legal action against any industrial user and/or POTW for those cases where a permit violation has occurred because of the failure of an industrial user to meet an applicable pretreatment standard.

III. BIOSOLIDS REQUIREMENTS

A. Biosolids Treatment and Disposal. The authorization to dispose of biosolids provided under this permit is limited to those biosolids produced from the treatment works owned and operated by the permittee. The treatment methods and disposal practices are designated below.

1. Treatment

- a. Anaerobic Digestion – Solids are digested through anaerobic digestion with a minimum retention time of 15 days at 95° F (35° C) or 60 days at 68° F (20°C) to meet Class B standards. *40 CFR 503.32 (b)(3)*
- b. Composting –Class B biosolids are composted using the aerated static pile method or the windrow method to meet Class A compost standards (*40 CFR 503.32(a)(8)(ii)*)

2. Description of Biosolids Disposal Method

- a. Class A biosolids may be sold or given away to the public for lawn and garden use or land application.
- b. Class B biosolids may be land applied for agriculture use or at reclamation sites at agronomic rates.
- c. Biosolids may be disposed of in a landfill or transferred to another facility for treatment and/or disposal.

3. Changes in Treatment Systems and Disposal Practices.

- a. Should the permittee change their disposal methods or the biosolids generation and handling processes of the plant, the permittee must notify the Director at least 30 days in advance if the process/method is specified in 40 CFR 503. This includes, but is not limited to, the permanent addition or removal of any biosolids treatment units (i.e., digesters, drying beds, belt presses, etc.) and/or any other change.
- b. Should the permittee change their disposal methods or the biosolids generation and handling processes of the plant, the permittee must notify the Director at least 180 days in advance if the process/method is not specified in 40 CFR 503. This includes, but is not limited to, the permanent addition or removal of any biosolids treatment units (i.e., digesters, drying beds, belt presses, etc.) and/or any other change.

For any biosolids that are land filled, the requirements in *Section 2.12* of the latest version of the *EPA Region VIII Biosolids Management Handbook* must be followed

B. Specific Limitations and Monitoring Requirements. All biosolids generated by this facility to be sold or given away to the public shall meet the requirements of *Part III.B.1, 2, 3 and 4* listed below.

1. Metals Limitations. All biosolids sold or given away in a bag or similar container for application to lawns and home gardens must meet the metals limitations as described below. If these metals limitations are not met, the biosolids must be landfilled.

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Pollutant Limits, (40 CFR Part 503.13(b)) Dry Mass Basis				
Heavy Metals	Table 1	Table 2	Table 3	Table 4
	Ceiling Conc. Limits ¹ , (mg/kg)	CPLR ² , (mg/ha)	Pollutant Conc. Limits ³ , (mg/kg)	APLR ⁴ , (mg/ha-yr)
Total Arsenic	75	41	41	2.0
Total Cadmium	85	39	39	1.9
Total Copper	4300	1500	1500	75
Total Lead	840	300	300	15
Total Mercury	57	17	17	0.85
Total Molybdenum	75	N/A	N/A	N/A
Total Nickel	420	420	420	21
Total Selenium	100	100	100	5.0
Total Zinc	7500	2800	2800	140
¹ . If the concentration of any 1 (one) of these parameters exceeds the Table 1 limit, the biosolids cannot be land applied or beneficially used in any way.				
² . CPLR - Cumulative Pollutant Loading Rate - The maximum loading for any 1 (one) of the parameters listed that may be applied to land when biosolids are land applied or beneficially used on agricultural, forestry, or a reclamation site when they do not meet Table 3, but do meet Table 1.				
³ . If the concentration of any 1 (one) of these parameters exceeds the Table 3 limit, the biosolids cannot be land applied or beneficially used in on a lawn, home garden, or other high potential public contact site. If any 1 (one) of these parameters exceeds the Table 3 limit, the biosolids may be land applied or beneficially reused on an agricultural, forestry, reclamation site, or other low potential public contact site, as long as it meets the requirements of Table 1, Table 2, and Table 4.				
⁴ . APLR - Annual Pollutant Loading Rate - The maximum annual loading for any 1 (one) of the parameters listed that may be applied to land when biosolids are land applied or beneficially reused on agricultural, forestry, or a reclamation site, when they do not meet Table 3, but do meet Table 1.				

2. Pathogen Limitations. All biosolids sold or given away in a bag or a similar container for application to lawns and home gardens must meet the pathogen limitations for Class A. Land applied biosolids must meet the pathogen limitations for Class B as described below. If the pathogen limitations are not met, the biosolids must be landfilled.
 - a. Class A biosolids shall meet one of the pathogen measurement requirements in the following Pathogen Control Class table and shall meet the requirements for a Process to Further Reduce Pathogens as defined in *40 CFR Part 503.32(a) Sewage Sludge – Class A*.
 - (1) Central Valley currently uses the following practice to meet Class A Pathogen requirements found under (*40 CFR 503.32(a)(7)(ii)*), (*Appendix B, B.1.*):
 - (a) 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,
 - (b) 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.

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- b. Class B biosolids shall meet the pathogen measurement requirements in the following Pathogen Control Class table or shall meet the requirements for a Process to Significantly Reduce Pathogens as defined in 40 CFR Part 503.32(b) *Sewage Sludge – Class B*. Central Valley has chosen to meet PSRP through the following method; 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), If done so, the biosolids meet the Class B requirements through anaerobic digestion.

In addition, the permittee shall comply with all applicable site restrictions listed below (40 CFR Part 503.32,(b),(5)):

- (1) Food crops with harvested parts that touch the biosolids/soil mixture and are totally above the land surface shall not be harvested for 14 months after application.
- (2) Food crops with harvested parts below the land surface shall not be harvested for 20 months after application if the biosolids remains on the land surface for four months or more prior to incorporation into the soil.
- (3) Food crops with harvested parts below the surface of the land shall not be harvested for 38 months after application of sewage sludge when the sewage sludge remains on the land surface for less than four months prior to incorporation into the soil.
- (4) Food crops, feed crops, and fiber crops shall not be harvested from the land for 30 days after application.
- (5) Animals shall not be allowed to graze on the land for 30 days after application.
- (6) Turf grown on land where biosolids is applied shall not be harvested for one year after application if the harvested turf is placed on either land with a high potential for public exposure or a lawn.
- (7) Public access to land with a high potential for public exposure shall be restricted for one year after application.
- (8) Public access to land with a low potential for public exposure shall be restricted for 30 days after application.
- (9) The sludge or the application of the sludge shall not cause or contribute to the harm of a threatened or endangered species or result in the destruction or adverse modification of critical habitat of a threatened or endangered species after application.

Pathogen Control Class	
503.32 (a)(1) - (5), (7), -(8), Class A	503.32 (b)(1) - (5), Class B
B Salmonella species –less than three (3) MPN ⁴ per four (4) grams total solids (DWB ⁵) or Fecal Coliforms – less than 1,000 MPN per gram total solids (DWB).	Fecal Coliforms – less than 2,000,000 MPN or CFU ⁶ per gram total solids (DWB).
503.32 (a)(6) Class A—Alternative 4	

<p>B Salmonella species –less than three (3) MPN per four (4) grams total solids (DWB) or less than 1,000 MPN Fecal Coliforms per gram total solids (DWB), And - Enteric viruses –less than one (1) plaque forming unit per four (4) grams total solids (DWB) And - Viable helminth ova –less than one (1) per four (4) grams total solids (DWB)</p>	
4. MPN – Most Probable Number	
5. DWB – Dry Weight Basis.	
6. CFU – Colony Forming Units	

3. Vector Attraction Reduction Requirements.

- a. The permittee will meet vector attraction reduction through use of one of the methods listed in *40 CFR 503.33*. Facility is meeting the requirements through the following methods.
- (1) Facility is meeting vector attraction reduction through *40 CFR Part 503.33(b)(1)* “Anaerobic Digestion - The mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38 percent through anaerobic digestion. The solids need to be treated for at least 15 days at a temperature of at least 95°F (35°C) with a 38% reduction of volatile solids”

If the permittee intends to use another one of the 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 comment.

4. Self-Monitoring Requirements.

- a. At a minimum, upon the effective date of this permit, all chemical pollutants, pathogens and applicable vector attraction reduction requirements shall be monitored according to *40 CFR 503.16(1)(a)*.

Minimum Frequency of Monitoring (<i>40 CFR Part 503.16, 503.26. and 503.46</i>)		
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

7. Central valley has produced around 5,000 DMT on average of biosolids a year for the last 10 years. Therefore, they need to sample at least six times a year.

- b. Sample collection, preservation and analysis shall be performed in a manner consistent with the requirements of *40 CFR 503* and/or other criteria specific to this permit. A metals analysis is to be performed using *Method SW 846* with *Method 3050* used for digestion. For the digestion procedure, an amount of biosolids equivalent to a dry weight of one gram shall be used. The methods are also described in the latest version of the *Region VIII Biosolids Management Handbook*.

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- c. The Director may request additional monitoring for specific pollutants derived from biosolids if the data shows a potential for concern.
- d. After two (2) years of monitoring at the frequency specified, the permittee may request that the Director reduce the sampling frequency for the heavy metals. The frequency cannot be reduced to less than once per year for biosolids that are sold or given away to the public for any parameter. The frequency also cannot be reduced for any of the pathogen or vector attraction reduction requirements listed in this permit.

C. Management Practices of Biosolids.

1. Biosolids Distribution Information

- a. For biosolids that are sold or given away, an information sheet shall be provided to the person who receives the biosolids. The label or information sheet shall contain:
 - (1) The name and address of the person who prepared the biosolids for a sale or to be given away.
 - (2) A statement that prohibits the application of the biosolids to the land except in accordance with the instructions on the label or information sheet.

2. Biosolids Application Site Storage

- a. For biosolids or material derived from biosolids that are stored in piles for one year or longer, measures shall be taken to ensure that erosion (whether by wind or water) does not occur. However, best management practices should also be used for piles used for biosolids treatment. If a treatment pile is considered to have caused a problem, best management practices could be added as a requirement in the next permit renewal

3. Land Application Practices

- a. The permittee shall operate and maintain the land application site operations in accordance with the following requirements:
 - (1) The permittee shall provide to the Director and the EPA within 90 days of the effective date of this permit a land application plan.
 - (2) Application of biosolids shall be conducted in a manner that will not contaminate the groundwater or impair the use classification for that water underlying the sites.
 - (3) Application of biosolids shall be conducted in a manner that will not cause a violation of any receiving water quality standard from discharges of surface runoff from the land application sites. Biosolids shall not be applied to land 10 meters or less from waters of the United States (as defined in 40 CFR 122.2).
 - (4) No person shall apply biosolids for beneficial use to frozen, ice-covered, or snow-covered land where the slope of such land is greater than three percent and is less than or equal to six percent unless one of the following requirements is met:
 - (a) there is 80 percent vegetative ground cover; or,

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- (b) approval has been obtained based upon a plan demonstrating adequate runoff containment measures.
- (5) Application of biosolids is prohibited to frozen, ice-covered, or snow-covered sites where the slope of the site exceeds six percent.
- (6) Agronomic Rate
 - (a) Application of biosolids shall be conducted in a manner that does not exceed the agronomic rate for available nitrogen of the crops grown on the site. At a minimum, the permittee is required to follow the methods for calculating agronomic rate outlined in the latest version of the *Region VIII Biosolids Management Handbook* (other methods may be approved by the Director). The treatment plant shall provide written notification to the applicator of the biosolids of the concentration of total nitrogen (as N on a dry weight basis) in the biosolids. Written permission from the Director is required to exceed the agronomic rate.
 - (b) The permittee may request the limits of *Part III, C, 6* be modified if different limits would be justified based on local conditions. The limits are required to be developed in cooperation with the local agricultural extension office or university.
 - (c) Deep soil monitoring for nitrate-nitrogen is required for all land application sites (does not apply to sites where biosolids are applied less than once every five years). A minimum of six samples for each 320 (or less) acre area is to be collected. These samples are to be collected down to either a 5-foot depth, or the confining layer, whichever is shallower (sample at 1 foot, 2-foot, 3-foot, 4 foot and 5-foot intervals). Each of these one-foot interval samples shall be analyzed for nitrate-nitrogen. In addition to the one-foot interval samples, a composite sample of the 5-foot intervals shall be taken, and analyzed for nitrate-nitrogen as well. Samples are required to be taken once every five years for non-irrigated sites that receive more than 18 inches of precipitation annually or for irrigated sites
- (7) Biosolids shall not be applied to any site area with standing surface water. If the annual high groundwater level is known or suspected to be within five feet of the surface, additional deep soil monitoring for nitrate-nitrogen as described in *Part III.C.(6),(c)* is to be performed. At a minimum, this additional monitoring will involve a collection of more samples in the affected area and possibly more frequent sampling. The exact number of samples to be collected will be outlined in a deep soil monitoring plan to be submitted to the Director and the EPA within 90 days of the effective date of this permit. The plan is subject to approval by the Director.
- (8) The specified cover crop shall be planted during the next available planting season. If this does not occur, the permittee shall notify the Director in writing. Additional restrictions may be placed on the application of the biosolids on that site on a case-by-case basis to control nitrate movement. Deep soil monitoring may be increased under the discretion of the Director.
- (9) When weather and or soil conditions prevent adherence to the biosolids application procedure, biosolids shall not be applied on the site.

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- (10) For biosolids that are sold or given away, an information sheet shall be provided to the person who receives the biosolids. The label or information sheet shall contain:
- (a) The name and address of the person who prepared the biosolids for sale or give away for application to the land.
 - (b) A statement that prohibits the application of the biosolids to the land except in accordance with the instructions on the label or information sheet.
 - (c) The annual whole biosolids application rate for the biosolids that do not cause the metals loading rates in Tables 1, 2, and 3 (*Part III.B.1.*) to be exceeded.
- (11) Biosolids subject to the cumulative pollutant loading rates in Table 2 (*Part III.B.1.*) shall not be applied to agricultural land, forest, a public contact site, or a reclamation site if any of the cumulative pollutant loading rates in Table 2 have been reached.
- (12) If the treatment plant applies the biosolids, it shall provide the owner or leaseholder of the land on which the biosolids are applied notice and necessary information to comply with the requirements in this permit.
- (13) The permittee shall inspect the application of the biosolids to active sites to prevent malfunctions and deterioration, operator errors and discharges, which may cause or lead to the release of biosolids to the environment or a threat to human health. The permittee must conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment. The permittee shall keep an inspection log or summary including at least the date and time of inspection, the printed name and the handwritten signature* of the inspector, a notation of observations made and the date and nature of any repairs or corrective action.
- D. Special Conditions on Biosolids Storage. Permanent storage of biosolids is prohibited. Biosolids shall not be temporarily stored for more than two (2) years. Written permission to store biosolids for more than two years must be obtained from the Director. Storage of biosolids for more than two years will be allowed only if it is determined that significant treatment is occurring.
- E. Representative Sampling. Biosolids samples used to measure compliance with *Part III* of this Permit shall be collected at locations representative of the quality of biosolids generated at the treatment works and immediately prior to land application.
- F. Reporting of Monitoring Results.
- 1. Biosolids. The permittee shall provide the results of all monitoring performed in accordance with Part III.B, and information on management practices, biosolids treatment, site restrictions and certifications shall be provided no later than February 19 of each year. Each report is for the previous calendar year. If no biosolids were sold or given away during the reporting period, "no biosolids were sold or given away" shall be reported. Legible copies of these, and all other reports required herein, shall be signed and certified

* Permittee generates and stores an inspection report electronically on a weekly basis, and logs items during each delivery. A signature is not required as long as the printed name of the "inspector" is included.

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in accordance with the Signatory Requirements (see Part VII.G), and submitted to the Utah Division of Water Quality and the EPA by the NeT-Biosolids system through the EPA Central Data Exchange (CDX) System.

G. Additional Record Keeping Requirements Specific to Biosolids.

1. Unless otherwise required by the Director, **the permittee is not required to keep records** on compost products if the permittee prepared them from biosolids that meet the limits in Table 3 (*Part III.B.1*), the Class A pathogen requirements in *Part III.B.2* and the vector attraction reduction requirements in *Part III.B.3*. The Director may notify the permittee that additional record keeping is required if it is determined to be significant to protecting public health and the environment.
2. **The permittee is required** to keep the following information for at least 5 years:
 - a. Concentration of each heavy metal in Table 3 (*Part III.B.1*).
 - b. A description of how the pathogen reduction requirements in *Part III.B.2* were met.
 - c. A description of how the vector attraction reduction requirements in *Part III.B.3* were met.
 - d. A description of how the management practices in *Part III.C* were met (if necessary).
 - e. The following certification statement:

"I certify under the penalty of law, that the heavy metals requirements in *Part III.B.1*, the pathogen requirements in *Part III.B.2*, the vector attraction requirements in *Part III.B.3*, the management practices in *Part III.C*. This determination has been made under my direction and supervision in accordance with the system designed to assure that qualified personnel properly gather and evaluate the information used to determine that the pathogen requirements, the vector attraction reduction requirements and the management practices have been met. I am aware that there are significant penalties for false certification including the possibility of imprisonment."
3. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit and records of all data used to complete the application for this permit for the life of the permit. Data collected on site, copies of Biosolids Report forms, and a copy of this UPDES biosolids-only permit must be maintained on site during the duration of activity at the permitted location.

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STORM WATER

IV. STORM WATER REQUIREMENTS.

- A. Industrial Storm Water Permit. Based on the type of industrial activities occurring at the facility, the permittee is required to maintain separate coverage or an appropriate exclusion under the Multi-Sector General Permit (MSGP) for Storm Water Discharges Associated with Industrial Activities (UTR000000). If the facility is not already covered, the permittee has 30 days from when this permit is issued to submit the appropriate Notice of Intent (NOI) for the MSGP or exclusion documentation.

- B. Construction Storm Water Permit. Any construction at the facility that disturbs an acre or more of land, including less than an acre if it is part of a common plan of development or sale, is required to obtain coverage under the UPDES Construction General Storm Water Permit (UTRC000000). Permit coverage must be obtained prior to land disturbance. If the site qualifies, a Low Erosivity Waiver (LEW) Certification may be submitted instead of permit coverage.

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V. MONITORING, RECORDING & GENERAL REPORTING REQUIREMENTS

- A. Representative Sampling. Samples taken in compliance with the monitoring requirements established under *Part I* shall be collected from the effluent stream prior to discharge into the receiving waters. Samples and measurements shall be representative of the volume and nature of the monitored discharge. Samples of biosolids shall be collected at a location representative of the quality of biosolids immediately prior to the use-disposal practice.
- B. Monitoring Procedures. Monitoring must be conducted according to test procedures approved under *Utah Administrative Code ("UAC") R317-2-10 and 40CFR Part 503*, utilizing sufficiently sensitive test methods unless other test procedures have been specified in this permit.
- C. Penalties for Tampering. The *Act* provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or by both.
- D. Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any Compliance Schedule of this permit shall be submitted no later than 14 days following each schedule date.
- E. Additional Monitoring by the Permittee. If the permittee monitors any parameter more frequently than required by this permit, using test procedures approved under *UAC R317-2-10* and *40 CFR Part* or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or the Biosolids Report Form. Such increased frequency shall also be indicated. Only those parameters required by the permit need to be reported.
- F. Records Contents. Records of monitoring information shall include:
1. The date, exact place, and time of sampling or measurements;
 2. The individual(s) who performed the sampling or measurements;
 3. The date(s) and time(s) analyses were performed;
 4. The individual(s) who performed the analyses;
 5. The analytical techniques or methods used; and,
 6. The results of such analyses.
- G. Retention of Records. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least five years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time. A copy of this UPDES permit must be maintained on site during the duration of activity at the permitted location
- H. Twenty-four Hour Notice of Noncompliance Reporting.
1. The permittee shall (orally) report any noncompliance including transportation accidents, spills, and uncontrolled runoff from biosolids transfer or land application sites which may seriously endanger health or environment, as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of circumstances. The

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report shall be made to the Division of Water Quality 24-hour answering service (801) 536-4123.

2. The following occurrences of noncompliance shall be reported by telephone (801) 536-4123 as soon as possible but no later than 24 hours from the time the permittee becomes aware of the circumstances:
 - a. Any noncompliance which may endanger health or the environment;
 - b. Any unanticipated bypass, which exceeds any effluent limitation in the permit (See *Part VI.G, Bypass of Treatment Facilities.*);
 - c. Any upset which exceeds any effluent limitation in the permit (See *Part VI.H, Upset Conditions.*);
 - d. Violation of a daily discharge limitation for any of the pollutants listed in the permit; or,
 - e. Violation of any of the Table 3 metals limits, the pathogen limits, the vector attraction reduction limits or the management practices for biosolids that have been sold or given away.
3. A written submission shall also be provided within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:
 - a. A description of the noncompliance and its cause;
 - b. The period of noncompliance, including exact dates and times;
 - c. The estimated time noncompliance is expected to continue if it has not been corrected;
 - d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and,
 - e. Steps taken, if any, to mitigate the adverse impacts on the environment and human health during the noncompliance period.
4. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Division of Water Quality, (801) 536-4123.
5. Reports shall be submitted to the addresses in *Part I.D, Reporting of Monitoring Results.*
- I. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for *Part I.D* are submitted. The reports shall contain the information listed in *Part V.H.3*
- J. Inspection and Entry The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:
 1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;

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2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, including but not limited to, biosolids treatment, collection, storage facilities or area, transport vehicles and containers, and land application sites;
4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the *Act*, any substances or parameters at any location, including, but not limited to, digested biosolids before dewatering, dewatered biosolids, biosolids transfer or staging areas, any ground or surface waters at the land application sites or biosolids, soils, or vegetation on the land application sites; and,
5. The permittee shall make the necessary arrangements with the landowner or leaseholder to obtain permission or clearance, the Director, or authorized representative, upon the presentation of credentials and other documents as may be required by law, will be permitted to enter without delay for the purposes of performing their responsibilities.

PART VI
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VI. COMPLIANCE RESPONSIBILITIES

- A. Duty to Comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of *the Act* and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements.
- B. Penalties for Violations of Permit Conditions. The *Act* provides that any person who violates a permit condition implementing provisions of the *Act* is subject to a civil penalty not to exceed \$10,000 per day of such violation. Any person who willfully or negligently violates permit conditions or *the Act* is subject to a fine not exceeding \$25,000 per day of violation. Any person convicted under *The Act Section 19-5-115(2)* a second time shall be punished by a fine not exceeding \$50,000 per day. Except as provided at *Part VI.G, Bypass of Treatment Facilities* and *Part VI.H, Upset Conditions*, nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.
- C. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- D. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit, which has a reasonable likelihood of adversely affecting human health or the environment. The permittee shall also take all reasonable steps to minimize or prevent any land application in violation of this permit.
- E. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems, which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
- F. Removed Substances. Collected screening, grit, solids, sludge, or other pollutants removed in the course of treatment shall be disposed of in such a manner so as to prevent any pollutant from entering any waters of the state or creating a health hazard. Sludge/digester supernatant and filter backwash shall not directly enter either the final effluent or waters of the state by any other direct route.
- G. Bypass of Treatment Facilities.
1. Bypass Not Exceeding Limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to paragraph 2 and 3 of this section.
 2. Prohibition of Bypass.

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- a. Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:
 - (1) Bypass was unavoidable to prevent loss of human life, personal injury, or severe property damage;
 - (2) There were no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgement to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance, and
 - (3) The permittee submitted notices as required under *Part VI.G.3*.
 - b. The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed in *Parts VI.G.2.a (1), (2) and (3)*.
3. Notice.
- a. *Anticipated bypass.* Except as provided above in *Part VI.G.2* and below in *Part VI.G.3.b*, if the permittee knows in advance of the need for a bypass, it shall submit prior notice, at least ninety days before the date of bypass. The prior notice shall include the following unless otherwise waived by the Director:
 - (1) Evaluation of alternative to bypass, including cost-benefit analysis containing an assessment of anticipated resource damages;
 - (2) A specific bypass plan describing the work to be performed including scheduled dates and times. The permittee must notify the Director in advance of any changes to the bypass schedule;
 - (3) Description of specific measures to be taken to minimize environmental and public health impacts;
 - (4) A notification plan sufficient to alert all downstream users, the public and others reasonably expected to be impacted by the bypass;
 - (5) A water quality assessment plan to include sufficient monitoring of the receiving water before, during and following the bypass to enable evaluation of public health risks and environmental impacts; and,
 - (6) Any additional information requested by the Director.
 - b. *Emergency Bypass.* Where ninety days advance notice is not possible, the permittee must notify the Director, and the Director of the Department of Natural Resources, as soon as it becomes aware of the need to bypass and provide to the Director the information in *Part VI.G.3.a.(1) through (6)* to the extent practicable.

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- c. *Unanticipated bypass.* The permittee shall submit notice of an unanticipated bypass to the Director as required under *Part IV.H, Twenty Four Hour Reporting*. The permittee shall also immediately notify the Director of the Department of Natural Resources, the public and downstream users and shall implement measures to minimize impacts to public health and environment to the extent practicable.

H. Upset Conditions.

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of paragraph 2 of this section are met. Director's administrative determination regarding a claim of upset cannot be judiciously challenged by the permittee until such time as an action is initiated for noncompliance.
2. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - a. An upset occurred and that the permittee can identify the cause(s) of the upset;
 - b. The permitted facility was at the time being properly operated;
 - c. The permittee submitted notice of the upset as required under *Part V.H, Twenty-four Hour Notice of Noncompliance Reporting*; and,
 - d. The permittee complied with any remedial measures required under *Part VI.D, Duty to Mitigate*.
3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

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VII. GENERAL REQUIREMENTS

- A. Planned Changes. The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when the alteration or addition could significantly change the nature or increase the quantity of parameters discharged or pollutant sold or given away. This notification applies to pollutants, which are not subject to effluent limitations in the permit. In addition, if there are any planned substantial changes to the permittee's existing sludge facilities or their manner of operation or to current sludge management practices of storage and disposal, the permittee shall give notice to the Director of any planned changes at least 30 days prior to their implementation.
- B. Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements.
- C. Permit Actions. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.
- D. Duty to Reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee shall apply for and obtain a new permit. The application shall be submitted at least 180 days before the expiration date of this permit.
- E. Duty to Provide Information. The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.
- F. Other Information. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts or information.
- G. Signatory Requirements. All applications, reports or information submitted to the Director shall be signed and certified.
1. All permit applications shall be signed by either a principal executive officer or ranking elected official.
 2. All reports required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described above and submitted to the Director, and,
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position

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having overall responsibility for environmental matters. A duly authorized representative may thus be either a named individual or any individual occupying a named position.

3. Changes to authorization. If an authorization under *paragraph VII.G.2* is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of *paragraph VII.G.2.* must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification. Any person signing a document under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

H. Penalties for Falsification of Reports. The *Act* provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than \$10,000.00 per violation, or by imprisonment for not more than six months per violation, or by both.

I. Availability of Reports. Except for data determined to be confidential under *UAC R317-8-3.2*, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the office of Director. As required by the *Act*, permit applications, permits and effluent data shall not be considered confidential.

J. Oil and Hazardous Substance Liability. Nothing in this permit shall be construed to preclude the permittee of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under the *Act*.

K. Property Rights. The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

L. Severability. The provisions of this permit are severable, and if any provisions of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

M. Transfers. This permit may be automatically transferred to a new permittee if:

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1. The current permittee notifies the Director at least 20 days in advance of the proposed transfer date;
 2. The notice includes a written agreement between the existing and new permittee's containing a specific date for transfer of permit responsibility, coverage, and liability between them; and,
 3. The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify, or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph 2 above.
- N. State or Federal Laws. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by *Sections 19-5-117* and *510* of the *Act* or any applicable Federal or State transportation regulations, such as but not limited to the Department of Transportation regulations.
- O. Water Quality - Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limitations and compliance schedule, if necessary, if one or more of the following events occurs:
1. Water Quality Standards for the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than contained in this permit.
 2. A final wasteload allocation is developed and approved by the State and/or EPA for incorporation in this permit.
 3. Revisions to the current CWA § 208 areawide treatment management plans or promulgations/revisions to TMDLs (40 CFR 130.7) approved by the EPA and adopted by DWQ which calls for different effluent limitations than contained in this permit.
- P. Biosolids – Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate biosolids limitations (and compliance schedule, if necessary), management practices, other appropriate requirements to protect public health and the environment, or if there have been substantial changes (or such changes are planned) in biosolids use or disposal practices; applicable management practices or numerical limitations for pollutants in biosolids have been promulgated which are more stringent than the requirements in this permit; and/or it has been determined that the permittees biosolids use or land application practices do not comply with existing applicable state of federal regulations.
- Q. Toxicity Limitation - Reopener Provision.
- This permit may be reopened and modified (following proper administrative procedures) to include, whole effluent toxicity (WET) limitations, a compliance date, a compliance schedule, a change in the whole effluent toxicity (biomonitoring) protocol, additional or modified numerical limitations, or any other conditions related to the control of toxicants if one or more of the following events occur;

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1. Toxicity is detected, as per *Part I.C.4.a* and/or *b* of this permit, during the duration of this permit.
2. The TRE results indicate that the toxicant(s) represent pollutant(s) or pollutant parameter(s) that may be controlled with specific numerical limits, and the Director concludes that numerical controls are appropriate.
3. Following the implementation of numerical control(s) of toxicant(s), the Director agrees that a modified biomonitoring protocol is necessary to compensate for those toxicants that are controlled numerically.
4. The TRE reveals other unique conditions or characteristics, which in the opinion of the permit issuing authority justify the incorporation of unanticipated special conditions in the permit.

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VIII. DEFINITIONS

A. Wastewater.

1. The "7-day (and weekly) average", other than for *E. coli* bacteria, fecal coliform bacteria, and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. Geometric means shall be calculated for *E. coli* bacteria, fecal coliform bacteria, and total coliform bacteria. The 7-day and weekly averages are applicable only to those effluent characteristics for which there are 7-day average effluent limitations. The calendar week, which begins on Sunday and ends on Saturday, shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms. Weekly averages shall be calculated for all calendar weeks with Saturdays in the month. If a calendar week overlaps two months (i.e., the Sunday is in one month and the Saturday in the following month), the weekly average calculated for that calendar week shall be included in the data for the month that contains Saturday.
2. The "30-day (and monthly) average," other than for *E. coli* bacteria, fecal coliform bacteria and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 30-day period or calendar month, whichever is applicable. Geometric means shall be calculated for *E. coli* bacteria, fecal coliform bacteria and total coliform bacteria. The calendar month shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms.
3. "Act," means the *Utah Water Quality Act*.
4. "Acute toxicity" occurs when 50 percent or more mortality is observed for either test species at any effluent concentration (lethal concentration or "LC₅₀").
5. "Annual Loading Cap" is the highest allowable phosphorus loading discharged over a calendar year, calculated as the sum of all the monthly loading discharges measured during a calendar year divided by the number of monthly discharges measured during that year.
6. "Bypass," means the diversion of waste streams from any portion of a treatment facility.
7. "Chronic toxicity" occurs when the IC₂₅ < XX% effluent. The XX% effluent is the concentration of the effluent in the receiving water, at the end of the mixing zone expressed as per cent effluent.
8. "IC₂₅" is the concentration of toxicant (given in % effluent) that would cause a 25% reduction in mean young per female, or a 25% reduction in overall growth for the test population.
9. "Composite Samples" shall be flow proportioned. The composite sample shall, as a minimum, contain at least four (4) samples collected over the compositing period. Unless otherwise specified, the time between the collection of the first sample and the last sample shall not be less than six (6) hours nor more than 24 hours. Acceptable methods for preparation of composite samples are as follows:

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- a. Constant time interval between samples, sample volume proportional to flow rate at time of sampling;
 - b. Constant time interval between samples, sample volume proportional to total flow (volume) since last sample. For the first sample, the flow rate at the time the sample was collected may be used;
 - c. Constant sample volume, time interval between samples proportional to flow (i.e., sample taken every "X" gallons of flow); and,
 - d. Continuous sample volume, with sample collection rate proportional to flow rate.
10. "CWA" means *The Federal Water Pollution Control Act*, as amended, by *The Clean Water Act of 1987*.
 11. "Daily Maximum" (Daily Max.) is the maximum value allowable in any single sample or instantaneous measurement.
 12. "EPA," means the United States Environmental Protection Agency.
 13. "Director," means Director of the Division of Water Quality.
 14. A "grab" sample, for monitoring requirements, is defined as a single "dip and take" sample collected at a representative point in the discharge stream.
 15. An "instantaneous" measurement, for monitoring requirements, is defined as a single reading, observation, or measurement.
 16. "Severe Property Damage," means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
 17. "Upset," means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

B. Biosolids.

1. "Biosolids," means any material or material derived from sewage solids that have been biologically treated.
2. "Dry Weight-Basis," means 100 percent solids (i.e. zero percent moisture).
3. "Land Application" is the spraying or spreading of biosolids onto the land surface; the injection of biosolids below the land surface; or the incorporation of biosolids into the land

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so that the biosolids can either condition the soil or fertilize crops or vegetation grown in the soil. Land application includes distribution and marketing (i.e. the selling or giving away of the biosolids).

4. "Pathogen," means an organism that is capable of producing an infection or disease in a susceptible host.
5. "Pollutant" for the purposes of this permit is an organic substance, an inorganic substance, a combination of organic and inorganic substances, or pathogenic organisms that after discharge and upon exposure, ingestion, inhalation, or assimilation into an organism either directly from the environment or indirectly by ingestion through the food-chain, could on the basis of information available to the Administrator of EPA, cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunction in reproduction), or physical deformations in either organisms or offspring of the organisms.
6. "Runoff" is rainwater, leachate, or other liquid that drains over any part of a land surface and runs off the land surface.
7. "Similar Container" is either an open or closed receptacle. This includes, but is not limited to, a bucket, a box, a carton, and a vehicle or trailer with a load capacity of one metric ton or less.
8. "Total Solids" are the materials in the biosolids that remain as a residue if the biosolids are dried at 103° or 105° Celsius.
9. "Treatment Works" are either Federally owned, publicly owned, or privately-owned devices or systems used to treat (including recycling and reclamation) either domestic sewage or a combination of domestic sewage and industrial waste or liquid manure.
10. "Vector Attraction" is the characteristic of biosolids that attracts rodents, fly's, mosquito's or other organisms capable of transporting infectious agents.
11. "Animals" for the purpose of this permit are domestic livestock.
12. "Annual Whole Sludge Application Rate" is the amount of sewage sludge (dry-weight basis) that can be applied to a unit area of land during a cropping cycle.
13. "Agronomic Rate" is the whole sludge application rate (dry-weight basis) designed to: (1) provide the amount of nitrogen needed by the crop or vegetation grown on the land; and (2) minimize the amount of nitrogen in the sewage sludge that passes below the root zone of the crop or vegetation grown on the land to the ground water.
14. "Annual Pollutant Loading Rate" is the maximum amount of a pollutant (dry-weight basis) that can be applied to a unit area of land during a 365-day period.
15. "Application Site or Land Application Site" means all contiguous areas of a users' property intended for sludge application.

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16. "Cumulative Pollutant Loading Rate" is the maximum amount of an inorganic pollutant (dry-weight basis) that can be applied to a unit area of land.
17. "Grit and Screenings" are sand, gravel, cinders, other materials with a high specific gravity and relatively large materials such as rags generated during preliminary treatment of domestic sewage at a treatment works and shall be disposed of according to *40 CFR 258*.
18. "High Potential for Public Contact Site" is land with a high potential for contact by the public. This includes, but is not limited to, public parks, ball fields, cemeteries, plant nurseries, turf farms, and golf courses.
19. "Low Potential for Public Contact Site" is the land with a low potential for contact by the public. This includes, but is not limited to, farms, ranches, reclamation areas, and other lands which are private lands, restricted public lands, or lands which are not generally accessible to or used by the public.
20. "Monthly Average" is the arithmetic mean of all measurements taken during the month.
21. "Volatile Solids" is the amount of the total solids in sewage sludge lost when the sludge is combusted at 550 degrees Celsius for 15-20 minutes in the presence of excess air.

**Central Valley 2023
Compliance Schedule
Modification FSSOB**

**FACT SHEET AND STATEMENT OF BASIS
CENTRAL VALLEY WATER RECLAMATION FACILITY
MODIFIED PERMIT: DISCHARGE, BIOSOLIDS, & REUSE
UPDES PERMIT NUMBER: UT0024392
UPDES BIOSOLIDS PERMIT NUMBER: UTL-024392
MAJOR MUNICIPAL**

FACILITY CONTACTS

Entity/Operator:	Central Valley Water Reclamation Facility
Person Name:	Phillip Heck PhD, P.E.
Position:	General Manager
Person Name:	Brandon Heidelberger, P.E.
Position:	Assistant General Manager
Person Name:	Bryan Mansell, P.E.
Position:	Chief Engineer
Person Name:	Edward Harrison
Position:	Laboratory Director
Person Name:	Gary Faulkner
Position:	Plant Superintendent
Facility Name:	Central Valley Water Reclamation Facility (Central Valley)
Mailing Address:	800 West Central Valley Road Salt Lake City, Utah 84119-3379
Telephone:	(801) 973-9100
Actual Address:	800 West Central Valley Road

DESCRIPTION OF FACILITY

Central Valley Water Reclamation Facility (Central Valley) was completed and in total operation in 1989. Central Valley is an interlocal agreement entity comprised of Cottonwood Improvement District, Mt. Olympus Improvement District, Granger-Hunter Improvement District, Kearns Improvement District, Murray City, City of South Salt Lake, and Taylorsville-Bennion Improvement District. The current design capacity is 75 MGD (average daily flow) for a population equivalent of 750,000. The organic design capacity is 125,000 pounds of BOD and 125,000 pounds of TSS. The plant consists of six mechanical bar screens, five headworks pumps, four aerated grit chambers followed by ten primary clarifiers, four trickling filters, six solids contact basins, twelve secondary clarifiers, four ultraviolet light disinfection channels, two reaeration channels, six anaerobic digesters, and three sludge belt presses. The ultraviolet disinfection system was installed in 2009 to replace the original chlorination / de-chlorination system from service which resulted in removal of the total residual chlorine limit from the permit.

Central Valley operates a disk filter to produce Type I reuse water during the spring and summer months. Reuse water fills the irrigation pond west of the facility which is then used to irrigate its golf course. The facility processes approximately 0.75-1.0 MGD of Type I water, or 1.3% of the total flow while in operation. Overflow from the irrigation pond could flow to Vitro Ditch but has never done so, as the water level is managed so that Type 1 reuse is only produced to supply golf course watering needs

The ponds at the golf course are filled with Type II reuse water. Over flows from these ponds goes to the old "Vitro Ditch" and back into Mill Creek. This flow rate is less than 100 gpm. Prior to 2020, the point of overflow was only noted in the permit, but not noted as an official outfall. The current, and ongoing upgrades at the facility have improved the quality and control of the reuse system, and the Reuse Outfall (002R) was added to the permit. Outfall 002R is from the golf course ponds to the Vitro ditch (unclassified). The receiving waters that control the effluent limits for outfall 002R are the same as for Central Valley's primary outfall 001; i.e., Mill Creek and the Jordan River.

The reuse water meets all the Outfall 001 effluent limits and requirements when it is collected prior to being discharged. The reuse water then receives additional treatment by filtration and chlorination before being monitored and sent to the reuse or golf course ponds. The water added to the golf course ponds is added to the first pond, then flows through the other two ponds in series prior to discharging to the Vitro ditch. Testing showed that during this flow path, the residual chlorine has enough time to dissipate prior to the discharge from the last pond.

Since the Reuse water in the golf course pond meets both Outfall 001 and Type II Reuse requirements prior to entering the ponds, and the only addition to the process (chlorination) dissipates prior to the discharge, it was decided that the outfall will only be monitored for the presence or absence of flow to the golf course ponds.

During the renewal process in 1999, Central Valley requested a reduction in monitoring frequency for all parameters except for WET. This request was granted and the frequencies were reduced to four (4) times a week from seven (7) times a week. This was done based on the Division of Water Quality's 1996 Performance Based Reduction of UPDES Monitoring Frequencies document.

During the 2010 permit cycle the DWQ determined that, historically, the receiving water was incorrectly assigned to the Jordan River and effluent was actually being discharged to Mill Creek. Also, DWQ used an improved model in 2015 to model dischargers to the Jordan River. Thus, the WLA for the 2015 renewal permit was developed accordingly. As a result of this change, effluent limits for many parameters have become more restrictive. As a result of this WLA and the use of an RP model an effluent limit for copper was added for the 2015 renewal.

Central Valley worked with Rocky Mountain Power to evaluate the facility and determine if there were any places they might be able to improve energy efficiency. One place that was noted is that if they were to measure the effluent dissolved oxygen (DO) after the cascade structure they could reduce the amount of energy required for aeration of the effluent in the post aeration channels. This change was granted during the 2015 renewal.

Instead of an effluent flow limit being added in the 2015 renewal permit, Central Valley requested that mass limits be included for water quality based effluent limits. The renewed permit added the following effluent mass loading limits for CBOD5, Ammonia (as N), and Total Copper.

TBPEL Rule

On December 16, 2014, the Utah Water Quality Board adopted *Utah Administrative Code (UAC) R317-1-3.3, Technology-Based Limits for Controlling Phosphorous Pollution*. The Technology-Based Phosphorous Effluent Limits (TBPEL) establishes new regulations for the discharge of phosphorus to surface waters and is self-implementing.

The TBPEL requires that all non-lagoon wastewater treatment works discharging wastewater to surface waters of the state shall provide treatment processes which will produce effluent less than or equal to an

annual mean of 1.0 mg/L for total phosphorus. This TBPEL shall be achieved by January 1, 2020 unless a variance has been granted by DWQ.

On March 27, 2017, DWQ approved the Central Valley TBPEL variance request with an interim total phosphorous annual average limit of 4.0 mg/L beginning January 1, 2020. This permit modification incorporated the approved variance with the interim limits and dates that were previously public noticed in the local newspaper, in which no comments were received. These changes were carried forward in the 2020 renewal. Central Valley was on schedule, and improvements were to be completed by January 1, 2025.

WET Guidance

In 2018 DWQ finalized and updated Whole Effluent Toxicity Permit and Enforcement Guidance and started following it in the development of all new or renewed permits. This would have been the first time the new WET Guidance was used in the Central Valley Permit. In line with the new WET Guidance, Central Valley requested, and DWQ approved the use of a CO₂ atmosphere to control pH drift in WET Samples.

Another change as a result of the WET Guidance update is the requirement that a facility discharging greater than 20 MGD will sample monthly. Prior to March of 2002 Central Valley was conducting WET test monthly. In 2002, Central Valley requested a reduction in WET testing frequency. The request was approved and the frequency was reduced to quarterly. The DWQ reviewed Central Valley's history of WET and will apply the updated WET policy to Central Valley although it was previously were approved to reduce the testing frequency. The WET testing frequency will be increased to monthly with alternating species until Central Valley can qualify for the reduction again.

Central Valley also expressed a concern that under certain circumstances a facility could fail a Chronic Wet Test, commence Accelerated testing and end up having the retesting overlap for multiple subsequent sampling events.

During the discussion of this possibility it was determined that the WET language and policy allows for the suspension of regularly scheduled WET testing during the accelerated testing period, and that providing the test was passed, the results of a passing accelerated test that extended over into the regular scheduled testing period could be used in place of that regularly scheduled WET Testing event. As a result, it was determined that when during the Chronic WET testing a failure occurs, and the permittee commences with the Accelerated Testing (Part I, C. 4, b and c of the permit), regularly scheduled Chronic WET testing requirements for that species are suspended until the conclusion of the Accelerated Testing to establish whether a pattern of toxicity exists.

WQBEL Changes from WLA

Prior to development of the WLA, the DWQ and the facilities that discharge to the Jordan River worked to get a better understanding of the flows in the river. Specifically, they worked on updating the understanding of the 7Q10 low flow for the Jordan River. As a result, the ammonia limits changed in the WLA for the facilities. Also, the the seasonal timing of the limits were adjusted to reflect the climatological seasons, and the flows in the Jordan River.

In the previous permit the chronic ammonia limit for October, and the acute ammonia limit for the Summer were from the Jordan River POTW WLA and are based on protection of downstream use, the rest of the ammonia limits were from the Mill Creek WLA. For the 2020 renewal, all the ammonia limits were from the Mill Creek WLA which is more stringent the those for the Jordan River POTW WLA.

Compliance Schedule

As a result of the ongoing plant upgrades and associated construction activities, Central Valley will need to make various operational changes until the completion of construction activities. The construction and plant upgrades were scheduled to be completed and fully operational by the end of December, 2024. In order to accommodate the plant construction and changes, DWQ added a compliance schedule to the permit (Part I.C.3) which synchronized the changes in monitoring requirements and effluent limits with construction completion; new effluent limits and monitoring requirements will not go into effect until January 1, 2025. This date is also when the Variance for the TBPEL Rule expires. Until January 1, 2025, the requirements and limits from the previous permit will remain in effect.

The Annual Report submission required in the Variance is included in the permit as a condition of the variance and requires Central Valley to report, in detail, on the progress of all the work that has been done, and the schedule of work still to be completed. This report will also count as an ongoing requirement of the compliance schedule.

Central Valley is located at 800 West Central Valley Road (about 3190 South) in South Salt Lake, Salt Lake County, Utah, with its Outfall 001 at latitude 40°42'30" and longitude 111°54'57".

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

Since the issuance of the renewal permit, several major global events have interrupted and delayed the construction efforts and work. As a result of these unanticipated interruptions, the whole of the upgrades will not be completed until 18 months after the initial expected deadline. Central valley has requested that the compliance deadline for meeting all the new effluent limit and monitoring requirements be extended until June 30, 2026. There will be no modification of the Reuse requirements.

The current permit Interim limits went into effect on June 1, 2020 and were going to end on December 31, 2024. The modification of the compliance schedule will extend the termination date to June 30, 2026.

Effluent Limits
Current Permit Effluent Limits Timeline
Interim Limits June 1, 2022 through December 31, 2024
Final Effluent Limits, January 1, 2025
Modified Permit Effluent Limits Timeline
Interim Limits June 1, 2022 through <u>June 30, 2026</u>
Final Effluent Limits, <u>July 1, 2026</u>
Monitoring Requirements
Current Permit Monitoring Requirements Timeline
Interim Requirements June 1, 2022 through December 31, 2024
Final Requirements, January 1, 2025 to
Modified Permit Monitoring Requirements Timeline
Interim Requirements June 1, 2022 through <u>June 30, 2026</u>
Final Requirements, <u>July 1, 2026</u>

The reporting required by the compliance schedule and Variance will also be extended until June 30, 2026.

It also has been identified that during the last renewal, when implementation of the new WET monitoring requirements was suspended until the end of the construction activities, the Previous Permits Chronic and Acute WET monitoring requirements were swapped. This will be corrected in this modification.

WET Limits and Monitoring Requirements		
Permit	Parameter	Frequency
April 1, 2017 through December 31, 2021		
2015 (Previous) Permit Requirements WET - Biomonitoring	WET - Biomonitoring Ceriodaphnia - Acute Ceriodaphnia – Chronic Fathead Minnows – Acute Fathead Minnows - Chronic	1 st , & 3 rd Quarter Quarterly 2 nd , & 4 th Quarter Quarterly
June 1, 2022 through December 31, 2024		
2020 (Current) Permit Requirements WET - Biomonitoring	WET - Biomonitoring Ceriodaphnia - Chronic Ceriodaphnia – Acute Fathead Minnows – Chronic Fathead Minnows - Acute	1 st , & 3 rd Quarter Quarterly 2 nd , & 4 th Quarter Quarterly
Requirements will be Modified to		
June 1 2022 to <u>June 30, 2026</u>		
Corrected Interim Requirements WET – Biomonitoring	WET – Biomonitoring <u>Ceriodaphnia - Acute</u> <u>Ceriodaphnia – Chronic</u> <u>Fathead Minnows – Acute</u> <u>Fathead Minnows – Chronic</u>	<u>1st, & 3rd Quarter</u> <u>Quarterly</u> <u>2nd, & 4th Quarter</u> <u>Quarterly</u>
<u>July 1, 2026 to permit expiration</u>		
Final Requirements WET - Biomonitoring	WET - Biomonitoring Ceriodaphnia – Chronic Fathead Minnows – Chronic	Monthly, Alternating Species Monthly, Alternating Species

DISCHARGE

The Corrected/Modified Effluent are indicated by being underlined and using bold font. The Effluent Limits are:

Parameter	Effluent Limitations *a					
	Concentration					Mass, lbs
	Average Monthly	Average Weekly	Annual Average	Daily Minimum	Daily Maximum	Average Monthly
Interim Limits June 1, 2022 through <u>June 30, 2026</u>						

Parameter	Effluent Limitations *a					
	Concentration					Mass, lbs
	Average Monthly	Average Weekly	Annual Average	Daily Minimum	Daily Maximum	Average Monthly
CBOD ₅ , mg/L						
Summer (Jul-Sep)	16.0	27.0	-	-	-	300,240
Fall (Oct-Dec)	20.0	28.0	-	-	-	375,300
Winter (Jan-Mar)	20.0	28.0	-	-	-	375,300
Spring (Apr-Jun)	20.0	28.0	-	-	-	375,300
BOD ₅ Min. % Removal	85	-	-	-	-	-
TSS, mg/L	25	35	-	-	-	-
TSS Min. % Removal	85	-	-	-	-	-
Dissolved Oxygen, mg/L	-	-	-	5.0	-	-
Total Ammonia (as N), mg/L						
Summer (Jul-Sep)	3.7	-	-	-	13.1	69,431
October	4.5	-	-	-	15.9	84,443
November-December	5.9	-	-	-	15.9	110,714
Winter (Jan-Mar)	5.8	-	-	-	12.3	108,837
Spring (Apr-Jun)	5.3	-	-	-	15.9	99,4555
Total Phosphorous, mg/L *c	-	-	4.0	-	-	-
<i>E. coli</i> , No./100mL	126	157	-	-	-	-
WET, Acute Biomonitoring	-	-	-	-	LC ₅₀ > 100% Effluent	-
WET, Chronic Biomonitoring	-	-	-	-	IC ₂₅ > RWC	-
Summer (Jul-Sep)	-	-	-	-	92% Eff.	-
Fall (Oct-Dec)	-	-	-	-	95% Eff.	-
Winter (Jan-Mar)	-	-	-	-	94% Eff.	-
Spring (Apr-Jun)	-	-	-	-	89% Eff.	-
Oil & Grease, mg/L	-	-	-	-	10.0	-
pH, Standard Units	-	-	-	6.5	9	-
Total Copper, mg/L	0.0233	-	-	-	-	437.2
Final Effluent Limits, July 1, 2026						
CBOD ₅ , mg/L						
Summer (Jul-Sep)	16.0	27.0	-	-	-	300,240
Fall (Oct-Dec)	20.0	28.0	-	-	-	375,300
Winter (Jan-Mar)	20.0	28.0	-	-	-	375,300
Spring (Apr-Jun)	20.0	28.0	-	-	-	375,300
BOD ₅ Min. % Removal	85	-	-	-	-	-
TSS, mg/L	25	35	-	-	-	-
TSS Min. % Removal	85	-	-	-	-	-
Dissolved Oxygen, mg/L	-	-	-	5.0	-	-

Parameter	Effluent Limitations *a					
	Concentration					Mass, lbs
	Average Monthly	Average Weekly	Annual Average	Daily Minimum	Daily Maximum	Average Monthly
Total Ammonia (as N), mg/L						
Summer (Jun-Aug)	3.6	-	-	-	4.7	67554
Fall (Sep - Nov)	3.8	-	-	-	5.4	71307
Winter (Dec - Feb)	3.7	-	-	-	6.4	69431
Spring (Mar -May)	3.8	-	-	-	5.4	71307
Total Phosphorous, mg/L			1.0			
<i>E. coli</i> , No./100mL	126	157	-	-	-	-
WET, Chronic Biomonitoring	-	-	-	-	IC ₂₅ > RWC	-
Summer (Jul-Sep)	-	-	-	-	85% Eff.	-
Fall (Oct-Dec)	-	-	-	-	92% Eff.	-
Winter (Jan-Mar)	-	-	-	-	97% Eff.	-
Spring (Apr-Jun)	-	-	-	-	92% Eff.	-
Oil & Grease, mg/L	-	-	-	-	10.0	-
pH, Standard Units	-	-	-	6.5	9	-
Total Copper, mg/L	0.0233	-	-	-	-	437.2
*a. See Definitions, Part VIII, for definition of terms						
*b. The chronic ammonia limit for October, and the acute ammonia limit for the Summer are from the Jordan River POTW WLA and are based on protection of downstream uses.						
*c. TBPEL of 4.0 mg/L went into effect on January 1, 2020.						
*d. The final limits go into effect on <u>July 1, 2026</u> .						

SELF-MONITORING AND REPORTING REQUIREMENTS

The following self-monitoring requirements are modified/corrected from 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. 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 Corrected/Modified Monitoring Requirements are indicated by being underlined and using bold font in the table below:

Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
Interim Requirements, June 1, 2022 through <u>June 30, 2026</u>			
Total Flow *e, *f	Continuous	Recorder	MGD
CBOD ₅ , Influent *g	4 x Weekly	Composite	mg/L, lbs
Effluent	4 x Weekly	Composite	mg/L, lbs
TSS, Influent *g	4 x Weekly	Composite	mg/L
Effluent	4 x Weekly	Composite	mg/L

Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
<i>E. coli</i>	4 x Weekly	Grab	No./100mL
pH	Daily	Grab	SU
Total Ammonia	4 x Weekly	Grab	mg/L, lbs
DO	Daily	Grab	mg/L
WET - Biomonitoring *h, *I Ceriodaphnia - Acute Ceriodaphnia – Chronic Fathead Minnows – Acute Fathead Minnows – Chronic	1st, & 3rd Quarter Quarterly 2nd, & 4th Quarter Quarterly	Composite Composite Composite Composite	Pass/Fail Pass/Fail Pass/Fail Pass/Fail
Oil & Grease *k	When Sheen Observed	Grab	mg/L
Total Ammonia (as N), *l	Monthly	Composite	mg/L
Orthophosphate (as P), *l Effluent	Monthly	Composite	mg/L
Total Phosphorus (as P), *l Influent	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Total Kjeldahl Nitrogen TKN (as N), *l Influent	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Nitrate, NO3 *l	Monthly	Composite	mg/L
Nitrite, NO2 *l	Monthly	Composite	mg/L
TDS	Monthly	Composite	mg/L
Effluent Metals			
Total Copper *m	Monthly	Composite *n	mg/L, lbs
Total Selenium *m	Monthly	Composite *n	mg/L
Total Mercury *m	Monthly	Grab *n	mg/L
Other Parameters			
Metals, (Pretreatment/RP) Influent	6 x Yearly *o	Grab/Composite *n	mg/L
Effluent	6 x Yearly *o	Grab/Composite *n	mg/L
Organic Toxics *p Influent	2 x Yearly *q	Grab/Composite *n	mg/L
Effluent	2 x Yearly *q	Grab/Composite *n	mg/L
Final Requirements, July 1, 2026			
Total Flow *e, *f	Continuous	Recorder	MGD
CBOD ₅ , Influent *g	4 x Weekly	Composite	mg/L, lbs
Effluent	4 x Weekly	Composite	mg/L, lbs
TSS, Influent *g	4 x Weekly	Composite	mg/L
Effluent	4 x Weekly	Composite	mg/L
<i>E. coli</i>	4 x Weekly	Grab	No./100mL
pH	Daily	Grab	SU

Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
Total Ammonia	4 x Weekly	Grab	mg/L, lbs
DO	Daily	Grab	mg/L
WET - Biomonitoring *h, *i Ceriodaphnia - Chronic Fathead Minnows - Chronic	Monthly with Alternating Species, *j	Composite Composite	Pass/Fail Pass/Fail
Oil & Grease *k	When Sheen Observed	Grab	mg/L
Total Ammonia (as N), *l	Monthly	Composite	mg/L
Orthophosphate (as P), *l Effluent	Monthly	Composite	mg/L
Total Phosphorus (as P), *l Influent	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Total Kjeldahl Nitrogen TKN (as N), *l Influent	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Nitrate, NO3 *l	Monthly	Composite	mg/L
Nitrite, NO2 *l	Monthly	Composite	mg/L
TDS	Monthly	Composite	mg/L
Effluent Metals			
Total Copper *m	Monthly	Composite *n	mg/L, lbs
Total Selenium *m	Monthly	Composite *n	mg/L
Total Mercury *m	Monthly	Grab *n	mg/L
Free Cyanide *m	Monthly	Grab *n	mg/L
Total Cadmium *m	Monthly	Composite *n	mg/L
Other Parameters			
Metals, (Pretreatment/RP) Influent	6 x Yearly *o	Grab/Composite *n	mg/L
Effluent	6 x Yearly *o	Grab/Composite *n	mg/L
Organic Toxics *p Influent	2 x Yearly *q	Grab/Composite *n	mg/L
Effluent	2 x Yearly *q	Grab/Composite *n	mg/L
*a. See Definitions, Part VIII, for definition of terms			
*e. 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.			
*f. If the rate of discharge is controlled, the rate and duration of discharge shall be reported.			
*g. 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			
*h. Failure of an individual WET test does not constitute a violation of the permit, so long as an investigation is initiated in accordance with the permit. If an alternate species is approved for WET testing, the permit will be modified accordingly without a public comment period.			
*i. Receiving Water Concentration (RWC) refers to the target receiving water concentration for the chronic WET test			

Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
*j. Chronic WET test on Ceriodaphnia and fathead minnows will be tested monthly, alternating between the two species.			
*k. Oil & Grease sampled when sheen is present or visible.			
*l. These reflect changes and additions required with the adoption of <i>UCA R317-1-3.3</i> , Technology-based Phosphorus Effluent Limit rule. The rule requires that all monitoring shall be based on 24-hour composite samples by use of an automatic sampler or a minimum of four grab samples collected a minimum of two hours a part. This collection method is only for the monthly samples being collected in compliance with the rule.			
*m. RP has shown that these metals need to be monitored for in the effluent at a higher frequency, and/or have an effluent limit associated with them.			
*n. Use the collection method for each parameter that is consistent with a corresponding EPA approved method stated in <i>40 CFR Part 136</i> or approved by the Director.			
*o. The pretreatment metals sampling must be done in January - February, March - April, May - June, July - August, September - October, and November - December of each year			
*p. The toxic pollutants are listed in <i>40 CFR 122 Appendix D Table II (Organic Toxic Pollutants)</i> The pesticides fraction of Appendix D, Table II is suspended unless pesticides are expected to be present.			
*q. The organic toxics must be sampled during the months of January - June and July - December each year.			

BIOSOLIDS

No changes to the Biosolids Program or requirement are included in this Permit Modification.

STORM WATER

No changes to the Storm Water Program or requirement are included in this Permit Modification.

PRETREATMENT REQUIREMENTS

No changes to the Pretreatment Program or requirement are included in this Permit Modification.

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 major municipal discharger, the renewal permit will again require WET testing. The permittee will continue Chronic WET testing using one species monthly, alternating between *Ceriodaphnia dubia* and *Pimephales promelas* (fathead minnow). The permit will contain the standard

requirements for re-testing upon failure of a WET test, and for a Toxicity Reduction Evaluation (TRE) as appropriate.

Since the permittee is a major municipal discharger, the renewal permit will again require whole effluent toxicity (WET) testing. At the beginning, Acute and Chronic quarterly biomonitoring will be again be required as described in the permit. As a result of the change in designation of receiving waters for the previous renewal, the Chronic Biomonitoring IC₂₅ concentrations changed greatly. The previous WLA included an IC₂₅ > 37%. The interim IC₂₅ concentrations for the renewal are listed in the table below, along with the final IC₂₅ concentrations. The IC₂₅ concentration is the inhibition concentration of toxicant (given in % effluent) that would cause a 25% reduction in mean young per female) or a 25% reduction in overall growth for the test Population.

Chronic toxicity occurs when the survival, growth, or reproduction for either test species, when exposed to a dilution of RWC% effluent or lower, is significantly less (at 95% confidence level) than that of the control specimens. The RWC% effluent dilution criterion is based upon the waste load analysis and is consistent with previous permit conditions. The permit will also contain a toxicity limitation re-opener provision. This provision allows for modification of the permit at any time to include WET limitations and/or increased WET monitoring, should additional information indicate the presence of toxicity in the discharge.

Seasonal Chronic WET RWC Limits, From WLA		
Season	Chronic WET IC ₂₅ RWC% Effluent	
	Interim RWC	Final RWC
Summer (Jul-Sep)	92% Eff.	85% Eff.
Fall (Oct-Dec)	95% Eff.	92% Eff.
Winter (Jan-Mar)	94% Eff.	97% Eff.
Spring (Apr-Jun)	89% Eff.	92% Eff.

PERMIT DURATION

It is recommended that this permit be effective for the remainder of the original permits five (5) year duration, and will expire on December 31, 2026.

Drafted and Reviewed by
Daniel Griffin, Discharge Permit Writer
Lonnie Shull, Biomonitoring
Utah Division of Water Quality, (801) 536-4300

PUBLIC NOTICE

Began: August 28, 2023
Ended: Sept 29, 2023

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 Division of Water Quality Public Notice Webpage.

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.

There were no comments received regarding this permit modification

DWQ-2023-118814

ATTACHMENT 1

Wasteload Analysis
(DWQ-2022-002282)

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**Utah Division of Water Quality
Statement of Basis
Wasteload Analysis for Jordan River POTWs (Central Valley)**

Date: October 21, 2021

Prepared by: Nicholas von Stackelberg, P.E., Watershed Protection Section
Chris Shope, Ph.D., Standards and Technical Services Section
Suzan Tahir, Standards and Technical Services Section

Facility: Central Valley Water Reclamation Facility
UPDES No. UT-0024392

Receiving water: Mill Creek

This addendum summarizes the wasteload analysis that was performed to determine water quality based effluent limits (WQBEL) for this discharge. Wasteload analyses are performed to determine point source effluent limitations necessary to maintain designated beneficial uses by evaluating projected effects of discharge concentrations on in-stream water quality. The wasteload analysis also takes into account downstream designated uses (UAC R317-2-8). Projected concentrations are compared to numeric water quality standards to determine acceptability. The numeric criteria in this wasteload analysis may be modified by narrative criteria and other conditions determined by staff of the Division of Water Quality.

Discharge

Outfall 001: Mill Creek → Jordan River

The design flow for Outfall 001 is 75.0 MGD maximum monthly average and 61.0 MGD daily maximum flow.

Effluent discharge water quality data was obtained from monitoring site 4992500 Central Valley WWTP. The seasonal average was calculated for temperature, pH and hardness.

Receiving Water

The receiving water for Outfall 001 is Mill Creek, which is tributary to the Jordan River.

Per UAC R317-2-13.10, the designated beneficial uses for Mill Creek from confluence with Jordan River to Interstate Highway 15 (AU: UT16020204-026_00) are: 2B, 3C, and 4.

- *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 3C - Protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain.*
- *Class 4 - Protected for agricultural uses including irrigation of crops and stock watering.*

Utah Division of Water Quality
Wasteload Analysis
Central Valley Water Reclamation Facility
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Typically, the critical flow for the wasteload analysis is considered the lowest stream flow for seven consecutive days with a ten-year return frequency (7Q10). The seasonal 7Q10 flows calculated in the *Jordan River Low Flow Analysis* report (Hansen Allen and Luce, 2021) were used for the critical low flows for the POTWs, tributaries and diversions along the Jordan River. Upstream flow data from DWQ 4992505 MILL CK. AB CENTRAL VALLEY WWTP OUTFALL were used to evaluate ambient, background flow conditions.

Table 1: Mill Creek critical low flow (7Q10)

Season	Flow (cfs)
Summer	21.0
Fall	10.0
Winter	3.0
Spring	10.0
Annual	15.6

Receiving water quality data was obtained from monitoring site DWQ 4992505 MILL CK. AB CENTRAL VALLEY WWTP OUTFALL. The average seasonal value was calculated for background conditions.

Mixing Zone

Per UAC R317-2-5, since the discharge is more than twice the background receiving water flow, the discharge is considered instantaneously fully mixed. Therefore, no mixing zone is allowed.

Protection of Downstream Uses

Per UAC R317-2-8, *all actions to control waste discharges under these rules shall be modified as necessary to protect downstream designated uses.* The effluent limits for the discharge to the Jordan River were determined as part of the Jordan River POTW WLA. Any WQBELs that are lower in the Jordan River POTW WLA will supersede those for the Mill Creek WLA.

TMDL

Mill Creek is listed as impaired for E. coli and benthic macroinvertebrates according to the 303(d) list in the 2016 Integrated Report. Downstream segments of the Jordan River are listed for dissolved oxygen (DO), total phosphorus (TP), dissolved copper, total dissolved solids (TDS), E coli, and benthic macroinvertebrates. Phase 1 of the Jordan River TMDL determined that total organic matter is the parameter of concern for the DO impairment in the Jordan River (Cirrus Ecological Solutions and Stantec Consulting, 2013).

The 303(d) list of impairments for the Jordan River, Mill Creek, and State Canal is summarized in the Utah *Combined 2018/2020 303(d) [Water Quality Assessment Report](#) dated February 9, 2021.* The impaired parameters for Mill Creek 1-SLCity, Mill Creek from confluence with Jordan River to Interstate 15 crossing (UT16020204-026_00) are E. coli and Bioassessment/Macroinvertebrates. The E. coli impairment in the Jordan River watershed is currently being identified and addressed through a Total Maximum Daily Load Study within Utah DWQ.

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Parameters of Concern

The parameters of concern considered in this wasteload allocation are total ammonia (TAN) and total recoverable metals. Due to ongoing studies related to the TMDL, this wasteload allocation does not address parameters related to dissolved oxygen, including biochemical oxygen demand (BOD), dissolved oxygen (DO), total nitrogen (TN), and total phosphorus (TP).

Water Quality Modeling

A QUAL2Kw model of the Jordan River was populated and calibrated as part of the TMDL study (Stantec Consulting 2010, UDWQ 2010). The model was subsequently validated to a synoptic survey conducted by UDWQ and the Jordan River/Farmington Bay Water Quality Council (JRFBWQC) during July 2014 (UDWQ 2015). The model validation identified areas for future improvement of the model; however, the model was considered suitable for application to the wasteload allocation for ammonia.

The TMDL model of the Jordan River extends 52.4 miles from the outlet of Utah Lake to Burton Dam. For the purposes of the WLA, the model was split at Burnham Dam (approximately 1.7 miles upstream of Burton Dam) and extended down State Canal to the Farmington Bay Waterfowl Management Area (approximately 3.5 miles downstream from Burnham Dam). The following point sources were added to the State Canal: A-1 Drain, South Davis Sewer District North WWTP, and outlet channel from Bountiful Pond (Mill Creek and Stone Creek). In addition, the Jordan Basin WRF discharge was added to the Jordan River, as this discharge was not active at the time of the TMDL model development.

The Jordan River WLA QUAL2Kw model was used for determining the WQBEL for ammonia. Effluent concentrations were adjusted up to the current permit limits so that water quality criteria were not exceeded in the receiving water. The current permit limits for DO and CBOD were used in the model and not modified due to the ongoing TMDL. Background conditions for each plant were characterized by assuming each upstream plant was operating at the low flow rate with average ammonia concentration in the effluent. For calculating the chronic ammonia criterion, fish early life stages (ELS) were assumed to be present during all seasons except downstream of the SDS D plants, which ELS were assumed to be present from March through October.

A mass balance spreadsheet tool was developed to calculate the WLA for conservative constituents such as metals. The limiting flow condition at each facility was typically the winter season; however, seasonal averages were used for the allocations. Each wastewater treatment plant was granted a full allocation at the point of discharge. Background condition for each plant was characterized by either a single or combined, multiple monitoring location data. The WQBEL limits are shown in Table 2.

The calibration, validation and wasteload models are available for review by request.

**Utah Division of Water Quality
Wasteload Analysis
Central Valley Water Reclamation Facility
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Table 2: Water Quality Based Effluent Limits Summary

Effluent Constituent	Averaging Period	Central Valley
Flow (MGD)	Monthly	75
Ammonia Acute (mg/L)	Daily	
Summer (Jun-Aug)		4.7
Fall (Sep-Nov)		5.4
Winter (Dec-Feb)		6.4
Spring (Mar-May)		5.4
Ammonia Chronic (mg/L)	Monthly	
Summer (Jun-Aug)		3.6
Fall (Sep-Nov)		3.8
Winter (Dec-Feb)		3.7
Spring (Mar-May)		3.8
a: Limit due to impairment of receiving segment.		
b: Ultraviolet disinfection utilized, hence no limit for TRC		

WET Limits

The percent of effluent in the receiving water in a fully mixed condition, and acute and chronic dilution in a not fully mixed condition are calculated in the WLA in order to generate WET limits. The LC₅₀ (lethal concentration, 50%) percent effluent for acute toxicity and the IC₂₅ (inhibition concentration, 25%) percent effluent for chronic toxicity, as determined by the WET test, needs to be below the WET limits, as determined by the WLA. The WET limit for LC₅₀ is typically 100% effluent and does not need to be determined by the WLA.

Table 4: WET Limits for IC₂₅

Receiving Water	Percent Effluent
Central Valley WRF – Mill Creek	96.9%

Effluent Limits

The water quality based effluent limits determined as part of this combined wasteload allocation are summarized in Table 2.

For parameters without a WQBEL, permit limits should be set according to rules found in R317-1-3 and categorical UPDES discharge requirements.

Documents:

WLA Document: *CVWRF_WLA_MC_2021.docx*
 Mill Creek Wasteload Analysis: *CVWRF_WLA_MC_2021.xlsm*
 Jordan River Wasteload Analysis: *CVWRF_WLA_JR_2021.xlsm*

References:

Cirrus Ecological Solutions and Stantec Consulting. 2013. Jordan River Total Maximum Daily Load Water Quality Study – Phase 1. Prepared for State of Utah, Department of Environmental Quality, Division of Water Quality.

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Hansen, Allen and Luce Inc. 2021. Jordan River Low Flow Analysis. Wasatch Front Water Quality Council and South Davis Sewer District.

Neilson, B.T., A.J. Hobson, N. von Stackelberg, M. Shupryt, and J.D. Ostermiller. 2012. Using QUAL2K Modeling to Support Nutrient Criteria Development and Wasteload Analyses in Utah. Prepared for State of Utah, Department of Environmental Quality, Division of Water Quality.

Stantec Consulting. 2010. Jordan River TMDL: 2010 QUAL2Kw Model Calibration Technical Memo Public Draft. Prepared for State of Utah, Department of Environmental Quality, Division of Water Quality. February 22, 2010. 18 pp.

Utah DWQ. 2010. Jordan River TMDL QUAL2Kw model refinement. Prepared by N. Von Stackelberg P.E., State of Utah, Department of Environmental Quality, Division of Water Quality.

Utah DWQ. 2021. Utah Wasteload Analysis Procedures Version 2.0. State of Utah, Department of Environmental Quality, Division of Water Quality.

Utah DWQ 2012. Field Data Collection for QUAL2Kw Model Build and Calibration Standard Operating Procedures Version 1.0. State of Utah, Department of Environmental Quality, Division of Water Quality.

Utah DWQ. 2015. Jordan River Summer 2014 Synoptic Survey and QUAL2Kw Model Validation Report. Prepared by N. Von Stackelberg P.E., State of Utah, Department of Environmental Quality, Division of Water Quality.

Utah DWQ. 2021. Utah's Combined 2018/2020 303(d) Water Quality Assessment Report. August 2021. State of Utah, Department of Environmental Quality, Division of Water Quality.

Lower Mill Creek and Jordan River Early Life Stage Review. Memorandum from Ben Holcomb dated May 20, 2016. Utah Division of Water Quality.

Criteria Support Document: Site-specific criteria for recalculation of the USEPA 2013 aquatic life ammonia water quality criteria for a segment of Mill Creek and the Jordan River, Salt Lake County, Utah. November 21, 2018 Review Draft. Utah Division of Water Quality.

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WASTELOAD ANALYSIS [WLA] [REDACTED] = not included in the WLA
Addendum: Statement of Basis

21-Oct-21
4:00 PM

Facilities: Central Valley Water Reclamation Facility
Discharging to: Mill Creek

UPDES No: UT-0024392

I. Introduction

Wasteload analyses are performed to determine point source effluent limitations necessary to maintain designated beneficial uses by evaluating projected effects of discharge concentrations on in-stream water quality. The wasteload analysis also takes into account downstream designated uses [R317-2-8, UAC]. Projected concentrations are compared to numeric water quality standards to determine acceptability. The anti-degradation policy and procedures are also considered. The primary in-stream parameters of concern may include metals (as a function of hardness), total dissolved solids (TDS), total residual chlorine (TRC), un-ionized ammonia (as a function of pH and temperature, measured and evaluated in terms of total ammonia), and dissolved oxygen.

Mathematical water quality modeling is employed to determine stream quality response to point source discharges. Models aid in the effort of anticipating stream quality at future effluent flows at critical environmental conditions (e.g., low stream flow, high temperature, high pH, etc).

The numeric criteria in this wasteload analysis may always be modified by narrative criteria and other conditions determined by staff of the Division of Water Quality.

II. Receiving Water and Stream Classification

Mill Creek: 2B,3A,4
Antidegradation Review: Level I review completed. Level II review is not required.

III. Numeric Stream Standards for Protection of Aquatic Wildlife

Total Ammonia (TNH3)	Varies as a function of Temperature and pH Rebound. See Water Quality Standards
Chronic Total Residual Chlorine (TRC)	0.011 mg/l (4 Day Average) 0.019 mg/l (1 Hour Average)
Chronic Dissolved Oxygen (DO)	6.5 mg/l (30 Day Average) 5.0 mg/l (7Day Average) 4.0 mg/l (1 Day Average)
Maximum Total Dissolved Solids	1200.0 mg/l

Acute and Chronic Heavy Metals (Dissolved)

Parameter	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard		
	Concentration	Load*	Concentration		Load*
Aluminum	87.00 ug/l**	54.415 lbs/day	750.00	ug/l	469.092 lbs/day
Arsenic	150.00 ug/l	93.818 lbs/day	340.00	ug/l	212.655 lbs/day
Cadmium	1.95 ug/l	1.221 lbs/day	5.77	ug/l	3.606 lbs/day
Chromium III	218.12 ug/l	136.422 lbs/day	4563.40	ug/l	2,854.205 lbs/day
ChromiumVI	11.00 ug/l	6.880 lbs/day	16.00	ug/l	10.007 lbs/day
Copper	24.58 ug/l	15.374 lbs/day	40.74	ug/l	25.483 lbs/day
Iron			1000.00	ug/l	625.456 lbs/day
Lead	13.47 ug/l	8.427 lbs/day	345.75	ug/l	216.253 lbs/day
Mercury	0.0120 ug/l	0.008 lbs/day	2.40	ug/l	1.501 lbs/day
Nickel	136.13 ug/l	85.141 lbs/day	1224.36	ug/l	765.785 lbs/day
Selenium	4.60 ug/l	2.877 lbs/day	20.00	ug/l	12.509 lbs/day
Silver	N/A ug/l	N/A lbs/day	26.60	ug/l	16.639 lbs/day
Zinc	313.14 ug/l	195.853 lbs/day	313.14	ug/l	195.853 lbs/day

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* Allowed below discharge

**Chronic Aluminum standard applies only to waters with a pH < 7.0 and a Hardness < 50 mg/l as CaCO3

Metals Standards Based upon a Hardness of 310.75 mg/l as CaCO3

IV. Numeric Stream Standards for Protection of Agriculture

	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Arsenic			100.0 ug/l	lbs/day
Boron			750.0 ug/l	lbs/day
Cadmium			10.0 ug/l	3.13 lbs/day
Chromium			100.0 ug/l	lbs/day
Copper			200.0 ug/l	lbs/day
Lead			100.0 ug/l	lbs/day
Selenium			50.0 ug/l	lbs/day
TDS, Summer			1200.0 mg/l	375.27 tons/day

V. Numeric Stream Standards for Protection of Human Health (Class 1C Waters)

Metals	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Arsenic			ug/l	lbs/day
Barium			ug/l	lbs/day
Cadmium			ug/l	lbs/day
Chromium			ug/l	lbs/day
Lead			ug/l	lbs/day
Mercury			ug/l	lbs/day
Selenium			ug/l	lbs/day
Silver			ug/l	lbs/day
Fluoride (3)			ug/l	lbs/day
to			ug/l	lbs/day
Nitrates as N			ug/l	lbs/day

VI. Numeric Stream Standards the Protection of Human Health from Water & Fish Consumption [Toxics]

Metals	Maximum Conc., ug/l - Acute Standards			
	Class 1C		Class 3A, 3B	
Antimony	ug/l	lbs/day		
Arsenic	ug/l	lbs/day	4300.00 ug/l	3175.83 lbs/day
Asbestos	ug/l	lbs/day		
Beryllium				
Cadmium				
Chromium (III)				
Chromium (VI)				
Copper				
Cyanide	ug/l	lbs/day	2.2E+05 ug/l	162484.25 lbs/day
Lead	ug/l	lbs/day		
Mercury			0.15 ug/l	0.11 lbs/day
Nickel			4600.00 ug/l	3397.40 lbs/day
Selenium	ug/l	lbs/day		
Silver	ug/l	lbs/day		
Thallium			6.30 ug/l	4.65 lbs/day
Zinc				

There are additional standards that apply to this receiving water, but were not considered in this modeling/waste load allocation analysis.

VII. Mathematical Modeling of Stream Quality

Model configuration was accomplished utilizing standard modeling procedures. Data points were plotted and coefficients adjusted as required to match observed data as closely as possible.

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The modeling approach used in this analysis included one or a combination of the following models.

- (1) The Utah River Model, Utah Division of Water Quality, 1992. Based upon STREAMDO IV (Region VIII) and Supplemental Ammonia Toxicity Models; EPA Region VIII, Sept. 1990 and QUAL2E (EPA, Athens, GA).
- (2) Utah Ammonia/Chlorine Model, Utah Division of Water Quality, 1992.
- (3) AMMTOX Model, University of Colorado, Center of Limnology, and EPA Region 8
- (4) Principles of Surface Water Quality Modeling and Control. Robert V. Thomann, et.al. Harper Collins Publisher, Inc. 1987, pp. 644.

Coefficients used in the model were based, in part, upon the following references:

- (1) Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling. Environmental Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Athens Georgia. EPA/600/3-85/040 June 1985.
- (2) Principles of Surface Water Quality Modeling and Control. Robert V. Thomann, et.al. Harper Collins Publisher, Inc. 1987, pp. 644.

VIII. Modeling Information

The required information for the model may include the following information for both the upstream conditions at low flow and the effluent conditions:

Flow, Q, (cfs or MGD)	D.O. mg/l
Temperature, Deg. C.	Total Residual Chlorine (TRC), mg/l
pH	Total NH3-N, mg/l
BOD5, mg/l	Total Dissolved Solids (TDS), mg/l
Metals, ug/l	Toxic Organics of Concern, ug/l

Other Conditions

In addition to the upstream and effluent conditions, the models require a variety of physical and biological coefficients and other technical information. In the process of actually establishing the permit limits for an effluent, values are used based upon the available data, model calibration, literature values, site visits and best professional judgement.

Model Inputs

The following is upstream and discharge information that was utilized as inputs for the analysis. Dry washes are considered to have an upstream flow equal to the flow of the discharge.

Current Upstream Information

	Stream		Critical Low						
	Flow	Temp.	pH	T-NH3	BOD5	DO	TRC	TDS	
	cfs	Deg. C		mg/l as N	mg/l	mg/l	mg/l	mg/l	
Summer (Irrig. Season)	21.0	18.9	7.9	0.03	1.50	7.15	0.03	822.4	
Fall	10.0	7.9	7.8	0.03	1.50	---	0.00	639.0	
Winter	3.0	8.2	7.8	0.02	1.50	---	0.00	639.0	
Spring	10.0	12.7	7.9	0.03	2.20	---	0.07	639.0	
Dissolved Metals	Al	As	Cd	CrIII	CrVI	Copper	Fe	Pb	
	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
All Seasons	238.00	3.16	0.07	1.31	2.65*	1.28	0.0	0.15	

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Salt Lake City, Utah**

Dissolved Metals All Seasons	Hg ug/l 0.0000	Ni ug/l 2.50	Se ug/l 1.08	Ag ug/l 0.25	Zn ug/l 8.22	Boron ug/l 10.0	* 1/2 MDL
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Projected Discharge Information

Season	Flow, MGD	Temp.	TDS mg/l	TDS tons/day
Summer	75.00000	NA	982.67	307.26746
Fall	75.00000	NA		
Winter	75.00000	NA		
Spring	75.00000	NA		

All model numerical inputs, intermediate calculations, outputs and graphs are available for discussion, inspection and copy at the Division of Water Quality.

IX. Effluent Limitations

Current State water quality standards are required to be met under a variety of conditions including in-stream flows targeted to the 7-day, 10-year low flow (R317-2-9).

Other conditions used in the modeling effort coincide with the environmental conditions expected at low stream flows.

Effluent Limitation for Flow based upon Water Quality Standards

In-stream criteria of downstream segments will be met with an effluent flow maximum value as follows:

Season	Daily Average	
Summer	75.000 MGD	116.025 cfs
Fall	75.000 MGD	116.025 cfs
Winter	75.000 MGD	116.025 cfs
Spring	75.000 MGD	116.025 cfs

Flow Requirement or Loading Requirement

The calculations in this wasteload analysis utilize the maximum effluent discharge flow of 75 MGD. If the discharger is allowed to have a flow greater than 75 MGD during 7Q10 conditions, and effluent limit concentrations as indicated, then water quality standards will be violated. In order to prevent this from occurring, the permit writers must include the discharge flow limitation as indicated above; or, include loading effluent limits in the permit.

Effluent Limitation for Whole Effluent Toxicity (WET) based upon WET Policy

Effluent Toxicity will not occur in downstream segments if the values below are met.

Season	Receiving			Combined Flow (cfs)	Totally Mixed	Chronic IC25 % Effluent	Acute LC50 % Effluent
	Water Flow (cfs)	Effluent Flow (MGD)	Effluent Flow (cfs)				
Summer	21.00	75.0	116.0	137.0	YES	84.7%	EOP
Fall	10.00	75.0	116.0	126.0	YES	92.1%	EOP
Winter	3.00	75.0	116.0	119.0	YES	97.5%	EOP
Spring	10.00	75.0	116.0	126.0	YES	92.1%	EOP

Effluent Limitation for Total Ammonia based upon Water Quality Standards

In-stream criteria of downstream segments for Total Ammonia will be met with an effluent

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Salt Lake City, Utah**

limitation (expressed as Total Ammonia as N) as follows:

Season	Concentration		Load	
Summer	4 Day Avg. - Chronic	2.9 mg/l as N	1,813.6	lbs/day
	1 Hour Avg. - Acute	10.3 mg/l as N	6,426.7	lbs/day
Fall	4 Day Avg. - Chronic	3.4 mg/l as N	2,103.5	lbs/day
	1 Hour Avg. - Acute	12.5 mg/l as N	7,791.6	lbs/day
Winter	4 Day Avg. - Chronic	3.5 mg/l as N	2,173.9	lbs/day
	1 Hour Avg. - Acute	13.0 mg/l as N	8,153.0	lbs/day
Spring	4 Day Avg. - Chronic	3.2 mg/l as N	1,990.7	lbs/day
	1 Hour Avg. - Acute	11.6 mg/l as N	7,232.7	lbs/day

Acute limit calculated with an Acute Zone of Initial Dilution (ZID) to be equal to 100.%.

**Effluent Limitations for Total Recoverable Metals based upon
Water Quality Standards**

In-stream criteria of downstream segments for Dissolved Metals will be met with an effluent limitation as follows (based upon a hardness of 310.75 mg/l):

	4 Day Average		1 Hour Average		Load
	Concentration	Load	Concentration	Load	
Aluminum	N/A	N/A	796.3	ug/l	498.1 lbs/day
Arsenic	176.58 ug/l	71.4 lbs/day	370.5	ug/l	231.7 lbs/day
Cadmium	2.29 ug/l	0.9 lbs/day	6.3	ug/l	3.9 lbs/day
Chromium III	257.36 ug/l	104.0 lbs/day	4,976.3	ug/l	3112.4 lbs/day
Chromium VI	12.27 ug/l	5.0 lbs/day	17.1	ug/l	10.7 lbs/day
Copper	28.80 ug/l	11.6 lbs/day	44.3	ug/l	27.7 lbs/day
Iron	N/A	N/A	1,090.5	ug/l	682.1 lbs/day
Lead	15.89 ug/l	6.4 lbs/day	377.0	ug/l	235.8 lbs/day
Mercury	0.01 ug/l	0.0 lbs/day	2.6	ug/l	1.6 lbs/day
Nickel	160.31 ug/l	64.8 lbs/day	1,334.9	ug/l	834.9 lbs/day
Selenium	5.24 ug/l	2.1 lbs/day	21.7	ug/l	13.6 lbs/day
Silver	N/A ug/l	N/A lbs/day	29.0	ug/l	18.1 lbs/day
Zinc	368.32 ug/l	148.9 lbs/day	340.7	ug/l	213.1 lbs/day
Cyanide	6.14 ug/l	2.5 lbs/day	24.0	ug/l	15.0 lbs/day

**Effluent Limitations for Heat/Temperature based upon
Water Quality Standards**

Summer	21.1 Deg. C.	69.9 Deg. F
Fall	10.0 Deg. C.	50.0 Deg. F
Winter	10.2 Deg. C.	50.4 Deg. F
Spring	14.8 Deg. C.	58.6 Deg. F

**Effluent Targets for Pollution Indicators
Based upon Water Quality Standards**

In-stream criteria of downstream segments for Pollution Indicators will be met with an effluent limit as follows:

	1 Hour Average	
	Concentration	Loading
Gross Beta (pCi/l)	50.0 pCi/L	

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BOD (mg/l)	5.0 mg/l	3127.3 lbs/day
Nitrates as N	4.0 mg/l	2501.8 lbs/day
Total Phosphorus as P	0.05 mg/l	31.3 lbs/day
Total Suspended Solids	90.0 mg/l	56291.0 lbs/day

Note: Pollution indicator targets are for information purposes only.

**Effluent Limitations for Protection of Human Health [Toxics Rule]
Based upon Water Quality Standards (Most stringent of 1C or 3A & 3B as appropriate.)**

In-stream criteria of downstream segments for Protection of Human Health [Toxics] will be met with an effluent limit as follows:

	Maximum Concentration	
	Concentration	Load
Metals		
Antimony	ug/l	lbs/day
Arsenic	ug/l	lbs/day
Asbestos	ug/l	lbs/day
Beryllium		
Cadmium		
Chromium (III)		
Chromium (VI)		
Copper	ug/l	lbs/day
Cyanide	ug/l	lbs/day
Lead		
Mercury	ug/l	lbs/day
Nickel	ug/l	lbs/day
Selenium		
Silver		
Thallium	ug/l	lbs/day
Zinc		

**Metals Effluent Limitations for Protection of All Beneficial Uses
Based upon Water Quality Standards and Toxics Rule**

	Class 4 Acute Agricultural ug/l	Class 3 Acute Aquatic Wildlife ug/l	Acute Toxics Drinking Water Source ug/l	Acute Toxics Wildlife ug/l	1C Acute Health Criteria ug/l	Acute Most Stringent ug/l	Class 3 Chronic Aquatic Wildlife ug/l
Aluminum		796.3				796.3	N/A
Antimony				5078.3		5078.3	
Arsenic	118.1	370.5			0.0	118.1	176.6
Asbestos						0.00E+00	
Barium						0.0	
Beryllium						0.0	
Cadmium	11.8	6.3			0.0	6.3	2.3
Chromium (III)		4976.3			0.0	4976.3	257.4
Chromium (VI)	117.9	17.1			0.0	17.09	12.27
Copper	236.0	44.3				44.3	28.8
Cyanide		24.0	259819.0			24.0	6.1
Iron		1090.5				1090.5	
Lead	118.1	377.0			0.0	118.1	15.9
Mercury		2.62		0.18	0.0	0.18	0.014
Nickel		1334.9		5432.6		1334.9	160.3
Selenium	58.9	21.7			0.0	21.7	5.2
Silver		29.0			0.0	29.0	
Thallium				7.4		7.4	
Zinc		340.7				340.7	368.3
Boron	885.7					885.7	

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Salt Lake City, Utah**

Summary Effluent Limitations for Metals [Wasteload Allocation, TMDL]

[If Acute is more stringent than Chronic, then the Chronic takes on the Acute value.]

	WLA Acute ug/l	WLA Chronic ug/l	
Aluminum	796.3	N/A	
Antimony	5078.28		
Arsenic	118.1	176.6	Acute Controls
Asbestos	0.00E+00		
Barium			
Beryllium			
Cadmium	6.3	2.3	
Chromium (III)	4976.3	257	
Chromium (VI)	17.1	12.3	
Copper	44.3	28.8	
Cyanide	24.0	6.1	
Iron	1090.5		
Lead	118.1	15.9	
Mercury	0.177	0.014	
Nickel	1334.9	160	
Selenium	21.7	5.2	
Silver	29.0	N/A	
Thallium	7.4		
Zinc	340.7	368.3	Acute Controls
Boron	885.72		

X. Antidegradation Considerations

The Utah Antidegradation Policy allows for degradation of existing quality where it is determined that such lowering of water quality is necessary to accommodate important economic or social development in the area in which the waters are protected [R317-2-3]. It has been determined that certain chemical parameters introduced by this discharge will cause an increase of the concentration of said parameters in the receiving waters. Under no conditions will the increase in concentration be allowed to interfere with existing instream water uses.

The antidegradation rules and procedures allow for modification of effluent limits less than those based strictly upon mass balance equations utilizing 100% of the assimilative capacity of the receiving water. Additional factors include considerations for "Blue-ribbon" fisheries, special recreational areas, threatened and endangered species, and drinking water sources.

An Antidegradation Level I Review was conducted on this discharge and its effect on the receiving water. Based upon that review, it has been determined that an Antidegradation Level II Review is not required.

XI. Colorado River Salinity Forum Considerations

Discharges in the Colorado River Basin are required to have their discharge at a TDS loading of less than 1.00 tons/day unless certain exemptions apply. Refer to the Forum's Guidelines for additional information allowing for an exceedence of this value.

This doesn't apply to facilities that do not discharge to the Colorado River Basin.

XII. Summary Comments

The mathematical modeling and best professional judgement indicate that violations of receiving water beneficial uses with their associated water quality standards, including important down-stream segments, will not occur for the evaluated parameters of concern as discussed above if the effluent limitations indicated above are met.

XIII. Notice of UPDES Requirement

**Utah Division of Water Quality
Salt Lake City, Utah**

This Addendum to the Statement of Basis does not authorize any entity or party to discharge to the waters of the State of Utah. That authority is granted through a UPDES permit issued by the Utah Division of Water Quality. The numbers presented here may be changed as a function of other factors. Dischargers are strongly urged to contact the Permits Section for further information. Permit writers may utilize other information to adjust these limits and/or to determine other limits based upon best available technology and other considerations provided that the values in this wasteload analysis [TMDL] are not compromised. See special provisions in Utah Water Quality Standards for adjustments in the Total Dissolved Solids values based upon background concentration.

Utah Division of Water Quality
801-538-6052
File Name: CVWRF_WLA_2021.xlsm

APPENDIX - Coefficients and Other Model Information

CBOD Coeff. (Kd)20 1/day 2.000	CBOD Coeff. FORCED (Kd)/day 0.000	CBOD Coeff. (Ka)T 1/day 1.899	REAER. Coeff. (Ka)20 (Ka)/day 17.714	REAER. Coeff. FORCED 1/day 0.000	REAER. Coeff. (Ka)T 1/day 17.248	NBOD Coeff. (Kn)20 1/day 0.250	NBOD Coeff. (Kn)T 1/day 0.229
Open Coeff. (K4)20 1/day 0.000	Open Coeff. (K4)T 1/day 0.000	NH3 LOSS (K5)20 1/day 4.000	NH3 (K5)T 1/day 3.799	NO2+NO3 LOSS (K6)20 1/day 0.000	NO2+NO3 (K6)T 1/day 0.000	TRC Decay K(CI)20 1/day 32.000	TRC K(CI)(T) 1/day 29.974
BENTHIC DEMAND (SOD)20 gm/m2/day 1.000	BENTHIC DEMAND (SOD)T gm/m2/day 0.932						
K1 CBOD {theta} 1.0	K2 Reaer. {theta} 1.0	K3 NH3 {theta} 1.1	K4 Open {theta} 1.0	K5 NH3 Loss {theta} 1.0	K6 NO2+3 {theta} 1.0	K(CI) TRC {theta} 1.1	S Benthic {theta} 1.1

Antidegradation Review

An antidegradation review (ADR) was conducted to determine whether the proposed activity complies with the applicable antidegradation requirements for receiving waters that may be affected. The Level I ADR evaluated the criteria of R317-2-3.5(b) and determined that a Level II antidegradation Review is not required.

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Salt Lake City, Utah**

WASTELOAD ANALYSIS [WLA] [REDACTED] = not included in the WLA
Addendum: Statement of Basis

20-Oct-21
4:00 PM

Facilities: Central Valley Water Reclamation Facility
Discharging to: Jordan River

UPDES No: UT-0024392

I. Introduction

Wasteload analyses are performed to determine point source effluent limitations necessary to maintain designated beneficial uses by evaluating projected effects of discharge concentrations on in-stream water quality. The wasteload analysis also takes into account downstream designated uses [R317-2-8, UAC]. Projected concentrations are compared to numeric water quality standards to determine acceptability. The anti-degradation policy and procedures are also considered. The primary in-stream parameters of concern may include metals (as a function of hardness), total dissolved solids (TDS), total residual chlorine (TRC), un-ionized ammonia (as a function of pH and temperature, measured and evaluated in terms of total ammonia), and dissolved oxygen.

Mathematical water quality modeling is employed to determine stream quality response to point source discharges. Models aid in the effort of anticipating stream quality at future effluent flows at critical environmental conditions (e.g., low stream flow, high temperature, high pH, etc).

The numeric criteria in this wasteload analysis may always be modified by narrative criteria and other conditions determined by staff of the Division of Water Quality.

II. Receiving Water and Stream Classification

Jordan River: 2B,3B,4
 Antidegradation Review: Level I review completed. Level II review is not required.

III. Numeric Stream Standards for Protection of Aquatic Wildlife

Total Ammonia (TNH3)	Varies as a function of Temperature and pH Rebound. See Water Quality Standards
Chronic Total Residual Chlorine (TRC)	0.011 mg/l (4 Day Average) 0.019 mg/l (1 Hour Average)
Chronic Dissolved Oxygen (DO)	5.5 mg/l (30 Day Average) 4.0 mg/l (7Day Average) 3.0 mg/l (1 Day Average)
Maximum Total Dissolved Solids	1200.0 mg/l

Acute and Chronic Heavy Metals (Dissolved)

Parameter	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Aluminum	87.00 ug/l**	65.350 lbs/day	750.00 ug/l	563.366 lbs/day
Arsenic	150.00 ug/l	112.673 lbs/day	340.00 ug/l	255.393 lbs/day
Cadmium	2.41 ug/l	1.808 lbs/day	7.45 ug/l	5.599 lbs/day
Chromium III	270.40 ug/l	203.113 lbs/day	5657.30 ug/l	4,249.508 lbs/day
ChromiumVI	11.00 ug/l	8.263 lbs/day	16.00 ug/l	12.018 lbs/day
Copper	30.76 ug/l	23.104 lbs/day	52.17 ug/l	39.186 lbs/day
Iron			1000.00 ug/l	751.155 lbs/day
Lead	18.82 ug/l	14.134 lbs/day	482.86 ug/l	362.699 lbs/day
Mercury	0.0120 ug/l	0.009 lbs/day	2.40 ug/l	1.803 lbs/day
Nickel	169.96 ug/l	127.663 lbs/day	1528.65 ug/l	1,148.252 lbs/day
Selenium	4.60 ug/l	3.455 lbs/day	20.00 ug/l	15.023 lbs/day
Silver	N/A ug/l	N/A lbs/day	41.78 ug/l	31.380 lbs/day
Zinc	391.09 ug/l	293.770 lbs/day	391.09 ug/l	293.770 lbs/day

* Allowed below discharge

**Chronic Aluminum standard applies only to waters with a pH < 7.0 and a Hardness < 50 mg/l as CaCO₃

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Metals Standards Based upon a Hardness of 403.97 mg/l as CaCO₃

IV. Numeric Stream Standards for Protection of Agriculture

	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Arsenic			100.0 ug/l	lbs/day
Boron			750.0 ug/l	lbs/day
Cadmium			10.0 ug/l	3.76 lbs/day
Chromium			100.0 ug/l	lbs/day
Copper			200.0 ug/l	lbs/day
Lead			100.0 ug/l	lbs/day
Selenium			50.0 ug/l	lbs/day
TDS, Summer			1200.0 mg/l	450.69 tons/day

V. Numeric Stream Standards for Protection of Human Health (Class 1C Waters)

Metals	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Arsenic			ug/l	lbs/day
Barium			ug/l	lbs/day
Cadmium			ug/l	lbs/day
Chromium			ug/l	lbs/day
Lead			ug/l	lbs/day
Mercury			ug/l	lbs/day
Selenium			ug/l	lbs/day
Silver			ug/l	lbs/day
Fluoride (3)			ug/l	lbs/day
to			ug/l	lbs/day
Nitrates as N			ug/l	lbs/day

VI. Numeric Stream Standards the Protection of Human Health from Water & Fish Consumption [Toxics]

Metals	Maximum Conc., ug/l - Acute Standards			
	Class 1C		Class 3A, 3B	
Antimony	ug/l	lbs/day		
Arsenic	ug/l	lbs/day	4300.00 ug/l	6907.33 lbs/day
Asbestos	ug/l	lbs/day		
Beryllium				
Cadmium				
Chromium (III)				
Chromium (VI)				
Copper				
Cyanide	ug/l	lbs/day	2.2E+05 ug/l	353398.05 lbs/day
Lead	ug/l	lbs/day		
Mercury			0.15 ug/l	0.24 lbs/day
Nickel			4600.00 ug/l	7389.23 lbs/day
Selenium	ug/l	lbs/day		
Silver	ug/l	lbs/day		
Thallium			6.30 ug/l	10.12 lbs/day
Zinc				

There are additional standards that apply to this receiving water, but were not considered in this modeling/waste load allocation analysis.

VII. Mathematical Modeling of Stream Quality

Model configuration was accomplished utilizing standard modeling procedures. Data points were plotted and coefficients adjusted as required to match observed data as closely as possible.

The modeling approach used in this analysis included one or a combination of the following models.

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(1) The Utah River Model, Utah Division of Water Quality, 1992. Based upon STREAMDO IV (Region VIII) and Supplemental Ammonia Toxicity Models; EPA Region VIII, Sept. 1990 and QUAL2E (EPA, Athens, GA).

(2) Utah Ammonia/Chlorine Model, Utah Division of Water Quality, 1992.

(3) AMMTOX Model, University of Colorado, Center of Limnology, and EPA Region 8

(4) Principles of Surface Water Quality Modeling and Control. Robert V. Thomann, et.al. Harper Collins Publisher, Inc. 1987, pp. 644.

Coefficients used in the model were based, in part, upon the following references:

(1) Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling. Environmental Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Athens Georgia. EPA/600/3-85/040 June 1985.

(2) Principles of Surface Water Quality Modeling and Control. Robert V. Thomann, et.al. Harper Collins Publisher, Inc. 1987, pp. 644.

VIII. Modeling Information

The required information for the model may include the following information for both the upstream conditions at low flow and the effluent conditions:

Flow, Q, (cfs or MGD)	D.O. mg/l
Temperature, Deg. C.	Total Residual Chlorine (TRC), mg/l
pH	Total NH3-N, mg/l
BOD5, mg/l	Total Dissolved Solids (TDS), mg/l
Metals, ug/l	Toxic Organics of Concern, ug/l

Other Conditions

In addition to the upstream and effluent conditions, the models require a variety of physical and biological coefficients and other technical information. In the process of actually establishing the permit limits for an effluent, values are used based upon the available data, model calibration, literature values, site visits and best professional judgement.

Model Inputs

The following is upstream and discharge information that was utilized as inputs for the analysis. Dry washes are considered to have an upstream flow equal to the flow of the discharge.

Current Upstream Information

	Stream								
	Critical Low								
	Flow	Temp.	pH	T-NH3	BOD5	DO	TRC	TDS	
	cfs	Deg. C		mg/l as N	mg/l	mg/l	mg/l	mg/l	
Summer (Irrig. Season)	182.0	18.7	8.0	0.22	4.92	7.18	0.00	1248.8	
Fall	133.0	10.9	8.0	0.34	3.44	---	0.00	1158.0	
Winter	122.0	6.3	8.0	0.44	3.94	---	0.00	1158.0	
Spring	116.0	12.5	8.0	0.24	3.25	---	0.00	1158.0	
Dissolved Metals	Al	As	Cd	CrIII	CrVI	Copper	Fe	Pb	
	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
All Seasons	221.00	42.77	0.34	4.45	2.65*	5.36	0.0	2.74	
Dissolved Metals	Hg	Ni	Se	Ag	Zn	Boron			
	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l			
All Seasons	0.0000	3.38	2.47	1.17	19.93	10.0		* 1/2 MDL	

Projected Discharge Information

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Season	Flow, MGD	Temp.	TDS mg/l	TDS tons/day
Summer	75.00000	NA	982.67	307.26746
Fall	75.00000	NA		
Winter	75.00000	NA		
Spring	75.00000	NA		

All model numerical inputs, intermediate calculations, outputs and graphs are available for discussion, inspection and copy at the Division of Water Quality.

IX. Effluent Limitations

Current State water quality standards are required to be met under a variety of conditions including in-stream flows targeted to the 7-day, 10-year low flow (R317-2-9).

Other conditions used in the modeling effort coincide with the environmental conditions expected at low stream flows.

Effluent Limitation for Flow based upon Water Quality Standards

In-stream criteria of downstream segments will be met with an effluent flow maximum value as follows:

Season	Daily Average	
Summer	75.000 MGD	116.025 cfs
Fall	75.000 MGD	116.025 cfs
Winter	75.000 MGD	116.025 cfs
Spring	75.000 MGD	116.025 cfs

Flow Requirement or Loading Requirement

The calculations in this wasteload analysis utilize the maximum effluent discharge flow of 75 MGD. If the discharger is allowed to have a flow greater than 75 MGD during 7Q10 conditions, and effluent limit concentrations as indicated, then water quality standards will be violated. In order to prevent this from occurring, the permit writers must include the discharge flow limitation as indicated above; or, include loading effluent limits in the permit.

Effluent Limitation for Whole Effluent Toxicity (WET) based upon WET Policy

Effluent Toxicity will not occur in downstream segments if the values below are met.

WET Requirements	LC50 >	EOP Effluent	[Acute]
	IC25 >	38.9% Effluent	[Chronic]

Effluent Limitations for Total Recoverable Metals based upon Water Quality Standards

In-stream criteria of downstream segments for Dissolved Metals will be met with an effluent limitation as follows (based upon a hardness of 403.97 mg/l):

	4 Day Average		1 Hour Average		Load
	Concentration	Load	Concentration	Load	
Aluminum	N/A	N/A	1,164.9	ug/l	875.0 lbs/day
Arsenic	318.21 ug/l	128.6 lbs/day	573.1	ug/l	430.5 lbs/day
Cadmium	5.64 ug/l	2.3 lbs/day	13.0	ug/l	9.8 lbs/day
Chromium III	687.58 ug/l	278.0 lbs/day	10,090.9	ug/l	7579.8 lbs/day
Chromium VI	22.02 ug/l	8.9 lbs/day	25.4	ug/l	19.1 lbs/day
Copper	70.60 ug/l	28.5 lbs/day	88.9	ug/l	66.8 lbs/day
Iron	N/A	N/A	1,784.3	ug/l	1340.3 lbs/day
Lead	44.04 ug/l	17.8 lbs/day	859.4	ug/l	645.6 lbs/day

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Salt Lake City, Utah**

Mercury	0.03 ug/l	0.0 lbs/day	4.3	ug/l	3.2 lbs/day
Nickel	431.26 ug/l	174.3 lbs/day	2,724.9	ug/l	2046.9 lbs/day
Selenium	7.95 ug/l	3.2 lbs/day	33.8	ug/l	25.4 lbs/day
Silver	N/A ug/l	N/A lbs/day	73.6	ug/l	55.3 lbs/day
Zinc	973.31 ug/l	393.5 lbs/day	682.2	ug/l	512.4 lbs/day
Cyanide	13.36 ug/l	5.4 lbs/day	39.3	ug/l	29.5 lbs/day

Effluent Limitations for Heat/Temperature based upon Water Quality Standards

Summer	24.9 Deg. C.	76.9 Deg. F
Fall	16.6 Deg. C.	61.8 Deg. F
Winter	11.8 Deg. C.	53.3 Deg. F
Spring	18.0 Deg. C.	64.4 Deg. F

Effluent Targets for Pollution Indicators Based upon Water Quality Standards

In-stream criteria of downstream segments for Pollution Indicators will be met with an effluent limit as follows:

	Concentration	1 Hour Average Loading
Gross Beta (pCi/l)	50.0 pCi/L	
BOD (mg/l)	5.0 mg/l	3755.8 lbs/day
Nitrates as N	4.0 mg/l	3004.6 lbs/day
Total Phosphorus as P	0.05 mg/l	37.6 lbs/day
Total Suspended Solids	90.0 mg/l	67603.9 lbs/day

Note: Pollution indicator targets are for information purposes only.

Effluent Limitations for Protection of Human Health [Toxics Rule] Based upon Water Quality Standards (Most stringent of 1C or 3A & 3B as appropriate.)

In-stream criteria of downstream segments for Protection of Human Health [Toxics] will be met with an effluent limit as follows:

	Concentration	Maximum Concentration Load
Metals		
Antimony	ug/l	lbs/day
Arsenic	ug/l	lbs/day
Asbestos	ug/l	lbs/day
Beryllium		
Cadmium		
Chromium (III)		
Chromium (VI)		
Copper	ug/l	lbs/day
Cyanide	ug/l	lbs/day
Lead		
Mercury	ug/l	lbs/day
Nickel	ug/l	lbs/day
Selenium		
Silver		
Thallium	ug/l	lbs/day
Zinc		

Metals Effluent Limitations for Protection of All Beneficial Uses Based upon Water Quality Standards and Toxics Rule

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Salt Lake City, Utah**

	Class 4 Acute Agricultural ug/l	Class 3 Acute Aquatic Wildlife ug/l	Acute Toxics Drinking Water Source ug/l	Acute Toxics Wildlife ug/l	1C Acute Health Criteria ug/l	Acute Most Stringent ug/l	Class 3 Chronic Aquatic Wildlife ug/l
Aluminum		1164.9				1164.9	N/A
Antimony				11045.1		11045.1	
Arsenic	256.9	573.1			0.0	256.9	318.2
Asbestos						0.00E+00	
Barium						0.0	
Beryllium						0.0	
Cadmium	25.1	13.0			0.0	13.0	5.6
Chromium (III)		10090.9			0.0	10090.9	687.6
Chromium (VI)	249.9	25.4			0.0	25.43	22.02
Copper	505.3	88.9				88.9	70.6
Cyanide		39.3	565098.0			39.3	13.4
Iron		1784.3				1784.3	
Lead	252.6	859.4			0.0	252.6	44.0
Mercury		4.28		0.39	0.0	0.39	0.031
Nickel		2724.9		11815.7		2724.9	431.3
Selenium	124.6	33.8			0.0	33.8	7.9
Silver		73.6			0.0	73.6	
Thallium				16.2		16.2	
Zinc		682.2				682.2	973.3
Boron	1925.9					1925.9	

Summary Effluent Limitations for Metals [Wasteload Allocation, TMDL]

[If Acute is more stringent than Chronic, then the Chronic takes on the Acute value.]

	WLA Acute ug/l	WLA Chronic ug/l	
Aluminum	1164.9	N/A	
Antimony	11045.10		
Arsenic	256.9	318.2	Acute Controls
Asbestos	0.00E+00		
Barium			
Beryllium			
Cadmium	13.0	5.6	
Chromium (III)	10090.9	688	
Chromium (VI)	25.4	22.0	
Copper	88.9	70.6	
Cyanide	39.3	13.4	
Iron	1784.3		
Lead	252.6	44.0	
Mercury	0.385	0.031	
Nickel	2724.9	431	
Selenium	33.8	7.9	
Silver	73.6	N/A	
Thallium	16.2		
Zinc	682.2	973.3	Acute Controls
Boron	1925.92		

X. Antidegradation Considerations

The Utah Antidegradation Policy allows for degradation of existing quality where it is determined that such lowering of water quality is necessary to accommodate important economic or social development in the area in which the waters are protected [R317-2-3]. It has been determined that certain chemical parameters introduced by this discharge will cause an increase of the concentration of said parameters in the receiving waters. Under no conditions will the increase in concentration be allowed to interfere with existing instream water uses.

The antidegradation rules and procedures allow for modification of effluent limits less than those based

**Utah Division of Water Quality
Salt Lake City, Utah**

strictly upon mass balance equations utilizing 100% of the assimilative capacity of the receiving water. Additional factors include considerations for "Blue-ribbon" fisheries, special recreational areas, threatened and endangered species, and drinking water sources.

An Antidegradation Level I Review was conducted on this discharge and its effect on the receiving water. Based upon that review, it has been determined that an Antidegradation Level II Review is not required.

XI. Colorado River Salinity Forum Considerations

Discharges in the Colorado River Basin are required to have their discharge at a TDS loading of less than 1.00 tons/day unless certain exemptions apply. Refer to the Forum's Guidelines for additional information allowing for an exceedence of this value. This doesn't apply to facilities that do not discharge to the Colorado River Basin.

XII. Summary Comments

The mathematical modeling and best professional judgement indicate that violations of receiving water beneficial uses with their associated water quality standards, including important downstream segments, will not occur for the evaluated parameters of concern as discussed above if the effluent limitations indicated above are met.

XIII. Notice of UPDES Requirement

This Addendum to the Statement of Basis does not authorize any entity or party to discharge to the waters of the State of Utah. That authority is granted through a UPDES permit issued by the Utah Division of Water Quality. The numbers presented here may be changed as a function of other factors. Dischargers are strongly urged to contact the Permits Section for further information. Permit writers may utilize other information to adjust these limits and/or to determine other limits based upon best available technology and other considerations provided that the values in this wasteload analysis [TMDL] are not compromised. See special provisions in Utah Water Quality Standards for adjustments in the Total Dissolved Solids values based upon background concentration.

Utah Division of Water Quality
801-538-6052
File Name: CVWRF_WLA_JR_2021.xlsm

APPENDIX - Coefficients and Other Model Information

CBOD Coeff. (Kd)20 1/day 0.520	CBOD Coeff. FORCED (Kd)/day 0.000	CBOD Coeff. (Ka)T 1/day 0.490	REAER. Coeff. (Ka)20 (Ka)/day 2.040	REAER. Coeff. FORCED 1/day 0.000	REAER. Coeff. (Ka)T 1/day 1.978	NBOD Coeff. (Kn)20 1/day 0.250	NBOD Coeff. (Kn)T 1/day 0.226
Open Coeff. (K4)20 1/day 0.000	Open Coeff. (K4)T 1/day 0.000	NH3 LOSS (K5)20 1/day 4.000	NH3 (K5)T 1/day 3.766	NO2+NO3 LOSS (K6)20 1/day 0.000	NO2+NO3 (K6)T 1/day 0.000	TRC Decay K(CI)20 1/day 32.000	TRC K(CI)(T) 1/day 29.647
BENTHIC DEMAND (SOD)20 gm/m2/day 1.000	BENTHIC DEMAND (SOD)T gm/m2/day 0.921						
K1 CBOD {theta} 1.0	K2 Reaer. {theta} 1.0	K3 NH3 {theta} 1.1	K4 Open {theta} 1.0	K5 NH3 Loss {theta} 1.0	K6 NO2+3 {theta} 1.0	K(CI) TRC {theta} 1.1	S Benthic {theta} 1.1

Antidegradation Review

An antidegradation review (ADR) was conducted to determine whether the proposed activity complies with the applicable antidegradation requirements for receiving waters that may be affected. The Level I ADR evaluated the criteria of R317-2-3.5(b) and determined that a Level II antidegradation Review is not required.

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ATTACHMENT 2

**Due Diligence Variance and
Compliance Schedule Request**

(DWQ-2023-003311)

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ATTACHMENT 2

**Due Diligence Variance
and Compliance
Schedule Request
(DWQ-2023-003311)**

The “Due Diligence Variance and Compliance Schedule Request” contains 1880 Pages and is 150 MB in size. A copy will not be included in the Modification FSSOB due to the size. A copy will be emailed if requested directly form the Division of Water Quality

Original Central Valley 2021 Renewal FSSOB

**FACT SHEET AND STATEMENT OF BASIS
CENTRAL VALLEY WATER RECLAMATION FACILITY
RENEWAL PERMIT: DISCHARGE, BIOSOLIDS, & REUSE
UPDES PERMIT NUMBER: UT0024392
UPDES BIOSOLIDS PERMIT NUMBER: UTL-024392
MAJOR MUNICIPAL**

FACILITY CONTACTS

Entity/Operator:	Central Valley Water Reclamation Facility
Person Name:	Phillip Heck PhD, P.E.
Position:	General Manager
Person Name:	Brandon Heidelberger, P.E.
Position:	Assistant General Manager
Person Name:	Bryan Mansell, P.E.
Position:	Chief Engineer
Person Name:	Edward Harrison
Position:	Laboratory Director
Person Name:	Gary Faulkner
Position:	Plant Superintendent
Facility Name:	Central Valley Water Reclamation Facility (Central Valley)
Mailing Address:	800 West Central Valley Road Salt Lake City, Utah 84119-3379
Telephone:	(801) 973-9100
Actual Address:	800 West Central Valley Road

DESCRIPTION OF FACILITY

Central Valley Water Reclamation Facility (Central Valley) was completed and in total operation in 1989. Central Valley is an interlocal agreement entity comprised of Cottonwood Improvement District, Mt. Olympus Improvement District, Granger-Hunter Improvement District, Kearns Improvement District, Murray City, City of South Salt Lake, and Taylorsville-Bennion Improvement District. The current design capacity is 75 MGD (average daily flow) for a population equivalent of 750,000. The organic design capacity is 125,000 pounds of BOD and 125,000 pounds of TSS. The plant consists of six mechanical bar screens, five headworks pumps, four aerated grit chambers followed by ten primary clarifiers, four trickling filters, six solids contact basins, twelve secondary clarifiers, four ultraviolet light disinfection channels, two reaeration channels, six anaerobic digesters, and three sludge belt presses. The ultraviolet disinfection system was installed in 2009 to replace the original chlorination / de-chlorination system from service which resulted in removal of the total residual chlorine limit from the permit. Central Valley operates a disk filter to produce Type I reuse water during the spring and summer months. Reuse water fills the irrigation pond west of the facility which is then used to irrigate its golf course. The facility processes approximately 0.75-1.0 MGD of Type I water, or 1.3% of the total flow while in operation. Overflow from the irrigation pond could flow to Vitro Ditch but has

never done so, as the water level is managed so that Type 1 reuse is only produced to supply golf course watering needs

The ponds at the golf course are filled with Type II reuse water. Over flows from these ponds goes to the old "Vitro Ditch" and back into Mill Creek. This flow rate is less than 100 gpm.

During the renewal process in 1999, Central Valley requested a reduction in monitoring frequency for all parameters except for WET. This request was granted and the frequencies were reduced to four (4) times a week from seven (7) times a week. This was done based on the Division of Water Quality's 1996 Performance Based Reduction of UPDES Monitoring Frequencies document.

During the 2010 permit cycle the DWQ determined that, historically, the receiving water was incorrectly assigned to the Jordan River and effluent was actually being discharged to Mill Creek. Also, DWQ used an improved model in 2015 to model dischargers to the Jordan River. Thus, the WLA for the 2015 renewal permit was developed accordingly. As a result of this change, effluent limits for many parameters have become more restrictive. As a result of this WLA and the use of an RP model an effluent limit for copper was added for the 2015 renewal.

Central Valley worked with Rocky Mountain Power to evaluate the facility and determine if there were any places they might be able to improve energy efficiency. One place that was noted is that if they were to measure the effluent dissolved oxygen (DO) after the cascade structure they could reduce the amount of energy required for aeration of the effluent in the post aeration channels. This change was granted during the 2015 renewal.

Instead of an effluent flow limit being added in the 2015 renewal permit, Central Valley requested that mass limits be included for water quality based effluent limits. The renewed permit added the following effluent mass loading limits for CBOD5, Ammonia (as N), and Total Copper.

Central Valley is located at 800 West Central Valley Road (about 3190 South) in South Salt Lake, Salt Lake County, Utah, with its Outfall 001 at latitude 40°42'30" and longitude 111°54'57".

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

TBPEL Rule

On December 16, 2014, the Utah Water Quality Board adopted *Utah Administrative Code (UAC) R317-1-3.3, Technology-Based Limits for Controlling Phosphorous Pollution*. The Technology-Based Phosphorous Effluent Limits (TBPEL) establishes new regulations for the discharge of phosphorus to surface waters and is self-implementing. The TBPEL rule includes the following requirements for non-lagoon wastewater treatment plants:

The TBPEL requires that all non-lagoon wastewater treatment works discharging wastewater to surface waters of the state shall provide treatment processes which will produce effluent less than or equal to an annual mean of 1.0 mg/L for total phosphorus. This TBPEL shall be achieved by January 1, 2020 unless a variance has been granted by DWQ.

On March 27, 2017, DWQ approved the Central Valley variance request not to extend beyond January 1, 2025 and with an interim total phosphorous annual average limit of 4.0 mg/L beginning January 1, 2020. This permit modification is incorporating the approved variance with the interim limits and dates that were previously public noticed in the local newspaper, in which no comments were received.

Parameter	Effluent Limitations				
	Maximum Monthly Avg	Maximum Weekly Avg	Annual Average	Daily Minimum	Daily Maximum
TBPEL Rule Limit					
Interim Limit ¹ Total Phosphorous, mg/L	-	-	4.0	-	-
Final Limit ² Total Phosphorous, mg/L	-	-	1.0	-	-
1. TBPEL of 4.0 mg/L goes into effect on January 1, 2020.					
2. The final phosphorus limit goes on January 1, 2025.					

These changes will be carried forward in the renewal. Central Valley is on schedule, and improvements should be completed by January 1, 2025.

The Variance has, and will continue to require Central Valley to submit to DWQ an annual report relating to its phosphorus discharges (the “Annual Report”). The scope of the Annual Report includes descriptions of all projects and work necessary, in reasonable detail, to achieve compliance with the TBPEL rule, and a summary of progress and milestones achieved in all construction, study, funding, planning, and design projects during the previous reporting period, projected progress and milestones scheduled to be completed during the following reporting period, and if the project(s) are on schedule. The Annual Report also provides information on effluent phosphorus concentrations to determine Central Valley’s compliance with Parts 11.e. and 11.f. of the variance.

Reuse Outfall

Central Valley has been using reuse water to fill decorative ponds on a golf course. Overflows from these ponds flow to the old Vitro ditch which then flows to Mill Creek, 300 feet downstream from Outfall 001. In the past, the use of the decorative ponds has been noted in the permits but not listed as an official outfall. With the current upgrades at Central Valley, the facility has been able to improve the reuse system including making sure that the pond overflows are in the permit. As a result, DWQ is adding an outfall to the permit (002R) which is from the golf course ponds to the Vitro ditch (unclassified). The receiving waters that control the effluent limits for outfall 002R are the same as for Central Valley’s primary outfall 001; i.e., Mill Creek and the Jordan River.

The reuse water meets all the Outfall 001 effluent limits and requirements when it is collected prior to being discharged. The reuse water then receives additional treatment by filtration and chlorination before being monitored and sent to the reuse or golf course ponds. The water added to the golf course ponds is added to the first pond, then flows through the other two ponds in series

prior to discharging to the Vitro ditch. Testing has shown that during this flow path, the residual chlorine has enough time to dissipate prior to the discharge from the last pond.

Since the golf course pond water meets both the Outfall 001 and Type II Reuse requirements prior to entering the ponds, and the only addition to the process (chlorination) dissipates prior to the discharge, the outfall will only be monitored for the presence or absence of flow to the golf course ponds.

When the discharge to the ponds is stopped for the season, the flows continue out through Outfall 001; therefore, in addition to the previously stated reasons, it has been reasonably determined that the 002R discharge to the Vitro Ditch is similar to the water being directly discharged through Outfall 001 to Mill Creek and that a Level II ADR is not required for the addition of this outfall to the permit.

RP Analysis

Initial screening for metals values that were submitted through the discharge monitoring reports showed that a closer look at some of the metals is needed. A copy of the initial screening is included in the “Effluent Metals and RP Screening Results” table in this attachment. The initial screening check for metals showed that the full model needed to be run on cadmium, chrome, copper, cyanide, mercury, and selenium. The results of the RP are that there will be no changes to chrome, copper, mercury, and selenium, but that there should be some required changes to the cadmium and cyanide monitoring in the permit. The monitoring for cadmium will be increase in the renewal permit, and the facility will start to sample and analyze for free cyanide in the effluent as well as use a grab sample for cyanide.

WET Guidance

In 2018 DWQ finalized and updated Whole Effluent Toxicity Permit and Enforcement Guidance and started following it in all permit renewals. With this update, DWQ updated the standard language used in all permits and FSSOB’s. This will be the first time the new WET Guidance will be used on the Central Valley Permit.

One of the items that has changed in the standard language is that there is no longer language directly allowing the use of CO₂ Atmosphere to prevent pH drift during the test. It was determined that since the permit calls out Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, Fourth Edition, October 2002, EPA—821-R-02-013 as the method required for conducting wet tests. Part 11.3.6.2, 12.3.5.2 and 13.3.6.2 of that document allows for a CO₂ atmosphere to control pH. If the facilities request to use it, the DWQ will review the request, and WET Test history to determine if the use is appropriate. Central Valley submitted a request on December 10, 2021 (DWQ-2021-032602) to use the CO₂ Atmosphere. The DWQ has reviewed the Central Valley WET Testing history and approved the use of CO₂ to control pH.

Another change as a result of the WET Guidance update is the requirement that a facility discharging greater than 20 MGD will sample monthly. Prior to March of 2002 Central Valley was conducting WET test monthly. In 2002, Central Valley requested a reduction in WET testing frequency. The request was approved and the frequency was reduced to quarterly. The DWQ

reviewed Central Valley’s history of WET and will apply the updated WET policy to Central Valley although it was previously were approved to reduce the testing frequency. The WET testing frequency will be increased to monthly with alternating species until Central Valley can qualify for the reduction again.

A concern over the frequency of testing, and retesting after a failure was brought up. It was theorized and demonstrated, that under certain circumstances a facility could fail a Chronic Wet Test, commence Accelerated testing and end up having the retesting overlap for multiple subsequent sampling events. During the discussion of this possibility it was determined that the WET language and policy allows for the suspension of regularly scheduled WET testing during the accelerated testing period, and that providing the test was passed, the results of a passing accelerated test that extended over into the regular scheduled testing period could be used in place of that regularly scheduled WET Testing event.

As a result, it was determined that when during the Chronic WET testing a failure occurs, and the permittee commences with the Accelerated Testing (Part I, C. 4, b and c of the permit), regularly scheduled Chronic WET testing requirements for that species are suspended until the conclusion of the Accelerated Testing to establish whether a pattern of toxicity exists.

WQBEL Changes from WLA

Prior to development of the WLA, the DWQ and the facilities that discharge to the Jordan River worked to get a better understanding of the flows in the river. Specifically, they worked on updating the understanding of the 7Q10 low flow for the Jordan River. As a result, the ammonia limits changed in the WLA for the facilities. Also, the the seasonal timing of the limits was adjusted to reflect the climatological seasons, and the flows in the Jordan River.

Changes to Water Quality Based Effluent Limitations							
Previous Permit WQBEL				Renewal Permit WQBEL			
Total Ammonia (as N)							
	Monthly Avg		Maximum		Monthly Avg		Maximum
Month	mg/L	lbs.	mg/L	Month	mg/L	lbs.	mg/L
January	5.8	108,837	12.3	January	3.7	69,431	6.4
February				February			
March				March			
April	5.3	99,455	15.9	April	3.8	71,307	5.4
May				May			
June				June			
July	3.7	69,431	13.1	July	3.6	67,554	4.7
August				August			
September				September			
October	4.5	84,443	15.9	October	3.8	71,307	5.4
November				November			
December				December			
	5.9	110,714			3.7	69,431	6.4

In the previous permit the chronic ammonia limit for October, and the acute ammonia limit for the Summer were from the Jordan River POTW WLA and are based on protection of downstream use, the rest of the ammonia limits were from the Mill Creek WLA. For this renewal, all the ammonia limits from the Mill Creek WLA are more stringent and are being used.

Compliance Schedule

As a result of ongoing plant upgrades and associated construction activities, Central Valley will need to make various operational changes until the construction is complete (e.g. currently Central Valley is operating with 2 less trickling filters than in the previous permit cycle and will need to make further adjustments as upgrades proceed). The construction and plant upgrades are scheduled to be completed and fully operational by the end of December, 2024. In order to accommodate the plant construction and changes, DWQ has added a compliance schedule to the permit (Part I.C.3) which synchronizes the changes in monitoring requirements and effluent limits with construction completion; new effluent limits and monitoring requirements will not go into effect until January 1, 2025. This date is also when the Variance for the TBPEL Rule expires. Until January 1, 2025, the requirements and limits from the previous permit will remain in effect.

The Annual Report submission required in the Variance is included in the permit as a condition of the variance and requires Central Valley to report, in detail, on the progress of all the work that has been done, and the schedule of work still to be completed. This report will also count as an ongoing requirement of the compliance schedule.

DISCHARGE

DESCRIPTION OF DISCHARGE

Central Valley has been reporting self-monitoring results on Discharge Monitoring Reports on a monthly basis. A summary of the last 3 years of data is summarized in Attachment 1 and there were no significant violations.

<u>Location and Description of Effluent Discharge Points</u>	
<u>Outfall</u>	<u>Description of Discharge Point</u>
001	Outfall 001 is a large concrete channel which discharges directly to Mill Creek, and is located immediately on the northwest side of the treatment plant at about latitude 40° 42' 30" and longitude 111° 54' 57", approximately 850 West and 2900 South in South Salt Lake City, Salt Lake County, Utah.
<u>Location and Description for Effluent Reuse</u>	
001R	Reuse Outfall 001R is approximately located at latitude 40° 42' 17" and longitude 111° 54' 56". The discharge is through a pipe to the west irrigation pond on the Central Valley Golf Course. The water is then used to irrigate the golf course. If an overflow from this pond was allowed to occur, it would go to the Vitro Ditch.

Location and Description of Effluent Discharge Points	
Outfall	Description of Discharge Point
002R	Reuse Outfall 002R is approximately located at latitude 40° 42' 00" and longitude 111° 54' 41". The reuse water is used in the Central Valley Golf Course decorative ponds. The water flows through the ponds sequentially and then overflows to the Vitro Ditch.

RECEIVING WATERS AND STREAM CLASSIFICATION

The final discharge flows into Mill Creek, hence to the Jordan River and finally into Farmington Bay. According to Utah Administrative Code (UAC) R317-2-14.2 and R317-2-14.5 Mill Creek is listed as a Class 2B, 3C and 4 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 3C -- Protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain.
- Class 4 -- Protected for agricultural uses including irrigation of crops and stock watering chain.

TOTAL MAXIMUM DAILY LOAD (TMDL) REQUIREMENTS

A QUAL2Kw model of the Jordan River was populated and calibrated as part of the TMDL study (Stantec Consulting 2010, UDWQ 2010). The model was subsequently validated to a synoptic survey conducted by UDWQ and the Jordan River/Farmington Bay Water Quality Council (JRFBWQC) during July 2014 (UDWQ 2015). The model validation identified areas for future improvement of the model; however, the model was considered suitable for application to the WLA for ammonia. Due to ongoing studies related to the TMDL, this WLA used for permit development does not address parameters related to dissolved oxygen, including biochemical oxygen demand (BOD), dissolved oxygen (DO), total nitrogen (TN), and total phosphorus (TP).

BASIS FOR EFFLUENT LIMITATIONS

Limitations on total suspended solids (TSS), *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). All other parameters were determined by the WLA (attached) for discharge to the Jordan River. It has been determined that this discharge will not cause a violation of water quality standards. An Antidegradation Level II review is not required since the Level I review shows that water quality impacts are minimal. The permittee is expected to be able to comply with these limitations.

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 renewal was conducted following

DWQ’s September 10, 2015 Reasonable Potential Analysis Guidance (RP Guidance). There are four outcomes defined in the RP Guidance: Outcome A, B, C, or D. These Outcomes provide a frame work for what routine monitoring or effluent limitations are required

A quantitative RP analysis was performed on cadmium, chrome, copper, cyanide, mercury, and selenium. to determine if there was reasonable potential for the discharge to exceed the applicable water quality standards. Based on the RP analysis, the following parameters exceeded the most stringent chronic water quality standard or were determined to have a reasonable potential to exceed the standard: copper. In addition, the RP analysis for cadmium, and cyanide indicates an increase or change in the monitoring is required. A copy of the RP analysis is included at the end of this Fact Sheet.

The permit limitations are:

Parameter	Effluent Limitations *a					
	Concentration					Mass, lbs
	Average Monthly	Average Weekly	Annual Average	Daily Minimum	Daily Maximum	Average Monthly
Interim Limits June 1, 2022 through December 31, 2024						
CBOD ₅ , mg/L						
Summer (Jul-Sep)	16.0	27.0	-	-	-	300,240
Fall (Oct-Dec)	20.0	28.0	-	-	-	375,300
Winter (Jan-Mar)	20.0	28.0	-	-	-	375,300
Spring (Apr-Jun)	20.0	28.0	-	-	-	375,300
BOD ₅ Min. % Removal	85	-	-	-	-	-
TSS, mg/L	25	35	-	-	-	-
TSS Min. % Removal	85	-	-	-	-	-
Dissolved Oxygen, mg/L	-	-	-	5.0	-	-
Total Ammonia (as N), mg/L						
Summer (Jul-Sep)	3.7	-	-	-	13.1	69,431
October	4.5	-	-	-	15.9	84,443
November-December	5.9	-	-	-	15.9	110,714
Winter (Jan-Mar)	5.8	-	-	-	12.3	108,837
Spring (Apr-Jun)	5.3	-	-	-	15.9	99,4555
Total Phosphorous, mg/L *c	-	-	4.0	-	-	-
<i>E. coli</i> , No./100mL	126	157	-	-	-	-
WET, Acute Biomonitoring	-	-	-	-	LC ₅₀ > 100% Effluent	-
WET, Chronic Biomonitoring	-	-	-	-	IC ₂₅ > RWC	-
Summer (Jul-Sep)	-	-	-	-	92% Eff.	-
Fall (Oct-Dec)	-	-	-	-	95% Eff.	-
Winter (Jan-Mar)	-	-	-	-	94% Eff.	-
Spring (Apr-Jun)	-	-	-	-	89% Eff.	-
Oil & Grease, mg/L	-	-	-	-	10.0	-

Parameter	Effluent Limitations *a					
	Concentration					Mass, lbs
	Average Monthly	Average Weekly	Annual Average	Daily Minimum	Daily Maximum	Average Monthly
pH, Standard Units	-	-	-	6.5	9	-
Total Copper, mg/L	0.0233	-	-	-	-	437.2
Final Effluent Limits, January 1, 2025						
CBOD ₅ , mg/L						
Summer (Jul-Sep)	16.0	27.0	-	-	-	300,240
Fall (Oct-Dec)	20.0	28.0	-	-	-	375,300
Winter (Jan-Mar)	20.0	28.0	-	-	-	375,300
Spring (Apr-Jun)	20.0	28.0	-	-	-	375,300
BOD ₅ Min. % Removal	85	-	-	-	-	-
TSS, mg/L	25	35	-	-	-	-
TSS Min. % Removal	85	-	-	-	-	-
Dissolved Oxygen, mg/L	-	-	-	5.0	-	-
Total Ammonia (as N), mg/L						
Summer (Jun-Aug)	3.6	-	-	-	4.7	67554
Fall (Sep - Nov)	3.8	-	-	-	5.4	71307
Winter (Dec - Feb)	3.7	-	-	-	6.4	69431
Spring (Mar -May)	3.8	-	-	-	5.4	71307
Total Phosphorous, mg/L			1.0			
<i>E. coli</i> , No./100mL	126	157	-	-	-	-
WET, Chronic Biomonitoring					IC ₂₅ > RWC	
Summer (Jul-Sep)	-	-	-	-	85% Eff.	-
Fall (Oct-Dec)	-	-	-	-	92% Eff.	-
Winter (Jan-Mar)	-	-	-	-	97% Eff.	-
Spring (Apr-Jun)	-	-	-	-	92% Eff.	-
Oil & Grease, mg/L	-	-	-	-	10.0	-
pH, Standard Units	-	-	-	6.5	9	-
Total Copper, mg/L	0.0233	-	-	-	-	437.2
*a. See Definitions, Part VIII, for definition of terms						
*b. The chronic ammonia limit for October, and the acute ammonia limit for the Summer are from the Jordan River POTW WLA and are based on protection of downstream uses.						
*c. TBPEL of 4.0 mg/L went into effect on January 1, 2020.						
*d. The final limits go into effect on January 1, 2025.						

The permit limitations for Outfall 001R (Reuse) are:

Parameter	Outfall 001R Effluent Limitations ^{a, b, c}				
	Max Monthly Average	Max Weekly Median	Max Daily Average	Minimum	Maximum
Turbidity, NTU ^b	--	--	2	--	5
TRC, mg/L ^c	--	--	--	1	--

BOD ₅ , mg/L	10	--	--	--	--
<i>E. coli</i> , No/100mL ^d	--	ND	--	--	9
pH, Standard Units	--	--	--	6.0	9.0
<p>^a. See Definitions, Part VIII, for definition of terms</p> <p>^b. An alternative disposal option or diversion to storage must be automatically activated if turbidity exceeds the maximum instantaneous limit for more than 5 minutes, or chlorine residual drops below the instantaneous required value for more than 5 minutes, where chlorine disinfection is used.</p> <p>^c. The facility is required to disinfect to destroy, inactivate or remove pathogenic microorganisms by chemical, physical, or biological means. Disinfection may be accomplished by chlorination, ozonation, other chemical disinfectants, UV radiation, or other approved processes.</p> <p>^d. The weekly median <i>E. coli</i> concentration shall be non-detect</p>					

The permit limitations for Outfall 002R (Reuse) are:

Parameter	Outfall 002R Effluent Limitations ^{a, b, c}				
	Max Monthly Average	Max Weekly Median	Max Daily Average	Minimum	Maximum
Flow,	--	--	--	--	--
<p>^a. See Definitions, Part VIII, for definition of terms</p> <p>^b. An alternative disposal option or diversion to storage must be automatically activated if turbidity exceeds the maximum instantaneous limit for more than 5 minutes, or chlorine residual drops below the instantaneous required value for more than 5 minutes, where chlorine disinfection is used.</p> <p>^c. The facility is required to disinfect to destroy, inactivate or remove pathogenic microorganisms by chemical, physical, or biological means. Disinfection may be accomplished by chlorination, ozonation, other chemical disinfectants, UV radiation, or other approved processes.</p>					

SELF-MONITORING AND REPORTING REQUIREMENTS

Most of the following self-monitoring requirements are the same as in the previous permit. As a result of RP, the monitoring for free cyanide has been added, and the frequency set equal to that of total cyanide from 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. 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.

Self-Monitoring and Reporting Requirements ^{*a}			
Parameter	Frequency	Sample Type	Units
Interim Requirements, June 1, 2022 through December 31, 2024			
Total Flow ^{*e, *f}	Continuous	Recorder	MGD
CBOD ₅ , Influent ^{*g}	4 x Weekly	Composite	mg/L, lbs
Effluent	4 x Weekly	Composite	mg/L, lbs

Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
TSS, Influent *g	4 x Weekly	Composite	mg/L
Effluent	4 x Weekly	Composite	mg/L
<i>E. coli</i>	4 x Weekly	Grab	No./100mL
pH	Daily	Grab	SU
Total Ammonia	4 x Weekly	Grab	mg/L, lbs
DO	Daily	Grab	mg/L
WET - Biomonitoring *h, *i			
Ceriodaphnia - Chronic	1 st , & 3 rd Quarter	Composite	Pass/Fail
Ceriodaphnia - Acute	Quarterly	Composite	Pass/Fail
Fathead Minnows - Chronic	2 nd , & 4 th Quarter	Composite	Pass/Fail
Fathead Minnows - Acute	Quarterly	Composite	Pass/Fail
Oil & Grease *k	When Sheen Observed	Grab	mg/L
Total Ammonia (as N), *l	Monthly	Composite	mg/L
Orthophosphate (as P), *l			
Effluent	Monthly	Composite	mg/L
Total Phosphorus (as P), *l			
Influent	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Total Kjeldahl Nitrogen			
TKN (as N), *l			
Influent	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Nitrate, NO ₃ *l	Monthly	Composite	mg/L
Nitrite, NO ₂ *l	Monthly	Composite	mg/L
TDS	Monthly	Composite	mg/L
Effluent Metals			
Total Copper *m	Monthly	Composite *n	mg/L, lbs
Total Selenium *m	Monthly	Composite *n	mg/L
Total Mercury *m	Monthly	Grab *n	mg/L
Other Parameters			
Metals, (Pretreatment/RP)			
Influent	6 x Yearly *o	Grab/Composite *n	mg/L
Effluent	6 x Yearly *o	Grab/Composite *n	mg/L
Organic Toxics *p			
Influent	2 x Yearly *q	Grab/Composite *n	mg/L
Effluent	2 x Yearly *q	Grab/Composite *n	mg/L
Final Requirements, January 1, 2025			
Total Flow *e, *f	Continuous	Recorder	MGD
CBOD ₅ , Influent *g	4 x Weekly	Composite	mg/L, lbs
Effluent	4 x Weekly	Composite	mg/L, lbs
TSS, Influent *g	4 x Weekly	Composite	mg/L
Effluent	4 x Weekly	Composite	mg/L

Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
<i>E. coli</i>	4 x Weekly	Grab	No./100mL
pH	Daily	Grab	SU
Total Ammonia	4 x Weekly	Grab	mg/L, lbs
DO	Daily	Grab	mg/L
WET - Biomonitoring *h, *i Ceriodaphnia - Chronic Fathead Minnows - Chronic	Monthly with Alternating Species, *j	Composite Composite	Pass/Fail Pass/Fail
Oil & Grease *k	When Sheen Observed	Grab	mg/L
Total Ammonia (as N), *l	Monthly	Composite	mg/L
Orthophosphate (as P), *l Effluent	Monthly	Composite	mg/L
Total Phosphorus (as P), *l Influent	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Total Kjeldahl Nitrogen TKN (as N), *l Influent	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Nitrate, NO ₃ *l	Monthly	Composite	mg/L
Nitrite, NO ₂ *l	Monthly	Composite	mg/L
TDS	Monthly	Composite	mg/L
Effluent Metals			
Total Copper *m	Monthly	Composite *n	mg/L, lbs
Total Selenium *m	Monthly	Composite *n	mg/L
Total Mercury *m	Monthly	Grab *n	mg/L
Free Cyanide *m	Monthly	Grab *n	mg/L
Total Cadmium *m	Monthly	Composite *n	mg/L
Other Parameters			
Metals, (Pretreatment/RP)			
Influent	6 x Yearly *o	Grab/Composite *n	mg/L
Effluent	6 x Yearly *o	Grab/Composite *n	mg/L
Organic Toxics *p			
Influent	2 x Yearly *q	Grab/Composite *n	mg/L
Effluent	2 x Yearly *q	Grab/Composite *n	mg/L
*a. See Definitions, Part VIII, for definition of terms			
*e. 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.			
*f. If the rate of discharge is controlled, the rate and duration of discharge shall be reported.			
*g. 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			

Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
*h. Failure of an individual WET test does not constitute a violation of the permit, so long as an investigation is initiated in accordance with the permit. If an alternate species is approved for WET testing, the permit will be modified accordingly without a public comment period.			
*i. Receiving Water Concentration (RWC) refers to the target receiving water concentration for the chronic WET test			
*j. Chronic WET test on Ceriodaphnia and fathead minnows will be tested monthly, alternating between the two species.			
*k. Oil & Grease sampled when sheen is present or visible.			
*l. These reflect changes and additions required with the adoption of <i>UCA R317-1-3.3</i> , Technology-based Phosphorus Effluent Limit rule. The rule requires that all monitoring shall be based on 24-hour composite samples by use of an automatic sampler or a minimum of four grab samples collected a minimum of two hours apart. This collection method is only for the monthly samples being collected in compliance with the rule.			
*m. RP has shown that these metals need to be monitored for in the effluent at a higher frequency, and/or have an effluent limit associated with them.			
*n. Use the collection method for each parameter that is consistent with a corresponding EPA approved method stated in <i>40 CFR Part 136</i> or approved by the Director.			
*o. The pretreatment metals sampling must be done in January - February, March - April, May - June, July - August, September - October, and November - December of each year			
*p. The toxic pollutants are listed in <i>40 CFR 122 Appendix D Table II (Organic Toxic Pollutants)</i> The pesticides fraction of Appendix D, Table II is suspended unless pesticides are expected to be present.			
*q. The organic toxics must be sampled during the months of January - June and July - December each year.			

The following is a summary of the Type I reuse self-monitoring and reporting requirements.

Reuse Outfall 001R Self-Monitoring and Reporting Requirements ^{a, b}			
Parameter	Frequency	Sample Type	Units
Total Flow, ^{c, d}	Continuous	Recorder	MGD
Turbidity ^e	Continuous	Recorder	NTU
TRC ^f	Continuous	Recorder	mg/L
BOD ₅	Weekly	Composite	mg/L
<i>E. coli</i> ^g	Daily	Grab	No./100mL
pH	Daily	Grab	SU
<p>^{a.} See Definitions, Part VIII, for definition of terms</p> <p>^{b.} Reuse monitoring results obtained during the previous month for reuse discharges shall be summarized for each month and reported on a Monthly Operational Report, post-marked no later than the 28th day of the month following the completed reporting period.</p> <p>^{c.} Flow is not a pollutant; it is in the permit to help determine loading levels. 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.</p> <p>^{d.} If the rate of discharge is controlled, the rate and duration of discharge shall be reported.</p> <p>^{e.} An alternative disposal option or diversion to storage must be automatically activated if turbidity exceeds the maximum instantaneous limit for more than 5 minutes, or chlorine</p>			

Reuse Outfall 001R Self-Monitoring and Reporting Requirements ^{a, b}	
residual drops below the instantaneous required value for more than 5 minutes, where chlorine disinfection is used.	
f.	The facility is required to disinfect to destroy, inactivate or remove pathogenic microorganisms by chemical, physical, or biological means. Disinfection may be accomplished by chlorination, ozonation, other chemical disinfectants, UV radiation, or other approved processes.
g.	The weekly median E. coli concentration shall be non-detect

Reuse Outfall 002R Self-Monitoring and Reporting Requirements ^{a, b}			
Parameter	Frequency	Sample Type	Units
Total Flow	Monthly	Grab	Yes/No
<p>^{a.} See Definitions, Part VIII, for definition of terms</p> <p>^{b.} Reuse monitoring results obtained during the previous month for reuse discharges shall be summarized for each month and reported on a Monthly Operational Report, post-marked no later than the 28th day of the month following the completed reporting period.</p>			

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.

SUBSTANTIAL BIOSOLIDS TREATMENT CHANGES

During the previous permit cycle Central Valley has invested a considerable amount effort in the restoration and improvement of the biosolids processes at the facility. The work included re-lining of digester interiors, new piping, covers, mixing, and gas collection systems and in the future the plan to replace the belt presses with centrifuges. Central valley has also switched from land applying the Class B Biosolids in Box Elder County to Weber County near Marriott-Slaterville and Plain City Utah.

DESCRIPTION OF TREATMENT AND DISPOSAL

Central Valley submitted their 2020 annual biosolids report on February 11, 2021. The report states that they produced 5,199 dry metric tons (DMT) of biosolids in 2020. Of that, 4,394 DMT were land applied as a Class B product on farm land located in Weber County for crops ultimately used as cattle feed. An additional 805 DMT were processed into a Class A compost product for distribution to the public for home lawn and garden use. The biosolids are stabilized in anaerobic digesters with a solids retention time of at least 40 days. After stabilization, the Class B biosolids are either used for agriculture, or composted using the aerated static pile method or the windrow method to meet Class A compost standards.

The last biosolids inspection conducted at Central Valley was August 16, 2021. The inspection showed that Central Valley is in compliance with all aspects of the biosolids management program.

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 (<i>40 CFR Part 503.16, 503.26. and 503.46</i>)		
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

Central Valley has produced around 5,000 DMT on average of biosolids a year for the last 10 years. Therefore, they need to sample at least six times a 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)*).

BIOSOLIDS LIMITATIONS

Heavy Metals

Class A Biosolids for Home Lawn and Garden Use

The intent of the heavy metal's 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 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 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 metal's 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 *40 CFR Part 503.13(b) Table 1* and the heavy metals loading rates in *40 CFR Part 503.13(b) Table 2*; or

The maximum heavy metals in *40 CFR Part 503.13(b) Table 1* and the monthly heavy metals concentrations in *40 CFR Part 503.13(b) Table 3*.

Tables 1, 2, 3, and 4 of Heavy Metal Limitations

Pollutant Limits, (40 CFR Part 503.13(b)) Dry Mass Basis				
Heavy Metals	Table 1	Table 2	Table 3	Table 4
	Ceiling Conc. Limits ¹ , (mg/kg)	CPLR ² , (mg/ha)	Pollutant Conc. Limits ³ , (mg/kg)	APLR ⁴ , (mg/ha-yr)
Total Arsenic	75	41	41	2.0
Total Cadmium	85	39	39	1.9
Total Copper	4300	1500	1500	75
Total Lead	840	300	300	15
Total Mercury	57	17	17	0.85
Total Molybdenum	75	N/A	N/A	N/A
Total Nickel	420	420	420	21
Total Selenium	100	100	100	5.0
Total Zinc	7500	2800	2800	140
1, If the concentration of any 1 (one) of these parameters exceeds the Table 1 limit, the biosolids cannot be land applied or beneficially used in any way.				
2, CPLR - Cumulative Pollutant Loading Rate - The maximum loading for any 1 (one) of the parameters listed that may be applied to land when biosolids are land applied or beneficially used on agricultural, forestry, or a reclamation site.				
3, If the concentration of any 1 (one) of these parameters exceeds the Table 3 limit, the biosolids cannot be land applied or beneficially used in on a lawn, home garden, or other high potential public contact site. If any 1 (one) of these parameters exceeds the Table 3 limit, the biosolids may be land applied or beneficially reused on an agricultural, forestry, reclamation site, or other high potential public contact site, as long as it meets the requirements of Table 1, Table 2, and Table 4.				

Pollutant Limits, (40 CFR Part 503.13(b)) Dry Mass Basis				
Heavy Metals	Table 1	Table 2	Table 3	Table 4
	Ceiling Conc. Limits ¹ , (mg/kg)	CPLR ² , (mg/ha)	Pollutant Conc. Limits ³ , (mg/kg)	APLR ⁴ , (mg/ha-yr)
4, APLR - Annual Pollutant Loading Rate - The maximum annual loading for any 1 (one) of the parameters listed that may be applied to land when biosolids are land applied or beneficially reused on agricultural, forestry, or a reclamation site, when the do meet Table 3, but do meet Table 1.				

Any violation of these limitations shall be reported in accordance with the requirements of Part III.F.1. of the permit. 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	
503.32 (a)(1) - (5), (7), -(8), Class A	503.32 (b)(1) - (5), Class B
B Salmonella species –less than three (3) MPN per four (4) grams total solids (DWB) or Fecal Coliforms – less than 1,000 MPN per gram total solids (DWB).	Fecal Coliforms – less than 2,000,000 MPN or CFU per gram total solids (DWB).
503.32 (a)(6) Class A—Alternative 4	
B Salmonella species –less than three (3) MPN per four (4) grams total solids (DWB) or less than 1,000 MPN Fecal Coliforms per gram total solids (DWB), And - Enteric viruses –less than one (1) plaque forming unit per four (4) grams total solids (DWB) And - Viable helminth ova –less than one (1) per four (4) grams total solids (DWB)	
MPN – Most Probable Number	
DWB – Dry Weight Basis.	
CFU – Colony Forming Units	

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. Central Valley choses to accomplish this in the following methods:

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). Central Valley has chosen to achieve Class B biosolids in one of two different ways with regards to pathogens:

1. Under *40 CFR 503.32 (b)(2)*, Central Valley 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).

Vector Attraction Reduction (VAR)

If the biosolids are land applied Central Valley will be required to meet VAR through the use of a method of listed under *40 CFR 503.33*. Central Valley intends to accomplish the VAR through the method below:

1. Anaerobic Digestion - The mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38 percent through anaerobic digestion. The solids need to be treated for at least 15 days at a temperature of a least 95° F (35° C) with a 38% reduction of volatile solids *(40 CFR 503.33(b)(1))*.

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 in *40 CFR 503.33*, 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 be retained for a minimum of five years.

Reporting

Central Valley 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 III.B* 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 DATAMETALS MONITORING DATA

Central Valley is required to sample for metals at least **six** times a year. They currently are sampling the dewatered anaerobic biosolids up to 52 times a year, and in the past the sampled the both finished compost and dewatered anaerobic biosolids at the same rate. A summary of the results of the metals monitoring for the past 10 years is included below. All biosolids land applied or sent to composting over the past 10 years has met *Table 3 of 40 CFR 503.13*, therefore the Central Valley biosolids qualify as EQ with regards to metals. The monitoring data is below.

Central Valley Metals Monitoring Data, 2011 – 2020

Central Valley Metals Monitoring Data, 2011 – 2020 (Anaerobic Sludge)			
Parameter	Table 3, mg/kg (Exceptional Quality)	Average, mg/kg	Maximum, mg/kg
Arsenic	41.0	14.9	40.3
Cadmium	39.0	2.6	7.94
Copper	1,500.0	653	1360
Lead	300.0	33.0	144
Mercury	17.0	1.3	8.9
Molybdenum	75.0	15.6	38.1
Nickel	400.0	20.9	87.5
Selenium	36.0	14.7	35.8
Zinc	2,800.0	1093	2290

PATHOGEN MONITORING DATA

Central Valley monitors both the dewatered anaerobic biosolids and finished compost for pathogen separately. A summary of the annual monitoring data from the past decade is included below. All biosolids land applied in 2020, and over the past ten years, met the Class B pathogen standards through anaerobic digestion. All compost distributed for use on lawn and gardens in 2020, and over the past ten years, met the Class A pathogen standards through composting.

Central Valley Pathogen Monitoring Data, 2011 – 2020

Central Valley Metals Monitoring Data, 2011 – 2020				
	Fecal Coliforms – Pathogen Monitoring Data			
	Class A Compost		Dewatered Anerobic Biosolids	
	Less than 1,000 MPN per gram total solids.		Less than 2,000,000 MPN or CFU per gram total solids.	
Year	Geo. Mean	Max	Geo Mean	Max
2011	7.3	850	14,812	186,003
2012	4.5	727	10,824	142,972
2013	3.9	466	1,122	154,996
2014	3.8	10	7,863	139,981
2015	6.8	245	5,466	170,012
2016	6.0	956	5,466	170,012
2017	23.4	707	17,100	541,971
2018	4.6	754	10,792	157,011
2019	5.6	649	6,854	201,995
2020	8.9	962	19,302	194,000

STORM WATER

Separate storm water permits may be required based on the types of activities occurring on site.

Previously storm water discharge requirements and coverage were combined in this individual permit. These have been separated to provide consistency among permittees, electronic reporting for storm water discharge monitoring reports, and increase flexibility to changing site conditions. The permittee is now required to maintain separate permit coverage, or an appropriate exclusion, under the Multi-Sector General Permit (MSGP) for Storm Water Discharges Associated with Industrial Activities (UTR000000). If the facility has not already done so, it has 30 days from when this permit is issued to submit the appropriate Notice of Intent (NOI) for the MSGP, or exclusion documentation.

Permit coverage under the Construction General Storm Water Permit (CGP) is required for any construction at the facility which disturb an acre or more, or is part of a common plan of development or sale that is an acre or greater. A Notice of Intent (NOI) is required to obtain a construction storm water permit prior to the period of construction.

Information on storm water permit requirements can be found at <http://stormwater.utah.gov>

PRETREATMENT REQUIREMENTS

The pretreatment requirements, regarding administering an approved pretreatment program, remain the same as in the current permit. Any changes to the pretreatment program, must be submitted for approval to the DWQ prior to implementing the change, 40 CFR 403.18. Authority to require a pretreatment program is provided for in 19-5-108 UCA, 1953 ann. and UAC R317-8-8.

Sampling of metals will be conducted six times a year and the sampling of organic toxics twice a year, see Part I and Part II of the UPDES Permit regarding sampling requirements. This is consistent with the UPDES Pretreatment Guidance for Sampling of POTWs, which is based on the design flow of the wastewater treatment plant. Additional requirements have been added to the permit to ensure that if the wasteload criteria or allowable headworks loading is above the value calculated for the local limit development for a parameter that additional monitoring and notification must occur. The permittee must submit the analysis for the TTO, via email, to the Pretreatment Coordinator for the DWQ.

Technically based local limits must be developed per 40 CFR 403.5(a) and 403.5(b). This evaluation may indicate that present local limits are sufficiently protective, or that the local limits must be revised. The permittee will be required to 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. The initial evaluation is due twelve months after the effective date of the permit. As part of this evaluation, the permit requires influent and effluent monitoring for metals and organic toxics as stated in the permit the most sensitive method should be used for analyzing pollutants of concern as determined by the local limit development. The permittee should utilize the EPA Local Limits Development Guidance to justify the re-evaluation of the local limits. Information is provided in Chapter 7 of the EPA Local Limits Development Guidance 2004 to assist with the development of revising the local limits.

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 major municipal discharger, the renewal permit will again require WET testing. The permittee will continue Chronic WET testing using one species monthly, alternating between *Ceriodaphnia dubia* and *Pimephales promelas* (fathead minnow). The permit will contain the standard requirements for re-testing upon failure of a WET test, and for a Toxicity Reduction Evaluation (TRE) as appropriate.

Since the permittee is a major municipal discharger, the renewal permit will again require whole effluent toxicity (WET) testing. At the beginning, Acute and Chronic quarterly biomonitoring will be again be required as described in the permit. As a result of the change in designation of receiving waters for the previous renewal, the Chronic Biomonitoring IC_{25} concentrations changed greatly. The previous WLA included an $IC_{25} > 37\%$. The interim IC_{25} concentrations for the renewal are listed in the table below, along with the final IC_{25} concentrations. The IC_{25} concentration is the inhibition concentration of toxicant (given in % effluent) that would cause a 25% reduction in mean young per female) or a 25% reduction in overall growth for the test Population.

Chronic toxicity occurs when the survival, growth, or reproduction for either test species, when exposed to a dilution of RWC% effluent or lower, is significantly less (at 95% confidence level) than that of the control specimens. The RWC% effluent dilution criterion is based upon the waste load analysis and is consistent with previous permit conditions. The permit will also contain a toxicity limitation re-opener provision. This provision allows for modification of the permit at any time to include WET limitations and/or increased WET monitoring, should additional information indicate the presence of toxicity in the discharge.

Seasonal Chronic WET RWC Limits, From WLA		
Season	Chronic WET IC ₂₅ RWC% Effluent	
	Interim RWC	Final RWC
Summer (Jul-Sep)	92% Eff.	85% Eff.
Fall (Oct-Dec)	95% Eff.	92% Eff.
Winter (Jan-Mar)	94% Eff.	97% Eff.
Spring (Apr-Jun)	89% Eff.	92% Eff.

PERMIT DURATION

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

Drafted and Reviewed by
 Daniel Griffin, Discharge Permit Writer, Biosolids, Reasonable Potential Analysis
 Jennifer Robinson, Pretreatment
 Lonnie Shull, Biomonitoring
 Carl Adams, Storm Water
 Sandy Wingert, TMDL/Watershed
 Nick von Stackelberg, Christopher Shope, Wasteload Analysis
 Utah Division of Water Quality, (801) 536-4300

PUBLIC NOTICE

Began: March 29, 2022

Ended: April 28, 2022

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 public noticed on the Division of Water Quality Public Notice Webpage.

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.

No comments were received during the public notice period.

DWQ-2021-022404

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ATTACHMENT 1

Effluent Monitoring Data

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Effluent Monitoring Data.

Outfall 001 Effluent Reporting Data										
Param	Flow		TSS		E. coli		O & G	DO	pH	
	Acute	Chronic	Acute	Chronic	Acute	Chronic	Max	Min	Min	Max
Limit			35	25	157	126	10	5	6.5	9
Unit	MGD		mg/L		MPN/100mL		mg/L	mg/L	SU	
Jan-18	51.4	46.3	11.9	6.2	64	14		6.8	6.8	7.2
Feb-18	47.9	46.9	6.5	6	9	7		7	6.8	7
Mar-18	53.4	52.7	9.4	7.3	17	16		6.5	6.8	7.4
Apr-18	53	52.4	7.9	6.6	11	9		6.6	7	7.3
May-18	55.1	53.4	4.3	4.3	21	15		6.3	7	7.3
Jun-18	52.3	50.6	12.7	7.2	34	17		5.8	6.9	7.3
Jul-18	48.2	47.9	20.3	11.7	77	43		5.8	6.9	7.3
Aug-18	47.7	47.3	7.5	6.5	36	32		5.8	6.9	7.3
Sep-18	47.2	46.2	13.4	11.4	63	45		5.7	7	7.2
Oct-18	51.9	48.2	12.2	9.8	29	18		6.3	6.9	7.3
Nov-18	45.3	45.1	11.9	10.1	16	11		6.8	6.9	7.4
Dec-18	47.1	46.7	7.4	6.3	7	5		7.1	7	7.2
Jan-19	51.7	49.7	6.8	6	7	4		6.3	7	7.2
Feb-19	58.8	55.3	11.3	7.9	12	8		6.1	7.1	7.3
Mar-19	64.2	59.6	7.7	7.4	13	7		6	7.1	7.4
Apr-19	68.1	64.1	7.1	6.2	19	15		5.7	7.1	7.4
May-19	65.1	61.8	5.8	5.3	12	7		6	7.1	7.4
Jun-19	66.1	58.4	6.1	5.2	13	9		6	7.1	7.4
Jul-19	53.4	51.6	11.9	10.1	20	17		5.7	7	7.3
Aug-19	50.4	49.5	12.3	10.5	120	50		5.2	6.9	7.2
Sep-19	50.6	49.4	9.1	7.3	30	23		5.8	6.9	7.2
Oct-19	49	47	12.9	10.2	42	32		6.2	6.6	7.4
Nov-19	46.4	45	13.1	9.3	27	20		6.7	6.9	7.1
Dec-19	50	49.1	8	7.2	14	11		7	6.8	7.2
Jan-20	50.1	50	8.2	7.1	11	5		6.7	6.9	7.1
Feb-20	57	55.9	7.7	7	11	8	5.62	6.2	7	7.3
Mar-20	54.3	52.8	10.1	8.2	8	7		6.7	6.9	7.2
Apr-20	52.4	50.3	8.2	7	18	13		6.7	6.9	7.1
May-20	52.2	51.7	8.5	7.1	13	9		6.3	6.9	7.1
Jun-20	54.4	53.4	5.6	4.8	13	9		6.1	6.8	7
Jul-20	51.2	49.5	10.6	6.2	19	17		5.7	6.6	7.2
Aug-20	49.1	47.9	11.1	7.3	35	27		5.9	6.7	7.2
Sep-20	47.1	46.4	27.5	15.7	59	42		5.9	6.9	7.3
Oct-20	47.7	46.1	9.1	6.9	38	17		6	7.1	7.3
Nov-20	45.4	44.7	9	8	19	11		6.3	7.1	7.3
Dec-20	44.9	44.4	11.8	8.6	38	17	5.49	6.8	7	7.2
Jan-21	45.8	45	8.7	8	23	16		6.9	6.9	7.2
Feb-21	50.5	48.6	10.8	8.8	19	18	5.49	6.8	6.9	7.2
Mar-21	51.4	49	8.4	8.1	20	14		6.5	7.1	7.2
Apr-21	49.5	49.6	9.9	9.1	19	17		6.2	7.1	7.5
May-21	52.9	50.4	8.7	7.5	18	15		5.8	7.1	7.3
Jun-21	50.5	48.9	11.9	10	38	31	5.49	5.7	7	7.3
Jul-21	47.2	46	13	11.6	88	45		5.9	7	7.2

Outfall 001 Effluent Concentration Reporting Data											
	Effluent CBOD			Effluent Ammonia							
	Acute	Chronic		Acute			Chronic				
Limit	28	16	20	15.9	13.1	12.3	5.8	5.3	3.7	4.5	5.9
Month	mg/L			mg/L			mg/L				
Jan-18	3.8		3.3			4.29	2.86				
Feb-18	3.5		2.4			2.25	1.48				
Mar-18	3.1		2.7			8.66	3.48				
Apr-18	4.1		2.6	3.79				1.56			
May-18	5.805		2.2	2.33				0.77			
Jun-18	2.746		2.5	1.62				0.89			
Jul-18	2.33	3			4.65				1.59		
Aug-18	4.9	2.2			6.76				3.52		
Sep-18	4.04	2.8			2.66				1.74		
Oct-18	4.5		2.7	1.7						0.5	
Nov-18	2.91		3.4	1.21							0.64
Dec-18	2.73		2.9	2.03							1.26
Jan-19	3.025		3.8			2.46	1.35				
Feb-19	2.827		4			3.76	1.4				
Mar-19	2.435		3.7			5.42	2.8				
Apr-19	3.195		3.1	1.77				1.15			
May-19	2.993		3	1.81				0.75			
Jun-19	4.105		2.4	0.43				0.15			
Jul-19	4.138	2.6			1.25				0.56		
Aug-19	4.432	3.1			3.33				2.06		
Sep-19	4.763	3.1			4.91				2.17		
Oct-19	4.274		3.8	2.04						1.14	
Nov-19	3.578		3.1	3.28							1.2
Dec-19	3.39		4	1.71							0.51
Jan-20	2.983		3.3			1.51	0.89				
Feb-20	4.47		4			1.33	0.64				
Mar-20	3.45		2.9			2.13	0.6				
Apr-20	5.441		2.5					0.81			
May-20	3.55		2.9					0.48			
Jun-20	4.486		2.4					0.65			
Jul-20	3.416	3			4.03				1.99		
Aug-20	2.368	3			9.83				4.81		
Sep-20	3.62	4			1.58				0.71		
Oct-20	2.646		2.7	2.24						0.97	
Nov-20	3.325		3.3	1.99							0.5
Dec-20	3.538		4.3	9.19							2.25
Jan-21	4.53		4.5			5.52	2.34				
Feb-21	4.698		3.8			3.29	1.59				
Mar-21	4.182		4.4			3.64	1.53				
Apr-21	4.916		3.7					0.68			
May-21	4.028		4.6					0.4			
Jun-21	5.17		2.7					0.32			
Jul-21	3.45	3.7			0.93				0.41		

Outfall 001 Effluent Monthly Loading Reporting Data							
Limit	CBOD Loading		Ammonia Loading				
kg/d	375300	300240	1622	1482	1035	1258	1650
lbs/mo	24821816.58	19857453.26	107255	98009	68422	83216	109105
Month	lbs/mo						
Jan-18	39719		34258				
Feb-18	25865		16181				
Mar-18	37359		47499				
Apr-18	33703			20386			
May-18	30020			10632			
Jun-18	31662			11305			
Jul-18		37152			19654		
Aug-18		26904			42955		
Sep-18		32366			20084		
Oct-18	33686					6268	
Nov-18	38367						7263
Dec-18	34836						15218
Jan-19	48380		17306				
Feb-19	51091		18120				
Mar-19	57330		43097				
Apr-19	50491			18474			
May-19	47802			11994			
Jun-19	34772			2204			
Jul-19		34112			7524		
Aug-19		40325			26422		
Sep-19		38796			26763		
Oct-19	45822					13868	
Nov-19	35013						13555
Dec-19	51244						6523
Jan-20	42536		11474				
Feb-20	53779		8606				
Mar-20	40138		8195				
Apr-20	31432			10223			
May-20	38220			6404			
Jun-20	31900			8740			
Jul-20		37980			25482		
Aug-20		37618			59568		
Sep-20		46014			8206		
Oct-20	31852					11532	
Nov-20	36990						5594
Dec-20	49803						25860
Jan-21	52831		27291				
Feb-21	43037		18066				
Mar-21	55657		19373				
Apr-21	46020			8386			
May-21	60022			5212			
Jun-21	33615			3924			
Jul-21		44308			4829		

TBPEL, mg/L				
	Acute	Chronic		
Month	Tot P	Ammonia	N2 + N3	Ortho P
Jan-18	3.66	5.57	15.6	2.71
Feb-18	3.27	3.41	17.7	2.87
Mar-18	3.1	6.06	11.3	2.23
Apr-18	3.109	3.69	12.1	2.52
May-18	2.941	2.24	15.7	2.42
Jun-18	9.31	2.26	17.9	2.95
Jul-18	3.88	3.62	18.2	2.77
Aug-18	3.27	7.25	15.4	3.08
Sep-18	3.64	3.33	19	2.71
Oct-18	3.23	0.93	19.8	2.85
Nov-18	3.51	1.61	20.8	3.24
Dec-18	3.499	2.75	19.9	2.53
Jan-19	3.3	3.22	15.7	2.61
Feb-19	2.92	3.39	12.5	2.12
Mar-19	2.859	5.18	10	2.41
Apr-19	2.8	3.29	11.5	1.55
May-19	2.84	1.97	13.1	1.2
Jun-19	2.93	0.83	16.8	2.77
Jul-19	3.48	1.44	17.1	3.1
Aug-19	3.64	4.14	17.8	2.95
Sep-19	3.289	3.8	14.2	3.28
Oct-19	3.039	1.98	18.4	2.91
Nov-19	3.34	1.89	18.4	2.98
Dec-19	3.13	1.22	18.3	2.86
Jan-20	3.23	1.98	13.1	2.47
Feb-20	2.66	2.5	11.7	1.7
Mar-20	3	1.75	15	2.65
Apr-20	3	1.59	14.5	3.21
May-20	3.16	0.97	15.7	3.4
Jun-20	3.04	1.58	16.1	3.36
Jul-20	3.26	3.94	15.5	3.46
Aug-20	3.22	6.5	10.7	3.02
Sep-20	4.16	1.97	13.2	3
Oct-20	2.88	2.47	14.2	2.81
Nov-20	3.27	1.76	18.1	2.95
Dec-20	3.3	3.78	17.7	2.92
Jan-21	3.2	5.14	29	2.52
Feb-21	3.27	4.04	18.4	1.61
Mar-21	3.21	3.34	14.8	2.4
Apr-21	3.24	1.9	15.5	2.42
May-21	3.05	1.39	18.6	2.53
Jun-21	3.28	0.55	22.1	3.26
Jul-21	3.52	0.96	20	3.21

Reuse Parameter								
Param	BOD5	E. coli		TRC	pH		Turbidity	
Units	mg/L	#/100mL		mg/L	SU		NTU	
Stat	Max	Chronic	Max	Min	Min	Max	Chronic	Max
Limit	10	0	9	1	6	9	2	5
Jan-18								
Feb-18								
Mar-18								
Apr-18	7.1	0	1		7	7.3	1.37	2.3
May-18	5.5	0	1		7.1	7.3	1.48	2.74
Jun-18	6.3	0	0		7	7.3	1.67	2.53
Jul-18	9	0	4		6.9	7.3	1.55	2.63
Aug-18	10	0	2		7	7.3	1.97	5
Sep-18	9.8	0	1		6.9	7.9	1.95	4.27
Oct-18	4.6	0	3		7	7.3	2	2.61
Nov-18								
Dec-18								
Jan-19								
Feb-19								
Mar-19								
Apr-19	4.5	0	2		7.3	7.5	1.34	1.65
May-19	6.7	0	2		7.2	7.5	1.29	1.62
Jun-19	6.3	0	2		7.2	7.4	1.01	1.65
Jul-19	6.7	0	2		7	7.3	1.64	1.73
Aug-19	7	1	3.1		7	7.3	1.65	1.93
Sep-19	6.9	0	3.1		6.9	7.1	1.17	1.81
Oct-19		0	0		7	7	0.5	0.5
Nov-19								
Dec-19								
Jan-20								
Feb-20								
Mar-20								
Apr-20	6.6	0	4.1		6.9	7.2	1.94	2.01
May-20	4.5	0	0		6.8	7.1	1.61	1.92
Jun-20	3.8	0	1		6.9	7.1	1.36	1.91
Jul-20	5.9	0	1		6.8	7	1.43	1.81
Aug-20	9	0	4.1		6.7	7.3	1.45	1.95
Sep-20	5.7	0	9.7		7	7.5	1.74	2
Oct-20								
Nov-20								
Dec-20								
Jan-21								
Feb-21								
Mar-21								
Apr-21								
May-21	2.4	0	2	1	7	7.3	1.45	2.13
Jun-21	2	0	1	1	7	7.3	1.42	3.06
Jul-21	2.19	0	0	1.11	6.98	7.27	1.22	2.69

Static Renewal WET Test				
Species	Ceriodaphnia		Pimephales Promelas	
Stat	Acute	Chronic	Acute	Chronic
Month				
Sep-16	Pass	Pass	9	Pass
Dec-16	9	Pass	Pass	Pass
Mar-17	Pass	Pass		Pass
Jun-17			Pass	Pass
Sep-17	Pass	Pass		
Dec-17			Pass	Pass
Mar-18	Pass	Pass		
Jun-18			Pass	Pass
Sep-18	Pass	Fail		
Dec-18			Pass	Pass
Mar-19	Pass	Pass		
Jun-19			Pass	Pass
Sep-19	Pass	Fail		
Dec-19			Pass	Pass
Mar-20	Pass	Pass		
Jun-20			Pass	Pass
Sep-20	Pass	Pass		
Dec-20			Pass	Pass
Mar-21	Pass	Pass		
Jun-21			Pass	Pass
Sep-21				

Outfall 001 Effluent Metals Data, mg/l												
Month	Ag	As	Cd	CN	Cr	Cu	Hg	Mo	Ni	Pb	Se	Zn
Sep-16	0.001	0.005	0.0004	0.005	0.002	0.07	0.0001	0.087	0.004	0.003	0.01	0.059
Dec-16	0.001	0.005	0	0.005	0.001	0.022	0.0001	0.01	0.007	0.001	0.002	0.059
Mar-17	0.001	0.007	0.0004	0.006	0.001	0.019	0.0001	0.0099	0.0089	0.001	0.011	0.062
Apr-17	0.001	0.0071	0.00041	0.00501	0.001	0.01901	0.0001	0.01107	0.00405	0.001	0.0061	0.06204
Jun-17	0.001	0.007	0.0004	0.005	0.001	0.014	0.0001	0.011	0.004	0.001	0.006	0.049
Aug-17	0.00082	0.00505	0.00047	0.00501	0.00061	0.0133	0.00002	0.01251	0.00624	0.00055	0.00612	0.05282
Oct-17	0.001	0.00588	0.00041	0.00501	0.001	0.0361	0.0001	0.01107	0.00405	0.001	0.00305	0.06387
Dec-17	0.001	0.005	0.0003	0.005	0.001	0.026	0.0001	0.008	0.003	0.001	0.016	0.061
Feb-18	0.001	0.004	0.0003	0.008	0.001	0.011	0.0001	0.01	0.004	0.001	0.03	0.138
Apr-18	0.001	0.005	0.0003	0.005	0.001	0.011	0.0001	0.008	0.008	0.001	0.003	0.06
Jun-18	0.001	0.005	0.0003	0.005	0.001	0.008	0.0001	0.011	0.002	0.001	0.02	0.043
Aug-18	0.001	0.006	0.0003	0.005	0.002	0.02	0.0000018	0.013	0.004	0.001	0.003	0.069
Oct-18	0.001	0.006	0.0003	0.009	0.001	0.014	0.0001	0.01	0.002	0.001	0.002	0.044
Dec-18	0.001	0.005	0.0011	0.005	0.002	0.033	0.001	0.035	0.01	0.006	0.004	0.066
Feb-19	0.001	0.006	0.0004	0.005	0.001	0.02	0.0002	0.019	0.003	0.001	0.003	0.052
Apr-19	0.001	0.006	0.0003	0.019	0.001	0.029	0.0001	0.013	0.01	0.001	0.004	0.044
Jun-19	0.001	0.006	0.0003	0.005	0.001	0.014	0.0001	0.055	0.008	0.001	0.003	0.04
Aug-19	0.001	0.005	0.0003	0.005	0.001	0.021	0.0001	0.016	0.009	0.001	0.003	0.05
Oct-19	0.001	0.005	0.0003	0.005	0.001	0.014	0.0001	0.009	0.002	0.001	0.001	0.052
Dec-19	0.001	0.004	0.0003	0.005	0.001	0.025	0	0.018	0.006	0.001	0.001	0.068
Feb-20	0.001	0.005	0.0014	0.005	0.001	0.017	0.0000034	0.019	0.003	0.001	0.002	0.106
Apr-20	0.001	0.004	0.0003	0.008	0.001	0.029	0.000008	0.009	0.002	0.001	0.001	0.086
Jun-20	0.001	0.005	0.0044	0.005	0.061	0.023	0.0000042	0.009	0.061	0.001	0.001	0.075
Aug-20	0.001	0.005	0.0005	0.005	0.001	0.03	0.0000025	0.015	0.01	0.001	0.001	0.034
Oct-20	0.002	0.005	0.0003	0.005	0.002	0.033	0.0000028	0.007	0.003	0.001	0.001	0.058
Dec-20	0.001	0.004	0.0003	0.021	0.001	0.015	0.0000055	0.01	0.005	0.002	0.001	0.115
Feb-21	0.001	0.004	0.0003	0.028	0.001	0.012	0.0000053	0.009	0.002	0.001	0.001	0.045
Apr-21	0.003	0.004	0.0003	0.031	0.001	0.01	0.0000033	0.008	0.002	0.001	0.002	0.049
Jun-21	0.001	0.004	0.0011	0.027	0.001	0.024	0.000001	0.009	0.007	0.002	0.007	0.146

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ATTACHMENT 2

Wasteload Analysis

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**Utah Division of Water Quality
Statement of Basis
Wasteload Analysis for Jordan River POTWs (Central Valley)**

Date: October 21, 2021

Prepared by: Nicholas von Stackelberg, P.E., Watershed Protection Section
Chris Shope, Ph.D., Standards and Technical Services Section
Suzan Tahir, Standards and Technical Services Section

Facility: Central Valley Water Reclamation Facility
UPDES No. UT-0024392

Receiving water: Mill Creek

This addendum summarizes the wasteload analysis that was performed to determine water quality based effluent limits (WQBEL) for this discharge. Wasteload analyses are performed to determine point source effluent limitations necessary to maintain designated beneficial uses by evaluating projected effects of discharge concentrations on in-stream water quality. The wasteload analysis also takes into account downstream designated uses (UAC R317-2-8). Projected concentrations are compared to numeric water quality standards to determine acceptability. The numeric criteria in this wasteload analysis may be modified by narrative criteria and other conditions determined by staff of the Division of Water Quality.

Discharge

Outfall 001: Mill Creek → Jordan River

The design flow for Outfall 001 is 75.0 MGD maximum monthly average and 61.0 MGD daily maximum flow.

Effluent discharge water quality data was obtained from monitoring site 4992500 Central Valley WWTP. The seasonal average was calculated for temperature, pH and hardness.

Receiving Water

The receiving water for Outfall 001 is Mill Creek, which is tributary to the Jordan River.

Per UAC R317-2-13.10, the designated beneficial uses for Mill Creek from confluence with Jordan River to Interstate Highway 15 (AU: UT16020204-026_00) are: 2B, 3C, and 4.

- *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 3C - Protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain.*
- *Class 4 - Protected for agricultural uses including irrigation of crops and stock watering.*

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Typically, the critical flow for the wasteload analysis is considered the lowest stream flow for seven consecutive days with a ten-year return frequency (7Q10). The seasonal 7Q10 flows calculated in the *Jordan River Low Flow Analysis* report (Hansen Allen and Luce, 2021) were used for the critical low flows for the POTWs, tributaries and diversions along the Jordan River. Upstream flow data from DWQ 4992505 MILL CK. AB CENTRAL VALLEY WWTP OUTFALL were used to evaluate ambient, background flow conditions.

Table 1: Mill Creek critical low flow (7Q10)

Season	Flow (cfs)
Summer	21.0
Fall	10.0
Winter	3.0
Spring	10.0
Annual	15.6

Receiving water quality data was obtained from monitoring site DWQ 4992505 MILL CK. AB CENTRAL VALLEY WWTP OUTFALL. The average seasonal value was calculated for background conditions.

Mixing Zone

Per UAC R317-2-5, since the discharge is more than twice the background receiving water flow, the discharge is considered instantaneously fully mixed. Therefore, no mixing zone is allowed.

Protection of Downstream Uses

Per UAC R317-2-8, *all actions to control waste discharges under these rules shall be modified as necessary to protect downstream designated uses.* The effluent limits for the discharge to the Jordan River were determined as part of the Jordan River POTW WLA. Any WQBELs that are lower in the Jordan River POTW WLA will supersede those for the Mill Creek WLA.

TMDL

Mill Creek is listed as impaired for E. coli and benthic macroinvertebrates according to the 303(d) list in the 2016 Integrated Report. Downstream segments of the Jordan River are listed for dissolved oxygen (DO), total phosphorus (TP), dissolved copper, total dissolved solids (TDS), E coli, and benthic macroinvertebrates. Phase 1 of the Jordan River TMDL determined that total organic matter is the parameter of concern for the DO impairment in the Jordan River (Cirrus Ecological Solutions and Stantec Consulting, 2013).

The 303(d) list of impairments for the Jordan River, Mill Creek, and State Canal is summarized in the Utah *Combined 2018/2020 303(d) [Water Quality Assessment Report](#) dated February 9, 2021.* The impaired parameters for Mill Creek 1-SLCity, Mill Creek from confluence with Jordan River to Interstate 15 crossing (UT16020204-026_00) are E. coli and Bioassessment/Macroinvertebrates. The E. coli impairment in the Jordan River watershed is currently being identified and addressed through a Total Maximum Daily Load Study within Utah DWQ.

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Parameters of Concern

The parameters of concern considered in this wasteload allocation are total ammonia (TAN) and total recoverable metals. Due to ongoing studies related to the TMDL, this wasteload allocation does not address parameters related to dissolved oxygen, including biochemical oxygen demand (BOD), dissolved oxygen (DO), total nitrogen (TN), and total phosphorus (TP).

Water Quality Modeling

A QUAL2Kw model of the Jordan River was populated and calibrated as part of the TMDL study (Stantec Consulting 2010, UDWQ 2010). The model was subsequently validated to a synoptic survey conducted by UDWQ and the Jordan River/Farmington Bay Water Quality Council (JRFBWQC) during July 2014 (UDWQ 2015). The model validation identified areas for future improvement of the model; however, the model was considered suitable for application to the wasteload allocation for ammonia.

The TMDL model of the Jordan River extends 52.4 miles from the outlet of Utah Lake to Burton Dam. For the purposes of the WLA, the model was split at Burnham Dam (approximately 1.7 miles upstream of Burton Dam) and extended down State Canal to the Farmington Bay Waterfowl Management Area (approximately 3.5 miles downstream from Burnham Dam). The following point sources were added to the State Canal: A-1 Drain, South Davis Sewer District North WWTP, and outlet channel from Bountiful Pond (Mill Creek and Stone Creek). In addition, the Jordan Basin WRF discharge was added to the Jordan River, as this discharge was not active at the time of the TMDL model development.

The Jordan River WLA QUAL2Kw model was used for determining the WQBEL for ammonia. Effluent concentrations were adjusted up to the current permit limits so that water quality criteria were not exceeded in the receiving water. The current permit limits for DO and CBOD were used in the model and not modified due to the ongoing TMDL. Background conditions for each plant were characterized by assuming each upstream plant was operating at the low flow rate with average ammonia concentration in the effluent. For calculating the chronic ammonia criterion, fish early life stages (ELS) were assumed to be present during all seasons except downstream of the SDSD plants, which ELS were assumed to be present from March through October.

A mass balance spreadsheet tool was developed to calculate the WLA for conservative constituents such as metals. The limiting flow condition at each facility was typically the winter season; however, seasonal averages were used for the allocations. Each wastewater treatment plant was granted a full allocation at the point of discharge. Background condition for each plant was characterized by either a single or combined, multiple monitoring location data. The WQBEL limits are shown in Table 2.

The calibration, validation and wasteload models are available for review by request.

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Table 2: Water Quality Based Effluent Limits Summary

Effluent Constituent	Averaging Period	Central Valley
Flow (MGD)	Monthly	75
Ammonia Acute (mg/L)	Daily	
Summer (Jun-Aug)		4.7
Fall (Sep-Nov)		5.4
Winter (Dec-Feb)		6.4
Spring (Mar-May)		5.4
Ammonia Chronic (mg/L)	Monthly	
Summer (Jun-Aug)		3.6
Fall (Sep-Nov)		3.8
Winter (Dec-Feb)		3.7
Spring (Mar-May)		3.8
a: Limit due to impairment of receiving segment.		
b: Ultraviolet disinfection utilized, hence no limit for TRC		

WET Limits

The percent of effluent in the receiving water in a fully mixed condition, and acute and chronic dilution in a not fully mixed condition are calculated in the WLA in order to generate WET limits. The LC₅₀ (lethal concentration, 50%) percent effluent for acute toxicity and the IC₂₅ (inhibition concentration, 25%) percent effluent for chronic toxicity, as determined by the WET test, needs to be below the WET limits, as determined by the WLA. The WET limit for LC₅₀ is typically 100% effluent and does not need to be determined by the WLA.

Table 4: WET Limits for IC₂₅

Receiving Water	Percent Effluent
Central Valley WRF – Mill Creek	96.9%

Effluent Limits

The water quality based effluent limits determined as part of this combined wasteload allocation are summarized in Table 2.

For parameters without a WQBEL, permit limits should be set according to rules found in R317-1-3 and categorical UPDES discharge requirements.

Documents:

WLA Document: *CVWRF_WLA_MC_2021.docx*
 Mill Creek Wasteload Analysis: *CVWRF_WLA_MC_2021.xlsm*
 Jordan River Wasteload Analysis: *CVWRF_WLA_JR_2021.xlsm*

References:

Cirrus Ecological Solutions and Stantec Consulting. 2013. Jordan River Total Maximum Daily Load Water Quality Study – Phase 1. Prepared for State of Utah, Department of Environmental Quality, Division of Water Quality.

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Hansen, Allen and Luce Inc. 2021. Jordan River Low Flow Analysis. Wasatch Front Water Quality Council and South Davis Sewer District.

Neilson, B.T., A.J. Hobson, N. von Stackelberg, M. Shupryt, and J.D. Ostermiller. 2012. Using QUAL2K Modeling to Support Nutrient Criteria Development and Wasteload Analyses in Utah. Prepared for State of Utah, Department of Environmental Quality, Division of Water Quality.

Stantec Consulting. 2010. Jordan River TMDL: 2010 QUAL2Kw Model Calibration Technical Memo Public Draft. Prepared for State of Utah, Department of Environmental Quality, Division of Water Quality. February 22, 2010. 18 pp.

Utah DWQ. 2010. Jordan River TMDL QUAL2Kw model refinement. Prepared by N. Von Stackelberg P.E., State of Utah, Department of Environmental Quality, Division of Water Quality.

Utah DWQ. 2021. Utah Wasteload Analysis Procedures Version 2.0. State of Utah, Department of Environmental Quality, Division of Water Quality.

Utah DWQ 2012. Field Data Collection for QUAL2Kw Model Build and Calibration Standard Operating Procedures Version 1.0. State of Utah, Department of Environmental Quality, Division of Water Quality.

Utah DWQ. 2015. Jordan River Summer 2014 Synoptic Survey and QUAL2Kw Model Validation Report. Prepared by N. Von Stackelberg P.E., State of Utah, Department of Environmental Quality, Division of Water Quality.

Utah DWQ. 2021. Utah's Combined 2018/2020 303(d) Water Quality Assessment Report. August 2021. State of Utah, Department of Environmental Quality, Division of Water Quality.

Lower Mill Creek and Jordan River Early Life Stage Review. Memorandum from Ben Holcomb dated May 20, 2016. Utah Division of Water Quality.

Criteria Support Document: Site-specific criteria for recalculation of the USEPA 2013 aquatic life ammonia water quality criteria for a segment of Mill Creek and the Jordan River, Salt Lake County, Utah. November 21, 2018 Review Draft. Utah Division of Water Quality.

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WASTELOAD ANALYSIS [WLA] [REDACTED] = not included in the WLA
Addendum: Statement of Basis

21-Oct-21
4:00 PM

Facilities: Central Valley Water Reclamation Facility
Discharging to: Mill Creek

UPDES No: UT-0024392

I. Introduction

Wasteload analyses are performed to determine point source effluent limitations necessary to maintain designated beneficial uses by evaluating projected effects of discharge concentrations on in-stream water quality. The wasteload analysis also takes into account downstream designated uses [R317-2-8, UAC]. Projected concentrations are compared to numeric water quality standards to determine acceptability. The anti-degradation policy and procedures are also considered. The primary in-stream parameters of concern may include metals (as a function of hardness), total dissolved solids (TDS), total residual chlorine (TRC), un-ionized ammonia (as a function of pH and temperature, measured and evaluated in terms of total ammonia), and dissolved oxygen.

Mathematical water quality modeling is employed to determine stream quality response to point source discharges. Models aid in the effort of anticipating stream quality at future effluent flows at critical environmental conditions (e.g., low stream flow, high temperature, high pH, etc).

The numeric criteria in this wasteload analysis may always be modified by narrative criteria and other conditions determined by staff of the Division of Water Quality.

II. Receiving Water and Stream Classification

Mill Creek: 2B,3A,4
Antidegradation Review: Level I review completed. Level II review is not required.

III. Numeric Stream Standards for Protection of Aquatic Wildlife

Total Ammonia (TNH3)	Varies as a function of Temperature and pH Rebound. See Water Quality Standards
Chronic Total Residual Chlorine (TRC)	0.011 mg/l (4 Day Average) 0.019 mg/l (1 Hour Average)
Chronic Dissolved Oxygen (DO)	6.5 mg/l (30 Day Average) 5.0 mg/l (7Day Average) 4.0 mg/l (1 Day Average)
Maximum Total Dissolved Solids	1200.0 mg/l

Acute and Chronic Heavy Metals (Dissolved)

Parameter	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard		
	Concentration	Load*	Concentration		Load*
Aluminum	87.00 ug/l**	54.415 lbs/day	750.00	ug/l	469.092 lbs/day
Arsenic	150.00 ug/l	93.818 lbs/day	340.00	ug/l	212.655 lbs/day
Cadmium	1.95 ug/l	1.221 lbs/day	5.77	ug/l	3.606 lbs/day
Chromium III	218.12 ug/l	136.422 lbs/day	4563.40	ug/l	2,854.205 lbs/day
ChromiumVI	11.00 ug/l	6.880 lbs/day	16.00	ug/l	10.007 lbs/day
Copper	24.58 ug/l	15.374 lbs/day	40.74	ug/l	25.483 lbs/day
Iron			1000.00	ug/l	625.456 lbs/day
Lead	13.47 ug/l	8.427 lbs/day	345.75	ug/l	216.253 lbs/day
Mercury	0.0120 ug/l	0.008 lbs/day	2.40	ug/l	1.501 lbs/day
Nickel	136.13 ug/l	85.141 lbs/day	1224.36	ug/l	765.785 lbs/day
Selenium	4.60 ug/l	2.877 lbs/day	20.00	ug/l	12.509 lbs/day
Silver	N/A ug/l	N/A lbs/day	26.60	ug/l	16.639 lbs/day
Zinc	313.14 ug/l	195.853 lbs/day	313.14	ug/l	195.853 lbs/day

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* Allowed below discharge

**Chronic Aluminum standard applies only to waters with a pH < 7.0 and a Hardness < 50 mg/l as CaCO₃

Metals Standards Based upon a Hardness of 310.75 mg/l as CaCO₃

IV. Numeric Stream Standards for Protection of Agriculture

	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Arsenic			100.0 ug/l	lbs/day
Boron			750.0 ug/l	lbs/day
Cadmium			10.0 ug/l	3.13 lbs/day
Chromium			100.0 ug/l	lbs/day
Copper			200.0 ug/l	lbs/day
Lead			100.0 ug/l	lbs/day
Selenium			50.0 ug/l	lbs/day
TDS, Summer			1200.0 mg/l	375.27 tons/day

V. Numeric Stream Standards for Protection of Human Health (Class 1C Waters)

Metals	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Arsenic			ug/l	lbs/day
Barium			ug/l	lbs/day
Cadmium			ug/l	lbs/day
Chromium			ug/l	lbs/day
Lead			ug/l	lbs/day
Mercury			ug/l	lbs/day
Selenium			ug/l	lbs/day
Silver			ug/l	lbs/day
Fluoride (3)			ug/l	lbs/day
to			ug/l	lbs/day
Nitrates as N			ug/l	lbs/day

VI. Numeric Stream Standards the Protection of Human Health from Water & Fish Consumption [Toxics]

Metals	Maximum Conc., ug/l - Acute Standards			
	Class 1C		Class 3A, 3B	
Antimony	ug/l	lbs/day		
Arsenic	ug/l	lbs/day	4300.00 ug/l	3175.83 lbs/day
Asbestos	ug/l	lbs/day		
Beryllium				
Cadmium				
Chromium (III)				
Chromium (VI)				
Copper				
Cyanide	ug/l	lbs/day	2.2E+05 ug/l	162484.25 lbs/day
Lead	ug/l	lbs/day		
Mercury			0.15 ug/l	0.11 lbs/day
Nickel			4600.00 ug/l	3397.40 lbs/day
Selenium	ug/l	lbs/day		
Silver	ug/l	lbs/day		
Thallium			6.30 ug/l	4.65 lbs/day
Zinc				

There are additional standards that apply to this receiving water, but were not considered in this modeling/waste load allocation analysis.

VII. Mathematical Modeling of Stream Quality

Model configuration was accomplished utilizing standard modeling procedures. Data points were plotted and coefficients adjusted as required to match observed data as closely as possible.

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The modeling approach used in this analysis included one or a combination of the following models.

(1) The Utah River Model, Utah Division of Water Quality, 1992. Based upon STREAMDO IV (Region VIII) and Supplemental Ammonia Toxicity Models; EPA Region VIII, Sept. 1990 and QUAL2E (EPA, Athens, GA).

(2) Utah Ammonia/Chlorine Model, Utah Division of Water Quality, 1992.

(3) AMMTOX Model, University of Colorado, Center of Limnology, and EPA Region 8

(4) Principles of Surface Water Quality Modeling and Control. Robert V. Thomann, et.al. Harper Collins Publisher, Inc. 1987, pp. 644.

Coefficients used in the model were based, in part, upon the following references:

(1) Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling. Environmental Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Athens Georgia. EPA/600/3-85/040 June 1985.

(2) Principles of Surface Water Quality Modeling and Control. Robert V. Thomann, et.al. Harper Collins Publisher, Inc. 1987, pp. 644.

VIII. Modeling Information

The required information for the model may include the following information for both the upstream conditions at low flow and the effluent conditions:

Flow, Q, (cfs or MGD)	D.O. mg/l
Temperature, Deg. C.	Total Residual Chlorine (TRC), mg/l
pH	Total NH3-N, mg/l
BOD5, mg/l	Total Dissolved Solids (TDS), mg/l
Metals, ug/l	Toxic Organics of Concern, ug/l

Other Conditions

In addition to the upstream and effluent conditions, the models require a variety of physical and biological coefficients and other technical information. In the process of actually establishing the permit limits for an effluent, values are used based upon the available data, model calibration, literature values, site visits and best professional judgement.

Model Inputs

The following is upstream and discharge information that was utilized as inputs for the analysis. Dry washes are considered to have an upstream flow equal to the flow of the discharge.

Current Upstream Information

	Stream								
	Critical Low								
	Flow	Temp.	pH	T-NH3	BOD5	DO	TRC	TDS	
	cfs	Deg. C		mg/l as N	mg/l	mg/l	mg/l	mg/l	
Summer (Irrig. Season)	21.0	18.9	7.9	0.03	1.50	7.15	0.03	822.4	
Fall	10.0	7.9	7.8	0.03	1.50	---	0.00	639.0	
Winter	3.0	8.2	7.8	0.02	1.50	---	0.00	639.0	
Spring	10.0	12.7	7.9	0.03	2.20	---	0.07	639.0	
Dissolved Metals	Al ug/l	As ug/l	Cd ug/l	CrIII ug/l	CrVI ug/l	Copper ug/l	Fe ug/l	Pb ug/l	
All Seasons	238.00	3.16	0.07	1.31	2.65*	1.28	0.0	0.15	

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Dissolved Metals All Seasons	Hg ug/l 0.0000	Ni ug/l 2.50	Se ug/l 1.08	Ag ug/l 0.25	Zn ug/l 8.22	Boron ug/l 10.0	* 1/2 MDL
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Projected Discharge Information

Season	Flow, MGD	Temp.	TDS mg/l	TDS tons/day
Summer	75.00000	NA	982.67	307.26746
Fall	75.00000	NA		
Winter	75.00000	NA		
Spring	75.00000	NA		

All model numerical inputs, intermediate calculations, outputs and graphs are available for discussion, inspection and copy at the Division of Water Quality.

IX. Effluent Limitations

Current State water quality standards are required to be met under a variety of conditions including in-stream flows targeted to the 7-day, 10-year low flow (R317-2-9).

Other conditions used in the modeling effort coincide with the environmental conditions expected at low stream flows.

Effluent Limitation for Flow based upon Water Quality Standards

In-stream criteria of downstream segments will be met with an effluent flow maximum value as follows:

Season	Daily Average	
Summer	75.000 MGD	116.025 cfs
Fall	75.000 MGD	116.025 cfs
Winter	75.000 MGD	116.025 cfs
Spring	75.000 MGD	116.025 cfs

Flow Requirement or Loading Requirement

The calculations in this wasteload analysis utilize the maximum effluent discharge flow of 75 MGD. If the discharger is allowed to have a flow greater than 75 MGD during 7Q10 conditions, and effluent limit concentrations as indicated, then water quality standards will be violated. In order to prevent this from occurring, the permit writers must include the discharge flow limitation as indicated above; or, include loading effluent limits in the permit.

Effluent Limitation for Whole Effluent Toxicity (WET) based upon WET Policy

Effluent Toxicity will not occur in downstream segments if the values below are met.

Season	Receiving			Combined Flow (cfs)	Totally Mixed	Chronic IC25 % Effluent	Acute LC50 % Effluent
	Water Flow (cfs)	Effluent Flow (MGD)	Effluent Flow (cfs)				
Summer	21.00	75.0	116.0	137.0	YES	84.7%	EOP
Fall	10.00	75.0	116.0	126.0	YES	92.1%	EOP
Winter	3.00	75.0	116.0	119.0	YES	97.5%	EOP
Spring	10.00	75.0	116.0	126.0	YES	92.1%	EOP

Effluent Limitation for Total Ammonia based upon Water Quality Standards

In-stream criteria of downstream segments for Total Ammonia will be met with an effluent

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limitation (expressed as Total Ammonia as N) as follows:

Season	Concentration		Load	
Summer	4 Day Avg. - Chronic	2.9 mg/l as N	1,813.6	lbs/day
	1 Hour Avg. - Acute	10.3 mg/l as N	6,426.7	lbs/day
Fall	4 Day Avg. - Chronic	3.4 mg/l as N	2,103.5	lbs/day
	1 Hour Avg. - Acute	12.5 mg/l as N	7,791.6	lbs/day
Winter	4 Day Avg. - Chronic	3.5 mg/l as N	2,173.9	lbs/day
	1 Hour Avg. - Acute	13.0 mg/l as N	8,153.0	lbs/day
Spring	4 Day Avg. - Chronic	3.2 mg/l as N	1,990.7	lbs/day
	1 Hour Avg. - Acute	11.6 mg/l as N	7,232.7	lbs/day

Acute limit calculated with an Acute Zone of Initial Dilution (ZID) to be equal to 100.%.

**Effluent Limitations for Total Recoverable Metals based upon
Water Quality Standards**

In-stream criteria of downstream segments for Dissolved Metals will be met with an effluent limitation as follows (based upon a hardness of 310.75 mg/l):

	4 Day Average		1 Hour Average		Load
	Concentration	Load	Concentration		
Aluminum	N/A	N/A	796.3	ug/l	498.1 lbs/day
Arsenic	176.58 ug/l	71.4 lbs/day	370.5	ug/l	231.7 lbs/day
Cadmium	2.29 ug/l	0.9 lbs/day	6.3	ug/l	3.9 lbs/day
Chromium III	257.36 ug/l	104.0 lbs/day	4,976.3	ug/l	3112.4 lbs/day
Chromium VI	12.27 ug/l	5.0 lbs/day	17.1	ug/l	10.7 lbs/day
Copper	28.80 ug/l	11.6 lbs/day	44.3	ug/l	27.7 lbs/day
Iron	N/A	N/A	1,090.5	ug/l	682.1 lbs/day
Lead	15.89 ug/l	6.4 lbs/day	377.0	ug/l	235.8 lbs/day
Mercury	0.01 ug/l	0.0 lbs/day	2.6	ug/l	1.6 lbs/day
Nickel	160.31 ug/l	64.8 lbs/day	1,334.9	ug/l	834.9 lbs/day
Selenium	5.24 ug/l	2.1 lbs/day	21.7	ug/l	13.6 lbs/day
Silver	N/A ug/l	N/A lbs/day	29.0	ug/l	18.1 lbs/day
Zinc	368.32 ug/l	148.9 lbs/day	340.7	ug/l	213.1 lbs/day
Cyanide	6.14 ug/l	2.5 lbs/day	24.0	ug/l	15.0 lbs/day

**Effluent Limitations for Heat/Temperature based upon
Water Quality Standards**

Summer	21.1 Deg. C.	69.9 Deg. F
Fall	10.0 Deg. C.	50.0 Deg. F
Winter	10.2 Deg. C.	50.4 Deg. F
Spring	14.8 Deg. C.	58.6 Deg. F

**Effluent Targets for Pollution Indicators
Based upon Water Quality Standards**

In-stream criteria of downstream segments for Pollution Indicators will be met with an effluent limit as follows:

	1 Hour Average	
	Concentration	Loading
Gross Beta (pCi/l)	50.0 pCi/L	

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BOD (mg/l)	5.0 mg/l	3127.3 lbs/day
Nitrates as N	4.0 mg/l	2501.8 lbs/day
Total Phosphorus as P	0.05 mg/l	31.3 lbs/day
Total Suspended Solids	90.0 mg/l	56291.0 lbs/day

Note: Pollution indicator targets are for information purposes only.

**Effluent Limitations for Protection of Human Health [Toxics Rule]
Based upon Water Quality Standards (Most stringent of 1C or 3A & 3B as appropriate.)**

In-stream criteria of downstream segments for Protection of Human Health [Toxics] will be met with an effluent limit as follows:

	Maximum Concentration	
	Concentration	Load
Metals		
Antimony	ug/l	lbs/day
Arsenic	ug/l	lbs/day
Asbestos	ug/l	lbs/day
Beryllium		
Cadmium		
Chromium (III)		
Chromium (VI)		
Copper	ug/l	lbs/day
Cyanide	ug/l	lbs/day
Lead		
Mercury	ug/l	lbs/day
Nickel	ug/l	lbs/day
Selenium		
Silver		
Thallium	ug/l	lbs/day
Zinc		

**Metals Effluent Limitations for Protection of All Beneficial Uses
Based upon Water Quality Standards and Toxics Rule**

	Class 4 Acute Agricultural ug/l	Class 3 Acute Aquatic Wildlife ug/l	Acute Toxics Drinking Water Source ug/l	Acute Toxics Wildlife ug/l	1C Acute Health Criteria ug/l	Acute Most Stringent ug/l	Class 3 Chronic Aquatic Wildlife ug/l
Aluminum		796.3				796.3	N/A
Antimony				5078.3		5078.3	
Arsenic	118.1	370.5			0.0	118.1	176.6
Asbestos						0.00E+00	
Barium						0.0	
Beryllium						0.0	
Cadmium	11.8	6.3			0.0	6.3	2.3
Chromium (III)		4976.3			0.0	4976.3	257.4
Chromium (VI)	117.9	17.1			0.0	17.09	12.27
Copper	236.0	44.3				44.3	28.8
Cyanide		24.0	259819.0			24.0	6.1
Iron		1090.5				1090.5	
Lead	118.1	377.0			0.0	118.1	15.9
Mercury		2.62		0.18	0.0	0.18	0.014
Nickel		1334.9		5432.6		1334.9	160.3
Selenium	58.9	21.7			0.0	21.7	5.2
Silver		29.0			0.0	29.0	
Thallium				7.4		7.4	
Zinc		340.7				340.7	368.3
Boron	885.7					885.7	

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Salt Lake City, Utah**

Summary Effluent Limitations for Metals [Wasteload Allocation, TMDL]

[If Acute is more stringent than Chronic, then the Chronic takes on the Acute value.]

	WLA Acute ug/l	WLA Chronic ug/l	
Aluminum	796.3	N/A	
Antimony	5078.28		
Arsenic	118.1	176.6	Acute Controls
Asbestos	0.00E+00		
Barium			
Beryllium			
Cadmium	6.3	2.3	
Chromium (III)	4976.3	257	
Chromium (VI)	17.1	12.3	
Copper	44.3	28.8	
Cyanide	24.0	6.1	
Iron	1090.5		
Lead	118.1	15.9	
Mercury	0.177	0.014	
Nickel	1334.9	160	
Selenium	21.7	5.2	
Silver	29.0	N/A	
Thallium	7.4		
Zinc	340.7	368.3	Acute Controls
Boron	885.72		

X. Antidegradation Considerations

The Utah Antidegradation Policy allows for degradation of existing quality where it is determined that such lowering of water quality is necessary to accommodate important economic or social development in the area in which the waters are protected [R317-2-3]. It has been determined that certain chemical parameters introduced by this discharge will cause an increase of the concentration of said parameters in the receiving waters. Under no conditions will the increase in concentration be allowed to interfere with existing instream water uses.

The antidegradation rules and procedures allow for modification of effluent limits less than those based strictly upon mass balance equations utilizing 100% of the assimilative capacity of the receiving water. Additional factors include considerations for "Blue-ribbon" fisheries, special recreational areas, threatened and endangered species, and drinking water sources.

An Antidegradation Level I Review was conducted on this discharge and its effect on the receiving water. Based upon that review, it has been determined that an Antidegradation Level II Review is not required.

XI. Colorado River Salinity Forum Considerations

Discharges in the Colorado River Basin are required to have their discharge at a TDS loading of less than 1.00 tons/day unless certain exemptions apply. Refer to the Forum's Guidelines for additional information allowing for an exceedence of this value.

This doesn't apply to facilities that do not discharge to the Colorado River Basin.

XII. Summary Comments

The mathematical modeling and best professional judgement indicate that violations of receiving water beneficial uses with their associated water quality standards, including important down-stream segments, will not occur for the evaluated parameters of concern as discussed above if the effluent limitations indicated above are met.

XIII. Notice of UPDES Requirement

**Utah Division of Water Quality
Salt Lake City, Utah**

This Addendum to the Statement of Basis does not authorize any entity or party to discharge to the waters of the State of Utah. That authority is granted through a UPDES permit issued by the Utah Division of Water Quality. The numbers presented here may be changed as a function of other factors. Dischargers are strongly urged to contact the Permits Section for further information. Permit writers may utilize other information to adjust these limits and/or to determine other limits based upon best available technology and other considerations provided that the values in this wasteload analysis [TMDL] are not compromised. See special provisions in Utah Water Quality Standards for adjustments in the Total Dissolved Solids values based upon background concentration.

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801-538-6052
File Name: CVWRF_WLA_2021.xlsm

APPENDIX - Coefficients and Other Model Information

CBOD Coeff. (Kd)20 1/day 2.000	CBOD Coeff. FORCED (Kd)/day 0.000	CBOD Coeff. (Ka)T 1/day 1.899	REAER. Coeff. (Ka)20 (Ka)/day 17.714	REAER. Coeff. FORCED 1/day 0.000	REAER. Coeff. (Ka)T 1/day 17.248	NBOD Coeff. (Kn)20 1/day 0.250	NBOD Coeff. (Kn)T 1/day 0.229
Open Coeff. (K4)20 1/day 0.000	Open Coeff. (K4)T 1/day 0.000	NH3 LOSS (K5)20 1/day 4.000	NH3 (K5)T 1/day 3.799	NO2+NO3 LOSS (K6)20 1/day 0.000	NO2+NO3 (K6)T 1/day 0.000	TRC Decay K(CI)20 1/day 32.000	TRC K(CI)(T) 1/day 29.974
BENTHIC DEMAND (SOD)20 gm/m2/day 1.000	BENTHIC DEMAND (SOD)T gm/m2/day 0.932						
K1 CBOD {theta} 1.0	K2 Reaer. {theta} 1.0	K3 NH3 {theta} 1.1	K4 Open {theta} 1.0	K5 NH3 Loss {theta} 1.0	K6 NO2+3 {theta} 1.0	K(CI) TRC {theta} 1.1	S Benthic {theta} 1.1

Antidegradation Review

An antidegradation review (ADR) was conducted to determine whether the proposed activity complies with the applicable antidegradation requirements for receiving waters that may be affected. The Level I ADR evaluated the criteria of R317-2-3.5(b) and determined that a Level II antidegradation Review is not required.

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Salt Lake City, Utah**

WASTELOAD ANALYSIS [WLA] [REDACTED] = not included in the WLA
Addendum: Statement of Basis

20-Oct-21
4:00 PM

Facilities: Central Valley Water Reclamation Facility
Discharging to: Jordan River

UPDES No: UT-0024392

I. Introduction

Wasteload analyses are performed to determine point source effluent limitations necessary to maintain designated beneficial uses by evaluating projected effects of discharge concentrations on in-stream water quality. The wasteload analysis also takes into account downstream designated uses [R317-2-8, UAC]. Projected concentrations are compared to numeric water quality standards to determine acceptability. The anti-degradation policy and procedures are also considered. The primary in-stream parameters of concern may include metals (as a function of hardness), total dissolved solids (TDS), total residual chlorine (TRC), un-ionized ammonia (as a function of pH and temperature, measured and evaluated in terms of total ammonia), and dissolved oxygen.

Mathematical water quality modeling is employed to determine stream quality response to point source discharges. Models aid in the effort of anticipating stream quality at future effluent flows at critical environmental conditions (e.g., low stream flow, high temperature, high pH, etc).

The numeric criteria in this wasteload analysis may always be modified by narrative criteria and other conditions determined by staff of the Division of Water Quality.

II. Receiving Water and Stream Classification

Jordan River:	2B,3B,4
Antidegradation Review:	Level I review completed. Level II review is not required.

III. Numeric Stream Standards for Protection of Aquatic Wildlife

Total Ammonia (TNH3)	Varies as a function of Temperature and pH Rebound. See Water Quality Standards
Chronic Total Residual Chlorine (TRC)	0.011 mg/l (4 Day Average) 0.019 mg/l (1 Hour Average)
Chronic Dissolved Oxygen (DO)	5.5 mg/l (30 Day Average) 4.0 mg/l (7Day Average) 3.0 mg/l (1 Day Average)
Maximum Total Dissolved Solids	1200.0 mg/l

Acute and Chronic Heavy Metals (Dissolved)

Parameter	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Aluminum	87.00 ug/l**	65.350 lbs/day	750.00 ug/l	563.366 lbs/day
Arsenic	150.00 ug/l	112.673 lbs/day	340.00 ug/l	255.393 lbs/day
Cadmium	2.41 ug/l	1.808 lbs/day	7.45 ug/l	5.599 lbs/day
Chromium III	270.40 ug/l	203.113 lbs/day	5657.30 ug/l	4,249.508 lbs/day
ChromiumVI	11.00 ug/l	8.263 lbs/day	16.00 ug/l	12.018 lbs/day
Copper	30.76 ug/l	23.104 lbs/day	52.17 ug/l	39.186 lbs/day
Iron			1000.00 ug/l	751.155 lbs/day
Lead	18.82 ug/l	14.134 lbs/day	482.86 ug/l	362.699 lbs/day
Mercury	0.0120 ug/l	0.009 lbs/day	2.40 ug/l	1.803 lbs/day
Nickel	169.96 ug/l	127.663 lbs/day	1528.65 ug/l	1,148.252 lbs/day
Selenium	4.60 ug/l	3.455 lbs/day	20.00 ug/l	15.023 lbs/day
Silver	N/A ug/l	N/A lbs/day	41.78 ug/l	31.380 lbs/day
Zinc	391.09 ug/l	293.770 lbs/day	391.09 ug/l	293.770 lbs/day

* Allowed below discharge

**Chronic Aluminum standard applies only to waters with a pH < 7.0 and a Hardness < 50 mg/l as CaCO₃

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Metals Standards Based upon a Hardness of 403.97 mg/l as CaCO₃

IV. Numeric Stream Standards for Protection of Agriculture

	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Arsenic			100.0 ug/l	lbs/day
Boron			750.0 ug/l	lbs/day
Cadmium			10.0 ug/l	3.76 lbs/day
Chromium			100.0 ug/l	lbs/day
Copper			200.0 ug/l	lbs/day
Lead			100.0 ug/l	lbs/day
Selenium			50.0 ug/l	lbs/day
TDS, Summer			1200.0 mg/l	450.69 tons/day

V. Numeric Stream Standards for Protection of Human Health (Class 1C Waters)

Metals	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Arsenic			ug/l	lbs/day
Barium			ug/l	lbs/day
Cadmium			ug/l	lbs/day
Chromium			ug/l	lbs/day
Lead			ug/l	lbs/day
Mercury			ug/l	lbs/day
Selenium			ug/l	lbs/day
Silver			ug/l	lbs/day
Fluoride (3)			ug/l	lbs/day
to			ug/l	lbs/day
Nitrates as N			ug/l	lbs/day

VI. Numeric Stream Standards the Protection of Human Health from Water & Fish Consumption [Toxics]

Metals	Maximum Conc., ug/l - Acute Standards			
	Class 1C		Class 3A, 3B	
Antimony	ug/l	lbs/day		
Arsenic	ug/l	lbs/day	4300.00 ug/l	6907.33 lbs/day
Asbestos	ug/l	lbs/day		
Beryllium				
Cadmium				
Chromium (III)				
Chromium (VI)				
Copper				
Cyanide	ug/l	lbs/day	2.2E+05 ug/l	353398.05 lbs/day
Lead	ug/l	lbs/day		
Mercury			0.15 ug/l	0.24 lbs/day
Nickel			4600.00 ug/l	7389.23 lbs/day
Selenium	ug/l	lbs/day		
Silver	ug/l	lbs/day		
Thallium			6.30 ug/l	10.12 lbs/day
Zinc				

There are additional standards that apply to this receiving water, but were not considered in this modeling/waste load allocation analysis.

VII. Mathematical Modeling of Stream Quality

Model configuration was accomplished utilizing standard modeling procedures. Data points were plotted and coefficients adjusted as required to match observed data as closely as possible.

The modeling approach used in this analysis included one or a combination of the following models.

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(1) The Utah River Model, Utah Division of Water Quality, 1992. Based upon STREAMDO IV (Region VIII) and Supplemental Ammonia Toxicity Models; EPA Region VIII, Sept. 1990 and QUAL2E (EPA, Athens, GA).

(2) Utah Ammonia/Chlorine Model, Utah Division of Water Quality, 1992.

(3) AMMTOX Model, University of Colorado, Center of Limnology, and EPA Region 8

(4) Principles of Surface Water Quality Modeling and Control. Robert V. Thomann, et.al. Harper Collins Publisher, Inc. 1987, pp. 644.

Coefficients used in the model were based, in part, upon the following references:

(1) Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling. Environmental Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Athens Georgia. EPA/600/3-85/040 June 1985.

(2) Principles of Surface Water Quality Modeling and Control. Robert V. Thomann, et.al. Harper Collins Publisher, Inc. 1987, pp. 644.

VIII. Modeling Information

The required information for the model may include the following information for both the upstream conditions at low flow and the effluent conditions:

Flow, Q, (cfs or MGD)	D.O. mg/l
Temperature, Deg. C.	Total Residual Chlorine (TRC), mg/l
pH	Total NH3-N, mg/l
BOD5, mg/l	Total Dissolved Solids (TDS), mg/l
Metals, ug/l	Toxic Organics of Concern, ug/l

Other Conditions

In addition to the upstream and effluent conditions, the models require a variety of physical and biological coefficients and other technical information. In the process of actually establishing the permit limits for an effluent, values are used based upon the available data, model calibration, literature values, site visits and best professional judgement.

Model Inputs

The following is upstream and discharge information that was utilized as inputs for the analysis. Dry washes are considered to have an upstream flow equal to the flow of the discharge.

Current Upstream Information

	Stream								
	Critical Low								
	Flow	Temp.	pH	T-NH3	BOD5	DO	TRC	TDS	
	cfs	Deg. C		mg/l as N	mg/l	mg/l	mg/l	mg/l	
Summer (Irrig. Season)	182.0	18.7	8.0	0.22	4.92	7.18	0.00	1248.8	
Fall	133.0	10.9	8.0	0.34	3.44	---	0.00	1158.0	
Winter	122.0	6.3	8.0	0.44	3.94	---	0.00	1158.0	
Spring	116.0	12.5	8.0	0.24	3.25	---	0.00	1158.0	
Dissolved Metals	Al	As	Cd	CrIII	CrVI	Copper	Fe	Pb	
	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
All Seasons	221.00	42.77	0.34	4.45	2.65*	5.36	0.0	2.74	
Dissolved Metals	Hg	Ni	Se	Ag	Zn	Boron			
	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l			
All Seasons	0.0000	3.38	2.47	1.17	19.93	10.0		* 1/2 MDL	

Projected Discharge Information

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Salt Lake City, Utah**

Season	Flow, MGD	Temp.	TDS mg/l	TDS tons/day
Summer	75.00000	NA	982.67	307.26746
Fall	75.00000	NA		
Winter	75.00000	NA		
Spring	75.00000	NA		

All model numerical inputs, intermediate calculations, outputs and graphs are available for discussion, inspection and copy at the Division of Water Quality.

IX. Effluent Limitations

Current State water quality standards are required to be met under a variety of conditions including in-stream flows targeted to the 7-day, 10-year low flow (R317-2-9).

Other conditions used in the modeling effort coincide with the environmental conditions expected at low stream flows.

Effluent Limitation for Flow based upon Water Quality Standards

In-stream criteria of downstream segments will be met with an effluent flow maximum value as follows:

Season	Daily Average	
Summer	75.000 MGD	116.025 cfs
Fall	75.000 MGD	116.025 cfs
Winter	75.000 MGD	116.025 cfs
Spring	75.000 MGD	116.025 cfs

Flow Requirement or Loading Requirement

The calculations in this wasteload analysis utilize the maximum effluent discharge flow of 75 MGD. If the discharger is allowed to have a flow greater than 75 MGD during 7Q10 conditions, and effluent limit concentrations as indicated, then water quality standards will be violated. In order to prevent this from occurring, the permit writers must include the discharge flow limitation as indicated above; or, include loading effluent limits in the permit.

Effluent Limitation for Whole Effluent Toxicity (WET) based upon WET Policy

Effluent Toxicity will not occur in downstream segments if the values below are met.

WET Requirements	LC50 >	EOP Effluent	[Acute]
	IC25 >	38.9% Effluent	[Chronic]

Effluent Limitations for Total Recoverable Metals based upon Water Quality Standards

In-stream criteria of downstream segments for Dissolved Metals will be met with an effluent limitation as follows (based upon a hardness of 403.97 mg/l):

	4 Day Average		1 Hour Average		Load
	Concentration	Load	Concentration	Load	
Aluminum	N/A	N/A	1,164.9	ug/l	875.0 lbs/day
Arsenic	318.21 ug/l	128.6 lbs/day	573.1	ug/l	430.5 lbs/day
Cadmium	5.64 ug/l	2.3 lbs/day	13.0	ug/l	9.8 lbs/day
Chromium III	687.58 ug/l	278.0 lbs/day	10,090.9	ug/l	7579.8 lbs/day
Chromium VI	22.02 ug/l	8.9 lbs/day	25.4	ug/l	19.1 lbs/day
Copper	70.60 ug/l	28.5 lbs/day	88.9	ug/l	66.8 lbs/day
Iron	N/A	N/A	1,784.3	ug/l	1340.3 lbs/day
Lead	44.04 ug/l	17.8 lbs/day	859.4	ug/l	645.6 lbs/day

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Mercury	0.03 ug/l	0.0 lbs/day	4.3	ug/l	3.2 lbs/day
Nickel	431.26 ug/l	174.3 lbs/day	2,724.9	ug/l	2046.9 lbs/day
Selenium	7.95 ug/l	3.2 lbs/day	33.8	ug/l	25.4 lbs/day
Silver	N/A ug/l	N/A lbs/day	73.6	ug/l	55.3 lbs/day
Zinc	973.31 ug/l	393.5 lbs/day	682.2	ug/l	512.4 lbs/day
Cyanide	13.36 ug/l	5.4 lbs/day	39.3	ug/l	29.5 lbs/day

Effluent Limitations for Heat/Temperature based upon Water Quality Standards

Summer	24.9 Deg. C.	76.9 Deg. F
Fall	16.6 Deg. C.	61.8 Deg. F
Winter	11.8 Deg. C.	53.3 Deg. F
Spring	18.0 Deg. C.	64.4 Deg. F

Effluent Targets for Pollution Indicators Based upon Water Quality Standards

In-stream criteria of downstream segments for Pollution Indicators will be met with an effluent limit as follows:

	Concentration	1 Hour Average Loading
Gross Beta (pCi/l)	50.0 pCi/L	
BOD (mg/l)	5.0 mg/l	3755.8 lbs/day
Nitrates as N	4.0 mg/l	3004.6 lbs/day
Total Phosphorus as P	0.05 mg/l	37.6 lbs/day
Total Suspended Solids	90.0 mg/l	67603.9 lbs/day

Note: Pollution indicator targets are for information purposes only.

Effluent Limitations for Protection of Human Health [Toxics Rule] Based upon Water Quality Standards (Most stringent of 1C or 3A & 3B as appropriate.)

In-stream criteria of downstream segments for Protection of Human Health [Toxics] will be met with an effluent limit as follows:

	Concentration	Maximum Concentration Load
Metals		
Antimony	ug/l	lbs/day
Arsenic	ug/l	lbs/day
Asbestos	ug/l	lbs/day
Beryllium		
Cadmium		
Chromium (III)		
Chromium (VI)		
Copper	ug/l	lbs/day
Cyanide	ug/l	lbs/day
Lead		
Mercury	ug/l	lbs/day
Nickel	ug/l	lbs/day
Selenium		
Silver		
Thallium	ug/l	lbs/day
Zinc		

Metals Effluent Limitations for Protection of All Beneficial Uses Based upon Water Quality Standards and Toxics Rule

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Salt Lake City, Utah**

	Class 4 Acute Agricultural ug/l	Class 3 Acute Aquatic Wildlife ug/l	Acute Toxics Drinking Water Source ug/l	Acute Toxics Wildlife ug/l	1C Acute Health Criteria ug/l	Acute Most Stringent ug/l	Class 3 Chronic Aquatic Wildlife ug/l
Aluminum		1164.9				1164.9	N/A
Antimony				11045.1		11045.1	
Arsenic	256.9	573.1			0.0	256.9	318.2
Asbestos						0.00E+00	
Barium						0.0	
Beryllium						0.0	
Cadmium	25.1	13.0			0.0	13.0	5.6
Chromium (III)		10090.9			0.0	10090.9	687.6
Chromium (VI)	249.9	25.4			0.0	25.43	22.02
Copper	505.3	88.9				88.9	70.6
Cyanide		39.3	565098.0			39.3	13.4
Iron		1784.3				1784.3	
Lead	252.6	859.4			0.0	252.6	44.0
Mercury		4.28		0.39	0.0	0.39	0.031
Nickel		2724.9		11815.7		2724.9	431.3
Selenium	124.6	33.8			0.0	33.8	7.9
Silver		73.6			0.0	73.6	
Thallium				16.2		16.2	
Zinc		682.2				682.2	973.3
Boron	1925.9					1925.9	

Summary Effluent Limitations for Metals [Wasteload Allocation, TMDL]

[If Acute is more stringent than Chronic, then the Chronic takes on the Acute value.]

	WLA Acute ug/l	WLA Chronic ug/l	
Aluminum	1164.9	N/A	
Antimony	11045.10		
Arsenic	256.9	318.2	Acute Controls
Asbestos	0.00E+00		
Barium			
Beryllium			
Cadmium	13.0	5.6	
Chromium (III)	10090.9	688	
Chromium (VI)	25.4	22.0	
Copper	88.9	70.6	
Cyanide	39.3	13.4	
Iron	1784.3		
Lead	252.6	44.0	
Mercury	0.385	0.031	
Nickel	2724.9	431	
Selenium	33.8	7.9	
Silver	73.6	N/A	
Thallium	16.2		
Zinc	682.2	973.3	Acute Controls
Boron	1925.92		

X. Antidegradation Considerations

The Utah Antidegradation Policy allows for degradation of existing quality where it is determined that such lowering of water quality is necessary to accommodate important economic or social development in the area in which the waters are protected [R317-2-3]. It has been determined that certain chemical parameters introduced by this discharge will cause an increase of the concentration of said parameters in the receiving waters. Under no conditions will the increase in concentration be allowed to interfere with existing instream water uses.

The antidegradation rules and procedures allow for modification of effluent limits less than those based

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Salt Lake City, Utah**

strictly upon mass balance equations utilizing 100% of the assimilative capacity of the receiving water. Additional factors include considerations for "Blue-ribbon" fisheries, special recreational areas, threatened and endangered species, and drinking water sources.

An Antidegradation Level I Review was conducted on this discharge and its effect on the receiving water. Based upon that review, it has been determined that an Antidegradation Level II Review is not required.

XI. Colorado River Salinity Forum Considerations

Discharges in the Colorado River Basin are required to have their discharge at a TDS loading of less than 1.00 tons/day unless certain exemptions apply. Refer to the Forum's Guidelines for additional information allowing for an exceedence of this value. This doesn't apply to facilities that do not discharge to the Colorado River Basin.

XII. Summary Comments

The mathematical modeling and best professional judgement indicate that violations of receiving water beneficial uses with their associated water quality standards, including important downstream segments, will not occur for the evaluated parameters of concern as discussed above if the effluent limitations indicated above are met.

XIII. Notice of UPDES Requirement

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Utah Division of Water Quality
801-538-6052
File Name: CVWRF_WLA_JR_2021.xlsm

APPENDIX - Coefficients and Other Model Information

CBOD Coeff. (Kd)20 1/day 0.520	CBOD Coeff. FORCED (Kd)/day 0.000	CBOD Coeff. (Ka)T 1/day 0.490	REAER. Coeff. (Ka)20 (Ka)/day 2.040	REAER. Coeff. FORCED 1/day 0.000	REAER. Coeff. (Ka)T 1/day 1.978	NBOD Coeff. (Kn)20 1/day 0.250	NBOD Coeff. (Kn)T 1/day 0.226
Open Coeff. (K4)20 1/day 0.000	Open Coeff. (K4)T 1/day 0.000	NH3 LOSS (K5)20 1/day 4.000	NH3 (K5)T 1/day 3.766	NO2+NO3 LOSS (K6)20 1/day 0.000	NO2+NO3 (K6)T 1/day 0.000	TRC Decay K(CI)20 1/day 32.000	TRC K(CI)(T) 1/day 29.647
BENTHIC DEMAND (SOD)20 gm/m2/day 1.000	BENTHIC DEMAND (SOD)T gm/m2/day 0.921						
K1 CBOD {theta} 1.0	K2 Reaer. {theta} 1.0	K3 NH3 {theta} 1.1	K4 Open {theta} 1.0	K5 NH3 Loss {theta} 1.0	K6 NO2+3 {theta} 1.0	K(CI) TRC {theta} 1.1	S Benthic {theta} 1.1

Antidegradation Review

An antidegradation review (ADR) was conducted to determine whether the proposed activity complies with the applicable antidegradation requirements for receiving waters that may be affected. The Level I ADR evaluated the criteria of R317-2-3.5(b) and determined that a Level II antidegradation Review is not required.

ATTACHMENT 3

Reasonable Potential Analysis

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REASONABLE POTENTIAL ANALYSIS

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 Copy of the Reasonable Potential Analysis Guidance (RP Guide) is available at water Quality. There are four outcomes for the RP Analysis¹. They are;

- Outcome A: A new effluent limitation will be placed in the permit.
- Outcome B: No new effluent limitation. Routine monitoring requirements will be placed or increased from what they are in the permit,
- Outcome C: No new effluent limitation. Routine monitoring requirements maintained as they are in the permit,
- Outcome D: No limitation or routine monitoring requirements are in the permit.

Due to the nature of the discharge from Central Valley, the effluent enters Mill Creek just prior to it entering the Jordan River. As a result, a separate WLA is generated for the discharge to the Jordan River and Mill Creek, then the WQBEL are compared, and the more stringent will be used.

Initial screening for metals values that were submitted through the discharge monitoring reports showed that a closer look at some of the metals is needed. A copy of the initial screening is included in the “Effluent Metals and RP Screening Results” table in this attachment. The initial screening check for metals showed that the full model needed to be run on cadmium, chrome, copper, cyanide, mercury, selenium.

Cadmium

When running the RP model on the cadmium data, only the most recent 120 data points were used. Many of those data points are the method reporting limit (MRL) for the lab that was used. On reviewing the data, one sample stood out as an outlier. This sample was flagged by the lab and appears to have been incompletely processed. This single data point was removed, and the RP was run. The results of the model were that there is an indication of No RP for the Acute WQBEL, but there is for the Chronic WQBEL at the 99% confidence interval. As a result of this, the monitoring for cadmium will be increased in the permit.

(Outcome B)

Cyanide

When running the RP model on the cyanide data, all the data back to July of 2016 was used. At this point the lab used appears to have made some changes which has improved the results and the MRL went from 0.02 mg/L to 0.005 mg/L. The results of the model were that there is an indication of RP for both the Acute and the Chronic WQBEL. The cyanide data is for total cyanide, but the WQBEL are for free cyanide, which is a part of the total cyanide in a sample. This result would indicate that either a limit for cyanide is included in the permit, or the facility start to sample and analyze for free cyanide in the effluent, and the RP run again next renewal. They also have been using a composite sample, while the approved method indicates it should be a grab sample. This will also be changed for the renewal

(Outcome B)

Chrome

When running the RP model on the chrome data, only the most recent 120 data points were used. Many of those data points are the method reporting limit (MRL) for the lab that was used. On reviewing the data, one sample stood out as an outlier. This sample was flagged by the lab and appears to have been incompletely processed. This single data point was removed, and the RP was run. The RP model was run against the acute and chronic WQBEL for chrome (3+), and chrome (6+) from the WLA. The results of the model were that

¹ See Reasonable Potential Analysis Guidance for definitions of terms

there is no indication of RP for the chrome (3+) or for chrome (6+). As a result, no limit will be implemented, and no changes to the monitoring are required at this time.
(Outcome C)

Copper

When running the RP model on the copper data, only the most recent 120 data points were used. The results of the model were that there is an indication of No RP for the Acute WQBEL, but there is for the Chronic WQBEL. As a result of this, the chronic limit for copper should be added to the permit. However, there is already a chronic limit for copper in the permit, and it is lower than the one from the WLA. T As a result, no limit will be implemented, and no changes to the monitoring are required at this time.
(Outcome C)

Mercury

When running the RP model on the mercury data, all the data back to April of 2017 was used. At this point the lab used appears to have made some changes which has improved the results. The results of the model were that there is an indication of No RP for the Acute WQBEL or for the Chronic WQBEL. As a result, no limit will be implemented, and no changes to the monitoring are required at this time.
(Outcome C)

Selenium

When running the RP model on the selenium data, only the most recent 120 data points were used. Many of those data points appear to be at the method reporting limit (MRL) for the lab that was used. The RP model was run against the acute and chronic WQBEL for selenium. The results of the model were that there is no indication of acute or chronic RP for selenium. As a result, no limit will be implemented, and no changes to the monitoring are required at this time.
(Outcome C)

The Metals Initial Screening Table and RP Outputs Table are included in this attachment.

RP Metals Screening						
Param	Ag	As	Cd	CN	Cr	Cu
Acute WQBEL	0.029	0.1181	0.0063	0.024	0.0171	0.0443
Chronic WQBEL	0.029	0.1181	0.0023	0.0061	0.0123	0.0288
Max	0.003	0.006	0.0044	0.031	0.061	0.033
Acute Check	No	No	Yes	Yes	Yes	Yes
Chronic Check	No	No	Yes	Yes	Yes	Yes
Param	Hg	Mo	Ni	Pb	Se	Zn
Acute WQBEL	0.000177	1	1.3349	0.1181	0.0217	0.3407
Chronic WQBEL	0.000014	1	0.16	0.0159	0.0052	0.3407
Max	0.001	0.055	0.061	0.006	0.03	0.146
Acute Check	Yes	No	No	No	Yes	No
Chronic Check	Yes	No	No	No	Yes	No

A Summary of the RP Model inputs and outputs are included in the tables below.

RP input/output summary

RP Procedure Output	Outfall Number:		001	Data Units	mg/L
Parameter	Cadmium			Cyanide	
Distribution	Normal			Normal	
Reporting Limit	0.0002			0.005	
Significant Figures	2			2	
Maximum Reported Effluent Conc.	0.0014			0.0209	
Coefficient of Variation (CV)	0.53			0.53	
Acute Criterion	0.0063			0.024	
Chronic Criterion	0.0023			0.0061	
Confidence Interval	95	99		95	99
Projected Maximum Effluent Conc. (MEC)	0.0022	0.0031		0.031	0.043
RP Multiplier	1.6	2.2		1.5	2.0
RP for Acute?	No	No		Yes	Yes
RP for Chronic?	No	Yes		Yes	Yes
Outcome	B			A * ¹	
<p>1. Facility has been using composite samples and analyzing for total cyanide. Standard is for free cyanide. They have agreed to analyze free cyanide during the permit cycle and the permit will be updated to indicate it should be a grab sample.</p>					

RP Procedure Output	Outfall Number:		001	Data Units	mg/L
Parameter	Chrome 3+			Chrome 6+	
Distribution	Normal			Normal	
Reporting Limit	0.0002			0.001	
Significant Figures	2			2	
Maximum Reported Effluent Conc.	0.005			0.005	
Coefficient of Variation (CV)	0.57			0.57	
Acute Criterion	4.9763			0.0171	
Chronic Criterion	0.257			0.0123	
Confidence Interval	95	99		95	99
Projected Maximum Effluent Conc. (MEC)	0.0084	.0012		0.0084	0.012
RP Multiplier	2.4	1.7		2.4	1.7
RP for Acute?	No	No		No	No
RP for Chronic?	No	No		No	No
Outcome	D			D	

RP Procedure Output	Outfall Number:		001	Data Units		mg/L
Parameter	Copper			Mercury		
Distribution	Normal			Normal		
Reporting Limit	0.0001			0.000001		
Significant Figures	2			2		
Maximum Reported Effluent Conc.	0.033			0.0000859		
Coefficient of Variation (CV)	0.52			0.45		
Acute Criterion	0.0443			0.000177		
Chronic Criterion	0.0288			0.000014		
Confidence Interval	95	99		95	99	
Projected Maximum Effluent Conc. (MEC)	0.03	0.038		0.000087	0.000011	
RP Multiplier	0.92	1.2		1.0	1.3	
RP for Acute?	No	No		No	No	
RP for Chronic?	Yes	Yes		No	No	
Outcome	C/A			C		

RP Procedure Output	Outfall Number:		001	Data Units		mg/L
Parameter	Selenium					
Distribution	Normal					
Reporting Limit	0.001					
Significant Figures	2					
Maximum Reported Effluent Conc.	0.004					
Coefficient of Variation (CV)	0.47					
Acute Criterion	0.0217					
Chronic Criterion	0.0052					
Confidence Interval	95	99		95	99	
Projected Maximum Effluent Conc. (MEC)	0.0039	0.0049				
RP Multiplier	0.98	1.2				
RP for Acute?	No	No				
RP for Chronic?	No	No				
Outcome	C					

Cadmium RP Results

RP Procedure Output			Effluent Data				
Facility Name:	Central Valley	#		#		#	
Permit Number:	UT0024392	1	ND	41	ND	81	ND
Outfall Number:	OO1	2	ND	42	ND	82	ND
Parameter	Cadmium	3	ND	43	ND	83	ND
Distribution	Normal	4	ND	44	ND	84	ND
Data Units	mg/L	5	ND	45	ND	85	ND
Reporting Limit	0.0003	6	ND	46	ND	86	ND
Significant Figures	2	7	ND	47	ND	87	ND
Confidence Interval	99	8	ND	48	ND	88	ND
		9	ND	49	0.0014	89	ND
Maximum Reported Effluent Conc.	0.0014	10	ND	50	ND	90	ND
Coefficient of Variation (CV)	0.53	11	ND	51	ND	91	ND
RP Multiplier	2.2	12	ND	52	ND	92	ND
Projected Maximum Effluent Conc. (MEC)	0.0031	13	ND	53	ND	93	ND
		14	ND	54	ND	94	ND
Acute Criterion	0.0063	15	ND	55	ND	95	ND
Chronic Criterion	0.0023	16	ND	56	ND	96	ND
Human Health Criterion	0	17	ND	57	ND	97	ND
		18	ND	58	ND	98	ND
RP for Acute?	NO	19	ND	59	ND	99	ND
RP for Chronic?	YES	20	ND	60	ND	100	ND
RP for Human Health?	N/A	21	ND	61	ND	101	0.0004
		22	ND	62	ND	102	ND
Confidence Interval	95	23	ND	63	ND	103	ND
		24	0.0005	64	ND	104	ND
Maximum Reported Effluent Conc.	0.0014	25	0.0005	65	ND	105	ND
Coefficient of Variation (CV)	0.53	26	ND	66	ND	106	ND
RP Multiplier	1.6	27	ND	67	ND	107	ND
Projected Maximum Effluent Conc. (MEC)	0.0022	28	ND	68	ND	108	ND
		29	ND	69	ND	109	ND
Acute Criterion	0.0063	30	ND	70	ND	110	0.0011
Chronic Criterion	0.0023	31	0.0004	71	ND	111	ND
Human Health Criterion	0	32	ND	72	ND	112	ND
		33	ND	73	ND	113	ND
RP for Acute?	NO	34	0.0009	74	ND	114	ND
RP for Chronic?	NO	35	ND	75	ND	115	ND
RP for Human Health?	N/A	36	ND	76	ND	116	ND
		37	ND	77	ND	117	ND
		38	ND	78	ND	118	ND
		39	ND	79	ND	119	ND
		40	ND	80	ND	120	ND

Chrome (6+) RP Results

RP Procedure Output			Effluent Data				
Facility Name:	Central Valley	#		#		#	
Permit Number:	UT0024392	1	ND	41	ND	81	ND
Outfall Number:	OO1	2	ND	42	ND	82	ND
Parameter	Chromium (6+)	3	ND	43	ND	83	ND
Distribution	Normal	4	ND	44	ND	84	ND
Data Units	mg/L	5	ND	45	ND	85	ND
Reporting Limit	0.001	6	ND	46	ND	86	ND
Significant Figures	2	7	ND	47	ND	87	ND
Confidence Interval	99	8	ND	48	ND	88	ND
		9	ND	49	ND	89	ND
Maximum Reported Effluent Conc.	0.005	10	ND	50	ND	90	ND
Coefficient of Variation (CV)	0.57	11	ND	51	ND	91	ND
RP Multiplier	2.4	12	ND	52	ND	92	ND
Projected Maximum Effluent Conc. (MEC)	0.012	13	ND	53	ND	93	ND
		14	ND	54	ND	94	ND
Acute Criterion	0.0171	15	ND	55	ND	95	0.001
Chronic Criterion	0.0123	16	ND	56	ND	96	ND
Human Health Criterion	0	17	0.002	57	ND	97	ND
		18	ND	58	ND	98	ND
RP for Acute?	NO	19	ND	59	ND	99	ND
RP for Chronic?	NO	20	ND	60	ND	100	ND
RP for Human Health?	N/A	21	ND	61	ND	101	ND
		22	ND	62	ND	102	ND
Confidence Interval	95	23	ND	63	ND	103	ND
		24	ND	64	ND	104	ND
Maximum Reported Effluent Conc.	0.005	25	ND	65	ND	105	ND
Coefficient of Variation (CV)	0.57	26	ND	66	ND	106	ND
RP Multiplier	1.7	27	ND	67	ND	107	ND
Projected Maximum Effluent Conc. (MEC)	0.0084	28	ND	68	ND	108	ND
		29	ND	69	ND	109	0.002
Acute Criterion	0.0171	30	0.005	70	ND	110	0.002
Chronic Criterion	0.0123	31	0.004	71	ND	111	ND
Human Health Criterion	0	32	ND	72	ND	112	ND
		33	ND	73	ND	113	ND
RP for Acute?	NO	34	ND	74	ND	114	ND
RP for Chronic?	NO	35	ND	75	ND	115	ND
RP for Human Health?	N/A	36	ND	76	ND	116	ND
		37	ND	77	ND	117	ND
		38	ND	78	ND	118	ND
		39	ND	79	ND	119	ND
		40	ND	80	ND	120	ND

Chrome (3+) RP Results

RP Procedure Output			Effluent Data				
Facility Name:	Central Valley	#		#		#	
Permit Number:	UT0024392	1	ND	41	ND	81	ND
Outfall Number:	OO1	2	ND	42	ND	82	ND
Parameter	Chromium (3+)	3	ND	43	ND	83	ND
Distribution	Normal	4	ND	44	ND	84	ND
Data Units	mg/L	5	ND	45	ND	85	ND
Reporting Limit	0.001	6	ND	46	ND	86	ND
Significant Figures	2	7	ND	47	ND	87	ND
Confidence Interval	99	8	ND	48	ND	88	ND
		9	ND	49	ND	89	ND
Maximum Reported Effluent Conc.	0.005	10	ND	50	ND	90	ND
Coefficient of Variation (CV)	0.57	11	ND	51	ND	91	ND
RP Multiplier	2.4	12	ND	52	ND	92	ND
Projected Maximum Effluent Conc. (MEC)	0.012	13	ND	53	ND	93	ND
		14	ND	54	ND	94	ND
Acute Criterion	0.0171	15	ND	55	ND	95	0.001
Chronic Criterion	0.0123	16	ND	56	ND	96	ND
Human Health Criterion	0	17	0.002	57	ND	97	ND
		18	ND	58	ND	98	ND
RP for Acute?	NO	19	ND	59	ND	99	ND
RP for Chronic?	NO	20	ND	60	ND	100	ND
RP for Human Health?	N/A	21	ND	61	ND	101	ND
		22	ND	62	ND	102	ND
Confidence Interval	95	23	ND	63	ND	103	ND
		24	ND	64	ND	104	ND
Maximum Reported Effluent Conc.	0.005	25	ND	65	ND	105	ND
Coefficient of Variation (CV)	0.57	26	ND	66	ND	106	ND
RP Multiplier	1.7	27	ND	67	ND	107	ND
Projected Maximum Effluent Conc. (MEC)	0.0084	28	ND	68	ND	108	ND
		29	ND	69	ND	109	0.002
Acute Criterion	0.0171	30	0.005	70	ND	110	0.002
Chronic Criterion	0.0123	31	0.004	71	ND	111	ND
Human Health Criterion	0	32	ND	72	ND	112	ND
		33	ND	73	ND	113	ND
RP for Acute?	NO	34	ND	74	ND	114	ND
RP for Chronic?	NO	35	ND	75	ND	115	ND
RP for Human Health?	N/A	36	ND	76	ND	116	ND
		37	ND	77	ND	117	ND
		38	ND	78	ND	118	ND
		39	ND	79	ND	119	ND
		40	ND	80	ND	120	ND

Copper RP Results

RP Procedure Output			Effluent Data				
Facility Name:	Central Valley	#		#		#	
Permit Number:	UT0024392	1	0.009	41	0.014	81	0.009
Outfall Number:	OO1	2	0.006	42	0.01	82	0.01
Parameter	Copper	3	0.011	43	0.009	83	0.009
Distribution	Normal	4	0.011	44	ND	84	0.014
Data Units	mg/L	5	0.007	45	0.011	85	0.014
Reporting Limit	0.0001	6	0.011	46	0.012	86	0.01
Significant Figures	2	7	0.015	47	0.023	87	0.009
Confidence Interval	99	8	0.008	48	0.029	88	0.008
		9	0.008	49	0.012	89	0.008
Maximum Reported Effluent Conc.	0.033	10	0.007	50	0.014	90	0.006
Coefficient of Variation (CV)	0.52	11	0.007	51	0.01	91	0.008
RP Multiplier	1.2	12	0.015	52	0.017	92	0.009
Projected Maximum Effluent Conc. (MEC)	0.038	13	0.006	53	0.008	93	0.007
		14	0.006	54	0.01	94	0.014
Acute Criterion	0.0443	15	0.006	55	0.012	95	0.009
Chronic Criterion	0.0288	16	0.014	56	0.011	96	0.01
Human Health Criterion	0	17	0.033	57	0.017	97	0.01
		18	0.006	58	0.011	98	0.009
RP for Acute?	NO	19	0.013	59	0.011	99	0.009
RP for Chronic?	YES	20	0.013	60	0.012	100	0.029
RP for Human Health?	N/A	21	0.009	61	0.01	101	0.013
		22	0.006	62	0.025	102	0.013
Confidence Interval	95	23	0.007	63	0.01	103	0.014
		24	0.006	64	0.008	104	0.01
Maximum Reported Effluent Conc.	0.033	25	0.006	65	0.009	105	0.02
Coefficient of Variation (CV)	0.52	26	0.006	66	0.014	106	0.01
RP Multiplier	0.92	27	0.03	67	0.01	107	0.01
Projected Maximum Effluent Conc. (MEC)	0.03	28	0.008	68	0.01	108	0.012
		29	0.006	69	0.01	109	0.014
Acute Criterion	0.0443	30	0.012	70	0.009	110	0.012
Chronic Criterion	0.0288	31	0.006	71	0.014	111	0.03
Human Health Criterion	0	32	0.02	72	0.009	112	0.012
		33	0.007	73	0.005	113	0.033
RP for Acute?	NO	34	0.008	74	0.006	114	0.023
RP for Chronic?	YES	35	0.016	75	0.008	115	0.016
RP for Human Health?	N/A	36	0.009	76	0.01	116	0.019
		37	0.023	77	0.012	117	0.03
		38	0.01	78	0.009	118	0.01
		39	0.008	79	0.021	119	0.014
		40	0.008	80	0.012	120	0.002

Cyanide (Total) RP Results

RP Procedure Output			Effluent Data				
Facility Name:	Central Valley	#		#		#	
Permit Number:	UT0024392	1	ND	41	ND	81	0
Outfall Number:	OO1	2	ND	42	ND	82	0
Parameter	Cyanide (Total)	3	ND	43	ND	83	0
Distribution	Normal	4	ND	44	0.0209	84	0
Data Units	mg/L	5	ND	45	0.016	85	0
Reporting Limit	0.005	6	0.006	46	0	86	0
Significant Figures	2	7	ND	47	0	87	0
Confidence Interval	99	8	ND	48	0	88	0
		9	ND	49	0	89	0
Maximum Reported Effluent Conc.	0.0209	10	ND	50	0	90	0
Coefficient of Variation (CV)	0.52	11	ND	51	0	91	0
RP Multiplier	2.0	12	ND	52	0	92	0
Projected Maximum Effluent Conc. (MEC)	0.043	13	ND	53	0	93	0
		14	ND	54	0	94	0
Acute Criterion	0.024	15	0.008	55	0	95	0
Chronic Criterion	0.0061	16	ND	56	0	96	0
Human Health Criterion	0	17	0.006	57	0	97	0
		18	ND	58	0	98	0
RP for Acute?	YES	19	ND	59	0	99	0
RP for Chronic?	YES	20	ND	60	0	100	0
RP for Human Health?	N/A	21	0.0089	61	0	101	0
		22	ND	62	0	102	0
Confidence Interval	95	23	ND	63	0	103	0
		24	ND	64	0	104	0
Maximum Reported Effluent Conc.	0.0209	25	0.0189	65	0	105	0
Coefficient of Variation (CV)	0.52	26	ND	66	0	106	0
RP Multiplier	1.5	27	ND	67	0	107	0
Projected Maximum Effluent Conc. (MEC)	0.031	28	ND	68	0	108	0
		29	ND	69	0	109	0
Acute Criterion	0.024	30	ND	70	0	110	0
Chronic Criterion	0.0061	31	ND	71	0	111	0
Human Health Criterion	0	32	ND	72	0	112	0
		33	ND	73	0	113	0
RP for Acute?	YES	34	ND	74	0	114	0
RP for Chronic?	YES	35	ND	75	0	115	0
RP for Human Health?	N/A	36	0.008	76	0	116	0
		37	ND	77	0	117	0
		38	ND	78	0	118	0
		39	ND	79	0	119	0
		40	ND	80	0	120	0

Mercury RP Results

RP Procedure Output			Effluent Data			
Facility Name:	Central Valley		#		#	
Permit Number:	UT0024392		1	8.59E-06	41	3.81E-06
Outfall Number:	OO1		2	3.97E-06	42	5.43E-06
Parameter	Mercury		3	2.25E-06	43	2.48E-06
Distribution	Normal		4	4.15E-06	44	4.04E-06
Data Units	mg/L		5	2.58E-06	45	4.04E-06
Reporting Limit	1E-06		6	4.26E-06	46	2.99E-06
Significant Figures	2		7	4.11E-06	47	4.43E-06
Confidence Interval	99		8	3E-07	48	3.41E-06
			9	2.91E-06	49	1.13E-05
Maximum Reported Effluent Conc.	2.65E-05	mg/L	10	4.04E-06	50	2.99E-06
Coefficient of Variation (CV)	0.86		11	1.33E-06	51	4.69E-06
RP Multiplier	1.3		12	5.39E-06	52	7.96E-06
Projected Maximum Effluent Conc. (MEC)	0.000035	mg/L	13	4.96E-06	53	9E-07
			14	8.48E-06	54	4.2E-06
Acute Criterion	0.000177		15	5.78E-06	55	4.2E-06
Chronic Criterion	0.000014		16	2.49E-06	56	1.7E-06
Human Health Criterion	0		17	1.59E-06	57	2.5E-06
			18	1E-06	58	2.8E-06
RP for Acute?	NO		19	7.1E-06	59	1.4E-06
RP for Chronic?	YES		20	2.67E-06	60	5.1E-06
RP for Human Health?	N/A		21	2.73E-06	61	5.5E-06
			22	3.56E-06	62	0
Confidence Interval	95		23	1.18E-06	63	0
			24	1.47E-06	64	0
Maximum Reported Effluent Conc.	2.65E-05		25	4.94E-06	65	0
Coefficient of Variation (CV)	0.86		26	3.65E-06	66	0
RP Multiplier	0.99		27	1E-06	67	0
Projected Maximum Effluent Conc. (MEC)	0.000026		28	5.05E-06	68	0
			29	1.81E-06	69	0
Acute Criterion	0.000177		30	4.91E-06	70	0
Chronic Criterion	0.000014		31	2.96E-06	71	0
Human Health Criterion	0		32	4.46E-06	72	0
			33	4.15E-06	73	0
RP for Acute?	NO		34	2.67E-06	74	0
RP for Chronic?	YES		35	5.5E-06	75	0
RP for Human Health?	N/A		36	2.39E-06	76	0
			37	3.61E-06	77	0
			38	3.21E-06	78	0
			39	2.65E-05	79	0
			40	0.0000025	80	0.0000012

Selenium RP Results

RP Procedure Output			Effluent Data					
Facility Name:	Central Valley		#		#		#	
Permit Number:	UT0024392		1	0.001	41	0.001	81	0.002
Outfall Number:	OO1		2	0.001	42	0.001	82	0.002
Parameter	Selenium		3	0.001	43	0.001	83	
Distribution	Normal		4	0.001	44	0.001	84	0.003
Data Units	mg/L		5	0.001	45	0.001	85	0.003
Reporting Limit	0.001		6	0.001	46	0.001	86	0.002
Significant Figures	2		7	0.001	47	0.001	87	0.003
Confidence Interval	99		8	0.001	48	0.001	88	0.003
			9	0.001	49	0.001	89	0.003
Maximum Reported Effluent Conc.	0.004		10	0.001	50	0.001	90	0.003
Coefficient of Variation (CV)	0.53		11	0.001	51	0.002	91	0.002
RP Multiplier	1.2		12	0.001	52	0.001	92	0.003
Projected Maximum Effluent Conc. (MEC)	0.0046		13	0.001	53	0.002	93	0.002
			14	0.001	54	0.001	94	0.003
Acute Criterion	0.0217		15	0.001	55	0.001	95	0.002
Chronic Criterion	0.0052		16	0.001	56	0.001	96	0.002
Human Health Criterion	0		17	0.001	57	0.001	97	0.004
			18	0.001	58	0.001	98	0.003
RP for Acute?	NO		19	0.001	59	0.001	99	0.003
RP for Chronic?	NO		20	0.001	60	0.001	100	0.002
RP for Human Health?	N/A		21	0.001	61	0.001	101	0.002
			22	0.001	62	0.001	102	0.002
Confidence Interval	95		23	0.001	63	0.001	103	0.002
			24	0.001	64	0.001	104	0.002
Maximum Reported Effluent Conc.	0.004		25	0.001	65	0.001	105	0.002
Coefficient of Variation (CV)	0.53		26	0.001	66	0.001	106	0.002
RP Multiplier	0.92		27	0.001	67	0.001	107	0.002
Projected Maximum Effluent Conc. (MEC)	0.0037		28	0.001	68	0.001	108	0.002
			29	0.001	69	0.001	109	0.002
Acute Criterion	0.0217		30	0.001	70	0.001	110	0.003
Chronic Criterion	0.0052		31	0.001	71	0.001	111	0.004
Human Health Criterion	0		32	0.001	72	0.001	112	0.004
			33	0.001	73	0.001	113	0.003
RP for Acute?	NO		34	0.001	74	0.001	114	0.001
RP for Chronic?	NO		35	0.001	75	0.001	115	0.001
RP for Human Health?	N/A		36	0.001	76	0.001	116	0.002
			37	0.001	77	0.001	117	0.003
			38	0.001	78	0.001	118	0.002
			39	0	79	0	119	0
			40	0	80	0	120	0