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. **UT0020419**
Biosolids Permit No. **UTL0000000**

In compliance with provisions of the Utah *Water Quality Act, Title 19, Chapter 5, Utah Code Annotated ("UCA") 1953, as amended* (the *"Act"*),

MOAB WASTEWATER TREATMENT FACILITY

is hereby authorized to discharge from its wastewater treatment facility to receiving waters named **COLORADO RIVER**,

to dispose of biosolids,

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

This permit shall become effective on January 1, 2022.

This permit expires at midnight on September 30th, 2026.

Signed this 29th day of December, 2021.

Erica Brown Gaddis, PhD
Director

DWQ-2021-014410

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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*.

Outfall Number	Location of Discharge Outfall
001	Located at latitude 38° 34' 40" and longitude 109° 34' 47". The discharge is through a 2000-foot cement pipeline to the Colorado River.

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. Specific Limitations and Self-Monitoring Requirements.

1. Effective immediately, 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.

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 [1]				
	Maximum Monthly Avg	Maximum Weekly Avg	Yearly Average	Daily Minimum	Daily Maximum
Total Flow	1.75	-	-	-	-
BOD_5, mg/L	25	35	-	-	-
BOD_5 Min. % Removal	85	-	-	-	-
TSS, mg/L	25	35	-	-	-
TSS Min. % Removal	85	-	-	-	-
TRC, mg/L					
Summer (Jul-Sep)	0.35	-	-	-	-
Fall (Oct-Dec)	0.59	-	-	-	-
Winter (Jan-Mar)	0.73	-	-	-	-
Spring (Apr-Jun)	0.63	-	-	-	-
E. coli, No./100mL	126	157	-	-	-
Oil & Grease, mg/L	-	-	-	-	10.0
pH, Standard Units	-	-	-	6.5	9
Phosphorus, mg/L	-	-	2.5	-	-

Parameter	Effluent Limitations [1]				
	Maximum Monthly Avg	Maximum Weekly Avg	Yearly Average	Daily Minimum	Daily Maximum
TDS, mg/L	<400 mg/L Increase	-	-	-	-
1. See Definitions, *Part VIII*, for definition of terms.					
2. The effluent shall not exceed the culinary source water intake by more than 400 mg/L of TDS					

Self-Monitoring and Reporting Requirements [1]			
Parameter	Frequency	Sample Type	Units
Total Flow [2], [3]	Continuous	Recorder	MGD
BOD_5, Influent [4] Effluent	2 X Weekly 2 X Weekly	Composite Composite	mg/L mg/L
TSS, Influent [4] Effluent	2 X Weekly 2 X Weekly	Composite Composite	mg/L mg/L
E. coli	2 X Weekly	Grab	No./100mL
pH	2 X Weekly	Grab	SU
Total Ammonia (as N)	Monthly	Composite	mg/L
WET – Biomonitoring [5]	Quarterly	Composite	Pass/Fail
TRC, mg/L, [6], [7]	Daily	Grab	mg/L
Oil & Grease (When Sheen Observed) [8]	Monthly	Grab	mg/L
Orthophosphate (as P), [9] Effluent	Monthly	Composite	mg/L
Total Phosphorus (as P), [9] Influent [4] Effluent	Monthly Monthly	Composite Composite	mg/L mg/L
Total Kjeldahl Nitrogen (TKN) (as N), [9] Influent [4] Effluent	Monthly Monthly	Composite Composite	mg/L mg/L
Nitrate, NO3 [9]	Monthly	Composite	mg/L
Nitrite, NO2 [9]	Monthly	Composite	mg/L
TDS, mg/L Source Water [4] Effluent	Monthly Monthly	Grab Grab	mg/L mg/L
Metals, Influent [4] Effluent	Quarterly Quarterly	Composite Composite	mg/L mg/L
Organic Toxics	Odd Calendar Years	Grab	mg/L
1. See Definitions, *Part VIII*, for definition of terms.			
2. 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.			
3. If the rate of discharge is controlled, the rate and duration of discharge shall be reported.			
4. 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.			
5. The acute Ceriodaphnia will be tested during the 1st and 3rd quarters and the acute fathead minnows will be tested during the 2nd and 4th quarters. The chronic Ceriodaphnia will be tested during the 2nd and 4th quarters, and the chronic fathead minnows will be tested during the 1st and 3rd quarters.			

Self-Monitoring and Reporting Requirements [1]			
Parameter	Frequency	Sample Type	Units
6. Total residual chlorine monitoring frequency is Daily. The chlorine is used to control biological growth in the effluent equalization basin during certain times of the year. If the chlorine is not being used on a given day, they no analysis is required for that day.			
7. Total residual chlorine monitoring frequency is Daily. The chlorine is used to control biological growth in the effluent equalization basin during certain times of the year. If the chlorine is not being used in a given month, the result may be reported as.			
8. Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report NA.			
9. These reflect changes and additions required with the adoption of UCA R317-l-3 .3, Technology-based Phosphorus Effluent Limits 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.			

3. Compliance Schedule

   There is no Compliance Schedule included in this renewal permit.

4. Acute Whole Effluent Toxicity (WET) Testing.

   a. *Whole Effluent Testing – Acute Toxicity*. Starting immediately, the permittee shall quarterly conduct acute static renewal toxicity tests on a composite sample of the final effluent. The sample shall be collected at the point of compliance for Outfall 001before mixing with the receiving water.

      The monitoring frequency for acute tests shall be quarterly 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.C4.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-hour static renewal toxicity test using Ceriodaphnia dubia (solution renewal every 24 hours) and the acute 96-hour static renewal toxicity test using Pimephales promelas (fathead minnow) (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.

Quarterly, test results shall be reported along with the Discharge Monitoring Report (DMR) submitted for the end of the required reporting period quarter, 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.

b. *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.

c. *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.

d. *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.

(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 ___ 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.

e. *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.

(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.

D. 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 February 28, 2022. 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.

II. INDUSTRIAL PRETREATMENT PROGRAM

A. Definitions. For this section the following definitions shall apply:

1. *Approval Authority* means the Director.

2. *Approved Pretreatment Program* mean a pretreatment program which has been approved by the Director. If the permittee does not have an Approved Pretreatment Program, the Director implements the requirements of the pretreatment program within the service area for the POTW.

3. *Control Authority* means

   a. The POTW if the POTW's Pretreatment Program Submission has been approved in accordance with the requirements of §403.11; or

   b. The Approval Authority if the Submission has not been approved.

4. *Indirect Discharge* means the introduction of pollutants into a publicly-owned treatment works (POTW) from any non-domestic source regulated under section 307 (b), (c) or (d) of the CWA.

5. *Interference* means a discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

   a. Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

   b. Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

6. *Local Limit* is defined as a limit designed to prevent pass through and/or interference. And is developed in accordance with 40 CFR 403.5(c).

7. *Pass Through means* a Discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

8. *Publicly Owned Treatment Works* or *POTW* means a treatment works as defined by section 212 of the CWA, which is owned by a State or municipality (as defined by section 502(4) of the CWA). This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW Treatment Plant. The term also means the municipality as defined in section 502(4) of the CWA, which has jurisdiction over the Indirect Discharges to and the discharges from such a treatment works.

9. *POTW Treatment Plant* means that portion of the POTW which is designed to provide treatment (including recycling and reclamation) of municipal sewage and industrial waste

10. *Significant industrial user (SIU)* is defined as an industrial user discharging to a POTW that satisfies any of the following:

    a. Has an average process wastewater flow of 25,000 gallons per day (excluding sanitary, noncontact cooling and boiler blowdown wastewater);

    b. Contributes a process waste-stream which makes up 5 percent or more of the average dry weather hydraulic or organic capacity of the POTW Treatment Plant;

    c. Is subject to Categorical Pretreatment Standards, or

    d. Is designated as such by the Control Authority on the basis that the Industrial User has a reasonable potential for adversely affecting the POTW's operation or for violating any Pretreatment Standard or requirement.

11. *User or Industrial User (IU)* means a source of Indirect Discharge.

B. Pretreatment Monitoring and Reporting Requirements.

1. Monitoring will be required of the permittee for the pretreatment requirements at this time. If changes occur monitoring may be required for parameters not currently listed in the permit or current monitoring requirements may be required to be increased to determine the impact of an industrial user or to investigate sources of pollutant loading. This could include but is not limited to sampling of the influent and effluent of the wastewater treatment plant and within the collection system.

2. 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	MDL	Sample Type	Frequency	Units
Total Arsenic	3.44	Composite	Quarterly	mg/L
Total Cadmium	0.0466			
Total Chromium	0.166			
Total Copper	0.553			
Total Lead	0.339			
Total Molybdenum	NA			
Total Nickel	3.29			
Total Selenium	0.0737			
Total Silver	4.09			
Total Zinc	7.41			
Total Cyanide	0.120	Composite/Grab		
Total Mercury	0.000277			
TTOs	NA		Yearly	

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. The minimum detection limit (MDL) of the test method used for analysis must be below this limit, if a test method is not available the permittee must submit documentation to the Director regarding the method that will be used.

5. 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 the DWQ via email. A test method should be used that has a reporting limit as 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.

6. 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.B.2. or a pollutant of concern listed in the local limit development document or determined by the Director, the permittee must report this information to the Pretreatment Coordinator for the DWQ. If the loading exceeds the allowable headworks load, increase sampling must occur based on the requirements given by the Pretreatment Coordinator for the 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.

C. Industrial Wastes.

1. Because the design capacity of this municipal wastewater treatment facility is less than 5 MGD, the permittee will not be required to develop an Approved Pretreatment Program at this time. However, in order to determine if development of an Approved Pretreatment Program is warranted, the permittee shall conduct an **industrial waste survey**, as described in this section.

2. The "Industrial Waste Survey" or “IWS” consists of;

   a. Identifying each industrial user (IU) and determining if the IU is a signification industrial user (SIU),

   b. Determination of the qualitative and quantitative characteristics of each discharge, and

   c. Appropriate production data.

3. The IWS must be maintained and updated with IU information as necessary, to ensure that all IUs are properly permitted and/or controlled at all times. Updates must be submitted to the Director sixty (60) days following a change to the IWS.

4. 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).

5. The permittee must notify the Director of any new introductions by new or existing SIUs or any substantial change in pollutants from any major industrial source. Such notice must contain the information described in 2. above, and be forwarded no later than sixty (60) days following the introduction or change.

D. General and Specific Prohibitions. The permittee must ensure that no IU violates any of the general or specific standards. If an IU is found violating a general or specific standard the permittee must notify the Director within 24 hours of the event. The general prohibitions and the specific prohibitions apply to each User introducing pollutants into a POTW whether or not the User is subject to other Pretreatment Standards or any national, State or local Pretreatment Requirements.

1. General prohibition Standards. A User may not introduce into a POTW any pollutant(s) which cause Pass Through or Interference.

2. Specific Prohibited Standards. Developed pursuant to *Section 307* of *The Water Quality Act of 1987* require that under no circumstances shall the permittee allow introduction of the following pollutants into the waste treatment system from any User (*40 CFR 403.5*):

   a. 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);

   b. Pollutants, which will cause corrosive structural damage to the POTW, but in no case, discharges with a pH lower than 5.0;

   c. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in interference;

   d. Any pollutant, including oxygen demanding pollutants (BOD, etc.) released in a discharge at such volume or strength as to cause interference in the POTW;

   e. 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);

   f. Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;

   g. 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; or,

   h. Any trucked or hauled pollutants, except at discharge points designated by the POTW.

   i. Any pollutant that causes pass through or interference at the POTW.

   j. Any prohibited standard which the permittee has adopted in an ordinance or rule to control IU discharge to the POTW.

3. In addition to the general and specific limitations expressed above, more specific pretreatment limitations have been and will be promulgated for specific industrial categories under *Section 307* of *the Water Quality Act of 1987 as amended (WQA). (See 40 CFR, Subchapter N, Parts 400* through *500*, for specific information).

E. Significant Industrial Users Discharging to the POTW. The permittee shall provide adequate notice to the Director and the Division of Water Quality Industrial Pretreatment Coordinator of;

1. Any new introduction of pollutants into the treatment works from an indirect discharger (i.e., industrial user) which would be subject to *Sections 301* or *306* of the *WQA* if it were directly discharging those pollutants;

2. Any substantial change in the volume or character of pollutants being introduced into the treatment works by a source introducing pollutants into the treatment works at the time of issuance of the permit; and

3. For the purposes of this section, adequate notice shall include information on:

   a. The quality and quantity of effluent to be introduced into such treatment works; and,

   b. Any anticipated impact of the change on the quantity or quality of effluent to be discharged from such publicly owned treatment works.

4. Any IU that must comply with applicable requirements under Subtitles C and D of the Resource Conservation and Recovery Act (RCRA).

F. Change of Conditions. At such time as a specific pretreatment limitation becomes applicable to an industrial user of the permittee, the Director may, as appropriate, do the following:

1. Amend the UPDES discharge permit to specify the additional pollutant(s) and corresponding effluent limitation(s) consistent with the applicable national pretreatment limitation;

2. Require the permittee to specify, by ordinance, contract, or other enforceable means, the type of pollutant(s) and the maximum amount which may be discharged to the POTW Treatment Plant for treatment. Such requirement shall be imposed in a manner consistent with the POTW program development requirements of the *General Pretreatment Regulations* at *40 CFR 403*;

3. Require the permittee to monitor its discharge for any pollutant, which may likely be discharged from the POTW Treatment Plant, should the industrial user fail to properly pretreat its waste; and/or

4. Require the permittee to develop an Approved Pretreatment Program.

G. Legal Action. The Director retains, at all times, the right to take legal action against the industrial user and/or the treatment works, in those cases where a permit violation has occurred because of the failure of an industrial user to discharge at an acceptable level. If the permittee has failed to properly delineate maximum acceptable industrial contributor levels, the Director will look primarily to the permittee as the responsible party.

H. Local Limits. If local limits are developed per R317-8-8.5(4)(b) to protect the POTW from pass-through or interference, then the POTW must submit limits to DWQ for review and public notice, as required by R317-8-8.5(4)(c). Local limits should be developed in accordance with the latest revision of the EPA Local Limits Development Guidance and per R317-8-8.5.

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. The solids are removed from the SBR after the settling and drain stages of treatment and transferred to a holding basin. From there the solids are dewatered by screw press and loaded in a dumpster where they are the transferred to a landfill for disposal

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.
2.

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

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 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	-
Total Nickel	420	420	420	21
Total Selenium	100	100	100	5
Total Zinc	7500	2800	2800	140
1. The limitations represent the maximum allowable levels of heavy metals in any biosolids intended for land application.				
2. CPLR - Cumulative Pollutant Loading Rate; the maximum pollutant load for any given piece of land.				
3. These limitations represent the maximum allowable levels of heavy metals based on an average of all samples taken during a 30-day period.				
4. APLR – Annual Pollutant Loading Rate; the maximum pollutant load for any given piece of land in any given year.				

3. 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 or 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) Moab does no beneficially reuse the biosolids, and is thus not required to meet a PFRP.

   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*. Moab does no beneficially reuse the biosolids, and is thus not required to meet a PSRP.

      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.

<table>
<tr><td colspan="2">Pathogen Control Class</td></tr>
<tr><td>503.32 (a)(1) - (5), (7),-(8), Class A</td><td>503.32 (b)(1) - (5), Class B</td></tr>
<tr><td>B Salmonella species –less than three (3) MPN[1] per four (4) grams total solids (DWB)[2] or Fecal Coliforms – less than 1,000 MPN per gram total solids (DWB).</td><td rowspan="3">Fecal Coliforms – less than 2,000,000 MPN or CFU[3] per gram total solids (DWB).</td></tr>
<tr><td>503.32 (a)(6) Class A—Alternative 4</td></tr>
<tr><td>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)</td></tr>
<tr><td colspan="2">1. MPN – Most Probable Number</td></tr>
<tr><td colspan="2">2. DWB – Dry Weight Basis.</td></tr>
<tr><td colspan="2">3. CFU – Colony Forming Units</td></tr>
</table>

4. <u>Vector Attraction Reduction Requirements.</u>

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 though the following methods.

(1) Moab disposes of biosolids at a landfill and meets VAR through Daily Cover *40 CFR Part 503.33,b,11* "Sewage sludge placed on an active sewage sludge unit (Landfill) shall be covered with soil or other material at the end of each operating day"

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.

5. 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 (40 CFR Part 503.16, 503.26. and 503.46)		
Amount of Biosolids Disposed Per Year		Monitoring Frequency
Dry US Tons	Dry Metric Tons	Per Year or Batch
> 0 to < 320	> 0 to < 290	Once Per Year or Batch
> 320 to < 1650	> 290 to < 1,500 [1]	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
1. Moab has produced on aver 350 DMT of biosolids annually over the last 10 years., therefore they would be required to sample at least four times a year. Moab sends all biosolids to the landfill and thus not required to monitor the biosolids.		

b. Sample collection, preservation and analysis shall be performed in a manner consistent with the requirements of *40 CRF 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.*

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,

         (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 applier 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.

(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 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).

* Starting January 1, 2021, the Annual Biosolids Reports should also be submitted through this system.

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.

IV. STORM WATER REQUIREMENTS.

A. Industrial Storm Water Permit. Treatment Works facilities with a design flow of 1.0 MGD or more are 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 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.

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*, 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 503* 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 report shall be made to the Division of Water Quality, (801) 536-4300, or 24-hour answering service (801) 536-4123.

2. The following occurrences of noncompliance shall be reported by telephone (801) 536-4300 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) 536-4300.

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;

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.

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 *UCA 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.

   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 *section 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 *sections VI.G.2.a (1), (2) and (3)*.

3. Notice.

   a. *Anticipated bypass*. Except as provided above in *section VI.G.2* and below in *section 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 *section VI.G.3.a.(1) through (6)* to the extent practicable.

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.

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

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:

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 *UCA 19-5-117* and *Section 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;

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.

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 "LC_{50}").

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 IC_{25}< 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. "IC_{25}" 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:

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

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^{o} or 105^{o} 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, flies, mosquitos 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.

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.

FACT SHEET AND STATEMENT OF BASIS
MOAB CITY WASTEWATER TREATMENT FACILITY
RENEWAL PERMIT: DISCHARGE, & BIOSOLIDS
UPDES PERMIT NUMBER: UT0020419
UPDES BIOSOLIDS PERMIT NUMBER: UTL-020419
MAJOR MUNICIPAL

FACILITY CONTACTS

Person Name:	Obe Tejada
Position:	Wastewater Director
Phone Number:	435-259-5577
Person Name:	Carly Castle
Position:	Acting City Manager
Phone Number:	435-259-5121
Facility Name:	Moab Water Reclamation Facility
Mailing and Facility Address:	217 East Center St. Moab, Utah 84532
Telephone:	435-259-5577
Actual Address:	1070 West 400 North, Moab in Grand County, Utah

DESCRIPTION OF FACILITY

The Moab Wastewater Treatment Plant (Moab WWTP) was originally built in the early 1950s, and after two upgrades in 1983 and in 1996 had a design capacity of 1.5 million gallons a day (MGD). The facility consisted of a dump station, an inlet pump station, a screen and flume structure, a grit remover, two primary clarifiers, a primary digester, a secondary digester, two trickling filters, two secondary clarifiers, and an emergency power station. Moab WWTP was at approximately one-half to two-thirds it's organic and hydraulic loading capacity and was having trouble meeting permit requirements. During the life of the previous permit, Moab completely replaced the facility.

The new facility consists of a dump station, an inlet pump station, a screen and flume structure, a grit remover, two sequencing batch reactors, an equalization basin, ultraviolet disinfection system, and an emergency power station. Moab WWTP still discharges effluent to the Colorado River via the existing 2000-foot cement pipeline. The new Moab WWTP facility is located across the road, south of the existing facility near 1025 West 400 North in the city of Moab, Grand County. The outfall is located near latitude is 38° 34' 40", longitude 1090 34' 47" with STORET number 495655

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

Moab City completely replaced the wastewater treatment plant and brought a new one on line in August of 2018. The permit (2016 – 2021) was renewed in 2016 with the same flow as the previous (2012-2016) permit. That flow was 1.5 MGD. After the new plant was brought online, the city requested the Permit be modified to increase the permitted flow from the facility to the design flow. After completing a Level II Antidegradation Review on the discharge, and full public comment period the permit was modified and issued with an increased flow of 1.75 MGD.

The Permit renewal also included a compliance schedule to cover the completion of the facility and startup of the new one. In 2019 the permit was also modified to remove the compliance schedule.

During the replacement of the facility the disinfection system was switched from chlorine to ultra violet. The facility has requested the TRC limit remain so they can investigate the use of chlorine to control string algae and moss growth (biological growth) in the effluent equalization basin during the summer month. The monitoring will remain in the permit on a daily basis. If the facility is not adding chlorine on any given day, they do not have to analysis the effluent for residual chlorine.

The facility does not need to treat for the biological growth in the same way they are required to disinfect the effluent at all times. As a result, the acute limit (Weekly Average) will be removed and the chronic limits (Monthly Average) will vary by season.

TRC Limit			
	Previous Permit		Renewal Permit
	Monthly Avg	Weekly Avg	Maximum Monthly Avg
Summer (Jul-Sep)	1.4	1.55	0.35
Fall (Oct-Dec)			0.59
Winter (Jan-Mar)			0.73
Spring (Apr-Jun)			0.63

Moab WWTP has started using the IDEXX system for inhouse *E. coli* monitoring.

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 nonlagoon 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. TBPEL compliance must be achieved by January 1, 2020 unless a variance has been granted by DWQ.

On June 15, 2018, DWQ approved the Moab WWTP variance request not to extend beyond the current permit duration, and with a total phosphorous annual average limit of 2.5 mg/L beginning January 1, 2020. The Variance has been extended for the duration of the renewal permit. And incorporated into this renewal.

DISCHARGE

DESCRIPTION OF DISCHARGE

Moab WWTP has been reporting self-monitoring results on Discharge Monitoring Reports on a monthly basis. In late 2018 the discharge switched from the old plant to the new plant, and the effluent is much better quality. As a result, the prior data are no longer representative of the discharge from the current facility A summary of the data from the switch over (October 2018) is included in Attachment 2 of this FSSOB.

There have only been a couple permit limit exceedances since 2018. One, an exceedance of the total suspended solids limit, is attributed to an extreme weather event where they received a short term high

influent flow that was more dilute and contained a large volume of sand. This indicated that a large amount of storm runoff was entering the sewer during a storm event. Another exceedance was due to a higher than normal loading from hauled waste over a short period that month. Neither were serious enough to warrant enforcement.

Outfall	Description of Discharge Point
001	Located at latitude 38°34'40" and longitude 109°34'47". The discharge is through a 2000-foot cement pipeline to the Colorado River.

RECEIVING WATERS AND STREAM CLASSIFICATION
The final discharge flows into the Colorado River which is classified as 1C, 2A, 3B and 4, according to *Utah Administrative Code (UAC) R317-2-13*.

Class 1C -- Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water

Class 2A -- Protected for frequent primary contact recreation where there is a high likelihood of ingestion of water or a high degree of bodily contact with the water. Examples include, but are not limited to, swimming, rafting, kayaking, diving, and water skiing.

Class 3B -- Protected for warm water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain.

Class 4 -- Protected for agricultural uses including irrigation of crops and stock watering.

BASIS FOR EFFLUENT LIMITATIONS
Limitations on total suspended solids (TSS), biochemical oxygen demand (BOD5), *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 are based on best professional judgment (BPJ). Attached is a Wasteload Analysis for this discharge into the Colorado 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.

Total dissolved solids (TDS) limitations are based upon Utah Water Quality Standards for concentration values and the Colorado River Basin Salinity Control Forum (CRBSCF) for mass loading values when applicable as authorized in *UAC R317-2-4*. CRBSCF has established a policy for the reasonable increase of salinity for municipal discharges to any portion of the Colorado River stream system that has an impact on the lower main stem. The CRBSCF Policy titled "NPDES Permit Program Policy for Implementation of Colorado River Salinity Standards" (Policy), with the most current version dated October 2020, states that the incremental increase in salinity shall be 400 mg/L or less, which is considered to be a reasonable incremental increase above the flow weighted average salinity of the intake water supply.

Reasonable Potential Analysis
A reasonable potential analysis (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 the effluent metals monitoring results reported in the DMR's to determine if there was reasonable potential for the discharge to exceed the applicable water quality

standards. Based on the RP analysis, no parameters exceeded the most stringent chronic water quality standard or were determined to have a reasonable potential to exceed the standard. In addition, the RP analysis indicates no increased 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 [1]				
	Maximum Monthly Avg	Maximum Weekly Avg	Yearly Average	Daily Minimum	Daily Maximum
Total Flow	1.75	-	-	-	-
BOD_5, mg/L	25	35	-	-	-
BOD_5 Min. % Removal	85	-	-	-	-
TSS, mg/L	25	35	-	-	-
TSS Min. % Removal	85	-	-	-	-
TRC, mg/L					
Summer (Jul-Sep)	0.35	-	-	-	-
Fall (Oct-Dec)	0.59	-	-	-	-
Winter (Jan-Mar)	0.73	-	-	-	-
Spring (Apr-Jun)	0.63	-	-	-	-
E. coli, No./100mL	126	157	-	-	-
Oil & Grease, mg/L	-	-	-	-	10.0
pH, Standard Units	-	-	-	6.5	9
Phosphorus, mg/L	-	-	2.5	-	-
TDS, mg/L	<400 mg/L Increase	-	-	-	-
1. See Definitions, *Part VIII*, for definition of terms.					
2. The effluent shall not exceed the culinary source water intake by more than 400 mg/L of TDS					

SELF-MONITORING AND REPORTING REQUIREMENTS

The following self-monitoring requirements have been update from what was in the previous permit. The permit will require reports to be submitted monthly and annually, as applicable, on Discharge Monitoring Report (DMR) forms due 28 days after the end of the monitoring period. 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 [1]			
Parameter	Frequency	Sample Type	Units
Total Flow [2], [3]	Continuous	Recorder	MGD
BOD_5, Influent [4]	2 X Weekly	Composite	mg/L
Effluent	2 X Weekly	Composite	mg/L
TSS, Influent [4]	2 X Weekly	Composite	mg/L
Effluent	2 X Weekly	Composite	mg/L
E. coli	2 X Weekly	Grab	No./100mL
pH	2 X Weekly	Grab	SU
Total Ammonia (as N)	Monthly	Composite	mg/L
WET – Biomonitoring [5]	Quarterly	Composite	Pass/Fail
TRC, mg/L, [6]	Daily [7]	Grab	mg/L

Self-Monitoring and Reporting Requirements [1]			
Parameter	Frequency	Sample Type	Units
Oil & Grease (When Sheen Observed) [8]	Monthly	Grab	mg/L
Orthophosphate (as P), [9] Effluent	Monthly	Composite	mg/L
Total Phosphorus (as P), [9] Influent [4]	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Total Kjeldahl Nitrogen (TKN) (as N), [9] Influent [4]	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Nitrate, NO3 [9]	Monthly	Composite	mg/L
Nitrite, NO2 [9]	Monthly	Composite	mg/L
TDS, mg/L Source Water [4]	Monthly	Grab	mg/L
Effluent	Monthly	Grab	mg/L
Metals, Influent [4]	Quarterly	Composite	mg/L
Effluent	Quarterly	Composite	mg/L
Organic Toxics	Odd Calendar Years	Grab	mg/L

1. See Definitions, *Part VIII*, for definition of terms.
2. 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.
3. If the rate of discharge is controlled, the rate and duration of discharge shall be reported.
4. 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.
5. The acute Ceriodaphnia will be tested during the 1st and 3rd quarters and the acute fathead minnows will be tested during the 2nd and 4th quarters. The chronic Ceriodaphnia will be tested during the 2nd and 4th quarters, and the chronic fathead minnows will be tested during the 1st and 3rd quarters.
6. Total residual chlorine monitoring frequency is Daily. The chlorine is used to control biological growth in the effluent equalization basin during certain times of the year. If the chlorine is not being used in a given month, the result may be reported as.
7. Total residual chlorine monitoring frequency is Daily. The chlorine is used to control biological growth in the effluent equalization basin during certain times of the year. If the chlorine is not being used on a given day, they no analysis is required for that day.
8. Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report NA.
9. These reflect changes and additions required with the adoption of UCA R317-l-3 .3, Technology-based Phosphorus Effluent Limits 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.

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
Since the last renewal, the entire facility has been replaced with an SBR. The solids are removed from the SBR after the settling and drain stages of treatment and transferred to a holding basin. From there the solids are dewatered by screw press and loaded in a dumpster where they are then transferred to a landfill for disposal.

DESCRIPTION OF TREATMENT AND DISPOSAL

The Permittee submitted their 2020 annual biosolids report on February 26, 2021. The report states the Permittee produced 351 dry metric tons (DMT) of solids.

Biosolids were hauled to the Klondike Bluffs Landfill. Approximately 352 DMT were hauled off-site to the landfill for disposal.

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

Minimum Frequency of Monitoring (40 CFR Part 503.16, 503.26. and 503.46)		
Amount of Biosolids Disposed Per Year		Monitoring Frequency
Dry US Tons	Dry Metric Tons	Per Year or Batch
> 0 to < 320	> 0 to < 290	Once Per Year or Batch
> 320 to < 1650	> 290 to < 1,500	Once a Quarter or Four Times
> 1,650 to < 16,500	> 1,500 to < 15,000	Bi-Monthly or Six Times
> 16,500	> 15,000	Monthly or Twelve Times

Moab WWTP has produced on aver 350 DMT of biosolids annually over the last 10 years., therefore they would be required to sample at least four times a year. Moab WWTP sends all biosolids to the landfill and thus not required to monitor the biosolids.

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 metals regulations of Table 3, *40 CFR 503.13* is to ensure the heavy metals do not build up in the soil in home lawn and gardens to the point where the heavy metals become phytotoxic to plants. The permittee will be required to produce an information sheet (see *Part III. C*. of the permit) to made available to all people who are receiving and land applying Class A biosolids to their lawns and gardens. If the instructions of the information sheet are followed to any reasonable degree, the Class A biosolids will be able to be land applied year after year, to the same lawns and garden plots without any

deleterious effects to the environment. The information sheet must be provided to the public, because the permittee is not required, nor able to track the quantity of Class A biosolids that are land applied to home lawns and gardens.

Class A Requirements With Regards to Heavy Metals

If the biosolids are to be applied to a lawn or home garden, the biosolids shall not exceed the maximum heavy metals in Table 1 and the monthly average pollutant concentrations in Table 3 (see Table 1 and Table 3 below). If the biosolids do not meet these requirements, the biosolids cannot be sold or given away for applications to home lawns and gardens.

Class B Requirements for Agriculture and Reclamation Sites

The intent of the heavy metals regulations of Tables 1, 2, 3 and 4, 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 the biosolids shall not exceed the maximum heavy metals in Table 1 and shall not be land applied at an application rate to exceed either the Cumulative Pollutant Loading Rate (CPLR), Table 2, or the Annual Pollutant Loading Rate (APLR), Table 4 (see Table 2 and Table 4 in the heavy metals limits table below).

Heavy Metal Limitations (Pollutant Limits Tables 1, 2, 3, and 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)
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	-
Total Nickel	420	420	420	21
Total Selenium	100	100	100	5
Total Zinc	7500	2800	2800	140
1 - The limitations represent the maximum allowable levels of heavy metals in any biosolids intended for land application.				
2 - CPLR - Cumulative Pollutant Loading Rate; the maximum pollutant load for any given piece of land.				
3 - These limitations represent the maximum allowable levels of heavy metals based on an average of all samples taken during a 30-day period.				

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 pollutant load for any given piece of land in any given year.				

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[1] per four (4) grams total solids (DWB)[2] or Fecal Coliforms – less than 1,000 MPN per gram total solids (DWB).	Fecal Coliforms – less than 2,000,000 MPN or CFU[3] 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)	
1. MPN – Most Probable Number	
2. DWB – Dry Weight Basis.	
3. 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. Moab WWTP does no beneficially reuse the biosolids, and is thus not required to meet a PFRP.

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). Moab WWTP does no beneficially reuse the biosolids, and is thus not required to meet a PSRP.

Vector Attraction Reduction (VAR)
If the biosolids are land applied Moab WWTP will be required to meet VAR through the use of a method of listed under *40 CFR 503.33.* Moab WWTP disposes of biosolids at a landfill and meets VAR through Daily Cover.

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 retained for a minimum of five years.

Reporting
Moab WWTP 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 DATA

METALS MONITORING DATA
The Moab WWTP was not required to sample the biosolids for metals because they dispose of all biosolids in a landfill.

PATHOGEN MONITORING
Moab WWTP disposes of all biosolids and is not required to monitor for pathogens.

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. Treatment Works facilities with a design flow of 1.0 MGD or more are 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

Information was provided regarding industrial users that discharge to the POTW as part of the UPDES Permit Application. An industrial waste survey (IWS) is required of the permittee as stated in Part II of the UPDES Permit. The IWS is to assess the needs of the permittee regarding pretreatment assistance. If an Industrial User (IU) begins to discharge or an existing IU changes their discharge the permittee must resubmit an IWS no later than sixty days following the introduction or change as stated in Part II of the UPDES Permit.

Moab WWTP is not required to develop an Approved Pretreatment Program at the time. Moab WWTP has five dental offices, a distillery, a brewery, a county jail, a discharging categorical industrial user (CIU) and two zero discharging IUs. Synergy has been classified as a CIU regulated by 40 CFR 439. Currently, Synergy is permitted by DWQ.

Moab Distillery and Moab Brewery are not required to be permitted since Moab WWTP has adequate capacity for the wastewater from these facilities. These facilities have been inspected by DWQ and have been notified of the pretreatment standards and requirements. The facilities are able to pH adjust, to ensure wastewater is discharged within the requirements for pretreatment standards.

Mega Blue and Moab Bit and Tool could be classified as CIUs although the facilities do not discharge process wastewater to the POTW. DWQ has inspected these facilities and will continue to inspect the facilities to ensure that the facilities do not discharge process wastewater to the POTW. If notification is made by either of these industries that process wastewater will be discharged to the POTW, Moab WWTP must notify DWQ as soon as possible. These facilities must obtain a UPDES Permit if discharge occurs into the POTW. Discharge must not be allowed until a UPDES Permit has been issued.

Food service establishments (FSEs) have impacted the collection system with fats, oils and grease (FOG). A warning letter was sent to Moab due to the impact of the FSEs. Moab has committed to managing the Moab FOG Program better, which is required to be implemented per the Utah Sewer Management Program (USMP).

Hauled waste is accepted at the water reclamation facility (WRF) which is owned and operated by Moab. *The Moab WWTP Relocation Final Environmental Study* from October 2016 states that about 1.2 million gallons a year of septage is discharge to the WRF. Controls are in place to prevent illegal haulers from discharging at the WRF. These controls include a key in system that will only allow permitted haulers to discharge to the WRF.

Although the permittee does not have to develop an Approved Pretreatment Program, any wastewater discharges to the sanitary sewer are subject to Federal, State and local regulations. Pursuant to Section 307 of the Clean Water Act, the permittee shall comply with all applicable Federal General Pretreatment Regulations promulgated, found in 40 CFR 403 and the State Pretreatment Requirements found in UAC R317-8-8. Based on industrial users in the Moab WWTP service area it is recommended that Moab WWTP begin to become knowledgeable regarding the implementation and requirements of establishing an

Approved Pretreatment Program.

It is required that the permittee submit for review any Local Limits that are developed to the Division of Water Quality for review. If Local Limits are developed it is required that the permittee perform an annual evaluation of the need to revise or develop technically based Local Limits for pollutants of concern, to implement the general and specific prohibitions *40 CFR, Part 403.5(a)* and *Part 403.5(b)*. This evaluation may indicate that present Local Limits are sufficiently protective, need to be revised or should be developed.

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.

The permittee is a major municipal facility that discharges to the Colorado River. Because the effluent is substantially diluted by the Colorado River, Moab WWTP will be required to do acute WET testing. It is doubtful that Moab WWTP effluent will have any effect on the quality/toxicity in the Colorado River. However, there could be toxicity within the small mixing zone in the river which is prohibited by the water quality rules, UAC R317-2-5. As a result, WET limits will be included in the effluent limits for Moab WWTP. No acute toxicity is allowed in a mixing zone, which translates into no toxicity at the end of the pipe, or no toxicity in 100% effluent or LC_{50} > 100% effluent. The permit will contain a toxicity limitation re-opener provision that allows for modification of the permit should additional information indicate the presence of toxicity in the discharge.

PERMIT DURATION

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

Drafted by
Daniel Griffin, Discharge, Biosolids, Reasonable Potential Analysis
Jennifer Robinson, Pretreatment
Lonnie Shull, Biomonitoring
Carl Adams, Storm Water
Christopher Shope, Wasteload Analysis
Utah Division of Water Quality, (801) 536-4300

PUBLIC NOTICE

Began: October 21, 2021
Ended: November 22, 2021

Written 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 in The Times Independent.

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.

During finalization of the Permit certain dates, spelling edits and minor language corrections may be completed. Due to the nature of these changes they might not be considered Major and the permit is would not require a second comment period prior to issuing.

Comment Period Summary.

During the comment period only one letter was submitted. The letter had no comments for the Permit as public noticed.

The comment requested that the Variance be denied. And listed 7 reasons why.
Those reasons were:

1) Cumulative impacts to downstream users (at least 30 million human users and innumerable aquatic wildlife species).
2) To be fair and equitable to the municipalities that currently do mitigate nutrient loading in the CRB.
3) The demand on water supplies in Moab City, Grand County and San Juan County are increasing.
4) Surface and groundwater supplies in Moab-Spanish Valley and the Colorado River Basin are rapidly decreasing.

5) Global warming has disrupted global circulation patterns that are stressing the hydrology of the Colorado River Basin, and these cumulative impacts will continue to increase and they will endure for many centuries.
6) It is the right thing to do.
7) The City of Moab has adopted resolutions that support community sustainability and resilience.

Response to Comments

Division of Water Quality (DWQ) staff has reviewed comments (November 18, 2021, DWQ-2021-029839) submitted by John Weisheit on behalf of Living Rivers and Colorado River keepers (hereafter Living Rivers) requesting that a renewal of the existing technology-based phosphorus effluent limit (TBPEL) should be denied.

DWQ appreciates the input and shares many of the same concerns expressed in the letter. The Colorado River and an important ecosystem and resource. It is important to do everything possible to sustain the integrity of the Colorado River, especially given ongoing threats related to increasing water demand and ongoing hydrological stress related to decreasing environmental flow. After receiving these comments, DWQ reviewed the existing data and information and has not found any evidence that a variance renewal poses any additional threat to the Colorado River ecosystem.

The city of Moab requested a variance to the technology-based phosphorus effluent limit on September 26, 2016 on the basis that it was "…clearly unnecessary to protect waters downstream of the discharge…" [UAC R317-1-3.3(c)]. The rationale for this request was that the discharge of phosphorus from the Moab WWTP was inconsequential in comparison to the existing flow and background phosphorus load in the Colorado River.

To evaluate this request, DWQ first reviewed downstream water quality data and found no evidence that phosphorus was causing of contributing to degradation of the Colorado River's aquatic life designated uses. This has not changed since the initial variance was issued and the comments from Living Rivers does not suggest otherwise.

The Moab WWTP discharge is a small portion of the flow in the Colorado River, yet contains a much higher total phosphorus concentration than exists in the river. Therefore, DWQ conducted a flow weighted comparison of the phosphorus loading on both as annual and seasonal basis. As can be seen in Table 1 and Figure 1 the load from the Moab WWTP varies from a low of 1.38% in the Spring to a high of 3.78% in the Winter. These estimates were based on a total phosphorus of 4.1 mg/l, which was the 12-month rolling average of phosphorus in the discharge at the time the analysis was conducted.

While these data strongly suggested phosphorus from the Moab WWTP was de minimis, DWQ wanted to limit phosphorus inputs to the greatest extent possible, without the need for the addition of chemical salts. As a result, in an abundance of caution, DWQ required that phosphorus be reduced to 2.5 mg/l on an annual basis (Figure 2). The Moab WWTP was optimizing operations in 2020 and ended up with an annual average total phosphorus concentration of 2.67 mg/l, they are currently at 2.17 mg/l for 2021.

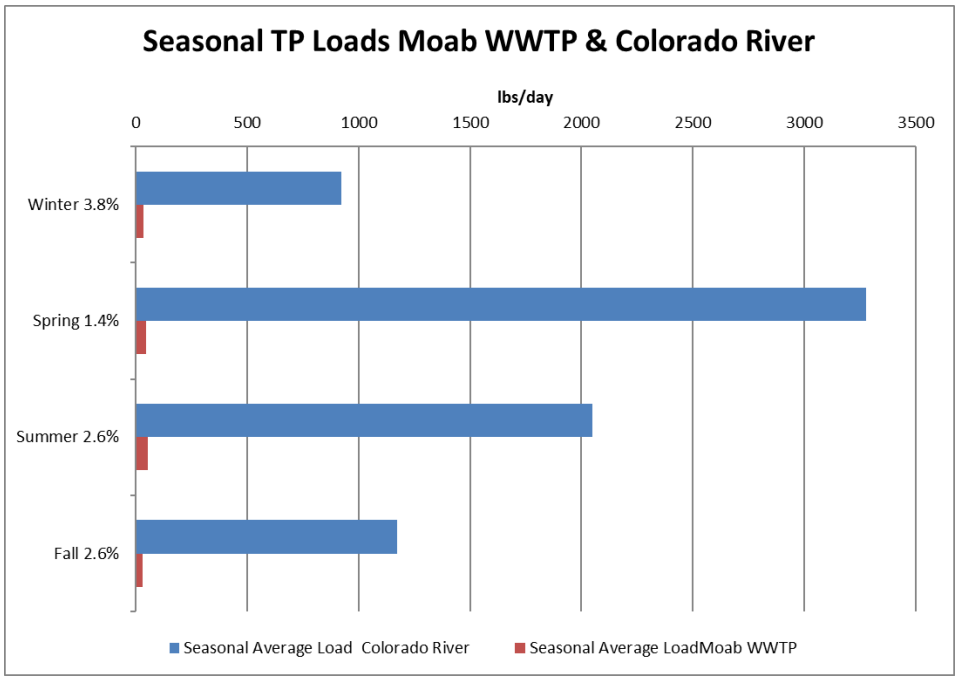
There is no evidence that this new limit threatens downstream uses. If future evidence reveals a need to further limit phosphorus in the Moab WWTP discharge, DWQ is prepared to modify the

variance conditions or eliminate the variance altogether. No such evidence is presented in the Living Rivers comments.

Table - Load comparison Colorado River/Moab WWTP

Seasonal Average Load Colorado River (Kg/day)			
Winter	**Spring**	**Summer**	**Fall**
922.36	3277.12	2049.28	1173.22
Seasonal Average Load Moab WWTP (Kg/day)			
Winter	**Spring**	**Summer**	**Fall**
34.85	45.08	54.18	30.59
Percent Moab is of Colorado Load			
Winter	**Spring**	**Summer**	**Fall**
3.78%	1.38%	2.64%	2.61%

Figure- Moab WWTP Load as a percentage of the Colorado River load



As a result of the evaluation, no substantive changes are being made to the permit as it was Public Noticed, and it will be issued.

ATTACHMENT 1

Industrial Waste Survey

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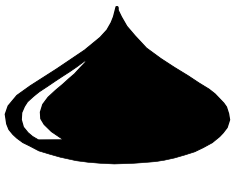
Industrial Pretreatment Wastewater Survey



Do you periodically experience any of the following treatment works problems:

foam, floaties or unusual colors
plugged collection lines caused by grease, sand, flour, etc.
discharging excessive suspended solids, even in the winter
smells unusually bad
waste treatment facility doesn't seem to be treating the waste right

Perhaps the solution to a problem like one of these may lie in investigating the types and amounts of wastewater entering the sewer system from industrial users.

An industrial user (IU) is defined as a non-domestic user discharging to the waste treatment facility which meets any of the following criteria:

1. **has a lot of process wastewater (5% of the flow at the waste treatment facility or more than 25,000 gallons per work day.)**

   Examples: Food processor, dairy, slaughterhouse, industrial laundry.

2. **is subject to Federal Categorical Pretreatment Standards**;

   Examples: metal plating, cleaning or coating of metals, blueing of metals, aluminum extruding, circuit board manufacturing, tanning animal skins, pesticide formulating or packaging, and pharmaceutical manufacturing or packaging,

3. **is a concern to the POTW.**

   Examples: septage hauler, restaurant and food service, car wash, hospital, photo lab, carpet cleaner, commercial laundry.

All users of the water treatment facility are **prohibited** from making the following types of discharges:

1. A discharge which creates a fire or explosion hazard in the collection system.

2. A discharge which creates toxic gases, vapor or fumes in the collection system.

3. A discharge of solids or thick liquids which creates flow obstructions in the collection system.

4. An acidic discharge (low pH) which causes corrosive damage to the collection system.

5. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause problems in the collection system or at the waste treatment facility.

6. Waste haulers are prohibited from discharging without permission. (No midnight dumping!)

When the solution to a sewer system problem may be found by investigating the types and amounts of wastewater entering the sewer system discharged from IUs, it's appropriate to conduct an Industrial Waste Survey.

An Industrial Waste Survey consists of:

Step 1: Identify Industrial Users

Make a list of all the commercial and industrial sewer connections.

Sources for the list:

business license, building permits, water and wastewater billing, Chamber of Commerce, newspaper, telephone book, yellow pages.

Split the list into two groups:

domestic wastewater only--no further information needed
everyone else (IUs)

Step 2: Preliminary Inspection

Go visit each IU identified on the "everybody else" list.

Fill out the **Preliminary Inspection Form** during the site visit.

Step 3: Informing the State

Please fax or send a copy of the Preliminary inspection form (both sides) to:

Jennifer Robinson

Division of Water Quality
288 North 1460 West
PO Box 144870
Salt Lake City, UT 84114-4870

Phone: (801) 536-4383
Fax: (801) 536-4301
E-mail: jenrobinson@utah.gov

PRELIMINARY INSPECTION FORM

INSPECTION DATE ___ / ____ /

Name of Business **Person Contacted** _____
Address _____ **Phone Number** _____

_____

Description of Business _____

Principal product or service: _____

Raw Materials used: _____

_____

Production process is: [ ] Batch [ ] Continuous [ ] Both

Is production subject to seasonal variation? [ ] yes [ ] no
If yes, briefly describe seasonal production cycle.

_____

This facility generates the following types of wastes (check all that apply):

1. [ ] Domestic wastes (Restrooms, employee showers, etc.)
2. [ ] Cooling water, non-contact
3. [ ] Boiler/Tower blowdown
4. [ ] Cooling water, contact
5. [ ] Process
6. [ ] Equipment/Facility washdown
7. [ ] Air Pollution Control Unit
8. [ ] Storm water runoff to sewer
9. [ ] Other describe

Wastes are discharged to (check all that apply):

[ ] Sanitary sewer **[ ] Storm sewer**
[ ] Surface water **[ ] Ground water**
[ ] Waste haulers **[ ] Evaporation**
[ ] Other (describe)
Name of waste hauler(s), if used

_____

Is a grease trap installed? Yes No
Is it operational? Yes No

Does the business discharge a lot of process wastewater?

- **More than 5% of the flow to the waste treatment facility? Yes No**
- **More than 25,000 gallons per work day? Yes No**

Does the business do any of the following:

[ ] Adhesives
[ ] Aluminum Forming
[ ] Battery Manufacturing
[ ] Copper Forming
[ ] Electric & Electronic Components
[ ] Explosives Manufacturing
[ ] Foundries
[ ] Inorganic Chemicals Mfg. or Packaging
[ ] Industrial Porcelain Ceramic Manufacturing
[ ] Iron & Steel
[ ] Metal Finishing, Coating or Cleaning
[ ] Mining
[ ] Nonferrous Metals Manufacturing
[ ] Organic Chemicals Manufacturing or Packaging
[ ] Paint & Ink Manufacturing
[ ] Pesticides Formulating or Packaging
[ ] Petroleum Refining
[ ] Pharmaceuticals Manufacturing or Packaging
[ ] Plastics Manufacturing
[ ] Rubber Manufacturing
[ ] Soaps & Detergents Manufacturing
[ ] Steam Electric Generation
[ ] Tanning Animal Skins
[ ] Textile Mills

[ ] Car Wash
[ ] Carpet Cleaner
[ ] Dairy
[ ] Food Processor
[ ] Hospital
[ ] Laundries
[ ] Photo Lab
[ ] Restaurant & Food Service
[ ] Septage Hauler
[ ] Slaughter House

Are any process changes or expansions planned during the next three years? Yes No
If yes, attach a separate sheet to this form describing the nature of planned changes or expansions.

Inspector

Waste Treatment Facility

Please send a copy of the preliminary inspection form (both sides) to:

Jennifer Robinson
Division of Water Quality
PO Box 144870
Salt Lake City, Utah 84114-4870

Phone: **(801) 536-4383**
Fax: **(801) 536-4301**
E-Mail: **jenrobinson@utah.gov**

	Industrial User	Jurisdiction	SIC Codes	Categorical Standard Number	Total Average Process Flow (gpd)	Total Average Facility Flow (gpd)	Facility Description
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							

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ATTACHMENT 2

Effluent Monitoring Data

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Effluent Monitoring Data.

Monthly DMR Reported Results										
Param	Flow	pH		BOD		TSS		E. coli		O & G
Units	MGD	SU		mg/L		mg/L		#/100mL		mg/L
Limit	1.75	6.5	9	25	35	25	35	157	126	10
Month	Max	Min	Max	Chronic	Acute	Chronic	Acute	Acute	Chronic	Max
Oct-18	1.3	7	7.3	5	5	3	4	14	3	5
Nov-18	1.33	7.1	7.2	5	5	5	11	168	10	6.55
Dec-18	1.04	7	7.2	8	20	5	15	120	20	6.56
Jan-19	1	7	7.2	6	11	7	19	37	7	5
Feb-19	1.09	7	7.2	5	5	7	10	5	2	5
Mar-19	1.26	7	7.2	5	11	8	15	38	10	5
Apr-19	1.44	7	7.2	4	6	8	12	19	7	5
May-19	1.49	7.1	7.2	3	3	4	8			5
Jun-19	1.42	7.1	7.3	3	5	3	5	13	3	5
Jul-19	1.32	7.1	7.4	5	9	4	5	96	13	5.47
Aug-19	1.33	7.1	7.4	4	14	3	4	17	3	5
Sep-19	1.37	7.1	7.4	3	3	4	10			5.25
Oct-19	1.46	7.1	7.3	4	10	4	10	7	1	5
Nov-19	1.31	7.1	7.3	3	3	3	7	1		5
Dec-19	1.1	6.95	7.17	3	3	4.17	8	2	0	5
Jan-20	1.01	6.95	7.15	4.19	7.15	2.69	3.4	0	0	5
Feb-20	1.03	7.04	7.25	4.07	8.35	2.24	3.2	1	0.4	5
Mar-20	1.13	7.03	7.27	3.77	4.06	3.77	4.2	2	0.5	5
Apr-20	1.13	6.83	7.25	3	3	2.6	4.4	1	0.375	5
May-20	1.13	6.85	7.37	6.55	16.3	3.12	5.8	0.5	0.1	5
Jun-20	1.18	6.91	7.3	3	3	2.6	4	2	0.4	
Jul-20	0.95	7.1	7.43	5.6	3	11	3.6	11.5	5.7	5
Aug-20	1.03	6.97	7.43	5.7	38.25	3.8	6.2	6	2.3	5.1
Sep-20	1.1	7.03	7.37	10.9	5	7.75	16.4	13.5	4	5
Oct-20	1.15	7.05	7.32	6.8	8.6	11	13	7.5	4.375	5
Nov-20	1.03	6.88	7.47	3	3	2.89	4.2	5	2.11	5
Dec-20	0.89	7	7.33	3.99	14.94	2.96	4	6	1.89	5
Jan-21	0.85	6.87	7.41	4	4	2.25	3	0.5	0.25	5
Feb-21	0.88	6.81	7.48	4	4	3.8	7	3	1.5	5
Mar-21	1.11	6.51	7.27	4.68	6.825	6.24	12.2	5	1.9	5
Apr-21	1.2	6.89	7.37	9	23.4	7.5	13.6	571	9.6	5
May-21	1.24	6.85	7.47	4.4	5.5	6.1	8.2	3.16	0.32	5.85

TBPEL Monitoring

TBPEL Monitoring					
Param	Ammonia	NH3+NOx	Ortho P	TKN	Tot P
Units	mg/L	mg/L	mg/L	mg/L	mg/L
Limit					
Month	Chronic	Chronic	Chronic	Chronic	Chronic
Oct-18	1.57	3.61	3.4	1.57	3
Nov-18	0.49	1.2	1.3	2.5	1.4
Dec-18	0.49	0.5	1.4	1.7	1.4
Jan-19	0.53	0.6	1.3	1.8	1.3
Feb-19	0.47	0.7	2.9	2	2.5
Mar-19	0.66	0.5	2	3	2
Apr-19	0.27	1.5	2	2	2
May-19	0.18	1.4	1.1	3	1.3
Jun-19	1	0.5	5	2.5	5
Jul-19	0.253	1.84	0.167	1.91	0.217
Aug-19	0.214	1.33	0.209	1.08	0.298
Sep-19	0.308	1.26	3.9	1.22	3.63
Oct-19	0.698	0.604	1.22	1.96	1.21
Nov-19	0.266	1.07	1.38	1.45	1.39
Dec-19	0.119	0.398	1.06	1.26	1.02
Jan-20	0.102	0.471	2.37	1.58	2.23
Feb-20	0.225	0.652	0.802	1.5	0.818
Mar-20	0.211	0.424	0.437	1.83	0.608
Apr-20	0.15	0.615	2.24	1.58	2.39
May-20	0.05	0.573	2.87	1.25	2.97
Jun-20					
Jul-20	0.482	0.39	3.9	1.73	4.08
Aug-20	1.06	0.708	4.68	2.5	4.89
Sep-20	0.353	0.304	1.65	1.63	1.62
Oct-20	8.36	3.18	3.32	11.4	3.83
Nov-20	0.265	2.68	2.31	2.08	2.43
Dec-20	0.289	0.788	3.27	1.28	3.04
Jan-21	32.6	0.685	4.98	62.4	7.06
Feb-21	5.91	0.146	0.144	9.18	0.168
Mar-21	9.67	0.102	0.189	11.6	0.295
Apr-21	0.337	0.183	1.5	3.54	1.53
May-21	0.285	1.48	2.38	3.26	2.62

WET Results

Month	Parameter	Value
Sep-16	96Hr Acute Fat Head	Pass
Dec-16	48Hr Acute Cerio	Fail
Mar-17	96Hr Acute Fat Head	Pass
Jun-17	48Hr Acute Cerio	Pass
Sep-17	96Hr Acute Fat Head	Pass
Dec-17	48Hr Acute Cerio	Pass
Mar-18	96Hr Acute Fat Head	Pass
Jun-18	48Hr Acute Cerio	Pass
Sep-18	96Hr Acute Fat Head	Pass
Dec-18	48Hr Acute Cerio	Pass
Mar-19	96Hr Acute Fat Head	Pass
Jun-19	48Hr Acute Cerio	Pass
Sep-19	96Hr Acute Fat Head	Pass
Dec-19	96Hr Acute Fat Head	Pass
Mar-20	48Hr Acute Cerio	Pass
Jun-20	96Hr Acute Fat Head	Pass
Sep-20	48Hr Acute Cerio	Pass
Dec-20	96Hr Acute Fat Head	Pass
Mar-21	48Hr Acute Cerio	Pass
Jun-21	96Hr Acute Fat Head	Pass

Colorado Salinity Control Monitoring

Annual TDS Increase, mg/L			
Year	Source	Effluent	Increase
2018	142	346	204
2019	186	352	166
2020	160	366	206

Year		2018				2019				2020				2021	
Quarter		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Parameter		Mar-18	Jun-18	Sep-18	Dec-18	Mar-19	Jun-19	Sep-19	Dec-19	Mar-20	Jun-20	Sep-20	Dec-20	Mar-21	Jun-21
Effluent	As	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	Cd	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Cr	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	Cu	0.0232	0.0232	0.0407	0.012	0.0079	0.0107	0.009	0.003	0.0042	0.0038	0.0114	0.0165	0.0063	0.0133
	Pb	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	Hg	0.00406	0.406	0.0002	0.00015	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05	0.00009	0.00009
	Mo	0.00267	0.0027	0.0037	0.00368	0.002	0.0022	0.002	0.0023	0.002	0.002	0.0022	0.0022	0.002	0.00318
	Ni	0.00208	0.0021	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	Se	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	Ag	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	Zn	0.0904	0.0904	0.0577	0.0679	0.0956	0.0732	0.0556	0.0656	0.0772	0.0766	0.0921	0.103	0.0887	0.118
	CN	0.0119	0.0213	0.005	0.005	0.005		0.005		0.005	0.005	0.005	0.0232	0.00595	0.0203
Influent	As	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	Cd	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005	0.0005
	Cr	0.00224	0.0022	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.002	0.002	0.0021	0.00231	0.002
	Cu	0.0441	0.0441	0.0527	0.052	0.0403	0.0286	0.046	0.0901	0.0577	0.0383	0.0569	0.0507	0.0534	0.041
	Pb	0.002	0.002	0.002	0.002	0.0027	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	Hg	0.00484	0.0048	0.0002	0.00029	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05	9E-05	0.00009	0.00009
	Mo	0.00299	0.003	0.0025	0.0143	0.0031	0.003	0.0027	0.0051	0.0035	0.0033	0.0037	0.0032	0.00404	0.00336
	Ni	0.00272	0.0027	0.002	0.00269	0.0029	0.0023	0.0032	0.0068	0.0033	0.0022	0.003	0.003	0.0033	0.00273
	Se	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	Ag	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
	Zn	0.161	0.161	0.0734	0.101	0.145	0.0989	0.165	0.153	0.15	0.112	0.205	0.207	0.134	0.167
	CN	0.005	0.005	0.0062	0.005	0.005		0.005		0.005	0.005	0.005	0.0055	0.005	0.005

ATTACHMENT 3

Wasteload Analysis

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Utah Division of Water Quality
Statement of Basis
ADDENDUM
Wasteload Analysis and Antidegradation Level I Review

Date: **August 10, 2021**

Prepared by: **Christopher L. Shope**
Standards and Technical Services

Facility: **Moab Wastewater Treatment Facility**
Moab, Utah
UPDES Permit No. UT-0020419

Receiving water: **Colorado River, Assessment Unit: Colorado River and tributaries, from Lake Powell to state line except as listed below (1C, 2A, 3B, 4)**

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 (DWQ).

Discharge

Outfall 001 is located at latitude 38°34'40" and longitude 109°34'47". The discharge is through a 2,000-lineal-foot, 18-inch diameter reinforced concrete pipeline from the wastewater treatment facility to the Colorado River.

The design flow for the treatment plant is 1.75 MGD, consistent with the wasteload analysis performed for the 2018 facility upgrade.

Receiving Water
The receiving water for Outfall 001 is the Colorado River

Per UAC R317-2-13.1(a), the designated beneficial uses of the assessment unit in the immediate area (Colorado River from Moab to HUC unit (14030005) boundary) is 1C, 2A, 3B, 4.

- *Class 1C -- Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water*

- *Class 2A -- Protected for frequent primary contact recreation where there is a high likelihood of ingestion of water or a high degree of bodily contact with the water. Examples include, but are not limited to, swimming, rafting, kayaking, diving, and water skiing.*

- *Class 3B -- Protected for warm water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain.*

- *Class 4 - Protected for agricultural uses including irrigation of crops and stock watering.*

Typically, the critical flow for the wasteload analysis is considered the lowest stream flow averaged over seven consecutive days with a ten year return frequency (7Q10). The USGS 09180500 COLORADO RIVER NEAR CISCO, UT stream gauge approximately 41 miles upgradient was used to evaluate ambient or background flow conditions. The stream gauge has a daily average flow record from 1913 to 1917 and 1922 to present. Therefore, DWQ used the minimum of the 7Q10 over the entire period to estimate the seasonal critical flow in the receiving water (Table 1). The average annual critical low flow condition is 969.3 ft3/s.

Table 1: Seasonal Flow Data at USGS 09180500 COLORADO RIVER NEAR CISCO, UT.

Season	Minimum 7Q10 flow (ft3/s)
Summer	736.0
Fall	1265.7
Winter	1567.1
Spring	1350.0
Annual Overall	**969.3**

Ambient, upstream, background receiving water quality was characterized using combined data from UDWQ 4956560 COLORADO R BL ATLAS MILL TAILINGS PILE and UDWQ 4957000 COLORADO R AT US191 XING NEAR MOAB. The average seasonal value was calculated for each constituent with available data in the receiving water. Effluent discharge parameters, where available, were characterized using data supplied in the permit application, the discharge monitoring report, or monitoring site DWQ 4956550.

Data obtained from 2004-2014 for sampling site 4956550 Moab WWTP was used to characterize the temperature, pH and hardness of the effluent.

Total Maximum Daily Load (TMDL)

According to the Utah's 2016 303(d) Water Quality Assessment Report dated December 7, 2016, the receiving water for the discharge, Colorado River from Moab to HUC unit (14030005) boundary (UT14030005-004_00) was listed for dissolved selenium (Class 2B use) with an approved TMDL.

DWQ completed a TMDL for selenium in the Colorado River Watershed in 2014 (UDWQ, 2014). The TMDL allocated a selenium load to the Moab Wastewater Treatment Plant that was derived by applying the in-stream chronic selenium standard (4.6 ug/l) times the plant's design

flow rate. Using this approach for the facility (4.6 ug/l x 1.50 MGD x 3.79 conversion factor) would yield a selenium load of 26.1 g/d.

Mixing Zone

The maximum allowable mixing zone is 15 minutes of travel time for acute conditions, not to exceed 50% of stream width, and for chronic conditions is 2500 ft, per UAC R317-2-5. Water quality standards must be met at the end of the mixing zone. Individual mixing zones may be further limited or disallowed in consideration of the following factors in the area affected by the discharge: Zone of passage for migrating fish or other species (including access to tributaries).

Mill Creek confluence with the Colorado River is approximately 1,400 feet downstream of the Moab POTW outfall pipe. Therefore, in consideration of potential fish migration concerns between Mill Creek and Colorado River, the acute mixing zone is limited to 1,400 feet (calculated to be 10.2 minutes travel time).

The EPA Region 8 stream mixing zone analysis (STREAMIX1, 1994), was used to determine the plume width and mixed flow rate for both acute and chronic conditions. A rectangular channel with a width of 300 feet, channel slope of 0.001 feet/feet, and roughness coefficient of 0.030 was assumed for channel geometry. Mannings equation was used to solve for the flow depth (1.8 feet) and velocity for the 7Q10 flow.

Table 2: Summary of plume characteristics at mixing zone boundary.

Criteria	Distance to End of Mixing Zone (feet)	Plume Width		Flow	Dilution Factor
		feet	% of River	cfs	
Acute	1,400	39.2	12.8	113	62:1
Chronic	2,500	52.40	17.2	127	86:1

Parameters of Concern

The potential parameters of concern identified for the discharge/receiving water were total dissolved solids (TDS**)**, total suspended solids (TSS), selenium, E. coli, and ammonia, as determined in consultation with the UPDES Permit Writer and the Watershed Protection Specialist. The imminently approved "Combined 2018/2020 Integrated Report" is scheduled to list this AU as impaired for E. coli.

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 LC_{50} (lethal concentration, 50%) percent effluent for acute toxicity and the IC_{25} (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 LC_{50} is typically 100% effluent and does not need to be determined by the WLA.

Table 3: WET Limits for IC_{25}

Outfall	Percent Effluent
Outfall 002	2.1%

Wasteload Allocation Methods

Effluent limits were determined for conservative constituents using a simple mass balance mixing analysis (UDWQ, 2021). The mass balance analysis is summarized in the Wasteload Addendum.

The water quality standard for chronic ammonia toxicity is dependent on temperature and pH, and the water quality standard for acute ammonia toxicity is dependent on pH. However, temperature, pH, and ammonia concentration of the effluent were not provided. The AMMTOX Model developed by University of Colorado and adapted by Utah DWQ and EPA Region VIII was used to determine ammonia effluent limits (Lewis et al., 2002). The analysis is summarized in the Wasteload Addendum.

Due to the high dilution factor, secondary standards for BOD_5 were considered sufficiently protective to meet instream criteria for DO.

Table 4: Water Quality Based Effluent Limits Summary

Effluent Constituent	Acute			Chronic		
	Standard	Limit	Averaging Period	Standard	Limit	Averaging Period
Flow (MGD)		3.38	1 day		1.75	30 days
Ammonia (mg/L)						
Summer (Jul-Sep)	2.9	25.6		1.1	31.2	
Fall (Oct-Dec)	1.3	47.8	1 hour	1.2	82.9	30 days
Winter (Jan-Mar)	3.0	54.1		1.7	48.1	
Spring (Apr-Jun)	2.5	45.4		1.7	77.9	
BOD_5 (mg/L)	N/A	35	7 days	N/A	25	30 days

Models and supporting documentation are available for review upon request.

Antidegradation Level I Review

The objective of the Level I ADR is to ensure the protection of existing uses, defined as the beneficial uses attained in the receiving water on or after November 28, 1975. No evidence is known that the existing uses deviate from the designated beneficial uses for the receiving water. Therefore, the beneficial uses will be protected if the discharge remains below the WQBELs presented in this wasteload.

A Level II Antidegradation Review (ADR) is not required for this facility because the upgraded and expanded facility has previously been permitted.

Documents:

WLA Document*: Moab_WWTP_WLA_2021.docx*
Wasteload Analysis and Addendums: *Moab_WWTP _WLA_2021.xlsm*

References:

Lewis, B., J. Saunders, and M. Murphy. 2002. Ammonia Toxicity Model (AMMTOX, Version2): A Tool for Determining Effluent Ammonia Limits. University of Colorado, Center for Limnology.

Utah Division of Water Quality. 2021. *Utah Wasteload Analysis Procedures Version 2.0*.

Utah Division of Water Quality. 2014, *TMDL for Selenium in the Colorado River Watershed*

Utah Division of Water Quality
Salt Lake City, Utah

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

10-Aug-21
4:00 PM

Facilities: **Moab WWTP** **UPDES No: UT-0020419**
Discharging to: **Colorado River**

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 interms 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

Colorado River:	1C,2A,3B,4
Antidegradation Review:	Level I review completed. Level II review is 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)	0.0 mg/l (4 Day Average) 0.0 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 Concentration		Load*	1 Hour Average (Acute) Standard Concentration		Load*
Aluminum	87.00	ug/l**	1.525 lbs/day	750.00	ug/l	13.145 lbs/day
Arsenic	150.00	ug/l	2.629 lbs/day	340.00	ug/l	5.959 lbs/day
Cadmium	2.07	ug/l	0.036 lbs/day	6.19	ug/l	0.109 lbs/day
Chromium III	231.51	ug/l	4.058 lbs/day	4843.61	ug/l	84.894 lbs/day
ChromiumVI	11.00	ug/l	0.193 lbs/day	16.00	ug/l	0.280 lbs/day
Copper	26.16	ug/l	0.458 lbs/day	43.63	ug/l	0.765 lbs/day
Iron				1000.00	ug/l	17.527 lbs/day
Lead	14.78	ug/l	0.259 lbs/day	379.31	ug/l	6.648 lbs/day
Mercury	0.0120	ug/l	0.000 lbs/day	2.40	ug/l	0.042 lbs/day
Nickel	144.77	ug/l	2.537 lbs/day	1302.10	ug/l	22.822 lbs/day
Selenium	4.60	ug/l	0.081 lbs/day	20.00	ug/l	0.351 lbs/day
Silver	N/A	ug/l	N/A lbs/day	30.15	ug/l	0.528 lbs/day
Zinc	333.05	ug/l	5.837 lbs/day	333.05	ug/l	5.837 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

Metals Standards Based upon a Hardness of 334.2 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	6.57	lbs/day
Cadmium				10.0	ug/l	0.09	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	10.52	tons/day

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

	4 Day Average (Chronic) Standard			1 Hour Average (Acute) Standard			
Metals	Concentration		Load*	Concentration		Load*	
Arsenic				50.0	ug/l	16.746	lbs/day
Barium				1000.0	ug/l	334.926	lbs/day
Cadmium				10.0	ug/l	3.349	lbs/day
Chromium				50.0	ug/l	16.746	lbs/day
Lead				50.0	ug/l	16.746	lbs/day
Mercury				2.0	ug/l	0.670	lbs/day
Selenium				10.0	ug/l	3.349	lbs/day
Silver				50.0	ug/l	16.746	lbs/day
Fluoride (3)				1.4	ug/l	0.469	lbs/day
to				2.4	ug/l	0.804	lbs/day
Nitrates as N				10.0	ug/l	3.349	lbs/day

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

	Maximum Conc., ug/l - Acute Standards					
	Class 1C			Class 3A, 3B		
Metals						
Antimony	14.0	ug/l	4.69 lbs/day			
Arsenic	50.0	ug/l	16.75 lbs/day	4300.00	ug/l	1440.18 lbs/day
Asbestos	7.00E+06	ug/l	2.34E+06 lbs/day			
Beryllium						
Cadmium						
Chromium (III)						
Chromium (VI)						
Copper						
Cyanide	1.30E+03	ug/l	435.40 lbs/day	2.2E+05	ug/l	73683.79 lbs/day
Lead	700.0	ug/l	234.45 lbs/day			
Mercury				0.15	ug/l	0.05 lbs/day
Nickel				4600.00	ug/l	1540.66 lbs/day
Selenium	0.1	ug/l	0.05 lbs/day			
Silver	610.0	ug/l	204.31 lbs/day			
Thallium				6.30	ug/l	2.11 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.

(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 cfs	Temp. Deg. C	pH	T-NH3 mg/l as N	BOD5 mg/l	DO mg/l	TRC mg/l	TDS mg/l
Summer (Irrig. Season)	736.0	8.5	8.3	0.09	1.55	9.15	0.00	848.0
Fall	1265.7	14.4	8.1	0.07	2.28	---	0.00	439.5
Winter	1567.1	20.5	8.2	0.22	2.10	---	0.00	439.5
Spring	1350.0	4.5	8.3	0.15	1.71	---	0.00	439.5

	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		14.87	1.12	0.05	1.19	2.65*	2.31	0.0	0.11

	Dissolved Metals	Hg ug/l	Ni ug/l	Se ug/l	Ag ug/l	Zn ug/l	Boron ug/l
All Seasons		0.0000	2.50	1.47	0.25	12.39	10.0

* 1/2 MDL

Projected Discharge Information

Season	Flow, MGD	Temp.	TDS mg/l	TDS tons/day
Summer	1.75000	NA	276.90	2.02027
Fall	1.75000	NA		
Winter	1.75000	NA		
Spring	1.75000	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	1.750 MGD	2.707 cfs
Fall	1.750 MGD	2.707 cfs
Winter	1.750 MGD	2.707 cfs
Spring	1.750 MGD	2.707 cfs

Flow Requirement or Loading Requirement

The calculations in this wasteload analysis utilize the maximum effluent discharge flow of 1.75 MGD. If the discharger is allowed to have a flow greater than 1.75 MGD during 7Q10 conditions, and effluent limit concentrations as indicated, then water quality standards will be violated. In order to prevent this from occuring, the permit writers must include the discharge flow limititation 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 segements if the values below are met.

WET Requirements	LC50 >	7.8% Effluent	[Acute]
	IC25 >	2.1% Effluent	[Chronic]

Effluent Limitation for Biological Oxygen Demand (BOD) based upon Water Quality Standards or Regulations

In-stream criteria of downstream segments for Dissolved Oxygen will be met with an effluent BOD limitation as follows:

Season	Concentration	
Summer	25.0 mg/l as BOD5	364.8 lbs/day
Fall	25.0 mg/l as BOD5	364.8 lbs/day
Winter	25.0 mg/l as BOD5	364.8 lbs/day
Spring	25.0 mg/l as BOD5	364.8 lbs/day

Effluent Limitation for Dissolved Oxygen (DO) based upon Water Quality Standards

In-stream criteria of downstream segments for Dissolved Oxygen will be met with an effluent

D.O. limitation as follows:

Season	Concentration
Summer	5.00
Fall	5.00
Winter	5.00
Spring	5.00

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

Season		Concentration		Load	
Summer	4 Day Avg. - Chronic	31.2	mg/l as N	455.9	lbs/day
	1 Hour Avg. - Acute	25.6	mg/l as N	373.8	lbs/day
Fall	4 Day Avg. - Chronic	82.9	mg/l as N	1,210.0	lbs/day
	1 Hour Avg. - Acute	47.8	mg/l as N	697.6	lbs/day
Winter	4 Day Avg. - Chronic	48.1	mg/l as N	701.5	lbs/day
	1 Hour Avg. - Acute	54.1	mg/l as N	788.8	lbs/day
Spring	4 Day Avg. - Chronic	77.9	mg/l as N	1,136.6	lbs/day
	1 Hour Avg. - Acute	45.4	mg/l as N	663.1	lbs/day

Acute limit calculated with an Acute Zone of Initial Dilution (ZID) to be equal to 2.%.

Effluent Limitation for Total Residual Chlorine based upon Water Quality Standards

In-stream criteria of downstream segments for Total Residual Chlorine will be met with an effluent limitation as follows:

Season		Concentration		Load	
Summer	4 Day Avg. - Chronic	0.351	mg/l	5.12	lbs/day
	1 Hour Avg. - Acute	0.167	mg/l	2.44	lbs/day
Fall	4 Day Avg. - Chronic	0.595	mg/l	8.68	lbs/day
	1 Hour Avg. - Acute	0.274	mg/l	3.99	lbs/day
Winter	4 Day Avg. - Chronic	0.734	mg/l	10.71	lbs/day
	1 Hour Avg. - Acute	0.334	mg/l	4.88	lbs/day
Spring	4 Day Avg. - Chronic	0.634	mg/l	0.00	lbs/day
	1 Hour Avg. - Acute	0.291	mg/l	0.00	lbs/day

Effluent Limitations for Total Dissolved Solids based upon Water Quality Standards

Season		Concentration		Load	
Summer	Maximum, Acute	96891.0	mg/l	706.92	tons/day
Fall	Maximum, Acute	207959.7	mg/l	1,517.28	tons/day
Winter	Maximum, Acute	109012.9	mg/l	795.36	tons/day
Spring	4 Day Avg. - Chronic	122438.7	mg/l	893.32	tons/day

Colorado Salinity Forum Limits Determined by Permitting Section

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 334.2 mg/l):

	4 Day Average Concentration		Load		1 Hour Average Concentration		Load	
Aluminum	N/A		N/A		100,677.2	ug/l	1764.6	lbs/day
Arsenic	3,436.11	ug/l	32.4	lbs/day	46,404.4	ug/l	813.3	lbs/day
Cadmium	46.63	ug/l	0.4	lbs/day	841.0	ug/l	14.7	lbs/day
Chromium III	5,315.15	ug/l	50.1	lbs/day	663,080.5	ug/l	11621.8	lbs/day
Chromium VI	166.06	ug/l	1.6	lbs/day	1,650.6	ug/l	28.9	lbs/day
Copper	552.52	ug/l	5.2	lbs/day	5,660.8	ug/l	99.2	lbs/day
Iron	N/A		N/A		136,928.4	ug/l	2399.9	lbs/day
Lead	338.52	ug/l	3.2	lbs/day	51,923.8	ug/l	910.1	lbs/day
Mercury	0.28	ug/l	0.0	lbs/day	328.6	ug/l	5.8	lbs/day
Nickel	3,284.94	ug/l	31.0	lbs/day	177,958.5	ug/l	3119.1	lbs/day
Selenium	73.69	ug/l	0.7	lbs/day	2,538.8	ug/l	44.5	lbs/day
Silver	N/A	ug/l	N/A	lbs/day	4,094.6	ug/l	71.8	lbs/day
Zinc	7,410.70	ug/l	69.9	lbs/day	43,920.7	ug/l	769.8	lbs/day
Cyanide	119.98	ug/l	1.1	lbs/day	3,012.5	ug/l	52.8	lbs/day

Effluent Limitations for Heat/Temperature based upon Water Quality Standards

Summer	20.5	Deg. C.	68.9	Deg. F
Fall	33.6	Deg. C.	92.5	Deg. F
Winter	43.8	Deg. C.	110.8	Deg. F
Spring	24.8	Deg. C.	76.7	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		
BOD (mg/l)	5.0	mg/l	87.6	lbs/day
Nitrates as N	4.0	mg/l	70.1	lbs/day
Total Phosphorus as P	0.05	mg/l	0.9	lbs/day
Total Suspended Solids	90.0	mg/l	1577.4	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	3820.08	ug/l	55.74	lbs/day
Arsenic	13338.64	ug/l	194.64	lbs/day
Asbestos	1.91E+09	ug/l	2.79E+07	lbs/day
Beryllium				
Cadmium				
Chromium (III)				
Chromium (VI)				
Copper	354721.37	ug/l	5176.12	lbs/day

Cyanide	191003.81	ug/l	2787.14	lbs/day
Lead	0.00		0.00	
Mercury	38.20	ug/l	0.56	lbs/day
Nickel	166446.18	ug/l	2428.80	lbs/day
Selenium	0.00		0.00	
Silver	0.00		0.00	
Thallium	463.87	ug/l	6.77	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		100677.2				100677.2	N/A
Antimony			3820.1	1173309.1		3820.1	
Arsenic	27286.3	46404.4	13338.6		0.0	13338.6	3436.1
Asbestos			1.91E+09			1.91E+09	
Barium					272862.6	272862.6	
Beryllium						0.0	
Cadmium	2715.0	841.0			0.0	841.0	46.6
Chromium (III)		663080.5			0.0	663080.5	5315.1
Chromium (VI)	26962.7	1650.6			0.0	1650.57	166.06
Copper	53944.5	5660.8	354721.4			5660.8	552.5
Cyanide		3012.5	60029770.1			3012.5	120.0
Iron		136928.4				136928.4	
Lead	27255.3	51923.8			0.0	27255.3	338.5
Mercury		328.63	38.2	40.93	0.0	38.20	0.277
Nickel		177958.5	166446.2	1255167.9		166446.2	3284.9
Selenium	13243.5	2538.8			0.0	2538.8	73.7
Silver		4094.6			0.0	4094.6	
Thallium			463.9	1719.0		463.9	
Zinc		43920.7				43920.7	7410.7
Boron	204627.1					204627.1	

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	100677.2	N/A
Antimony	3820.08	
Arsenic	13338.6	3436.1
Asbestos	1.91E+09	
Barium		
Beryllium		
Cadmium	841.0	46.6
Chromium (III)	663080.5	5315
Chromium (VI)	1650.6	166.1
Copper	5660.8	552.5
Cyanide	3012.5	120.0
Iron	136928.4	
Lead	27255.3	338.5
Mercury	38.199	0.277
Nickel	166446.2	3285
Selenium	2538.8	73.7
Silver	4094.6	N/A
Thallium	463.9	
Zinc	43920.7	7410.7

Boron 204627.10

Other Effluent Limitations are based upon R317-1.
E. coli 126.0 organisms per 100 ml

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 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: Moab_WWTP_WLA_2021.xlsm

APPENDIX - Coefficients and Other Model Information

CBOD Coeff. (Kd)20 1/day	CBOD Coeff. FORCED (Kd)/day	CBOD Coeff. (Ka)T 1/day	REAER. Coeff. (Ka)20 (Ka)/day	REAER. Coeff. FORCED 1/day	REAER. Coeff. (Ka)T 1/day	NBOD Coeff. (Kn)20 1/day	NBOD Coeff. (Kn)T 1/day
2.000	0.000	1.180	86.006	0.000	65.483	0.400	0.165

Open Coeff. (K4)20 1/day	Open Coeff. (K4)T 1/day	NH3 LOSS (K5)20 1/day	NH3 (K5)T 1/day	NO2+NO3 LOSS (K6)20 1/day	NO2+NO3 (K6)T 1/day	TRC Decay K(Cl)20 1/day	TRC K(Cl)(T) 1/day
0.000	0.000	4.000	2.359	0.000	0.000	32.000	16.378

BENTHIC DEMAND (SOD)20 gm/m2/day	BENTHIC DEMAND (SOD)T gm/m2/day
1.000	0.485

K1 CBOD {theta}	K2 Reaer. {theta}	K3 NH3 {theta}	K4 Open {theta}	K5 NH3 Loss {theta}	K6 NO2+3 {theta}	K(Cl) TRC {theta}	S Benthic {theta}
1.0	1.0	1.1	1.0	1.0	1.0	1.1	1.1

Antidegredation 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 4

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 Analysis[1]. 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.

(REASONABLE POTENTIAL LANGUAGE)

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 mercury.

The RP model was run on mercury using the most recent data back through 2018. This resulted in 12 data points and that there is not a Reasonable Potential that Moab would violate the acute or chronic water quality based effluent limits. Reviewing the data showed that the lab used between the sampling in 2018 and 2019 could have changed or improved, resulting in a lower minimum reporting limit for mercury. When the 2018 data is excluded from screening check, and/or the RP model runs, the result is the same.

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

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

RP input/output summary

RP Procedure Output	Outfall Number:		001	Data Units		mg/L
Parameter	Mercury			Mercury		
Distribution	Normal			Normal		
Reporting Limit	0.00009			0.00009		
Significant Figures	2			2		
Maximum Reported Effluent Conc.	0.00015			0.00009		
Coefficient of Variation (CV)	1.2			-		
Acute Criterion	0.038199			0.038199		
Chronic Criterion	0.000275			0.000275		
Confidence Interval	95	99		95	99	
Projected Maximum Effluent Conc. (MEC)	0.00018	0.00021		0.00009	0.00009	
RP Multiplier	1.2	1.4		1.0	1.0	
RP for Acute?	No	No		No	No	
RP for Chronic?	No	No		No	No	
Outcome	D			D		
RP Procedure Output				Effluent Data		

[1] See Reasonable Potential Analysis Guidance for definitions of terms

Facility Name:	Moab		#		#		#	
Permit Number:	UT0020419		1	0.00015	41		81	
Outfall Number:	OO1		2	0.00015	42		82	
Parameter	Mercury		3	0.00009	43		83	
Distribution	Normal		4	0.00009	44		84	
Data Units	mg/L		5	0.00009	45		85	
Reporting Limit	0.00009		6	0.00009	46		86	
Significant Figures	2		7	0.00009	47		87	
Confidence Interval	95%		8	0.00009	48		88	
			9	0.00009	49		89	
Maximum Reported Effluent Conc.	0.00015	mg/L	10	0.00009	50		90	
Coefficient of Variation (CV)	0.23		11	0.00009	51		91	
RP Multiplier	1.2		12	0.00009	52		92	
Projected Maximum Effluent Conc. (MEC)	0.00018	mg/L	13		53		93	
			14		54		94	
Acute Criterion	0.038199		15		55		95	
Chronic Criterion	0.000275		16		56		96	
Human Health Criterion	NA		17		57		97	
			18		58		98	
RP for Acute?	No		19		59		99	
RP for Chronic?	No		20		60		100	
RP for Human Health?	N/A		21		61		101	
			22		62		102	
Confidence Interval	99%		23		63		103	
			24		64		104	
Maximum Reported Effluent Conc.	0.00015		25		65		105	
Coefficient of Variation (CV)	0.23		26		66		106	
RP Multiplier	1.4		27		67		107	
Projected Maximum Effluent Conc. (MEC)	0.00021		28		68		108	
			29		69		109	
Acute Criterion	0.038199		30		70		110	
Chronic Criterion	0.000275		31		71		111	
Human Health Criterion	NA		32		72		112	
			33		73		113	
RP for Acute?	No		34		74		114	
RP for Chronic?	No		35		75		115	
RP for Human Health?	N/A		36		76		116	
			37		77		117	
			38		78		118	
			39		79		119	
			40		80		120	

Metals Monitoring and RP Check

Parameter	As	Cd	CN	Cr IV	Cu	Hg	Mo	Ni	Pb	Se	Ag	Zn
Units	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Acute WQBEL	13.3604	1.0021	3.0125	1.6506	7.0509	0.038199	1	166.4462	20.3184	2.1139	6.4988	54.1294
Chronic WQBEL	3.4201	0.0425	0.1194	0.1652	0.6508	0.000275	1	3.82	0.0846	0.0047	6.4988	9.0926
Quarter	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max	Max
2018 Q3	0.002	0.0005	0.005	0.002	0.0407	0.00015	0.00365	0.00204	0.002	0.002	0.002	0.0577
2018 Q4	0.002	0.0005	0.005	0.002	0.012	0.00015	0.00368	0.002	0.002	0.002	0.002	0.0679
2019 Q1	0.002	0.0005	0.005	0.002	0.00786	0.00009	0.00202	0.002	0.002	0.002	0.002	0.0956
2019 Q2	0.002	0.0005		0.002	0.0107	0.00009	0.00219	0.002	0.002	0.002	0.002	0.0732
2019 Q3	0.002	0.0005	0.005	0.002	0.00898	0.00009	0.002	0.002	0.002	0.002	0.002	0.0556
2019 Q4	0.002	0.0005		0.002	0.003	0.00009	0.00233	0.002	0.002	0.002	0.002	0.0656
2020 Q1	0.002	0.0005	0.005	0.002	0.00415	0.00009	0.002	0.002	0.002	0.002	0.002	0.0772
2020 Q2	0.002	0.0005	0.005	0.002	0.00384	0.00009	0.002	0.002	0.002	0.002	0.002	0.0766
2020 Q3	0.002	0.0005	0.005	0.002	0.0114	0.00009	0.00221	0.002	0.002	0.002	0.002	0.0921
2020 Q4	0.002	0.0005	0.0232	0.002	0.0165	0.00009	0.0022	0.002	0.002	0.002	0.002	0.103
2021 Q1	0.002	0.0005	0.00595	0.002	0.0063	0.00009	0.002	0.002	0.002	0.002	0.002	0.0887
2021 Q2	0.002	0.0005	0.0203	0.002	0.0133	0.00009	0.00318	0.002	0.002	0.002	0.002	0.118
MDL	0.002	0.005	0.005	0.002	0.002	0.00009	0.002	0.002	0.002	0.002	0.002	0.002
Max Val	0.002	0.005	0.0232	0.002	0.0407	0.00015	0.00368	0.00204	0.002	0.002	0.002	0.118
Acute RP Check	No	No	No	No	No	No	No	No	No	No	No	No
Chronic RP Check	No	No	No	No	No	Yes	No	No	No	No	No	No