

**FACT SHEET AND STATEMENT OF BASIS
MONTICELLO CITY WASTEWATER TREATMENT PLANT
RENEWAL PERMIT: DISCHARGE & REUSE
UPDES PERMIT NUMBER: UT0024503MINOR MUNICIPAL**

FACILITY CONTACTS

Person Name: Timothy Young
Position: City Manager

Person Name: Nathan Langston
Position: Public Works Director
Phone Number: (435) 587-2271

Person Name: George Rice
Position: Water Reclamation Operator
Phone Number: (435) 587-2271

Facility Name: Monticello City Wastewater Treatment Plant
Mailing and Facility Address: PO Box 457
Monticello, Utah 84535
Telephone: (435) 587-2271

DESCRIPTION OF FACILITY

The Monticello Wastewater Treatment Facility (MWTF) was designed to store the effluent during the non-irrigation months and use the water for irrigation during the cultivating season. The MWTF is a 38.5 acre, 5 cell, non-aerated, lagoon system, with the first 4 cells having a water depth from 3 to 6 feet and the final cell (winter storage pond) having a maximum water depth of 12 feet. The first two cells of the facility are run in parallel, and the remaining cells are run in series. The average design flow is 0.32 MGD, and the design population equivalent is 3,000. The city's population is estimated to be about 2,300 people. The facility is located approximately two miles southeast of downtown Monticello in San Juan County, Utah. Designed as total containment lagoons, the facility has only had to discharge to waters of the State in years where the precipitation was higher than normal and the irrigation demand was less than expected. MWTF does not anticipate discharging in the next five years. If water needs to be discharged, it is discharged into Montezuma Creek through an outfall located at latitude 38°51'30" and longitude 109°18'30", outfall STORET Number 495382.

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

Stream Classification:

Stream Classification has been re-examined, and changed from Class 2B to Class 2A; see section below for more details on this classification.

TRC:

The total residual chlorine limit (TRC) is based on the acute TRC water quality standard at end-of-pipe, and is retained from the previous permit. This effluent limit is below the minimum quantification level (ML) of the most common and practical EPA approved TRC methods. The Division has determined the current acceptable ML to be .06 mg/L and the method detection limit (MDL) to be 0.02 mg/L when using the DPD colorimetric Method #4500 – CL G. Measured values greater than or equal to the ML of .06 mg/l will be considered violations of the permit, and values less than the ML of .06 mg/l will be considered to be in compliance with the permit. For purposes of calculating averages and reporting on the Discharge Monitoring Report form, the following will apply:

- 1) analytical values less than 0.02 mg/L shall be considered zero; and
- 2) analytical values less than .06 mg/L and equal to or greater than .02 mg/L will be recorded as measured

TBPEL Rule:

Water Quality adopted UAC R317-1-3.3, Technology-Based Phosphorus Effluent Limit (TBPEL) Rule in 2014. No TBPEL will be instituted for discharging treatment lagoons. Instead, each discharging lagoon will be evaluated to determine the current annual average total phosphorus load measured in pounds per year based on monthly average flow rates and concentrations. Absent field data to determine these loads, and in case of intermittent discharging lagoons, the phosphorus load cap will be estimated by the Director. A cap of 125% of the current annual total phosphorus load will be established and referred to as phosphorus loading cap. Once the lagoon's phosphorus loading cap has been reached, the owner of the facility will have five years to construct treatment processes or implement treatment alternatives to prevent the total phosphorus loading cap from being exceeded. The load cap shall become effective July 1, 2018.

The TBPEL discharging treatment works are required to implement, at a minimum, monthly monitoring of the following beginning July 1, 2015:

- | | |
|----------------------|---|
| R317-1-3.3, E, 1, a. | Influent for total phosphorus (as P) and total Kjeldahl nitrogen (as N) concentrations; |
| R317-1-3.3, E, 1, b. | Effluent for total phosphorus and orthophosphate (as P), ammonia, nitrate-nitrite and total Kjeldahl nitrogen (an N); |

In R317-1-3.3, E, 3 the rule states 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.

The phosphorus annual loading cap is defined as

"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.

The reported monthly loading is calculated as shown here;

$$\text{Monthyl Mass Loading, } \frac{\text{lbs}}{\text{Month}} = (\text{Ave Flow}) * (\text{Ave Concetration}) * \left(8.34 \frac{\text{lbs}}{\text{gal}}\right) * \left(\frac{\text{Days Discharged}}{\text{Month}}\right)$$

The annual total phosphorus loading

$$\text{Annual Mass Loading, lbs} = \text{Sum} \left(\text{Monthyl Mass Loading, } \frac{\text{lbs}}{\text{Month}} \right)$$

MWTF only discharged twice during the last permit cycle, and not once during the previous. Due to a lack of data, MWTF has not been given an Annual Loading Cap. If the discharge frequency increases significantly, this will be readdressed.

DISCHARGE

DESCRIPTION OF DISCHARGE

MWTF has been reporting self-monitoring results on Discharge Monitoring Reports on a monthly basis. MWTF is designed to be a total reuse facility, only discharged when needed. MWTF discharged for 2 days, in 2017, during previous permit cycle.

<u>Outfall</u>	<u>Description of Discharge Point</u>
001	Located at latitude 38°51'30" and longitude 109°18'30". The discharge enters Montezuma Creek from a ten-inch concrete pipe approximately 1/4 mile south of the lagoons.

<u>Outfall</u>	<u>Description of Reuse Water Discharge Point</u>
001R	Located at latitude 37°51'31" and longitude 109°18'15". Discharge to an agricultural area 3/4 a mile west of the facility.

RECEIVING WATERS AND STREAM CLASSIFICATION

If a discharge were to occur, it would discharge into Montezuma Creek, which is a Class 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) fecal and total coliforms, and pH are based on current Utah Secondary Treatment Standards, UAC R317-1-3.2. Total residual chlorine (TRC), ammonia as (N) and dissolved oxygen (DO) limits are water quality limited and based on the WLA. The WLA (see ADDENDUM) also indicates that these limitations should be sufficiently protective of water quality, in order to meet State water quality standards in the receiving waters. Since the MWTF is in the Colorado River drainage, the MWTF must also conform to the Colorado River Salinity Control Forum Policy that states that the effluent shall not exceed the culinary intake water supply by more than 400 mg/L total dissolved solids (TDS). The permittee is expected to be able to comply with the limitations.

The Wasteload Analysis indicates that seasonal ammonia limits in the range of 13.8 mg/L – 53.4 mg/L should be applied (see ADDENDUM), however, since these limits are substantially higher than what is reasonably expected in the discharge, there will be no effluent limitations or monitoring requirements for this parameter. If discharges were to occur, and higher limits reported, this will be revisited.

Reasonable Potential Analysis

Since January 1, 2016, DWQ has conducted reasonable potential analysis (RP) on all new and renewal applications received after that date. RP for this permit renewal was conducted following DWQ's September 10, 2015 Reasonable Potential Analysis Guidance (RP Guidance). There are four outcomes defined in the RP Guidance: Outcome A, B, C, or D. These Outcomes provide a frame work for what routine monitoring or effluent limitations are required. Due to limited data reported from previous permit cycle, RP was not run on current parameters.

The permit limitations are:

Parameter	Effluent Limitations *a				
	Maximum Monthly Avg	Maximum Weekly Avg	Yearly Average	Daily Minimum	Daily Maximum
Total Flow	--	--	--	--	0.32
BOD ₅ , mg/L	25	35	--	--	--
BOD ₅ Min. % Removal	85	--	--	--	--
TSS, mg/L	25	35	--	--	--
TSS Min. % Removal	85	--	--	--	--
Dissolved Oxygen, mg/L	--	--	--	4.0	--
TRC, mg/L	--	--	--	--	0.075
<i>E. coli</i> , No./100mL	126	157	--	--	--
pH, Standard Units	--	--	--	6.5	9
TDS, mg/L *h	--	--	--	--	--

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

Parameter	Type II Reuse Outfall 001R Effluent Limitations *a				
	Max Monthly Average	Max Weekly Median	Max Daily Average	Minimum	Maximum
BOD ₅	25	--	--	--	--
TSS	25	35	--	-	--
<i>E. coli</i> , No/100mL *o	--	126	--	--	500
pH, Standard Units	--	--	--	6.0	9.0

SELF-MONITORING AND REPORTING REQUIREMENTS

The following self-monitoring requirements are not the same as in the previous permit; this permit includes an oil and grease parameter. The permit will require reports to be submitted monthly and annually, as applicable, on Discharge Monitoring Report (DMR) forms due 28 days after the end of the monitoring period. Effective January 1, 2017, monitoring results must be submitted using NetDMR unless the permittee has successfully petitioned for an exception. Lab sheets for biomonitoring must be attached to the biomonitoring DMR. Lab sheets for metals and toxic organics must be attached to the DMRs.

Self-Monitoring and Reporting Requirements *a			
Parameter	Frequency	Sample Type	Units
Total Flow *b, *c	Continuous	Recorder	MGD
BOD ₅ , Influent *d	Monthly	Grab	mg/L
Effluent	Monthly	Grab	mg/L
TSS, Influent *d	Monthly	Grab	mg/L
Effluent	Monthly	Grab	mg/L
<i>E. coli</i>	Monthly	Grab	No./100mL
pH	Monthly	Grab	SU
Total Ammonia (as N)	Monthly	Composite	mg/L
DO	Monthly	Grab	mg/L
TRC, mg/L, *e, *g	Daily	Grab	mg/L
Oil & Grease *f	When Sheen Observed	Grab	mg/L
Orthophosphate (as P), *i Effluent	Monthly	Composite	mg/L
Total Phosphorus (as P), *j, *i Influent	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Total Kjeldahl Nitrogen TKN (as N), *i, *j Influent	Monthly	Composite	mg/L
Effluent	Monthly	Composite	mg/L
Nitrate, NO ₃ *i, *j	Monthly	Composite	mg/L
Nitrite, NO ₂ *i, *j	Monthly	Composite	mg/L
TDS, mg/L *h	Monthly	Composite	mg/L

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

Type II Reuse Outfall 001R Self-Monitoring and Reporting Requirements *a *k			
Parameter	Frequency	Sample Type	Units
Total Flow, *b, *c	Continuous	Recorder	MGD
BOD ₅	Monthly	Grab	mg/L
TSS	Monthly	Grab	mg/L
<i>E. coli</i>	Monthly	Grab	No./100mL
pH	Monthly	Grab	SU

- *a See Definitions, *Part VIII*, for definition of terms.
- *b 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.
- *c If the rate of discharge is controlled, the rate and duration of discharge shall be reported.
- *d 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.
- *e Analytical results less than 0.06 mg/l will not be considered out of compliance with the permit. For purposes of calculating averages and reporting on the Discharge Monitoring Report form, the following will apply:
 - 1) analytical values less than 0.02 mg/L shall be considered zero; and
 - 2) analytical values less than 0.06 mg/L and equal to or greater than 0.02 mg/L will be recorded as measured.
- *f Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report NA.
- *g Total residual chlorine monitoring frequency is daily. The TRC limits are low enough to require analysis in the onsite lab which is open only 6 days a week. Frequency reduction will remove a requirement that the lab be opened for a 7th day.
- *h The effluent shall not exceed the culinary source water intake by more than 400 mg/L of TDS (*****or the permittee could request 1 ton/day salt loading, or 366 tons/year*****).
- *i These reflect changes required with the adoption of UCA R317-1-3.3, Technology-based Phosphorus Effluent Limits rule.
- *j The Pollutants Of Concern (POC) will be monitored and reported (on a monthly basis by the facility on Discharge Monitoring Report, but will not have a limit associated with them /or at the end of each Calendar year of sampling for these POC's), (Permittee) will report the results of all sampling done for the POC. If (Permittee) decides to sample more frequently for these POC's, the additional data will be welcome.
- *k Reuse monitoring results obtained during the previous month for reuse discharges shall be summarized for each month and reported on a Monthly Operational Report, post-marked no later than the 28th day of the month following the completed reporting period.

Management Practices for Land Application of Treated Effluent:

- (1) The application of treated effluent to frozen, ice-covered, or snow covered land is prohibited.
- (2) No person shall apply treated effluent where the slope of the site exceeds 6 percent.
- (3) The use should not result in a surface water runoff.
- (4) The use must not result in the creation of an unhealthy or nuisance condition, as determined by the local health department.

- (5) Any irrigation with treated effluent must be at least 300 feet from a potable well.
- (6) For Type I reuse, any irrigation must be at least 50 feet from any potable water well.
- (7) For Type II reuse, any irrigation must be at least 300 feet from any potable water well.
- (8) For Type II reuse, spray irrigation must be at least 100 feet from areas intended for public access. This distance may be reduced or increased by the Director.
- (9) Impoundments of treated effluent, if not sealed, must be at least 500 feet from any potable well.
- (10) Public access to effluent storage and irrigation or disposal sites shall be restricted by a stock-tight fence or other comparable means which shall be posted and controlled to exclude the public (Compliance Schedule for a Particular Parameter if necessary)

BIOSOLIDS

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

STORM WATER

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

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

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

PRETREATMENT REQUIREMENTS

The permittee has not been designated for pretreatment program development because it does not meet conditions that necessitate a full program. The flow through the plant is less than five (5) MGD and there is no indication of pass through or interference with the operation of the treatment facility such as upsets or violations of permit limits for the UPDES Permit. 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.

An industrial waste survey (IWS) is required of the permittee as stated in Part II of the permit. The IWS is to assess the needs of the permittee regarding pretreatment assistance. The IWS is required to be submitted within sixty (60) days after the issuance of the permit. If an Industrial User begins to discharge

or an existing Industrial User changes their discharge the permittee must resubmit an IWS no later than sixty days following the introduction or change as stated in Part II of the permit.

Sampling for metals and toxic organic chemicals are not required for the pretreatment requirements in Part II of the permit. At this time local limits have not been and are not required to be developed by the permittee. Although the permittee is required to submit any local limits that are developed for review and approval by the Division of Water Quality prior to the implementation of the local limits. 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 minor municipal facility that will be discharging an infrequent amount of effluent, in which toxicity is neither an existing concern, nor likely to be present. As such, there will be no numerical WET limitations or WET monitoring requirements in this permit. However, 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
Danielle Lenz, Discharge, Reasonable Potential Analysis
Daniel Griffin, Biosolids
Jennifer Robinson, Pretreatment
Lonnie Shull, Biomonitoring
Lisa Stevens, Storm Water
Suzan Tahir, Wasteload Analysis
Utah Division of Water Quality, (801) 536-4300

PUBLIC NOTICE

Began: September 14, 2020
Ended: October 14, 2020

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

The Public Noticed of the draft permit was published on the DEQ webpage.

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

ADDENDUM TO FSSOB

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

Responsiveness Summary

There were no public comments received during the public notice period.

DWQ-2020-015854

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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. <input type="checkbox"/> Domestic wastes | (Restrooms, employee showers, etc.) |
| 2. <input type="checkbox"/> Cooling water, non-contact | 3. <input type="checkbox"/> Boiler/Tower blowdown |
| 4. <input type="checkbox"/> Cooling water, contact | 5. <input type="checkbox"/> Process |
| 6. <input type="checkbox"/> Equipment/Facility wash-down | 7. <input type="checkbox"/> Air Pollution Control Unit |
| 8. <input type="checkbox"/> Storm water runoff to sewer | 9. <input type="checkbox"/> Other describe |

Wastes are discharged to (check all that apply):

- | | |
|---|---------------------------------------|
| <input type="checkbox"/> Sanitary sewer | <input type="checkbox"/> Storm sewer |
| <input type="checkbox"/> Surface water | <input type="checkbox"/> Ground water |
| <input type="checkbox"/> Waste haulers | <input type="checkbox"/> Evaporation |
| <input type="checkbox"/> 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:

- | | |
|---|--|
| <input type="checkbox"/> Adhesives | <input type="checkbox"/> Car Wash |
| <input type="checkbox"/> Aluminum Forming | <input type="checkbox"/> Carpet Cleaner |
| <input type="checkbox"/> Battery Manufacturing | <input type="checkbox"/> Dairy |
| <input type="checkbox"/> Copper Forming | <input type="checkbox"/> Food Processor |
| <input type="checkbox"/> Electric & Electronic Components | <input type="checkbox"/> Hospital |
| <input type="checkbox"/> Explosives Manufacturing | <input type="checkbox"/> Laundries |
| <input type="checkbox"/> Foundries | <input type="checkbox"/> Photo Lab |
| <input type="checkbox"/> Inorganic Chemicals Mfg. or Packaging | <input type="checkbox"/> Restaurant & Food Service |
| <input type="checkbox"/> Industrial Porcelain Ceramic Manufacturing | <input type="checkbox"/> Septage Hauler |
| <input type="checkbox"/> Iron & Steel | <input type="checkbox"/> Slaughter House |
| <input type="checkbox"/> Metal Finishing, Coating or Cleaning | |
| <input type="checkbox"/> Mining | |
| <input type="checkbox"/> Nonferrous Metals Manufacturing | |
| <input type="checkbox"/> Organic Chemicals Manufacturing or Packaging | |
| <input type="checkbox"/> Paint & Ink Manufacturing | |
| <input type="checkbox"/> Pesticides Formulating or Packaging | |
| <input type="checkbox"/> Petroleum Refining | |
| <input type="checkbox"/> Pharmaceuticals Manufacturing or Packaging | |
| <input type="checkbox"/> Plastics Manufacturing | |
| <input type="checkbox"/> Rubber Manufacturing | |
| <input type="checkbox"/> Soaps & Detergents Manufacturing | |
| <input type="checkbox"/> Steam Electric Generation | |
| <input type="checkbox"/> Tanning Animal Skins | |
| <input type="checkbox"/> Textile Mills | |

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

Month	pH		<i>E. coli</i>	BOD5	TSS	
	Min	Max			Ave	Max
May- 17	7.9	7.9	12	No data	23	23
June- 17	7.6	7.6	No data	40	2	5

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: July 10, 2020

Prepared by: Suzan Tahir
Standards and Technical Services

Facility: Monticello City Waste Water Treatment Plant,
UPDES Permit No. UT002450

Receiving water: Montezuma Creek (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.

Discharge

001 Outfall (Lagoon Discharge) 0.32 MGD maximum daily discharge
001R Reuse Discharge

Receiving Water

The designated beneficial uses of the Montezuma Creek-2, Montezuma Creek and tributaries from Verdure Creek confluence to U.S. 191 are 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.*

Utah Division of Water Quality
Wasteload Analysis
Monticello City WWTP, UPDES Permit No. UT0024503

Flow

Typically, the critical flow for the wasteload analysis is considered the lowest stream flow for seven consecutive days with a ten year return frequency (7Q10). There was very limited data; therefore the data from the previous permit cycle was retained in the WLA. The 20th percentile flow values were used for each season. These values are displayed in

Table 1.

Table 1. Seasonal Flow Values (20th percentile)

Season	20 th percentile (cfs)
Summer	2.0
Fall	2.0
Winter	2.0
Spring	2.0
Overall	10.0

Ambient receiving water quality was characterized using data from DWQ monitoring station #4953720 MONTEZUMA CK AB MONTICELLO for the period 1975-2020.

Discharge data was characterized using data from DWQ monitoring station #4953710 MONTICELLO WWTP for the period 1975-2020.

Total Maximum Daily Load (TMDL)

According to the Utah's 2016 303(d) Water Quality Assessment Report, the receiving water for the discharge, Montezuma Creek-2, Montezuma Creek and tributaries from Verdure Creek confluence to U.S. 191 (UT14080203-003_00) is supporting all assessed uses and exhibits no evidence of water quality impairment.

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.

Based on the results of the mixing zone modeling, plume width was 100 % of the river at 2500 feet. 100 % of the seasonal critical low flow was used to calculate chronic limits. Acute limits were calculated using 50% of the seasonal critical low flow.

Parameters of Concern

No additional potential parameters of concern were identified based on review of the impairment status of the receiving water and review of the previous permit.

WET Limits

The percent of effluent in the receiving water in a fully mixed condition, and acute and chronic dilution in a not fully mixed condition are calculated in the WLA in order to generate WET limits. The LC₅₀ (lethal concentration, 50%) percent effluent for acute toxicity and the IC₂₅

(inhibition concentration, 25%) percent effluent for chronic toxicity, as determined by the WET test, needs to be below the WET limits, as determined by the WLA. The WET limit for LC₅₀ is typically 100% effluent and does not need to be determined by the WLA.

IC₂₅ WET limits for Outfall 001 should be based on 19.8 % effluent.

Wasteload Allocation Methods

Effluent limits were determined for conservative constituents using a simple mass balance mixing analysis (UDWQ 2012). The mass balance analysis is summarized in the Wasteload Addendums.

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. 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.

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 because the receiving waterbody is classified as a 1C drinking water source. The proposed permit is a simple renewal of an existing UPDES permit. No increase in flow or concentration of pollutants over those authorized in the existing permit is being requested.

Documents:

WLA Document: *Monticello_WLA_2020.docx*

Wasteload Analysis and Addendums: *Monticello_WLA_7-6-2020.xlsm*

References:

Utah Division of Water Quality. 2012. *Utah Wasteload Analysis Procedures Version 1.0.*

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WASTELOAD ANALYSIS [WLA]
Addendum: Statement of Basis

6-Jul-20
4:00 PM

Facilities: Monticello City WWTP
Discharging to: Montezuma Creek

UPDES No: UT-0024503

I. Introduction

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

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

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

II. Receiving Water and Stream Classification

Montezuma Creek:	1C, 2A, 3B, 4
Antidegradation Review:	Level I review completed. Level II review required.

III. Numeric Stream Standards for Protection of Aquatic Wildlife

Total Ammonia (TNH3)	Varies as a function of Temperature and pH Rebound. See Water Quality Standards
Chronic Total Residual Chlorine (TRC)	0.011 mg/l (4 Day Average) 0.019 mg/l (1 Hour Average)
Chronic Dissolved Oxygen (DO)	5.50 mg/l (30 Day Average) 4.00 mg/l (7Day Average) 3.00 mg/l (1 Day Average)
Maximum Total Dissolved Solids	1200.0 mg/l

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Acute and Chronic Heavy Metals (Dissolved)

Parameter	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard		
	Concentration	Load*	Concentration		Load*
Aluminum	87.00 ug/l**	0.150 lbs/day	750.00	ug/l	1.294 lbs/day
Arsenic	190.00 ug/l	0.328 lbs/day	340.00	ug/l	0.586 lbs/day
Cadmium	0.61 ug/l	0.001 lbs/day	6.52	ug/l	0.011 lbs/day
Chromium III	211.92 ug/l	0.366 lbs/day	4433.71	ug/l	7.647 lbs/day
Chromium VI	11.00 ug/l	0.019 lbs/day	16.00	ug/l	0.028 lbs/day
Copper	23.85 ug/l	0.041 lbs/day	39.41	ug/l	0.068 lbs/day
Iron			1000.00	ug/l	1.725 lbs/day
Lead	12.88 ug/l	0.022 lbs/day	330.60	ug/l	0.570 lbs/day
Mercury	0.0120 ug/l	0.000 lbs/day	2.40	ug/l	0.004 lbs/day
Nickel	132.13 ug/l	0.228 lbs/day	1188.44	ug/l	2.050 lbs/day
Selenium	4.60 ug/l	0.008 lbs/day	20.00	ug/l	0.034 lbs/day
Silver	N/A ug/l	N/A lbs/day	25.04	ug/l	0.043 lbs/day
Zinc	303.93 ug/l	0.524 lbs/day	303.93	ug/l	0.524 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 300 mg/l as CaCO3

Organics [Pesticides]

Parameter	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard		
	Concentration	Load*	Concentration		Load*
Aldrin			1.500	ug/l	0.003 lbs/day
Chlordane	0.004 ug/l	0.058 lbs/day	1.200	ug/l	0.002 lbs/day
DDT, DDE	0.001 ug/l	0.013 lbs/day	0.550	ug/l	0.001 lbs/day
Dieldrin	0.002 ug/l	0.026 lbs/day	1.250	ug/l	0.002 lbs/day
Endosulfan	0.056 ug/l	0.753 lbs/day	0.110	ug/l	0.000 lbs/day
Endrin	0.002 ug/l	0.031 lbs/day	0.090	ug/l	0.000 lbs/day
Guthion			0.010	ug/l	0.000 lbs/day
Heptachlor	0.004 ug/l	0.051 lbs/day	0.260	ug/l	0.000 lbs/day
Lindane	0.080 ug/l	1.076 lbs/day	1.000	ug/l	0.002 lbs/day
Methoxychlor			0.030	ug/l	0.000 lbs/day
Mirex			0.010	ug/l	0.000 lbs/day
Parathion			0.040	ug/l	0.000 lbs/day
PCB's	0.014 ug/l	0.188 lbs/day	2.000	ug/l	0.003 lbs/day
Pentachlorophenol	13.00 ug/l	174.827 lbs/day	20.000	ug/l	0.034 lbs/day
Toxephene	0.0002 ug/l	0.003 lbs/day	0.7300	ug/l	0.001 lbs/day

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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	0.65 lbs/day
Cadmium			10.0 ug/l	0.01 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	1.03 tons/day

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

Metals	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Arsenic			50.0 ug/l	0.672 lbs/day
Barium			1000.0 ug/l	13.448 lbs/day
Cadmium			10.0 ug/l	0.134 lbs/day
Chromium			50.0 ug/l	0.672 lbs/day
Lead			50.0 ug/l	0.672 lbs/day
Mercury			2.0 ug/l	0.027 lbs/day
Selenium			10.0 ug/l	0.134 lbs/day
Silver			50.0 ug/l	0.672 lbs/day
Fluoride (3)			1.4 ug/l	0.019 lbs/day
to			2.4 ug/l	0.032 lbs/day
Nitrates as N			10.0 ug/l	0.134 lbs/day

Chlorophenoxy Herbicides

2,4-D	100.0 ug/l	1.345 lbs/day
2,4,5-TP	10.0 ug/l	0.134 lbs/day
Endrin	0.2 ug/l	0.003 lbs/day
cyclohexane (Lindane)	4.0 ug/l	0.054 lbs/day
Methoxychlor	100.0 ug/l	1.345 lbs/day
Toxaphene	5.0 ug/l	0.067 lbs/day

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

Toxic Organics	Maximum Conc., ug/l - Acute Standards			
	Class 1C		Class 3A, 3B	
	[2 Liters/Day for 70 Kg Person over 70 Yr.]		[6.5 g for 70 Kg Person over 70 Yr.]	
Acenaphthene	1200.00 ug/l	16.14 lbs/day	2700.0 ug/l	36.31 lbs/day
Acrolein	320.00 ug/l	4.30 lbs/day	780.0 ug/l	10.49 lbs/day
Acrylonitrile	0.06 ug/l	0.00 lbs/day	0.7 ug/l	0.01 lbs/day
Benzene	1.20 ug/l	0.02 lbs/day	71.0 ug/l	0.95 lbs/day
Benzidine	0.00012 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Carbon tetrachloride	0.25 ug/l	0.00 lbs/day	4.4 ug/l	0.06 lbs/day
Chlorobenzene	680.00 ug/l	9.14 lbs/day	21000.0 ug/l	282.41 lbs/day
1,2,4-Trichlorobenzene				
Hexachlorobenzene	0.00075 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
1,2-Dichloroethane	0.38 ug/l	0.01 lbs/day	99.0 ug/l	1.33 lbs/day
1,1,1-Trichloroethane				
Hexachloroethane	1.90 ug/l	0.03 lbs/day	8.9 ug/l	0.12 lbs/day

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1,1-Dichloroethane				
1,1,2-Trichloroethane	0.61 ug/l	0.01 lbs/day	42.0 ug/l	0.56 lbs/day
1,1,2,2-Tetrachloroethane	0.17 ug/l	0.00 lbs/day	11.0 ug/l	0.15 lbs/day
Chloroethane			0.0 ug/l	0.00 lbs/day
Bis(2-chloroethyl) ether	0.03 ug/l	0.00 lbs/day	1.4 ug/l	0.02 lbs/day
2-Chloroethyl vinyl ether	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
2-Chloronaphthalene	1700.00 ug/l	22.86 lbs/day	4300.0 ug/l	57.83 lbs/day
2,4,6-Trichlorophenol	2.10 ug/l	0.03 lbs/day	6.5 ug/l	0.09 lbs/day
p-Chloro-m-cresol			0.0 ug/l	0.00 lbs/day
Chloroform (HM)	5.70 ug/l	0.08 lbs/day	470.0 ug/l	6.32 lbs/day
2-Chlorophenol	120.00 ug/l	1.61 lbs/day	400.0 ug/l	5.38 lbs/day
1,2-Dichlorobenzene	2700.00 ug/l	36.31 lbs/day	17000.0 ug/l	228.62 lbs/day
1,3-Dichlorobenzene	400.00 ug/l	5.38 lbs/day	2600.0 ug/l	34.97 lbs/day
1,4-Dichlorobenzene	400.00 ug/l	5.38 lbs/day	2600.0 ug/l	34.97 lbs/day
3,3'-Dichlorobenzidine	0.04 ug/l	0.00 lbs/day	0.1 ug/l	0.00 lbs/day
1,1-Dichloroethylene	0.06 ug/l	0.00 lbs/day	3.2 ug/l	0.04 lbs/day
1,2-trans-Dichloroethylene	700.00 ug/l	9.41 lbs/day	0.0 ug/l	0.00 lbs/day
2,4-Dichlorophenol	93.00 ug/l	1.25 lbs/day	790.0 ug/l	10.62 lbs/day
1,2-Dichloropropane	0.52 ug/l	0.01 lbs/day	39.0 ug/l	0.52 lbs/day
1,3-Dichloropropylene	10.00 ug/l	0.13 lbs/day	1700.0 ug/l	22.86 lbs/day
2,4-Dimethylphenol	540.00 ug/l	7.26 lbs/day	2300.0 ug/l	30.93 lbs/day
2,4-Dinitrotoluene	0.11 ug/l	0.00 lbs/day	9.1 ug/l	0.12 lbs/day
2,6-Dinitrotoluene	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
1,2-Diphenylhydrazine	0.04 ug/l	0.00 lbs/day	0.5 ug/l	0.01 lbs/day
Ethylbenzene	3100.00 ug/l	41.69 lbs/day	29000.0 ug/l	390.00 lbs/day
Fluoranthene	300.00 ug/l	4.03 lbs/day	370.0 ug/l	4.98 lbs/day
4-Chlorophenyl phenyl ether				
4-Bromophenyl phenyl ether				
Bis(2-chloroisopropyl) ether	1400.00 ug/l	18.83 lbs/day	170000.0 ug/l	2286.21 lbs/day
Bis(2-chloroethoxy) methane	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Methylene chloride (HM)	4.70 ug/l	0.06 lbs/day	1600.0 ug/l	21.52 lbs/day
Methyl chloride (HM)	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Methyl bromide (HM)	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Bromoform (HM)	4.30 ug/l	0.06 lbs/day	360.0 ug/l	4.84 lbs/day
Dichlorobromomethane	0.27 ug/l	0.00 lbs/day	22.0 ug/l	0.30 lbs/day
Chlorodibromomethane	0.41 ug/l	0.01 lbs/day	34.0 ug/l	0.46 lbs/day
Hexachlorobutadiene(c)	0.44 ug/l	0.01 lbs/day	50.0 ug/l	0.67 lbs/day
Hexachlorocyclopentadiene	240.00 ug/l	3.23 lbs/day	17000.0 ug/l	228.62 lbs/day
Isophorone	8.40 ug/l	0.11 lbs/day	600.0 ug/l	8.07 lbs/day
Naphthalene				
Nitrobenzene	17.00 ug/l	0.23 lbs/day	1900.0 ug/l	25.55 lbs/day
2-Nitrophenol	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
4-Nitrophenol	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
2,4-Dinitrophenol	70.00 ug/l	0.94 lbs/day	14000.0 ug/l	188.28 lbs/day
4,6-Dinitro-o-cresol	13.00 ug/l	0.17 lbs/day	765.0 ug/l	10.29 lbs/day
N-Nitrosodimethylamine	0.00069 ug/l	0.00 lbs/day	8.1 ug/l	0.11 lbs/day
N-Nitrosodiphenylamine	5.00 ug/l	0.07 lbs/day	16.0 ug/l	0.22 lbs/day
N-Nitrosodi-n-propylamine	0.01 ug/l	0.00 lbs/day	1.4 ug/l	0.02 lbs/day
Pentachlorophenol	0.28 ug/l	0.00 lbs/day	8.2 ug/l	0.11 lbs/day
Phenol	2.10E+04 ug/l	2.82E+02 lbs/day	4.6E+06 ug/l	6.19E+04 lbs/day
Bis(2-ethylhexyl)phthalate	1.80 ug/l	0.02 lbs/day	5.9 ug/l	0.08 lbs/day
Butyl benzyl phthalate	3000.00 ug/l	40.34 lbs/day	5200.0 ug/l	69.93 lbs/day
Di-n-butyl phthalate	2700.00 ug/l	36.31 lbs/day	12000.0 ug/l	161.38 lbs/day
Di-n-octyl phthalate				

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Diethyl phthalate	23000.00 ug/l	309.31 lbs/day	120000.0 ug/l	1613.79 lbs/day
Dimethyl phthalate	3.13E+05 ug/l	4.21E+03 lbs/day	2.9E+06 ug/l	3.90E+04 lbs/day
Benzo(a)anthracene (PAH)	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(a)pyrene (PAH)	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(b)fluoranthene (PAH)	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(k)fluoranthene (PAH)	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Chrysene (PAH)	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Acenaphthylene (PAH)				
Anthracene (PAH)	9600.00 ug/l	129.10 lbs/day	0.0 ug/l	0.00 lbs/day
Dibenzo(a,h)anthracene (PAH)	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Indeno(1,2,3-cd)pyrene (PAH)	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Pyrene (PAH)	960.00 ug/l	12.91 lbs/day	11000.0 ug/l	147.93 lbs/day
Tetrachloroethylene	0.80 ug/l	0.01 lbs/day	8.9 ug/l	0.12 lbs/day
Toluene	6800.00 ug/l	91.45 lbs/day	200000 ug/l	2689.65 lbs/day
Trichloroethylene	2.70 ug/l	0.04 lbs/day	81.0 ug/l	1.09 lbs/day
Vinyl chloride	2.00 ug/l	0.03 lbs/day	525.0 ug/l	7.06 lbs/day
			0.0	0.00 lbs/day
Pesticides			0.0	0.00 lbs/day
Aldrin	0.0001 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Dieldrin	0.0001 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Chlordane	0.0006 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDT	0.0006 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDE	0.0006 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDD	0.0008 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
alpha-Endosulfan	0.9300 ug/l	0.01 lbs/day	2.0 ug/l	0.03 lbs/day
beta-Endosulfan	0.9300 ug/l	0.01 lbs/day	2.0 ug/l	0.03 lbs/day
Endosulfan sulfate	0.9300 ug/l	0.01 lbs/day	2.0 ug/l	0.03 lbs/day
Endrin	0.7600 ug/l	0.01 lbs/day	0.8 ug/l	0.01 lbs/day
Endrin aldehyde	0.7600 ug/l	0.01 lbs/day	0.8 ug/l	0.01 lbs/day
Heptachlor	0.0002 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Heptachlor epoxide				
PCB's				
PCB 1242 (Arochlor 1248)	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1254 (Arochlor 1254)	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1221 (Arochlor 1221)	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1232 (Arochlor 1232)	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1248 (Arochlor 1248)	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1260 (Arochlor 1260)	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1016 (Arochlor 1016)	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Pesticide				
Toxaphene	0.000750 ug/l	0.00	0.0 ug/l	0.00 lbs/day
Dioxin				
Dioxin (2,3,7,8-TCDD)	1.30E-08 ug/l	0.00 lbs/day	1.40E-08	0.00
Metals				
Antimony	14.0 ug/l	0.19 lbs/day		
Arsenic	50.0 ug/l	0.67 lbs/day	4300.00 ug/l	57.83 lbs/day
Asbestos	7.00E+06 ug/l	9.41E+04 lbs/day		
Beryllium				
Cadmium				

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Chromium (III)				
Chromium (VI)				
Copper				
Cyanide	1.30E+03 ug/l	17.48 lbs/day	2.2E+05 ug/l	2958.62 lbs/day
Lead	700.0 ug/l	9.41 lbs/day		
Mercury			0.15 ug/l	0.00 lbs/day
Nickel			4600.00 ug/l	61.86 lbs/day
Selenium	0.1 ug/l	0.00 lbs/day		
Silver	610.0 ug/l	8.20 lbs/day		
Thallium			6.30 ug/l	0.08 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

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pH	Total NH3-N, mg/l
BOD5, mg/l	Total Dissolved Solids (TDS), mg/l
Metals, ug/l	Toxic Organics of Concern, ug/l

Other Conditions

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

Model Inputs

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

Current Upstream Information

	Stream								
	Critical Low								
	Flow	Temp.	pH	T-NH3	BOD5	DO	TRC	TDS	
	cfs	Deg. C		mg/l as N	mg/l	mg/l	mg/l	mg/l	mg/l
Summer (Irrig. Season)	2.0	20.0	8.2	0.01	0.50	6.23	0.00	500.0	
Fall	2.0	12.0	8.1	0.01	0.50	---	0.00	500.0	
Winter	2.0	4.0	8.0	0.01	0.50	---	0.00	500.0	
Spring	2.0	12.0	8.1	0.01	0.50	---	0.00	500.0	
Dissolved Metals	Al	As	Cd	CrIII	CrVI	Copper	Fe	Pb	
	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
All Seasons	1.59*	0.53*	0.053*	0.53*	2.65*	0.53*	0.83*	0.53*	
Dissolved Metals	Hg	Ni	Se	Ag	Zn	Boron			
	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l			
All Seasons	0.0000	0.53*	1.06*	0.1*	0.053*	10.0			* 1/2 MDL

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Projected Discharge Information

Season	Flow, MGD	Temp.	TDS mg/l	TDS tons/day
Summer	0.32000	17.0	500.00	0.66707
Fall	0.32000	15.0		
Winter	0.32000	12.0		
Spring	0.32000	15.0		

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	0.320 MGD	0.495 cfs
Fall	0.320 MGD	0.495 cfs
Winter	0.320 MGD	0.495 cfs
Spring	0.320 MGD	0.495 cfs

Flow Requirement or Loading Requirement

The calculations in this wasteload analysis utilize the maximum effluent discharge flow of 0.32 MGD. If the discharger is allowed to have a flow greater than 0.32 MGD during 7Q10 conditions, and effluent limit concentrations as indicated, then water quality standards will be violated. In order to prevent this from occurring, the permit writers must include the discharge flow limitation as indicated above; or, include loading effluent limits in the permit.

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

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

WET Requirements	LC50 >	EOP Effluent	[Acute]
	IC25 >	19.8% Effluent	[Chronic]

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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	66.7 lbs/day
Fall	25.0 mg/l as BOD5	66.7 lbs/day
Winter	25.0 mg/l as BOD5	66.7 lbs/day
Spring	25.0 mg/l as BOD5	66.7 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	5.50
Fall	5.50
Winter	5.50
Spring	5.50

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	13.8 mg/l as N	36.9 lbs/day
	1 Hour Avg. - Acute	53.8 mg/l as N	143.4 lbs/day
Fall	4 Day Avg. - Chronic	19.1 mg/l as N	51.1 lbs/day
	1 Hour Avg. - Acute	53.4 mg/l as N	142.5 lbs/day
Winter	4 Day Avg. - Chronic	17.6 mg/l as N	46.9 lbs/day
	1 Hour Avg. - Acute	41.3 mg/l as N	110.1 lbs/day
Spring	4 Day Avg. - Chronic	19.1 mg/l as N	51.1 lbs/day
	1 Hour Avg. - Acute	53.4 mg/l as N	142.5 lbs/day

Acute limit calculated with an Acute Zone of Initial Dilution (ZID) to be equal to 50.%.

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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	0.074	mg/l	0.20	lbs/day
	1 Hour Avg. - Acute	0.075	mg/l	0.20	lbs/day
Fall	4 Day Avg. - Chronic	0.074	mg/l	0.20	lbs/day
	1 Hour Avg. - Acute	0.075	mg/l	0.20	lbs/day
Winter	4 Day Avg. - Chronic	0.074	mg/l	0.20	lbs/day
	1 Hour Avg. - Acute	0.075	mg/l	0.20	lbs/day
Spring	4 Day Avg. - Chronic	0.074	mg/l	0.00	lbs/day
	1 Hour Avg. - Acute	0.075	mg/l	0.00	lbs/day

Effluent Limitations for Total Dissolved Solids based upon Water Quality Standards

Season		Concentration		Load	
Summer	Maximum, Acute	4028.1	mg/l	5.37	tons/day
Fall	Maximum, Acute	4028.1	mg/l	5.37	tons/day
Winter	Maximum, Acute	4028.1	mg/l	5.37	tons/day
Spring	4 Day Avg. - Chronic	4028.1	mg/l	5.37	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 300 mg/l):

	4 Day Average		1 Hour Average		
	Concentration	Load	Concentration		Load
Aluminum	N/A	N/A	2,260.2	ug/l	3.9 lbs/day
Arsenic	954.40 ug/l	1.6 lbs/day	1,025.2	ug/l	1.8 lbs/day
Cadmium	2.76 ug/l	0.0 lbs/day	19.5	ug/l	0.0 lbs/day
Chromium III	1,064.87 ug/l	1.8 lbs/day	13,388.4	ug/l	23.1 lbs/day
Chromium VI	39.38 ug/l	0.1 lbs/day	40.3	ug/l	0.1 lbs/day
Copper	117.01 ug/l	0.2 lbs/day	117.4	ug/l	0.2 lbs/day
Iron	N/A	N/A	3,017.5	ug/l	5.2 lbs/day
Lead	61.72 ug/l	0.1 lbs/day	996.8	ug/l	1.7 lbs/day
Mercury	0.06 ug/l	0.0 lbs/day	7.2	ug/l	0.0 lbs/day
Nickel	662.74 ug/l	1.1 lbs/day	3,587.5	ug/l	6.2 lbs/day
Selenium	16.76 ug/l	0.0 lbs/day	57.2	ug/l	0.1 lbs/day
Silver	N/A ug/l	N/A lbs/day	75.6	ug/l	0.1 lbs/day
Zinc	1,531.53 ug/l	2.6 lbs/day	917.7	ug/l	1.6 lbs/day

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Cyanide	26.21 ug/l	0.0 lbs/day	66.4	ug/l	0.1 lbs/day
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**Effluent Limitations for Heat/Temperature based upon
Water Quality Standards**

Summer	26.0 Deg. C.	78.9 Deg. F
Fall	18.0 Deg. C.	64.5 Deg. F
Winter	10.0 Deg. C.	50.1 Deg. F
Spring	18.0 Deg. C.	64.5 Deg. F

**Effluent Limitations for Organics [Pesticides]
Based upon Water Quality Standards**

In-stream criteria of downstream segments for Organics [Pesticides] will be met with an effluent limit as follows:

	4 Day Average Concentration	Load	1 Hour Average Concentration		Load
Aldrin			1.5E+00	ug/l	4.00E-03 lbs/day
Chlordane	4.30E-03 ug/l	1.15E-02 lbs/day	1.2E+00	ug/l	3.20E-03 lbs/day
DDT, DDE	1.00E-03 ug/l	2.67E-03 lbs/day	5.5E-01	ug/l	1.47E-03 lbs/day
Dieldrin	1.90E-03 ug/l	5.07E-03 lbs/day	1.3E+00	ug/l	3.34E-03 lbs/day
Endosulfan	5.60E-02 ug/l	1.49E-01 lbs/day	1.1E-01	ug/l	2.94E-04 lbs/day
Endrin	2.30E-03 ug/l	6.14E-03 lbs/day	9.0E-02	ug/l	2.40E-04 lbs/day
Guthion	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l	2.67E-05 lbs/day
Heptachlor	3.80E-03 ug/l	1.01E-02 lbs/day	2.6E-01	ug/l	6.94E-04 lbs/day
Lindane	8.00E-02 ug/l	2.13E-01 lbs/day	1.0E+00	ug/l	2.67E-03 lbs/day
Methoxychlor	0.00E+00 ug/l	0.00E+00 lbs/day	3.0E-02	ug/l	8.00E-05 lbs/day
Mirex	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l	2.67E-05 lbs/day
Parathion	0.00E+00 ug/l	0.00E+00 lbs/day	4.0E-02	ug/l	1.07E-04 lbs/day
PCB's	1.40E-02 ug/l	3.74E-02 lbs/day	2.0E+00	ug/l	5.34E-03 lbs/day
Pentachlorophenol	1.30E+01 ug/l	3.47E+01 lbs/day	2.0E+01	ug/l	5.34E-02 lbs/day
Toxephene	2.00E-04 ug/l	5.34E-04 lbs/day	7.3E-01	ug/l	1.95E-03 lbs/day

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**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	8.6 lbs/day
Nitrates as N	4.0 mg/l	6.9 lbs/day
Total Phosphorus as P	0.05 mg/l	0.1 lbs/day
Total Suspended Solids	90.0 mg/l	155.2 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
Toxic Organics		
Acenaphthene	6.05E+03 ug/l	1.61E+01 lbs/day
Acrolein	1.61E+03 ug/l	4.30E+00 lbs/day
Acrylonitrile	2.97E-01 ug/l	7.93E-04 lbs/day
Benzene	6.05E+00 ug/l	1.61E-02 lbs/day
Benzidine	ug/l	lbs/day
Carbon tetrachloride	1.26E+00 ug/l	3.36E-03 lbs/day
Chlorobenzene	3.43E+03 ug/l	9.14E+00 lbs/day
1,2,4-Trichlorobenzene		
Hexachlorobenzene	3.78E-03 ug/l	1.01E-05 lbs/day
1,2-Dichloroethane	1.92E+00 ug/l	5.11E-03 lbs/day
1,1,1-Trichloroethane		
Hexachloroethane	9.58E+00 ug/l	2.56E-02 lbs/day
1,1-Dichloroethane		
1,1,2-Trichloroethane	3.07E+00 ug/l	8.20E-03 lbs/day
1,1,2,2-Tetrachloroethane	8.57E-01 ug/l	2.29E-03 lbs/day
Chloroethane		
Bis(2-chloroethyl) ether	1.56E-01 ug/l	4.17E-04 lbs/day
2-Chloroethyl vinyl ether		
2-Chloronaphthalene	8.57E+03 ug/l	2.29E+01 lbs/day
2,4,6-Trichlorophenol	1.06E+01 ug/l	2.82E-02 lbs/day
p-Chloro-m-cresol		
Chloroform (HM)	2.87E+01 ug/l	7.67E-02 lbs/day
2-Chlorophenol	6.05E+02 ug/l	1.61E+00 lbs/day
1,2-Dichlorobenzene	1.36E+04 ug/l	3.63E+01 lbs/day
1,3-Dichlorobenzene	2.02E+03 ug/l	5.38E+00 lbs/day
1,4-Dichlorobenzene	2.02E+03 ug/l	5.38E+00 lbs/day
3,3'-Dichlorobenzidine	2.02E-01 ug/l	5.38E-04 lbs/day

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1,1-Dichloroethylene	2.87E-01 ug/l	7.67E-04 lbs/day
1,2-trans-Dichloroethylene1		
2,4-Dichlorophenol	4.69E+02 ug/l	1.25E+00 lbs/day
1,2-Dichloropropane	2.62E+00 ug/l	6.99E-03 lbs/day
1,3-Dichloropropylene	5.04E+01 ug/l	1.34E-01 lbs/day
2,4-Dimethylphenol	2.72E+03 ug/l	7.26E+00 lbs/day
2,4-Dinitrotoluene	5.54E-01 ug/l	1.48E-03 lbs/day
2,6-Dinitrotoluene		
1,2-Diphenylhydrazine	2.02E-01 ug/l	5.38E-04 lbs/day
Ethylbenzene	1.56E+04 ug/l	4.17E+01 lbs/day
Fluoranthene	1.51E+03 ug/l	4.03E+00 lbs/day
4-Chlorophenyl phenyl ether		
4-Bromophenyl phenyl ether		
Bis(2-chloroisopropyl) ether	7.06E+03 ug/l	1.88E+01 lbs/day
Bis(2-chloroethoxy) methane		
Methylene chloride (HM)	2.37E+01 ug/l	6.32E-02 lbs/day
Methyl chloride (HM)		
Methyl bromide (HM)		
Bromoform (HM)	2.17E+01 ug/l	5.78E-02 lbs/day
Dichlorobromomethane(HM)	1.36E+00 ug/l	3.63E-03 lbs/day
Chlorodibromomethane (HM)	2.07E+00 ug/l	5.51E-03 lbs/day
Hexachlorocyclopentadiene	1.21E+03 ug/l	3.23E+00 lbs/day
Isophorone	4.23E+01 ug/l	1.13E-01 lbs/day
Naphthalene		
Nitrobenzene	8.57E+01 ug/l	2.29E-01 lbs/day
2-Nitrophenol		
4-Nitrophenol		
2,4-Dinitrophenol	3.53E+02 ug/l	9.41E-01 lbs/day
4,6-Dinitro-o-cresol	6.55E+01 ug/l	1.75E-01 lbs/day
N-Nitrosodimethylamine	3.48E-03 ug/l	9.28E-06 lbs/day
N-Nitrosodiphenylamine	2.52E+01 ug/l	6.72E-02 lbs/day
N-Nitrosodi-n-propylamine	2.52E-02 ug/l	6.72E-05 lbs/day
Pentachlorophenol	1.41E+00 ug/l	3.77E-03 lbs/day
Phenol	1.06E+05 ug/l	2.82E+02 lbs/day
Bis(2-ethylhexyl)phthalate	9.07E+00 ug/l	2.42E-02 lbs/day
Butyl benzyl phthalate	1.51E+04 ug/l	4.03E+01 lbs/day
Di-n-butyl phthalate	1.36E+04 ug/l	3.63E+01 lbs/day
Di-n-octyl phthlate		
Diethyl phthalate	1.16E+05 ug/l	3.09E+02 lbs/day
Dimethyl phthlate	1.58E+06 ug/l	4.21E+03 lbs/day
Benzo(a)anthracene (PAH)	1.41E-02 ug/l	3.77E-05 lbs/day
Benzo(a)pyrene (PAH)	1.41E-02 ug/l	3.77E-05 lbs/day
Benzo(b)fluoranthene (PAH)	1.41E-02 ug/l	3.77E-05 lbs/day
Benzo(k)fluoranthene (PAH)	1.41E-02 ug/l	3.77E-05 lbs/day
Chrysene (PAH)	1.41E-02 ug/l	3.77E-05 lbs/day
Acenaphthylene (PAH)		
Anthracene (PAH)		
Dibenzo(a,h)anthracene (PAH)	1.41E-02 ug/l	3.77E-05 lbs/day
Indeno(1,2,3-cd)pyrene (PAH)	1.41E-02 ug/l	3.77E-05 lbs/day
Pyrene (PAH)	4.84E+03 ug/l	1.29E+01 lbs/day
Tetrachloroethylene	4.03E+00 ug/l	1.08E-02 lbs/day
Toluene	3.43E+04 ug/l	9.14E+01 lbs/day
Trichloroethylene	1.36E+01 ug/l	3.63E-02 lbs/day
Vinyl chloride	1.01E+01 ug/l	2.69E-02 lbs/day

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Pesticides

Aldrin	6.55E-04 ug/l	1.75E-06 lbs/day
Dieldrin	7.06E-04 ug/l	1.88E-06 lbs/day
Chlordane	2.87E-03 ug/l	7.67E-06 lbs/day
4,4'-DDT	2.97E-03 ug/l	7.93E-06 lbs/day
4,4'-DDE	2.97E-03 ug/l	7.93E-06 lbs/day
4,4'-DDD	4.18E-03 ug/l	1.12E-05 lbs/day
alpha-Endosulfan	4.69E+00 ug/l	1.25E-02 lbs/day
beta-Endosulfan	4.69E+00 ug/l	1.25E-02 lbs/day
Endosulfan sulfate	4.69E+00 ug/l	1.25E-02 lbs/day
Endrin	3.83E+00 ug/l	1.02E-02 lbs/day
Endrin aldehyde	3.83E+00 ug/l	1.02E-02 lbs/day
Heptachlor	1.06E-03 ug/l	2.82E-06 lbs/day
Heptachlor epoxide		

PCB's

PCB 1242 (Arochlor 1242)	2.22E-04 ug/l	5.92E-07 lbs/day
PCB-1254 (Arochlor 1254)	2.22E-04 ug/l	5.92E-07 lbs/day
PCB-1221 (Arochlor 1221)	2.22E-04 ug/l	5.92E-07 lbs/day
PCB-1232 (Arochlor 1232)	2.22E-04 ug/l	5.92E-07 lbs/day
PCB-1248 (Arochlor 1248)	2.22E-04 ug/l	5.92E-07 lbs/day
PCB-1260 (Arochlor 1260)	2.22E-04 ug/l	5.92E-07 lbs/day
PCB-1016 (Arochlor 1016)	2.22E-04 ug/l	5.92E-07 lbs/day

Pesticide

Toxaphene	3.68E-03 ug/l	9.82E-06 lbs/day
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Metals

Antimony	70.56 ug/l	0.19 lbs/day
Arsenic	248.79 ug/l	0.66 lbs/day
Asbestos	3.53E+07 ug/l	9.41E+04 lbs/day
Beryllium		
Cadmium		
Chromium (III)		
Chromium (VI)		
Copper	6552.10 ug/l	17.48 lbs/day
Cyanide	3528.05 ug/l	9.41 lbs/day
Lead	0.00	0.00
Mercury	0.71 ug/l	0.00 lbs/day
Nickel	3074.45 ug/l	8.20 lbs/day
Selenium	0.00	0.00
Silver	0.00	0.00
Thallium	8.57 ug/l	0.02 lbs/day
Zinc		

Dioxin

Dioxin (2,3,7,8-TCDD)	6.55E-08 ug/l	1.75E-10 lbs/day
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**Metals Effluent Limitations for Protection of All Beneficial Uses
Based upon Water Quality Standards and Toxics Rule**

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	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		2260.2				2260.2	N/A
Antimony			70.6	21672.3		70.6	
Arsenic	504.0	1025.2	248.8		0.0	248.8	954.4
Barium					5040.1	5040.1	
Beryllium						0.0	
Cadmium	50.1	19.5			0.0	19.5	2.8
Chromium (III)		13388.4			0.0	13388.4	1064.9
Chromium (VI)	500.8	40.3			0.0	40.29	39.38
Copper	1004.8	117.4	6552.1			117.4	117.0
Cyanide		66.4	1108817.1			66.4	26.2
Iron		3017.5				3017.5	
Lead	500.8	996.8			0.0	500.8	61.7
Mercury		7.25	0.7	0.76	0.0	0.71	0.060
Nickel		3587.5	3074.4	23184.4		3074.4	662.7
Selenium	245.6	57.2			0.0	57.2	16.8
Silver		75.6			0.0	75.6	
Thallium			8.6	31.8		8.6	
Zinc		917.7				917.7	1531.5
Boron	3780.1					3780.1	

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	2260.2	N/A	
Antimony	70.56		
Arsenic	248.8	954.4	Acute Controls
Asbestos	3.53E+07		
Barium			
Beryllium			
Cadmium	19.5	2.8	
Chromium (III)	13388.4	1065	
Chromium (VI)	40.3	39.4	
Copper	117.4	117.0	
Cyanide	66.4	26.2	
Iron	3017.5		
Lead	500.8	61.7	
Mercury	0.706	0.060	
Nickel	3074.4	663	
Selenium	57.2	16.8	
Silver	75.6	N/A	
Thallium	8.6		
Zinc	917.7	1531.5	Acute Controls
Boron	3780.06		

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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.

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.

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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.

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File Name: Monticello_WLA_7-6-20

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APPENDIX - Coefficients and Other Model Information

CBOD Coeff. (Kd)20 1/day 2.000	CBOD Coeff. FORCED (Kd)/day 0.000	CBOD Coeff. (Ka)T 1/day 2.000	REAER. Coeff. (Ka)20 (Ka)/day 59.157	REAER. Coeff. FORCED 1/day 0.000	REAER. Coeff. (Ka)T 1/day 59.157	NBOD Coeff. (Kn)20 1/day 0.400	NBOD Coeff. (Kn)T 1/day 0.400
Open Coeff. (K4)20 1/day 0.000	Open Coeff. (K4)T 1/day 0.000	NH3 LOSS (K5)20 1/day 4.000	NH3 (K5)T 1/day 4.000	NO2+NO3 LOSS (K6)20 1/day 0.000	NO2+NO3 (K6)T 1/day 0.000	TRC Decay K(CI)20 1/day 32.000	TRC K(CI)(T) 1/day 32.000
BENTHIC DEMAND (SOD)20 gm/m2/day 1.000	BENTHIC DEMAND (SOD)T gm/m2/day 1.000						
K1 CBOD {theta} 1.0	K2 Reaer. {theta} 1.0	K3 NH3 {theta} 1.1	K4 Open {theta} 1.0	K5 NH3 Loss {theta} 1.0	K6 NO2+3 {theta} 1.0	K(CI) TRC {theta} 1.1	S Benthic {theta} 1.1

Antidegradation Review

An antidegradation review (ADR) was conducted to determine whether the proposed activity complies with the applicable antidegradation requirements for receiving waters that may be affected. The Level I ADR evaluated the criteria of R317-2-3.5(b) and determined that a Level II antidegradation Review is required because the receiving waterbody is classified as a 1C drinking water source.

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 Analysis¹. They are;

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

Due to limited data reported from previous permit cycle, RP was not run on current parameters.

¹ See Reasonable Potential Analysis Guidance for definitions of terms