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

Date: **December 5, 2018**

Prepared by: **Dave Wham**
Standards and Technical Services

Facility: **Little Mountain Service Area**
UPDES No. UT- 0025569

Receiving water: **West Warren Waste Ditch (Canal) => N. Fork Weber**

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

Discharge

Outfall 001: West Warren Waste Ditch (canal) => N. Fork Weber/ Great Salt Lake Transitional Wetlands

The mean monthly design discharge is 0.25 MGD (0.38 cfs) for the facility.

Receiving Water
The receiving water for Outfall 001 is the West Warren Waste Ditch. As per R317-1-13.10 All drainage canals and ditches statewide, except as otherwise designated: 2B, 3E:

- *Class 2B -Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.*

- *Class 3E - Severely habitat-limited waters. Narrative standards will be applied to protect these waters for aquatic wildlife.*

The West Warren Canal flows to North Fork of the Weber River. The point where the Warren Canal meets the delta of the N. Fork of the Weber River is within the zone of Great Salt Lake transitional wetlands at an elevation between 4200 and 4205 feet. As per UAC R317-2-6.5, Transitional waters along the shoreline of the Great Salt Lake geographical boundary - All

waters below approximately 4,208-foot elevation to the current lake elevation of the open water of the Great Salt Lake receiving their source water from naturally occurring springs and streams, impounded wetlands, or facilities requiring a UPDES permit are classed 5E. The geographical areas of these transitional waters change corresponding to the fluctuation of open water elevation.

- *Class 5E -- Protected for infrequent primary and secondary contact recreation, waterfowl, shore birds and other water-oriented wildlife including their necessary food chain.*

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). Available flow data consisted of daily average flow values from USGS Station #411316112132201, N FK WEBER RIV NR WEST WARREN, UT for the period 2004 – 2008. In this case, since the period of record was less than the required return period, the 7Q10 was estimated by calculating the 10^{th} percentile of the annual 7-day average low flow values. The estimated 7Q10 value was 4.6 cfs.

No receiving water data was available within a reasonable proximity to the discharge location. The closest DWQ monitoring station is WEBER R S OF PLAIN CITY (#4920050). This station is approximately 14 mile upstream on the Weber River and likely not representative of the receiving water near the facility. Over the course of those 14 miles, the river transitions from flowing through an urban land use to rural agricultural land and then to a transitional saline wetland environment influenced by the level of the Great Salt Lake. Model inputs were determined using best professional judgement.

TMDL

According to DWQ's 2016 303(d) Assessment, the receiving water is not listed as impaired for any constituents, nor has a TMDL been completed for the waterbody.

Mixing Zone

The maximum allowable mixing zone is 15 minutes of travel time for acute conditions, not to exceed 50% of stream width, and 2,500 feet for chronic conditions, per UAC R317-2-5. Water quality standards must be met at the end of the mixing zone. Mixing zone calculations indicate total mixing within these constraints. Acute limits were calculated using 50% of the seasonal critical low flow.

Parameters of Concern

Due to the lack of discharge and receiving water data, no potential parameters of concern were identified. Addition parameters of concern may become apparent as a result of technology based standards or other factors as determined by the UPDES Permit Writer.

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 1: WET Limits for IC_{25}

Outfall	Percent Effluent
Outfall 001	7.6%

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 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. 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 for this facility. The proposed permit is a simple renewal, with no increase in flow or concentration over that which was approved in the existing permit.

Documents:

WLA Document: *LittleMountainServiceArea_WLADoc_12-5-18.docx*
Wasteload Analysis and Addendum: *LittleMountainServiceArea_WLA_12-5-18.docx*

References:

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

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.

WASTELOAD ANALYSIS [WLA]
Addendum: Statement of Basis
SUMMARY

Discharging Facility:	**Little Mountain**			
UPDES No:	UT-0025569			
Design Flow	0.25	MGD		

Receiving Water:	**LittleMountainServiceArea_WLA_11-19-18.xls**		
Stream Classification:	2B, 3D		
Stream Flows [cfs]:	4.60	Summer (July-Sept)	20th Percentile
	4.60	Fall (Oct-Dec)	20th Percentile
	4.60	Winter (Jan-Mar)	20th Percentile
	4.60	Spring (Apr-June)	20th Percentile
	0.0	Average	
Stream TDS Values:	600.0	Summer (July-Sept)	Average
	600.0	Fall (Oct-Dec)	Average
	600.0	Winter (Jan-Mar)	Average
	600.0	Spring (Apr-June)	Average

Effluent Limits:				**WQ Standard:**
Flow, MGD:	0.25	MGD	Design Flow	
BOD, mg/l:	25.0	Summer	5.0	Indicator
Dissolved Oxygen, mg/l	5.0	Summer	5.0	30 Day Average
TNH3, Chronic, mg/l:	22.4	Summer	Varies	Function of pH and Temperature
TDS, mg/l: N/A		Summer	1200.0	

Modeling Parameters:	
Acute River Width:	50.0%
Chronic River Width:	100.0%

Level 1 Antidegradation Level Completed: Level II Review not required.

Date: 12/5/2018

WASTELOAD ANALYSIS [WLA]
Addendum: Statement of Basis

5-Dec-18
4:00 PM

Facilities: **Little Mountain** **UPDES No: UT-0025569**
Discharging to: **LittleMountainServiceArea_WLA_11-19-18.xls**

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

West Warren Waste Ditch=>N.Fork We	2B, 3D
Antidegradation Review:	Level I review completed. Level II review not required.

III. Numeric Stream Standards for Protection of Aquatic Wildlife

Total Ammonia (TNH3)	Varies as a function of Temperature and pH Rebound. See Water Quality Standards
Chronic Total Residual Chlorine (TRC)	0.011 mg/l (4 Day Average) 0.019 mg/l (1 Hour Average)
Chronic Dissolved Oxygen (DO)	5.00 mg/l (30 Day Average) N/A mg/l (7Day Average) 3.00 mg/l (1 Day Average
Maximum Total Dissolved Solids	N/A mg/l 3ackground

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**	0.178 lbs/day	750.00 ug/l	1.535 lbs/day
Arsenic	190.00 ug/l	0.389 lbs/day	340.00 ug/l	0.696 lbs/day
Cadmium	0.76 ug/l	0.002 lbs/day	8.73 ug/l	0.018 lbs/day
Chromium III	268.22 ug/l	0.549 lbs/day	5611.67 ug/l	11.486 lbs/day
ChromiumVI	11.00 ug/l	0.023 lbs/day	16.00 ug/l	0.033 lbs/day
Copper	30.50 ug/l	0.062 lbs/day	51.68 ug/l	0.106 lbs/day
Iron			1000.00 ug/l	2.047 lbs/day
Lead	18.58 ug/l	0.038 lbs/day	476.82 ug/l	0.976 lbs/day
Mercury	0.0120 ug/l	0.000 lbs/day	2.40 ug/l	0.005 lbs/day
Nickel	168.54 ug/l	0.345 lbs/day	1515.91 ug/l	3.103 lbs/day
Selenium	4.60 ug/l	0.009 lbs/day	20.00 ug/l	0.041 lbs/day
Silver	N/A ug/l	N/A lbs/day	41.07 ug/l	0.084 lbs/day
Zinc	387.83 ug/l	0.794 lbs/day	387.83 ug/l	0.794 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 400 mg/l as CaCO3

Organics [Pesticides]

Parameter	4 Day Average (Chronic) Standard Concentration	Load*	1 Hour Average (Acute) Standard Concentration	Load*
Aldrin			1.500 ug/l	0.003 lbs/day
Chlordane	0.004 ug/l	0.115 lbs/day	1.200 ug/l	0.002 lbs/day
DDT, DDE	0.001 ug/l	0.027 lbs/day	0.550 ug/l	0.001 lbs/day
Dieldrin	0.002 ug/l	0.051 lbs/day	1.250 ug/l	0.003 lbs/day
Endosulfan	0.056 ug/l	1.503 lbs/day	0.110 ug/l	0.000 lbs/day
Endrin	0.002 ug/l	0.062 lbs/day	0.090 ug/l	0.000 lbs/day
Guthion			0.010 ug/l	0.000 lbs/day
Heptachlor	0.004 ug/l	0.102 lbs/day	0.260 ug/l	0.001 lbs/day
Lindane	0.080 ug/l	2.147 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	0.376 lbs/day	2.000 ug/l	0.004 lbs/day
Pentachlorophenol	13.00 ug/l	348.880 lbs/day	20.000 ug/l	0.041 lbs/day
Toxephene	0.0002 ug/l	0.005 lbs/day	0.7300 ug/l	0.001 lbs/day

IV. Numeric Stream Standards for Protection of Agriculture

	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Arsenic			ug/l	lbs/day
Boron			ug/l	lbs/day
Cadmium			ug/l #VALUE!	lbs/day
Chromium			ug/l	lbs/day
Copper			ug/l	lbs/day
Lead			ug/l	lbs/day
Selenium			ug/l	lbs/day
TDS, Summer			mg/l	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			ug/l	lbs/day
Barium			ug/l	lbs/day
Cadmium			ug/l	lbs/day
Chromium			ug/l	lbs/day
Lead			ug/l	lbs/day
Mercury			ug/l	lbs/day
Selenium			ug/l	lbs/day
Silver			ug/l	lbs/day
Fluoride (3)			ug/l	lbs/day
to			ug/l	lbs/day
Nitrates as N			ug/l	lbs/day
Chlorophenoxy Herbicides				
2,4-D			ug/l	lbs/day
2,4,5-TP			ug/l	lbs/day
Endrin			ug/l	lbs/day
ocyclohexane (Lindane)			ug/l	lbs/day
Methoxychlor			ug/l	lbs/day
Toxaphene			ug/l	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	
Toxic Organics	[2 Liters/Day for 70 Kg Person over 70 Yr.]		[6.5 g for 70 Kg Person over 70 Yr.]	
Acenaphthene	ug/l	lbs/day	2700.0 ug/l	72.46 lbs/day
Acrolein	ug/l	lbs/day	780.0 ug/l	20.93 lbs/day
Acrylonitrile	ug/l	lbs/day	0.7 ug/l	0.02 lbs/day
Benzene	ug/l	lbs/day	71.0 ug/l	1.91 lbs/day
Benzidine	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Carbon tetrachloride	ug/l	lbs/day	4.4 ug/l	0.12 lbs/day
Chlorobenzene	ug/l	lbs/day	21000.0 ug/l	563.57 lbs/day
1,2,4-Trichlorobenzene				
Hexachlorobenzene	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
1,2-Dichloroethane	ug/l	lbs/day	99.0 ug/l	2.66 lbs/day

1,1,1-Trichloroethane					
Hexachloroethane	ug/l	lbs/day	8.9	ug/l	0.24 lbs/day
1,1-Dichloroethane					
1,1,2-Trichloroethane	ug/l	lbs/day	42.0	ug/l	1.13 lbs/day
1,1,2,2-Tetrachloroethai	ug/l	lbs/day	11.0	ug/l	0.30 lbs/day
Chloroethane			0.0	ug/l	0.00 lbs/day
Bis(2-chloroethyl) ether	ug/l	lbs/day	1.4	ug/l	0.04 lbs/day
2-Chloroethyl vinyl ether	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
2-Chloronaphthalene	ug/l	lbs/day	4300.0	ug/l	115.40 lbs/day
2,4,6-Trichlorophenol	ug/l	lbs/day	6.5	ug/l	0.17 lbs/day
p-Chloro-m-cresol			0.0	ug/l	0.00 lbs/day
Chloroform (HM)	ug/l	lbs/day	470.0	ug/l	12.61 lbs/day
2-Chlorophenol	ug/l	lbs/day	400.0	ug/l	10.73 lbs/day
1,2-Dichlorobenzene	ug/l	lbs/day	17000.0	ug/l	456.23 lbs/day
1,3-Dichlorobenzene	ug/l	lbs/day	2600.0	ug/l	69.78 lbs/day
1,4-Dichlorobenzene	ug/l	lbs/day	2600.0	ug/l	69.78 lbs/day
3,3'-Dichlorobenzidine	ug/l	lbs/day	0.1	ug/l	0.00 lbs/day
1,1-Dichloroethylene	ug/l	lbs/day	3.2	ug/l	0.09 lbs/day
1,2-trans-Dichloroethyle	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
2,4-Dichlorophenol	ug/l	lbs/day	790.0	ug/l	21.20 lbs/day
1,2-Dichloropropane	ug/l	lbs/day	39.0	ug/l	1.05 lbs/day
1,3-Dichloropropylene	ug/l	lbs/day	1700.0	ug/l	45.62 lbs/day
2,4-Dimethylphenol	ug/l	lbs/day	2300.0	ug/l	61.72 lbs/day
2,4-Dinitrotoluene	ug/l	lbs/day	9.1	ug/l	0.24 lbs/day
2,6-Dinitrotoluene	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
1,2-Diphenylhydrazine	ug/l	lbs/day	0.5	ug/l	0.01 lbs/day
Ethylbenzene	ug/l	lbs/day	29000.0	ug/l	778.27 lbs/day
Fluoranthene	ug/l	lbs/day	370.0	ug/l	9.93 lbs/day
4-Chlorophenyl phenyl ether					
4-Bromophenyl phenyl ether					
Bis(2-chloroisopropyl) e	ug/l	lbs/day	170000.0	ug/l	4562.27 lbs/day
Bis(2-chloroethoxy) met	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
Methylene chloride (HM	ug/l	lbs/day	1600.0	ug/l	42.94 lbs/day
Methyl chloride (HM)	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
Methyl bromide (HM)	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
Bromoform (HM)	ug/l	lbs/day	360.0	ug/l	9.66 lbs/day
Dichlorobromomethane	ug/l	lbs/day	22.0	ug/l	0.59 lbs/day
Chlorodibromomethane	ug/l	lbs/day	34.0	ug/l	0.91 lbs/day
Hexachlorobutadiene(c)	ug/l	lbs/day	50.0	ug/l	1.34 lbs/day
Hexachlorocyclopentadi	ug/l	lbs/day	17000.0	ug/l	456.23 lbs/day
Isophorone	ug/l	lbs/day	600.0	ug/l	16.10 lbs/day
Naphthalene					
Nitrobenzene	ug/l	lbs/day	1900.0	ug/l	50.99 lbs/day
2-Nitrophenol	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
4-Nitrophenol	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
2,4-Dinitrophenol	ug/l	lbs/day	14000.0	ug/l	375.72 lbs/day
4,6-Dinitro-o-cresol	ug/l	lbs/day	765.0	ug/l	20.53 lbs/day
N-Nitrosodimethylamine	ug/l	lbs/day	8.1	ug/l	0.22 lbs/day
N-Nitrosodiphenylamine	ug/l	lbs/day	16.0	ug/l	0.43 lbs/day
N-Nitrosodi-n-propylami	ug/l	lbs/day	1.4	ug/l	0.04 lbs/day
Pentachlorophenol	ug/l	lbs/day	8.2	ug/l	0.22 lbs/day

Phenol	ug/l	lbs/day	4.6E+06	ug/l	1.23E+05 lbs/day
Bis(2-ethylhexyl)phthala	ug/l	lbs/day	5.9	ug/l	0.16 lbs/day
Butyl benzyl phthalate	ug/l	lbs/day	5200.0	ug/l	139.55 lbs/day
Di-n-butyl phthalate	ug/l	lbs/day	12000.0	ug/l	322.04 lbs/day
Di-n-octyl phthlate					
Diethyl phthalate	ug/l	lbs/day	120000.0	ug/l	3220.43 lbs/day
Dimethyl phthlate	ug/l	lbs/day	2.9E+06	ug/l	7.78E+04 lbs/day
Benzo(a)anthracene (P/	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
Benzo(a)pyrene (PAH)	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
Benzo(b)fluoranthene (F	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
Benzo(k)fluoranthene (F	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
Chrysene (PAH)	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
Acenaphthylene (PAH)					
Anthracene (PAH)	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
Dibenzo(a,h)anthracene	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
Indeno(1,2,3-cd)pyrene	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
Pyrene (PAH)	ug/l	lbs/day	11000.0	ug/l	295.21 lbs/day
Tetrachloroethylene	ug/l	lbs/day	8.9	ug/l	0.24 lbs/day
Toluene	ug/l	lbs/day	200000	ug/l	5367.38 lbs/day
Trichloroethylene	ug/l	lbs/day	81.0	ug/l	2.17 lbs/day
Vinyl chloride	ug/l	lbs/day	525.0	ug/l	14.09 lbs/day
					lbs/day
Pesticides					lbs/day
Aldrin	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
Dieldrin	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
Chlordane	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
4,4'-DDT	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
4,4'-DDE	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
4,4'-DDD	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
alpha-Endosulfan	ug/l	lbs/day	2.0	ug/l	0.05 lbs/day
beta-Endosulfan	ug/l	lbs/day	2.0	ug/l	0.05 lbs/day
Endosulfan sulfate	ug/l	lbs/day	2.0	ug/l	0.05 lbs/day
Endrin	ug/l	lbs/day	0.8	ug/l	0.02 lbs/day
Endrin aldehyde	ug/l	lbs/day	0.8	ug/l	0.02 lbs/day
Heptachlor	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
Heptachlor epoxide					
PCB's					
PCB 1242 (Arochlor 12/	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
PCB-1254 (Arochlor 12!	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
PCB-1221 (Arochlor 12;	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
PCB-1232 (Arochlor 12:	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
PCB-1248 (Arochlor 12/	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
PCB-1260 (Arochlor 12(	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
PCB-1016 (Arochlor 10'	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
Pesticide					
Toxaphene	ug/l		0.0	ug/l	0.00 lbs/day
Dioxin					
Dioxin (2,3,7,8-TCDD)	ug/l	lbs/day			

Metals				
Antimony	ug/l	lbs/day		
Arsenic	ug/l	lbs/day	4300.00 ug/l	115.40 lbs/day
Asbestos	ug/l	lbs/day		
Beryllium				
Cadmium				
Chromium (III)				
Chromium (VI)				
Copper				
Cyanide	ug/l	lbs/day	2.2E+05 ug/l	5904.12 lbs/day
Lead	ug/l	lbs/day		
Mercury			0.15 ug/l	0.00 lbs/day
Nickel			4600.00 ug/l	123.45 lbs/day
Selenium	ug/l	lbs/day		
Silver	ug/l	lbs/day		
Thallium			6.30 ug/l	0.17 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)	4.60	20.0	8.0	0.10	1.00	7.00	0.00	600.0
Fall	4.60	12.0	8.0	0.10	1.00	---	0.00	600.0
Winter	4.60	8.0	8.0	0.10	1.00	---	0.00	600.0
Spring	4.60	12.0	8.0	0.10	1.00	---	0.00	600.0

Dissolved Metals	Al ug/l	As ug/l	Cd ug/l	CrIII ug/l	CrVI ug/l	Copper ug/l	Fe ug/l	Pb ug/l
All Seasons	2.385*	0.795*	0.0795*	0.795*	3.975*	0.8*	1.25*	0.795*

Dissolved Metals	Hg ug/l	Ni ug/l	Se ug/l	Ag ug/l	Zn ug/l	Boron ug/l	
All Seasons	0.0000	0.795*	1.59*	0.15*	0.0795*	1.59*	* ~80% MDL

Projected Discharge Information

Season	Flow, MGD	Temp.
Summer	0.24500	20.0
Fall	0.24500	12.0
Winter	0.24500	8.0
Spring	0.24500	12.0

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	0.245 MGD	0.379 cfs
Fall	0.245 MGD	0.379 cfs
Winter	0.245 MGD	0.379 cfs
Spring	0.245 MGD	0.379 cfs

Flow Requirement or Loading Requirement

The calculations in this wasteload analysis utilize the maximum effluent discharge flow of 0.245 MGD. If the discharger is allowed to have a flow greater than 0.245 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 >	100.0% Effluent	[Acute]
	IC25 >	7.6% 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	51.1 lbs/day
Fall	25.0 mg/l as BOD5	51.1 lbs/day
Winter	25.0 mg/l as BOD5	51.1 lbs/day
Spring	25.0 mg/l as BOD5	51.1 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	22.36 mg/l as N	45.7 lbs/day
	1 Hour Avg. - Acute	79.1 mg/l as N	161.7 lbs/day
Fall	4 Day Avg. - Chronic	31.6 mg/l as N	64.5 lbs/day
	1 Hour Avg. - Acute	77.5 mg/l as N	158.3 lbs/day
Winter	4 Day Avg. - Chronic	31.4 mg/l as N	64.1 lbs/day
	1 Hour Avg. - Acute	77.0 mg/l as N	157.2 lbs/day
Spring	4 Day Avg. - Chronic	31.6 mg/l as N	64.5 lbs/day
	1 Hour Avg. - Acute	77.5 mg/l as N	158.3 lbs/day

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

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	0.132	mg/l	0.27	lbs/day
	1 Hour Avg. - Acute	0.237	mg/l	0.48	lbs/day
Fall	4 Day Avg. - Chronic	0.132	mg/l	0.27	lbs/day
	1 Hour Avg. - Acute	0.237	mg/l	0.48	lbs/day
Winter	4 Day Avg. - Chronic	0.132	mg/l	0.27	lbs/day
	1 Hour Avg. - Acute	0.237	mg/l	0.48	lbs/day
Spring	4 Day Avg. - Chronic	0.132	mg/l	0.27	lbs/day
	1 Hour Avg. - Acute	0.237	mg/l	0.48	lbs/day

Effluent Limitations for Total Dissolved Solids based upon Water Quality Standards

Season		Concentration		Load	
Summer	Maximum, Acute	N/A	mg/l	N/A	tons/day
Fall	Maximum, Acute	N/A	mg/l	N/A	tons/day
Winter	Maximum, Acute	N/A	mg/l	N/A	tons/day
Spring	Maximum, Acute	N/A	mg/l	N/A	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 400 mg/l):

	4 Day Average Concentration		Load	1 Hour Average Concentration		Load
Aluminum*	N/A		N/A	5,286.8	ug/l	10.8 lbs/day
Arsenic*	2,486.33	ug/l	3.3 lbs/day	2,398.4	ug/l	4.9 lbs/day
Cadmium	8.96	ug/l	0.0 lbs/day	61.2	ug/l	0.1 lbs/day
Chromium III	3,513.88	ug/l	4.6 lbs/day	39,660.5	ug/l	81.2 lbs/day
Chromium VI*	96.26	ug/l	0.1 lbs/day	89.0	ug/l	0.2 lbs/day
Copper	391.01	ug/l	0.5 lbs/day	360.5	ug/l	0.7 lbs/day
Iron*	N/A		N/A	2,676.1	ug/l	5.5 lbs/day
Lead	234.44	ug/l	0.3 lbs/day	3,365.5	ug/l	6.9 lbs/day
Mercury*	0.16	ug/l	0.0 lbs/day	17.0	ug/l	0.0 lbs/day
Nickel	2,204.42	ug/l	2.9 lbs/day	10,710.2	ug/l	21.9 lbs/day
Selenium*	41.13	ug/l	0.1 lbs/day	131.7	ug/l	0.3 lbs/day
Silver	N/A	ug/l	N/A lbs/day	290.3	ug/l	0.6 lbs/day

Zinc	5,093.83 ug/l	6.7 lbs/day	2,740.8	ug/l	5.6 lbs/day
Cyanide*	68.31 ug/l	0.1 lbs/day	155.5	ug/l	0.3 lbs/day

*Limits for these metals are based on the dissolved standard.

Effluent Limitations for Heat/Temperature based upon Water Quality Standards

Summer	72.5 Deg. C.	162.6 Deg. F
Fall	64.5 Deg. C.	148.2 Deg. F
Winter	60.5 Deg. C.	141.0 Deg. F
Spring	64.5 Deg. C.	148.2 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	4.75E-03 lbs/day
Chlordane	4.30E-03 ug/l	8.78E-03 lbs/day	1.2E+00	ug/l	3.80E-03 lbs/day
DDT, DDE	1.00E-03 ug/l	2.04E-03 lbs/day	5.5E-01	ug/l	1.74E-03 lbs/day
Dieldrin	1.90E-03 ug/l	3.88E-03 lbs/day	1.3E+00	ug/l	3.96E-03 lbs/day
Endosulfan	5.60E-02 ug/l	1.14E-01 lbs/day	1.1E-01	ug/l	3.48E-04 lbs/day
Endrin	2.30E-03 ug/l	4.70E-03 lbs/day	9.0E-02	ug/l	2.85E-04 lbs/day
Guthion	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l	3.17E-05 lbs/day
Heptachlor	3.80E-03 ug/l	7.76E-03 lbs/day	2.6E-01	ug/l	8.23E-04 lbs/day
Lindane	8.00E-02 ug/l	1.63E-01 lbs/day	1.0E+00	ug/l	3.17E-03 lbs/day
Methoxychlor	0.00E+00 ug/l	0.00E+00 lbs/day	3.0E-02	ug/l	9.50E-05 lbs/day
Mirex	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l	3.17E-05 lbs/day
Parathion	0.00E+00 ug/l	0.00E+00 lbs/day	4.0E-02	ug/l	1.27E-04 lbs/day
PCB's	1.40E-02 ug/l	2.86E-02 lbs/day	2.0E+00	ug/l	6.33E-03 lbs/day
Pentachlorophenol	1.30E+01 ug/l	2.66E+01 lbs/day	2.0E+01	ug/l	6.33E-02 lbs/day
Toxephene	2.00E-04 ug/l	4.09E-04 lbs/day	7.3E-01	ug/l	2.31E-03 lbs/day

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	10.2 lbs/day
Nitrates as N	4.0 mg/l	8.2 lbs/day
Total Phosphorus as P	0.05 mg/l	0.1 lbs/day
Total Suspended Solids	90.0 mg/l	184.2 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	3.55E+04 ug/l	7.25E+01 lbs/day
Acrolein	1.02E+04 ug/l	2.09E+01 lbs/day
Acrylonitrile	8.67E+00 ug/l	1.77E-02 lbs/day
Benzene	9.33E+02 ug/l	1.91E+00 lbs/day
Benzidine	ug/l	lbs/day
Carbon tetrachloride	5.78E+01 ug/l	1.18E-01 lbs/day
Chlorobenzene	2.76E+05 ug/l	5.64E+02 lbs/day
1,2,4-Trichlorobenzene		
Hexachlorobenzene	1.01E-02 ug/l	2.07E-05 lbs/day
1,2-Dichloroethane	1.30E+03 ug/l	2.66E+00 lbs/day
1,1,1-Trichloroethane		
Hexachloroethane	1.17E+02 ug/l	2.39E-01 lbs/day
1,1-Dichloroethane		
1,1,2-Trichloroethane	5.52E+02 ug/l	1.13E+00 lbs/day
1,1,2,2-Tetrachloroethane	1.45E+02 ug/l	2.95E-01 lbs/day
Chloroethane		
Bis(2-chloroethyl) ether	1.84E+01 ug/l	3.76E-02 lbs/day
2-Chloroethyl vinyl ether		
2-Chloronaphthalene	5.65E+04 ug/l	1.15E+02 lbs/day
2,4,6-Trichlorophenol	8.54E+01 ug/l	1.74E-01 lbs/day
p-Chloro-m-cresol		
Chloroform (HM)	6.17E+03 ug/l	1.26E+01 lbs/day
2-Chlorophenol	5.25E+03 ug/l	1.07E+01 lbs/day
1,2-Dichlorobenzene	2.23E+05 ug/l	4.56E+02 lbs/day
1,3-Dichlorobenzene	3.42E+04 ug/l	6.98E+01 lbs/day

1,4-Dichlorobenzene	3.42E+04 ug/l	6.98E+01 lbs/day
3,3'-Dichlorobenzidine	1.01E+00 ug/l	2.07E-03 lbs/day
1,1-Dichloroethylene	4.20E+01 ug/l	8.59E-02 lbs/day
1,2-trans-Dichloroethylene1		
2,4-Dichlorophenol	1.04E+04 ug/l	2.12E+01 lbs/day
1,2-Dichloropropane	5.12E+02 ug/l	1.05E+00 lbs/day
1,3-Dichloropropylene	2.23E+04 ug/l	4.56E+01 lbs/day
2,4-Dimethylphenol	3.02E+04 ug/l	6.17E+01 lbs/day
2,4-Dinitrotoluene	1.20E+02 ug/l	2.44E-01 lbs/day
2,6-Dinitrotoluene		
1,2-Diphenylhydrazine	7.09E+00 ug/l	1.45E-02 lbs/day
Ethylbenzene	3.81E+05 ug/l	7.78E+02 lbs/day
Fluoranthene	4.86E+03 ug/l	9.93E+00 lbs/day
4-Chlorophenyl phenyl ether		
4-Bromophenyl phenyl ether		
Bis(2-chloroisopropyl) ether	2.23E+06 ug/l	4.56E+03 lbs/day
Bis(2-chloroethoxy) methane		
Methylene chloride (HM)	2.10E+04 ug/l	4.29E+01 lbs/day
Methyl chloride (HM)		
Methyl bromide (HM)		
Bromoform (HM)	4.73E+03 ug/l	9.66E+00 lbs/day
Dichlorobromomethane(HM)	2.89E+02 ug/l	5.90E-01 lbs/day
Chlorodibromomethane (HM)	4.47E+02 ug/l	9.12E-01 lbs/day
Hexachlorocyclopentadiene	2.23E+05 ug/l	4.56E+02 lbs/day
Isophorone	7.88E+03 ug/l	1.61E+01 lbs/day
Naphthalene		
Nitrobenzene	2.50E+04 ug/l	5.10E+01 lbs/day
2-Nitrophenol		
4-Nitrophenol		
2,4-Dinitrophenol	1.84E+05 ug/l	3.76E+02 lbs/day
4,6-Dinitro-o-cresol	1.00E+04 ug/l	2.05E+01 lbs/day
N-Nitrosodimethylamine	1.06E+02 ug/l	2.17E-01 lbs/day
N-Nitrosodiphenylamine	2.10E+02 ug/l	4.29E-01 lbs/day
N-Nitrosodi-n-propylamine	1.84E+01 ug/l	3.76E-02 lbs/day
Pentachlorophenol	1.08E+02 ug/l	2.20E-01 lbs/day
Phenol	6.04E+07 ug/l	1.23E+05 lbs/day
Bis(2-ethylhexyl)phthalate	7.75E+01 ug/l	1.58E-01 lbs/day
Butyl benzyl phthalate	6.83E+04 ug/l	1.40E+02 lbs/day
Di-n-butyl phthalate	1.58E+05 ug/l	3.22E+02 lbs/day
Di-n-octyl phthlate		
Diethyl phthalate	1.58E+06 ug/l	3.22E+03 lbs/day
Dimethyl phthlate	3.81E+07 ug/l	7.78E+04 lbs/day
Benzo(a)anthracene (PAH)	4.07E-01 ug/l	8.32E-04 lbs/day
Benzo(a)pyrene (PAH)	4.07E-01 ug/l	8.32E-04 lbs/day
Benzo(b)fluoranthene (PAH)	4.07E-01 ug/l	8.32E-04 lbs/day
Benzo(k)fluoranthene (PAH)	4.07E-01 ug/l	8.32E-04 lbs/day
Chrysene (PAH)	4.07E-01 ug/l	8.32E-04 lbs/day
Acenaphthylene (PAH)		
Anthracene (PAH)		
Dibenzo(a,h)anthracene (PAH)	4.07E-01 ug/l	8.32E-04 lbs/day
Indeno(1,2,3-cd)pyrene (PAH)	4.07E-01 ug/l	8.32E-04 lbs/day

Pyrene (PAH)	1.45E+05 ug/l	2.95E+02 lbs/day
Tetrachloroethylene	1.17E+02 ug/l	2.39E-01 lbs/day
Toluene	2.63E+06 ug/l	5.37E+03 lbs/day
Trichloroethylene	1.06E+03 ug/l	2.17E+00 lbs/day
Vinyl chloride	6.90E+03 ug/l	1.41E+01 lbs/day
Pesticides		
Aldrin	1.84E-03 ug/l	3.76E-06 lbs/day
Dieldrin	1.84E-03 ug/l	3.76E-06 lbs/day
Chlordane	7.75E-03 ug/l	1.58E-05 lbs/day
4,4'-DDT	7.75E-03 ug/l	1.58E-05 lbs/day
4,4'-DDE	7.75E-03 ug/l	1.58E-05 lbs/day
4,4'-DDD	1.10E-02 ug/l	2.25E-05 lbs/day
alpha-Endosulfan	2.63E+01 ug/l	5.37E-02 lbs/day
beta-Endosulfan	2.63E+01 ug/l	5.37E-02 lbs/day
Endosulfan sulfate	2.63E+01 ug/l	5.37E-02 lbs/day
Endrin	1.06E+01 ug/l	2.17E-02 lbs/day
Endrin aldehyde	1.06E+01 ug/l	2.17E-02 lbs/day
Heptachlor	2.76E-03 ug/l	5.64E-06 lbs/day
Heptachlor epoxide		
PCB's		
PCB 1242 (Arochlor 1242)	5.91E-04 ug/l	1.21E-06 lbs/day
PCB-1254 (Arochlor 1254)	5.91E-04 ug/l	1.21E-06 lbs/day
PCB-1221 (Arochlor 1221)	5.91E-04 ug/l	1.21E-06 lbs/day
PCB-1232 (Arochlor 1232)	5.91E-04 ug/l	1.21E-06 lbs/day
PCB-1248 (Arochlor 1248)	5.91E-04 ug/l	1.21E-06 lbs/day
PCB-1260 (Arochlor 1260)	5.91E-04 ug/l	1.21E-06 lbs/day
PCB-1016 (Arochlor 1016)	5.91E-04 ug/l	1.21E-06 lbs/day
Pesticide		
Toxaphene	9.85E-03 ug/l	2.01E-05 lbs/day
Metals		
Antimony	ug/l	lbs/day
Arsenic	ug/l	lbs/day
Asbestos	ug/l	lbs/day
Beryllium		
Cadmium		
Chromium (III)		
Chromium (VI)		
Copper	ug/l	lbs/day
Cyanide	ug/l	lbs/day
Lead		
Mercury	ug/l	lbs/day
Nickel	ug/l	lbs/day
Selenium		
Silver		
Thallium	ug/l	lbs/day
Zinc		

Dioxin		
Dioxin (2,3,7,8-TCDD)	1.84E-07 ug/l	3.76E-10 lbs/day

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		5286.8				5286.8	N/A
Antimony				56487.9		56487.9	
Arsenic		2398.4				2398.4	2486.3
Barium							
Beryllium						0.0	
Cadmium		61.2				61.2	9.0
Chromium (III)		39660.5				39660.5	3513.9
Chromium (VI)		89.0				88.97	96.26
Copper		360.5				360.5	391.0
Cyanide		155.5	2890079.0			155.5	68.3
Iron		2676.1				2676.1	
Lead		3365.5				3365.5	234.4
Mercury		16.96		1.97		1.97	0.158
Nickel		10710.2		60428.9		10710.2	2204.4
Selenium		131.7				131.7	41.1
Silver		290.3				290.3	
Thallium				82.8		82.8	
Zinc		2740.8				2740.8	5093.8
Boron	N/A					0.0	
Sulfate	N/A					N/A	

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	5286.8	N/A	
Antimony	56487.91		
Arsenic	2398.4	2486.3	Acute Controls
Asbestos			
Barium			
Beryllium			
Cadmium	61.2	9.0	
Chromium (III)	39660.5	3514	
Chromium (VI)	89.0	96.3	Acute Controls
Copper	360.5	391.0	Acute Controls

Cyanide	155.5	68.3	
Iron	2676.1		
Lead	3365.5	234.4	
Mercury	1.971	0.158	
Nickel	10710.2	2204	
Selenium	131.7	41.1	
Silver	290.3	N/A	
Thallium	82.8		
Zinc	2740.8	5093.8	Acute Controls
Boron	0.00		
Sulfate	N/A		N/A at this Waterbody

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.

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. The proposed permit is a simple renewal, with no increase in flow or concentration over that which was approved in the existing permit.

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 down-stream segments, will not occur for the evaluated parameters of concern as discussed above if the effluent limitations indicated above are met.