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

Date: **October 21, 2025**

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Standards and Technical Services

Facility: **Scout Energy (formerly Ashley Valley Operating Comp)**
UPDES Permit No. UT-0000035

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

There is a single current effluent discharge point listed in the application (Figure 1). The system is designed to store the effluent during the non-irrigation seasons and use the effluent under reuse during the cultivation season.

- Outfall 001 discharges effluent from Ashley Valley Operating Pond #3 at a flow of 1.50 MGD

Receiving Water

The receiving water for Outfall 001 is one of two ephemeral dry washes that drain into the Union Irrigation Canal. An overflow diversion structure diverts a portion of the flow into Ashley Creek, with the remainder flowing via pipes and canals for downstream agricultural use and on to the Green River.

Per UAC R317-2-13.1.b, the designated beneficial uses *Ashley Creek and tributaries, from confluence with Green River to Steinaker diversion:* are *2B, 3B, 4*.

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

- *Class 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.*

Water Quality Standards

Numeric criteria based on designated beneficial uses are specified in UAC R317-2-14. In addition, narrative water quality standards must not be violated per UAC R317-2-7.2:

> *It shall be unlawful, and a violation of these rules, for any person to discharge or place any waste or other substance in such a way as will be or may become offensive such as unnatural deposits, floating debris, oil, scum or other nuisances such as color, odor or taste; or cause conditions which produce undesirable aquatic life or which produce objectionable tastes in edible aquatic organisms; or result in concentrations or combinations of substances which produce undesirable physiological responses in desirable resident fish, or other desirable aquatic life, or undesirable human health effects, as determined by bioassay or other tests performed in accordance with standard procedures; or determined by biological assessments in Subsection R317-2-7.3.*

Critical Low Flow

Typically, the critical flow for the receiving water in a wasteload analysis is considered the lowest stream flow for seven consecutive days with a ten-year return frequency (7Q10). Due to a lack of flow records for Ashley Creek, the 20th percentile of available flow measurements was calculated to approximate the 7Q10 low flow condition. The source of flow data was monitoring location DWQ 4937420 ASHLEY CK AT US40 XING. Seasonal upstream, background critical flow conditions are provided in Table 1.

Table 1-Seasonal upstream critical flow conditions and DWQ 4937420.

Season	20^{th} % (ft^3/s)
Irrigation (Apr-Oct)	13.36
Non-Irrigation (Nov-Mar)	17.86
Average Annual Flow	37.72

Upstream receiving water quality concentration for the parameters of interest at Outfall 001 were estimated from both monitoring location DWQ 4937420 ASHLEY CK AT US40 XING and monitoring location DWQ 4937430 ASHLEY CK N OF US40 AT CR XING.

Effluent discharge flow and water quality conditions were characterized using data from the Discharge Monitoring Report (DMR) and monitoring stations DWQ 4937315 WESTERN ENERGY OPERATING 001 AT POND #3 OUTLET and DWQ 4937330 WESTERN ENERGY OPERATING 001 (FORMALLY CIMA PETROLEUM 001)

Total Maximum Daily Load (TMDL)

According to Utah's Final 2024 Integrated Report on Water Quality dated April 30, 2024 (UDWQ, 2024), the receiving water for Outfall 001 discharge "*Ashley Creek and tributaries, from confluence with Green River to Steinaker diversion* (AU name: *Ashley Creek Lower*, AU ID: *UT14060010-001_00*)" was listed as "Not Supporting" for Selenium and Total Dissolved Solids. The report further states "TMDL Needed"; however, the priority is set to "Low".

Mixing Zone

Per UAC R317-2-5, 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. Water quality standards must be met at the end of the regulatory mixing zone.

For Outfall 001, the effluent flow into the unnamed channel and the Union Irrigation Canal is allowed a mixing zone. The actual length of the mixing zone was not delineated as part of this wasteload analysis; however, it was presumed to remain within the maximum allowable mixing zone dimensions. Acute limits were calculated using 50% of the annual critical low flow.

Parameters of Concern

The potential parameters of concern identified for the discharge/receiving water were determined in consultation with the UPDES Permit Writer, the Utah Water Quality Assessment Reports, and the industry SIC codes from https://www.osha.gov/data/sic-search. The potential parameters of concern for this facility include: total suspended solids (TSS), dissolved oxygen (DO), biochemical oxygen demand (BOD_5), dissolved metals, undissociated H_2S, and total dissolved solids (TDS).

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. The IC_{25} WET limits are provided in Table 2.

Table 2-Seasonal IC25 WET limits for Outfall 001.

Season	% effluent
Irrigation (Apr-Oct)	14.8
Non-Irrigation (Nov-Mar)	11.5

Wasteload Allocation Methods

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

The Utah Rivers Model was used to evaluate the DO sag and implications on nutrients and BOD_5. The 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). This analysis is further summarized in the Wasteload Addendum.

Models and supporting documentation are available for review upon request.

Location Map

Figure 1-Location map of outfalls, monitoring locations, and surface water channels.

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.

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. Therefore, a Level II Antidegradation Review (ADR) is not required. The last permit indicated

that a Level II ADR is required if the BOD limits are raised from the secondary standards in the current or last permit. It is not clear if the BOD limits were increased or the Level II ADR was completed. This should be verified.

Documents:
WLA Document*: 251021-Scout Energy Ashley Valley Op WLA_2025.docx*
Wasteload Analysis and Addendums: *251021-Scout Energy Ashley Valley Op WLA_2025.xlsm*

References:
Utah Division of Water Quality. 2024. Final 2024 Integrated Report on Water Quality. https://lf-public.deq.utah.gov/WebLink/DocView.aspx?id=87957&repo=Public&searchid=fcd9ea4c-51e1-4227-aa29-fb1921c2cc19&cr=1

Utah Division of Water Quality. 2021. Utah Wasteload Analysis Procedures Version 2.0. https://documents.deq.utah.gov/water-quality/standards-technical-services/DWQ-2021-000684.pdf

Utah Division of Water Quality
Salt Lake City, Utah

WASTELOAD ANALYSIS [WLA]
Addendum: Statement of Basis

10/21/2025
4:00 PM

Facilities: **Scout Energy (formerly Ashley Valley Operating Comp)** **UPDES No: UT-7UT0000035**
Discharging to: **unnamed ditch to Union Canal to Ashley Creek to Green River**

I. Introduction

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

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

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

II. Receiving Water and Stream Classification

unnamed ditch to Union Canal to Ashley Cı 2B,3B,4
Antidegradation Review: Level I review completed. Level II review is not required.

III. Numeric Stream Standards for Protection of Aquatic Wildlife

Total Ammonia (TNH3)	Varies as a function of Temperature and pH Rebound. See Water Quality Standards
Chronic Total Residual Chlorine (TRC)	0.011 mg/l (4 Day Average) 0.019 mg/l (1 Hour Average)
Chronic Dissolved Oxygen (DO)	5.5 mg/l (30 Day Average) 6.0 mg/l (7Day Average) 3.0 mg/l (1 Day Average)
Maximum Total Dissolved Solids	1200.0 mg/l

Acute and Chronic Heavy Metals (Dissolved)

	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
Parameter	**Concentration**	**Load***	**Concentration**	**Load***
Aluminum	87.00 ug/l**	1.088 lbs/day	750.00 ug/l	9.382 lbs/day
Arsenic	150.00 ug/l	1.876 lbs/day	340.00 ug/l	4.253 lbs/day
Cadmium	2.39 ug/l	0.030 lbs/day	7.38 ug/l	0.092 lbs/day
Chromium III	268.22 ug/l	3.355 lbs/day	5611.67 ug/l	70.197 lbs/day
ChromiumVI	11.00 ug/l	0.138 lbs/day	16.00 ug/l	0.200 lbs/day
Copper	30.50 ug/l	0.382 lbs/day	51.68 ug/l	0.647 lbs/day
Iron			1000.00 ug/l	12.509 lbs/day
Lead	18.58 ug/l	0.232 lbs/day	476.82 ug/l	5.965 lbs/day
Mercury	0.0120 ug/l	0.000 lbs/day	2.40 ug/l	0.030 lbs/day
Nickel	168.54 ug/l	2.108 lbs/day	1515.91 ug/l	18.963 lbs/day
Selenium	4.60 ug/l	0.058 lbs/day	20.00 ug/l	0.250 lbs/day
Silver	N/A ug/l	N/A lbs/day	41.07 ug/l	0.514 lbs/day
Zinc	387.83 ug/l	4.851 lbs/day	387.83 ug/l	4.851 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

IV. Numeric Stream Standards for Protection of Agriculture

	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	**Load***	**Concentration**	**Load***
Arsenic			100.0 ug/l	lbs/day
Boron			750.0 ug/l	lbs/day
Cadmium			10.0 ug/l	0.06 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	7.51 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

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

	Maximum Conc., ug/l - Acute Standards			
	Class 1C		**Class 3A, 3B**	
Metals				
Antimony	ug/l	lbs/day		
Arsenic	ug/l	lbs/day	4300.00 ug/l	363.43 lbs/day
Asbestos	ug/l	lbs/day		
Beryllium				
Cadmium				
Chromium (III)				
Chromium (VI)				
Copper				
Cyanide	ug/l	lbs/day	2.2E+05 ug/l	18593.94 lbs/day
Lead	ug/l	lbs/day		
Mercury			0.15 ug/l	0.01 lbs/day
Nickel			4600.00 ug/l	388.78 lbs/day
Selenium	ug/l	lbs/day		
Silver	ug/l	lbs/day		
Thallium			6.30 ug/l	0.53 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
Irrigation (Aprr-Oct)	13.4	15.9	8.0	0.95	10.50	7.43	0.00	1739.9
Non-Irrigation (Nov-Mar)	17.9	7.7	8.0	0.35	6.00	---	0.00	1512.0

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	5.00	10.00	2.80	2.50	4.00	15.60	47.1	14.00

Dissolved Metals	Hg ug/l	Ni ug/l	Se ug/l	Ag ug/l	Zn ug/l	Boron ug/l

All Seasons	0.0000	16.20	6.41	2.80	14.00	10.0	* 1/2 MDL

Projected Discharge Information

Season	Flow, MGD	Temp.	TDS mg/l	TDS tons/day
Irrigation (Aprr-Oct)	1.50000	30.4	1609.28	10.06402
Non-Irrigation (Nov-Mar)	1.50000	26.5		

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	
Irrigation (Aprr-Oct)	1.500 MGD	2.321 cfs
Non-Irrigation (Nov-Mar)	1.500 MGD	2.321 cfs

Flow Requirement or Loading Requirement

The calculations in this wasteload analysis utilize the maximum effluent discharge flow of 1.5 MGD. If the discharger is allowed to have a flow greater than 1.5 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 > 57.9% Effluent [Acute]
IC25 > 14.8% Effluent [Chronic]

Season	Receiving Water Flow (cfs)	Effluent Flow (MGD)	Effluent Flow (cfs)	Combined Flow (cfs)	Totally Mixed	Chronic IC25 % Effluent	Acute LC50 % Effluent
Irrigation (Aprr-Oct)	13.36	1.5	2.3	15.7	NO	14.8%	0.9%
Non-Irrigation (Nov-Mar)	17.86	1.5	2.3	20.2	NO	11.5%	0.7%

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	
Irrigation (Aprr-Oct)	30.0 mg/l as BOD5	375.2 lbs/day
Non-Irrigation (Nov-Mar)	30.0 mg/l as BOD5	375.2 lbs/day

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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
Irrigation (Aprr-Oct)	5.50
Non-Irrigation (Nov-Mar)	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	
Irrigation (Aprr-Oct)	4 Day Avg. - Chronic	13.0	mg/l as N	162.2	lbs/day
	1 Hour Avg. - Acute	41.4	mg/l as N	517.3	lbs/day
Non-Irrigation (Nov-Mar)	4 Day Avg. - Chronic	7.6	mg/l as N	95.7	lbs/day
	1 Hour Avg. - Acute	26.8	mg/l as N	335.2	lbs/day

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

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	
Irrigation (Apr	4 Day Avg. - Chronic	0.069	mg/l	0.86	lbs/day
	1 Hour Avg. - Acute	0.071	mg/l	0.89	lbs/day
Non-Irrigation	4 Day Avg. - Chronic	0.088	mg/l	1.10	lbs/day
	1 Hour Avg. - Acute	0.088	mg/l	1.10	lbs/day

Effluent Limitations for Total Dissolved Solids based upon Water Quality Standards

Season		Concentration		Load	
Irrigation (Aprr-Oct)	Maximum	1739.9	mg/l	10.88	tons/day
Non-Irrigation (Nov-Mar)	Maximum	1512.0	mg/l	9.46	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		2,894.6	ug/l	36.2	lbs/day
Arsenic	956.03	ug/l	7.7	lbs/day	1,290.0	ug/l	16.1	lbs/day
Cadmium	0.01	ug/l	0.0	lbs/day	20.6	ug/l	0.3	lbs/day

Chromium III	1,798.07	ug/l	14.5	lbs/day	21,758.7	ug/l	272.2 lbs/day
Chromium VI	51.30	ug/l	0.4	lbs/day	50.5	ug/l	0.6 lbs/day
Copper	116.28	ug/l	0.9	lbs/day	155.6	ug/l	1.9 lbs/day
Iron	N/A		N/A		3,743.0	ug/l	46.8 lbs/day
Lead	44.95	ug/l	0.4	lbs/day	1,809.1	ug/l	22.6 lbs/day
Mercury	0.08	ug/l	0.0	lbs/day	9.3	ug/l	0.1 lbs/day
Nickel	1,045.62	ug/l	8.5	lbs/day	5,833.1	ug/l	73.0 lbs/day
Selenium	-	ug/l	0.0	lbs/day	59.1	ug/l	0.7 lbs/day
Silver	N/A	ug/l	N/A	lbs/day	151.2	ug/l	1.9 lbs/day
Zinc	2,540.10	ug/l	20.5	lbs/day	1,464.0	ug/l	18.3 lbs/day
Cyanide (free)	35.14	ug/l	0.3	lbs/day	85.3	ug/l	1.1 lbs/day

Effluent Limitations for Heat/Temperature based upon Water Quality Standards

Irrigation (Aprr-Oct)	34.1	Deg. C.	93.3	Deg. F
Non-Irrigation (Nov-Mar)	16.7	Deg. C.	62.1	Deg. F

Effluent Targets for Pollution Indicators Based upon Water Quality Standards

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

	1 Hour Average	
	Concentration	Loading
Gross Beta (pCi/l)	50.0 pCi/L	
BOD (mg/l)	5.0 mg/l	62.5 lbs/day
Nitrates as N	4.0 mg/l	50.0 lbs/day
Total Phosphorus as P	0.05 mg/l	0.6 lbs/day
Total Suspended Solids	90.0 mg/l	1125.8 lbs/day

Note: Pollution indicator targets are for information purposes only.

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

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

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

Zinc

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

	Class 4 Acute Agricultural ug/l	Class 3 Acute Aquatic Wildlife ug/l	Acute Toxics Drinking Water Source ug/l	Acute Toxics Wildlife ug/l	1C Acute Health Criteria ug/l	Acute Most Stringent ug/l	Class 3 Chronic Aquatic Wildlife ug/l
Aluminum		2894.6				2894.6	N/A
Antimony				29056.7		29056.7	
Arsenic	675.7	1290.0			0.0	675.7	956.0
Asbestos						0.00E+00	
Barium						0.0	
Beryllium						0.0	
Cadmium	51.5	20.6			0.0	20.6	0.0
Chromium (III)		21758.7			0.0	21758.7	1798.1
Chromium (VI)	661.3	50.5			0.0	50.54	51.30
Copper	1261.7	155.6				155.6	116.3
Cyanide		85.3	1486623.6			85.3	35.1
Iron		3743.0				3743.0	
Lead	595.1	1809.1			0.0	595.1	45.0
Mercury		9.31		1.01	0.0	1.01	0.081
Nickel		5833.1		31083.9		5833.1	1045.6
Selenium	301.0	59.1			0.0	59.1	0.0
Silver		151.2			0.0	151.2	
Thallium				42.6		42.6	
Zinc		1464.0				1464.0	2540.1
Boron	991.8					991.8	

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	2894.6	N/A	
Antimony	29056.73		
Arsenic	675.7	956.0	Acute Controls
Asbestos	0.00E+00		
Barium			
Beryllium			
Cadmium	20.6	0.0	
Chromium (III)	21758.7	1798	
Chromium (VI)	50.5	51.3	Acute Controls
Copper	155.6	116.3	
Cyanide	85.3	35.1	
Iron	3743.0		
Lead	595.1	45.0	
Mercury	1.014	0.081	
Nickel	5833.1	1046	
Selenium	59.1	0.0	
Silver	151.2	N/A	
Thallium	42.6		
Zinc	1464.0	2540.1	Acute Controls
Boron	991.81		

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 because it is a consistent permit renewal.

XI. Colorado River Salinity Forum Considerations

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

XII. Summary Comments

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

XIII. Notice of UPDES Requirement

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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APPENDIX - Coefficients and Other Model Information

CBOD Coeff. (Kd)20 1/day	CBOD Coeff. FORCED (Kd)/day	CBOD Coeff. (Ka)T 1/day	REAER. Coeff. (Ka)20 (Ka)/day	REAER. Coeff. FORCED 1/day	REAER. Coeff. (Ka)T 1/day	NBOD Coeff. (Kn)20 1/day	NBOD Coeff. (Kn)T 1/day
2.000	0.000	1.656	112.051	0.000	101.640	0.400	0.291
Open Coeff.	Open Coeff.	NH3 LOSS	NH3	NO2+NO3 LOSS	NO2+NO3	TRC Decay	TRC

(K4)20	(K4)T	(K5)20	(K5)T	(K6)20	(K6)T	K(Cl)20	K(Cl)(T)
1/day	1/day	1/day	1/day	1/day	1/day	1/day	1/day
0.000	0.000	4.000	3.312	0.000	0.000	32.000	25.182

BENTHIC DEMAND (SOD)20	BENTHIC DEMAND (SOD)T
gm/m2/day	gm/m2/day
1.000	0.772

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

Antidegredation Review

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

Freshwater total ammonia criteria based on Title R317-2-14 Utah Administrative Code
Acute

INPUT	Summer	Fall	Winter	Spring
pH:	7.30	7.30	7.00	7.60
Beneficial use classification:	3B	3B	3B	3B

OUTPUT				
Total ammonia nitrogen criteria (mg N/L):				
Acute (Class 3A):	17.506	17.506	24.103	11.375
Acute (Class 3B, 3C, 3D):	**26.214**	**26.214**	**36.093**	**17.032**

Freshwater total ammonia criteria based on Title R317-2-14 Utah Administrative Code
Chronic

INPUT	Summer	Fall	Winter	Spring
Temperature (deg C):	18.08	4.85	2.93	11.52
pH:	7.30	7.30	7.00	7.60
Are fish early life stages present?	Yes	Yes	Yes	Yes

OUTPUT				
Total ammonia nitrogen criteria (mg N/L):				
Chronic - Fish Early Life Stages Present:	**4.035**	**5.077**	**5.910**	**3.976**
Chronic - Fish Early Life Stages Absent:	4.035	8.244	9.596	4.824