

**FACT SHEET STATEMENT OF BASIS
CANYON FUEL COMPANY, SOLDIER CANYON MINE
UTAH POLLUTANT DISCHARGE ELIMINATION SYSTEM (UPDES)
PERMIT NUMBER: UT0023680
MINOR INDUSTRIAL RENEWAL**

FACILITY CONTACTS

Facility Contact:	Bill King	Responsible Official:	David G. Spillman
Position:	Mining Engineer	Position:	Technical Services Manager
Phone:	(435) 636-2898	Phone:	(435) 636-2872

DESCRIPTION OF FACILITY

Facility Name: Canyon Fuel Company, Soldier Canyon Mine
Mailing Address: Soldier/Dugout Canyon Mines
P.O. Box 1029
Wellington, Utah 84542

Physical Location: The Soldier Canyon Mine facility is located in Carbon County, Utah, Section 18, Township 13 South, Range 12 East, 13 miles northeast of the City of Wellington.

Coordinates: Approximately, Latitude: 39° 42' 02", Longitude: 110° 36' 39"
Standard Industrial Classification (SIC): 1222 - *Bituminous Coal Underground Mining (NAICS 212112)*

The Canyon Fuel Company, LLC Soldier Canyon Mine (SCM) facility consists of an underground coal mine operation, which at the present time is inactive. Canyon Fuel Company considers the SCM facility as temporally idled and sealed. No in-mine treatment units (sumps w/pump stations) are currently active. The surface facilities are used on a limited basis in support of the Dugout Canyon Mine. The only potential for discharge is from Outfall 002 at the surface sedimentation pond, which could discharge if there was enough runoff. During the previous permit cycle there was a discharge resulting from large storm events from Outfall 002 on September 10, 11, 17, and 25, 2013. Otherwise there was no discharge from any Outfall over the last permit period. It is not known when the mine will be re-activated, but SCM officials desire continuation of the UPDES permit, so that if the mine is re-activated in the next five years it can discharge without delay. Also, any discharge at Outfall 002 from excessive precipitation would be covered whether the mine was active or not.

DESCRIPTION OF DISCHARGE

<u>Outfall</u>	<u>Description</u>
001	Discharge of mine water at Latitude 39° 42' 02" N Longitude 110° 36' 39" W
002	Discharge from a surface sedimentation pond at Latitude 39° 41' 52" N Longitude 110° 36' 46" W
003	Discharge of mine water at Latitude 39° 42' 09" N Longitude 110° 36' 38" W

RECEIVING WATERS AND STREAM CLASSIFICATION

The discharges flow into Soldier Creek, a tributary of the Price River which is in the Colorado River drainage. The receiving waters are designated according to *Utah Administrative Code (UAC) R317-2-13* as indicated below:

- Class 2B -protected for secondary contact recreation such as boating, wading, or similar uses.
- Class 3C -protected for nongame fish and other aquatic life, including the necessary aquatic organisms in their food chain.
- Class 4 -protected for agricultural uses including irrigation of crops and stock watering.

BASIS FOR EFFLUENT LIMITATIONS

In accordance with regulations promulgated in *40 Code of Federal Regulations (CFR) Part 122.44* and in *UAC R317-8-4.2*, effluent limitations are derived from technology-based effluent limitations guidelines, Utah Secondary Treatment Standards (*UAC R317-1-3.2*) or Utah Water Quality Standards (*UAC R317-2*). A waste load analysis was completed for the discharge to Soldier Creek. However the background flow in Soldier Creek is zero and thus the effluent limits will be set equal to the water quality standards. In cases where multiple limits have been developed, those that are more stringent apply. In cases where no underlying standards have been developed, Best Professional Judgment (BPJ) may be used where applicable to set effluent limits.

- 1) SCM's discharge meets the EPA definition of "alkaline mine drainage." As such, it is subject to the technology based effluent limitations in *40 CFR Part 434.45*. Technology based limits used in the permit are listed below.
 - a. Total suspended solids (TSS) daily maximum limit.
 - b. For discharges composed of surface water or mine water commingled with surface water (Outfall 002 only), *40 CFR Part 434.63* allows alternate effluent limits to be applied when discharges result from specific runoff events, detailed in the Effluent Limitations for Precipitation Events Section and in the permit. SCM has the

burden of proof that the described runoff event occurred and to provide documentation required by *Part I.C.5.* of the permit.

- 2) TSS 30-day and 7-day averages are based on Utah Secondary Treatment Standards.
- 3) Daily minimum and daily maximum limitations on pH are derived from Utah Secondary Treatment Standards and Water Quality Standards.
- 4) Total dissolved solids (TDS) are limited according to Water Quality Standards and policies established by the Colorado River Basin Salinity Control Forum. TDS are limited by both mass loading and concentration requirements as described below:

- a. Since discharges from SCM may eventually reach the Colorado River (if the mine became active), TDS mass loading is limited according to policies established by the Colorado River Basin Salinity Control Forum (Forum), as authorized in *UAC R317-2-4* to further control salinity in the Utah portion of the Colorado River Basin. On February 28, 1977 the Forum produced the "*Policy For Implementation of Colorado River Salinity Standards Through the NPDES Permit Program*" (Policy), with the most current subsequent triennial revision dated October 2014. Based on Forum Policy, provisions can be made for salinity-offset projects to account for any TDS loading in excess of the permit requirement.

On October 20, 1982 the Forum produced the "*Policy for Implementation of Colorado River Salinity Standards through the NPDES Permit Program for Intercepted Ground Water*". The permit issued to the SCM facility in 1991 increased the TDS loading limit from 1-ton/day to 5-tons/day, as a sum from all outfalls. This increase in TDS loading was based on mining activities resulting in increased mine water flows that were determined to be from intercepted ground water based on the Forum intercepted ground water policy. This permit will retain the 5-tons/day effluent TDS loading limit. However, if the mine is reactivated and the portals unplugged a new intercepted groundwater study must be completed within the first year of the mine being reactivated and the portals opened. This new study will determine if the five tons of TDS per day is appropriate or the quantity needs to be changed.

- b. The permit limit for TDS concentration is based on a total maximum daily load (TMDL) (*Price River, San Rafael River and Muddy Creek TMDLs for Dissolved Solids – West Colorado Watershed Management Unit, Utah April 2004*) which established a TDS standard of 3000 mg/L for the Price River and associated tributaries in the area where Soldier Creek enters the Price River. Since SCM has been idle and sealed for the last two permit cycles no samples of the water in the mine could be taken and the quality of the water is unknown. Dugout Canyon Mine, owned by the same Company and in the next canyon to the east of Soldier Canyon, has, under normal operating conditions, averaged 1195 mg/L TDS from all of their discharge points (inclusive of mine water and sedimentation ponds).

Dugout has a TDS limit of 2400 mg/L as a daily maximum. Since the quality of the water in SCM is unknown, based on BPJ a TDS limit of 2400 mg/L as a daily maximum concentration will be included in the renewal permit. This is the same as the previous permit cycle.

- 5) Limitation on total iron is based upon the State Water Quality Standards. Total iron will be limited to 1.00 mg/L total iron. This limit will apply to all discharge points.
- 6) Oil and Grease are limited to 10 mg/L by BPJ, as this is consistent with other industrial facilities statewide.
- 7) The effluent flow limitation is based off the maximum historic discharge rate during March 1991 from Discharge 001 at 200 gpm and Discharge 003 at 720 gpm for a combined flow of 1.3 mgd. This is an increase from the previous permit cycle which had set the limit at 0.5 mgd without document justification.

EFFLUENT LIMITATIONS FOR PRECIPITATION EVENTS

In conformance with 40 CFR 434.63, the Division has incorporated the alternative effluent limits for discharge of mine drainage caused by precipitation events larger than regulatory design standards. The permittee has the burden of proof when requesting application of these alternative limitations. Relief shall be granted only when necessary and shall not be granted when the permittee has control over the discharge. The permittee should endeavor to meet the primary limitations whenever possible. Relief is not available for mine drainage from underground workings of underground mines that are not commingled with discharges eligible for alternate limitations (i.e., surface runoff). This is the case for Outfalls 001 and 003. Thus, the alternate limitations may only be applied to Outfall 002.

For rainfall, to apply the alternative limitations in *Part I.C.3.*, it is necessary to prove that the discharge occurred during the precipitation event, or within 48 hours after measurable precipitation has stopped. In addition, to apply the alternative limitations in *Part I.C.4.*, it is necessary to prove that the discharge occurred during the precipitation event, or within 48 hours after precipitation greater than the 10-year, 24-hour event has stopped.

For snowmelt, to apply the alternative limitations in *Part I.C.3.*, it is necessary to prove that the discharge occurred during pond inflow from the snow melt event, or within 48 hours after pond inflow has stopped. In addition, to apply the alternative limitations in *Part I.C.4.*, it is necessary to prove that the discharge occurred during pond inflow from the snow melt event, or within 48 hours after pond inflow volume greater than the 10-year, 24-hour event has stopped.

Documentation that the treatment facilities were properly operated and maintained prior to and during the storm event must be submitted with any request for relief from primary limitations. The Division shall determine the adequacy of proof. As part of this determination, the Division shall evaluate whether the permittee could have controlled the discharge in such a manner that primary limitations could have been met, whether proper sediment storage levels were maintained and the

ponds had sufficient water and sediment capacity for the storm event plus other relevant factors. All manual pond dewatering must meet all limitations of *Part I.C.1.*

**WASTE LOAD ANALYSIS, ANTIDegradation REVIEW AND REASONABLE
POTENTIAL ANALYSIS**

Effluent limitations may be derived using a Waste Load Analysis (WLA). The WLA incorporates Secondary Treatment Standards, Water Quality Standards, Anti-degradation Reviews (ADR) (as appropriate), and designated uses into a water quality model that projects the effects of discharge concentrations on receiving water quality. Effluent limitations are those that the model demonstrates are sufficient to meet State water quality standards in the receiving waters.

During this UPDES renewal permit development, a WLA and ADR were performed. An ADR Level I review was performed and concluded that an ADR Level II review was not required. The WLA indicates that the effluent limitations should be sufficiently protective of water quality, in order to meet State water quality standards in the receiving waters. The discharge was evaluated and determined not to cause a violation of State Water Quality Standards in downstream receiving waters.

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 would be 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.

At this time no metals samples are available for quantitative RP analysis because the mine did not discharge during the previous permit term. Therefore, this permit requires that the permittee obtain at least two metals monitoring results following seal removal and submit them to the Division prior to conducting significant dewatering activities. Quantitative RP analysis will be conducted on this monitoring data.

**EFFLUENT LIMITATIONS, SELF-MONITORING, AND REPORTING
REQUIREMENTS**

The effluent limitations and monitoring requirements for Outfalls 001, 002 and 003 shall be completed as outlined below. Sampling frequency will be decreased from twice a month to monthly for flow, TSS, total iron, TDS and pH. Sampling frequency will be reassessed as part of the RP analysis process if the mine becomes active and the seals are removed. Monthly sampling is based on the mine being a minor industrial permit with a flow limitation of 1.3 mgd. Reports shall be made via NetDMR or on Discharge Monitoring Report (DMR) forms and are due 28 days after the end of the monitoring period (month, quarter, year, etc.).

Parameter	Effluent Limitations			
	Average Monthly	Average Weekly	Minimum Daily	Maximum Daily
Flow, MGD	1.3			Report
pH, standard units			6.5	9.0
Total Suspended Solids (TSS), mg/L	25	35		70
Total Iron, mg/L				1.00
Oil & Grease, mg/L, a/				10
Total Dissolved Solids (TDS) mg/L b/	Report			2400
Total Dissolved Solids (TDS) tons/day b/				5
Sanitary Waste				None

Self-Monitoring and Reporting Requirements			
Parameter	Frequency	Sample Type	Units
Flow	Monthly	Measured	MGD
Total Suspended Solids (TSS),	Monthly	Grab	mg/L
Total Iron	Monthly	Grab	mg/L
Oil & Grease, mg/L, a/	Monthly	Visual/Grab	mg/L
Total Dissolved Solids (TDS) b/	Monthly	Grab	mg/L
pH, standard units	Monthly	Grab	SU
Sanitary Waste	Monthly	Visual	

- a/ There shall be no sheen, floating solids, or visible foam in other than trace amounts. If a sheen is observed, a sample of the effluent shall be collected immediately thereafter and oil and grease shall not exceed 10 mg/L in concentration.
- b/ The TDS concentration from each of the outfalls shall not exceed 2400 mg/L as a daily maximum limit. No tons per day loading limit will be applied if the concentration of TDS in the discharge is equal to or less than 500 mg/L as a thirty-day average. However, if the 30-day average concentration exceeds 500 mg/L, then the permittee cannot discharge more

than 5 ton per day as a sum from all discharge points. If the permittee cannot meet the 500 mg/L 30-day average or the 5 ton per day loading limit, the permittee is required to participate in and/or fund a salinity offset project to include the TDS offset credits as appropriate (*See permit provisions for further details*).

SPECIAL CONDITIONS IF THE SEALS ARE REMOVED AND MINE BECOMES ACTIVE

Current conditions at the mine are in a state of temporary cessation; as such this permit is being reviewed without the availability of assessing typical water quality discharge effluent quality. If the mine becomes active and the seals are removed during this permit cycle, the permittee will be required to conduct analyses to establish what the typical effluent quality will be.

As soon as feasible following seal removal and prior to conducting significant dewatering activities the permittee shall collect at least 2 samples for the metals listed below. Samples may be collected from flooded areas of the mine or mine water discharge (Outfall 001 or 003). Results of this sampling shall be provided to the Division of Water Quality **ninety (90) calendar days** prior to planned dewatering activities. These samples will be collected to evaluate metals present in the discharge. RP will be conducted on the results to determine the potential to exceed the water quality allocations based on the wasteload analysis. If reasonable potential is found for any of these metals the permit effluent limitations table will be modified.

Metals Monitoring			
Parameter	Sample Type	Frequency	Units
Total Arsenic	Grab	Minimum of two samples prior to dewatering activities, weekly for 10 weeks during dewatering, and monthly there after	mg/L
Total Cadmium			
Total Chromium			
Total Copper			
Total Lead			
Total Mercury			
Total Molybdenum			
Total Nickel			
Total Selenium			
Total Silver			
Total Zinc			
Total Cyanide			

Starting after the first week of discharge following seal removal, those metals identified in the RP process shall be monitored **weekly** for 10 weeks beginning after the first week of discharge. After which, these pollutants shall be analyzed **monthly**. The permittee is required to obtain the lowest detection limit possible using standard methods and certified laboratories. Depending on the results of the initial expedited analysis, the Division may reassess permit limits and monitoring frequencies for these metals.

If the seals are removed and the mine is reactivated, the permittee shall complete one chronic

Whole Effluent Toxicity (WET) test on the initial discharge from Outfall 001 or 003 (mine water). The results shall be reported with the Discharge Monitoring Report (DMR) or netDMR submittal for the month in which the test was completed. The complete WET laboratory report shall be submitted with the DMR.

An intercepted groundwater study must be completed within one year of activation of the mine and the seals being removed. This study will determine if the five tons of TDS per day is appropriate or if the quantity needs to be changed. If the five ton per day quantity needs to be changed, this permit will be reopened and modified following proper administrative procedures.

STORM WATER REQUIREMENTS

The storm water requirements are based on the UPDES Multi-Sector General Permit (MSGP) for Storm Water Discharges for Industrial Activity, General Permit No. UTR000000. All sections of the MSGP that pertain to discharges from wastewater treatment plants have been included and sections which are redundant or do not pertain have been deleted.

The permit requires the preparation and implementation of a storm water pollution prevention plan for all areas within the confines of the plant. Required elements of this plan are:

- 1) Development of a pollution prevention team,
- 2) Development of drainage maps and material stockpiles,
- 3) An inventory of exposed material,
- 4) Spill reporting and response procedures,
- 5) A preventative maintenance program,
- 6) Employee training,
- 7) Certification that storm water discharges are not mixed with non-storm water discharges,
- 8) Compliance site evaluations and potential pollutant source identification, and
- 9) Visual examinations of storm water discharges.

This plan is required to be maintained on-site to reflect current site conditions and made available for review upon request and/or inspections.

PRETREATMENT REQUIREMENTS

This facility does not discharge process wastewater to a sanitary sewer system. Any process wastewater that the facility may discharge to the sanitary sewer, either as a direct discharge or as a hauled waste, is subject to federal, state, and local pretreatment 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, the state's pretreatment requirements found in UAC R317-8-8, and any specific local discharge limitations developed by the Publicly Owned Treatment Works (POTW) accepting the waste.

BIOMONITORING REQUIREMENTS

As part of a nationwide effort to control toxic discharges, biomonitoring requirements are being included in permits for facilities where effluent toxicity is an existing or potential concern. In Utah, this is done in accordance with the *State of Utah Permitting and Enforcement Guidance Document for Whole Effluent Toxicity Control (Biomonitoring (2/1991))*. Authority to require effluent biomonitoring is provided in *UAC R317-8, Utah Pollutant Discharge Elimination System* and *UAC R317-2, Water Quality Standards*.

SCM is a minor industrial facility, which historically discharges only intercepted groundwater that has neither been considered to be toxic, nor to be a potential concern. As indicated previously, the mine facility has been inactive for several years, but when active, the facility's discharge was significantly less than one (1) MGD with no observable ill-effects on the receiving waters. Based on these considerations, the SCM facility does not have reasonable potential to discharge toxics, nor is it a "significant minor" according to the *State of Utah Permitting and Enforcement Guidance Document for Whole Effluent Toxicity Control*. As such, there will be no numerical whole effluent toxicity (WET) limitations or WET monitoring requirements in this permit. However, if the mine seals are removed and the mine becomes active again the mine will be required to conduct one sampling event for WET to confirm that these historic conditions have not changed. Last, the permit will contain a toxicity limitation re-opener provision. This provision allows for modification of the permit to include WET limitations and/or WET monitoring, should additional information indicate the presence of toxicity in the discharge.

SIGNIFICANT CHANGES FROM PREVIOUS PERMIT

The required monitoring for flow, TSS, Total Iron, TDS, and pH is reduced from twice a month to monthly. Metals monitoring and toxicity monitoring requirements were added if the seals are removed and the mine becomes active again. Last, the documentation requirements for application of the 40 CFR 434.63 alternative limitations were clarified.

PERMIT DURATION

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

Drafted by

Discharge:	Ken Hoffman kenhoffman@utah.gov 801-536-4313
Stormwater	Mike George
WET	Mike Herkimer
Colorado Salinity	Matt Garn
TMDL	Amy Dickey
WLA	Dave Wham

PUBLIC NOTICE

Began:

Ended:

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

The Public Noticed of the draft permit was published in the Sun-Advocate.

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.

DWQ-2016-011523

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

Date: March 23, 2016

Prepared by: Dave Wham 
Standards and Technical Services

Facility: Canyon Fuel Company, LLC, Soldier Canyon Mine
UPDES No. UT0023680

Receiving water: Soldier Creek => Price River (2B, 3C, 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

This facility is an underground Coal Mine.

Outfall 001: Mine Water Discharge
Outfall 002: Sedimentation Pond
Outfall 003: Mine Water Discharge

The maximum daily flow is .5 MGD as estimated by the permittee.

Receiving Water

The receiving water Outfall 001, 002 and 003 is Soldier Creek, an intermittent stream that is tributary to the Price River.

Per UAC R317-2-13.1(b), the designated beneficial uses Price River and tributaries, from confluence with Green River to Carbon Canal Diversion at Price City Golf Course is 2B, 3C, and 4.

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

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

As per R317-2, Table 2.14.1, footnote (4), the segment of the Price River which receives flows from Soldier Creek (Price River and tributaries from confluence with Green River to confluence with Soldier Creek) has a site specific standard for TDS of 3,000 mg/l.

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). Because the discharge is to an Intermittent stream, the critical low flow condition (7Q10) of the receiving water would be zero. As a result, effluent limits revert to the water quality standards. Water Quality Standards are presented in the WLA Addendum.

TMDL

According to the Utah's 2014 303(d) Water Quality Assessment, the assessment unit containing Soldier Creek (Price River and tributaries (except Desert Seep Wash, Miller Creek, and Grassy Trail Creek) from Woodside to Soldier Creek confluence) was not listed as impaired.

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.

No mixing zone was considered as the annual critical flow for Outfalls 001, 002 and 003 was determined to be 0.

Parameters of Concern

The potential parameters of concern identified for the discharge/receiving water were total dissolved solids (TDS) and iron as determined in consultation with 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 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 Outfalls 001,002, and 003 should be based on 100% effluent.

Utah Division of Water Quality
Wasteload Analysis
Canyon Fuel Company, LLC, Soldier Canyon Mine
UPDES No. UT0023680

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 required for this facility because the permit requests an increase in flow and concentration of pollutants over the existing permit.

Documents:

WLA Document: *SoldierCanyon_WLADoc_3-23-16.docx*

Wasteload Analysis and Addendum: *SoldierCanyon_WLA_3-23-16.xlsm*

References:

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

Utah Division of Water Quality
Salt Lake City, Utah

WASTELOAD ANALYSIS [WLA]
Addendum: Statement of Basis
SUMMARY

Discharging Facility: Soldier Canyon Mine
UPDES No: UT-0023680
Current Flow: 0.50 MGD Design Flow
Design Flow 0.50 MGD

Receiving Water: Soldier Creek => Price River
Stream Classification: 2B, 3C, 4
Stream Flows [cfs]:
0.0 Summer (July-Sept) 20th Percentile
0.0 Fall (Oct-Dec) 20th Percentile
0.0 Winter (Jan-Mar) 20th Percentile
0.0 Spring (Apr-June) 20th Percentile
0.0 Average
Stream TDS Values:
464.0 Summer (July-Sept) Average
464.0 Fall (Oct-Dec) Average
464.0 Winter (Jan-Mar) Average
464.0 Spring (Apr-June) Average

Effluent Limits:		WQ Standard:
Flow, MGD:	0.50 MGD Design Flow	
BOD, mg/l:	25.0 Summer	5.0 Indicator
Dissolved Oxygen, mg/l	5.5 Summer	5.0 30 Day Average
TNH3, Chronic, mg/l:	2.6 Summer	Varies Function of pH and Temperature
TDS, mg/l:	3000.0 Summer	3000.0 Site Specific

Modeling Parameters:
Acute River Width: 50.0%
Chronic River Width: 100.0% Plume Model Used

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

Date: 3/22/2016

Permit Writer:

WLA by:

WQM Sec. Approval:

TMDL Sec. Approval:



3/23/16

Utah Division of Water Quality
Salt Lake City, Utah

WASTELOAD ANALYSIS [WLA]
Addendum: Statement of Basis

22-Mar-16
4:00 PM

Facilities: Soldier Canyon Mine
Discharging to: Soldier Creek => Price River

UPDES No: UT-0023680

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

Soldier Creek => Price River:	2B, 3C, 4
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	3000.0 mg/l	3background

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

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**	0.363 lbs/day	750.00	ug/l	3.133 lbs/day
Arsenic	190.00 ug/l	0.794 lbs/day	340.00	ug/l	1.420 lbs/day
Cadmium	0.61 ug/l	0.003 lbs/day	6.52	ug/l	0.027 lbs/day
Chromium III	211.92 ug/l	0.885 lbs/day	4433.71	ug/l	18.521 lbs/day
ChromiumVI	11.00 ug/l	0.046 lbs/day	16.00	ug/l	0.067 lbs/day
Copper	23.85 ug/l	0.100 lbs/day	39.41	ug/l	0.165 lbs/day
Iron			1000.00	ug/l	4.177 lbs/day
Lead	12.88 ug/l	0.054 lbs/day	330.60	ug/l	1.381 lbs/day
Mercury	0.0120 ug/l	0.000 lbs/day	2.40	ug/l	0.010 lbs/day
Nickel	132.13 ug/l	0.552 lbs/day	1188.44	ug/l	4.964 lbs/day
Selenium	4.60 ug/l	0.019 lbs/day	20.00	ug/l	0.084 lbs/day
Silver	N/A ug/l	N/A lbs/day	25.04	ug/l	0.105 lbs/day
Zinc	303.93 ug/l	1.270 lbs/day	303.93	ug/l	1.270 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	0.006 lbs/day
Chlordane	0.004 ug/l	0.018 lbs/day	1.200	ug/l	0.005 lbs/day
DDT, DDE	0.001 ug/l	0.004 lbs/day	0.550	ug/l	0.002 lbs/day
Dieldrin	0.002 ug/l	0.008 lbs/day	1.250	ug/l	0.005 lbs/day
Endosulfan	0.056 ug/l	0.233 lbs/day	0.110	ug/l	0.000 lbs/day
Endrin	0.002 ug/l	0.010 lbs/day	0.090	ug/l	0.000 lbs/day
Guthion			0.010	ug/l	0.000 lbs/day
Heptachlor	0.004 ug/l	0.016 lbs/day	0.260	ug/l	0.001 lbs/day
Lindane	0.080 ug/l	0.334 lbs/day	1.000	ug/l	0.004 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	0.058 lbs/day	2.000	ug/l	0.008 lbs/day
Pentachlorophenol	13.00 ug/l	54.200 lbs/day	20.000	ug/l	0.084 lbs/day
Toxephene	0.0002 ug/l	0.001 lbs/day	0.7300	ug/l	0.003 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	lbs/day
Cadmium			10.0 ug/l	0.02 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			3000.0 mg/l	6.27 tons/day

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

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

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]

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	ug/l	lbs/day	2700.0 ug/l	11.26 lbs/day
Acrolein	ug/l	lbs/day	780.0 ug/l	3.25 lbs/day
Acrylonitrile	ug/l	lbs/day	0.7 ug/l	0.00 lbs/day
Benzene	ug/l	lbs/day	71.0 ug/l	0.30 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	0.02 lbs/day
Chlorobenzene	ug/l	lbs/day	21000.0 ug/l	87.55 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	0.41 lbs/day

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1,1,1-Trichloroethane				
Hexachloroethane	ug/l	lbs/day	8.9 ug/l	0.04 lbs/day
1,1-Dichloroethane				
1,1,2-Trichloroethane	ug/l	lbs/day	42.0 ug/l	0.18 lbs/day
1,1,2,2-Tetrachloroethane	ug/l	lbs/day	11.0 ug/l	0.05 lbs/day
Chloroethane			0.0 ug/l	0.00 lbs/day
Bis(2-chloroethyl) ether	ug/l	lbs/day	1.4 ug/l	0.01 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	17.93 lbs/day
2,4,6-Trichlorophenol	ug/l	lbs/day	6.5 ug/l	0.03 lbs/day
p-Chloro-m-cresol			0.0 ug/l	0.00 lbs/day
Chloroform (HM)	ug/l	lbs/day	470.0 ug/l	1.96 lbs/day
2-Chlorophenol	ug/l	lbs/day	400.0 ug/l	1.67 lbs/day
1,2-Dichlorobenzene	ug/l	lbs/day	17000.0 ug/l	70.88 lbs/day
1,3-Dichlorobenzene	ug/l	lbs/day	2600.0 ug/l	10.84 lbs/day
1,4-Dichlorobenzene	ug/l	lbs/day	2600.0 ug/l	10.84 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	0.01 lbs/day
1,2-trans-Dichloroethylene	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
2,4-Dichlorophenol	ug/l	lbs/day	790.0 ug/l	3.29 lbs/day
1,2-Dichloropropane	ug/l	lbs/day	39.0 ug/l	0.16 lbs/day
1,3-Dichloropropylene	ug/l	lbs/day	1700.0 ug/l	7.09 lbs/day
2,4-Dimethylphenol	ug/l	lbs/day	2300.0 ug/l	9.59 lbs/day
2,4-Dinitrotoluene	ug/l	lbs/day	9.1 ug/l	0.04 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	0.00 lbs/day
Ethylbenzene	ug/l	lbs/day	29000.0 ug/l	120.91 lbs/day
Fluoranthene	ug/l	lbs/day	370.0 ug/l	1.54 lbs/day
4-Chlorophenyl phenyl ether				
4-Bromophenyl phenyl ether				
Bis(2-chloroisopropyl) ether	ug/l	lbs/day	170000.0 ug/l	708.77 lbs/day
Bis(2-chloroethoxy) methane	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Methylene chloride (HM)	ug/l	lbs/day	1600.0 ug/l	6.67 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	1.50 lbs/day
Dichlorobromomethane	ug/l	lbs/day	22.0 ug/l	0.09 lbs/day
Chlorodibromomethane	ug/l	lbs/day	34.0 ug/l	0.14 lbs/day
Hexachlorobutadiene(c)	ug/l	lbs/day	50.0 ug/l	0.21 lbs/day
Hexachlorocyclopentadiene	ug/l	lbs/day	17000.0 ug/l	70.88 lbs/day
Isophorone	ug/l	lbs/day	600.0 ug/l	2.50 lbs/day
Naphthalene				
Nitrobenzene	ug/l	lbs/day	1900.0 ug/l	7.92 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	58.37 lbs/day
4,6-Dinitro-o-cresol	ug/l	lbs/day	765.0 ug/l	3.19 lbs/day
N-Nitrosodimethylamine	ug/l	lbs/day	8.1 ug/l	0.03 lbs/day
N-Nitrosodiphenylamine	ug/l	lbs/day	16.0 ug/l	0.07 lbs/day
N-Nitrosodi-n-propylamine	ug/l	lbs/day	1.4 ug/l	0.01 lbs/day
Pentachlorophenol	ug/l	lbs/day	8.2 ug/l	0.03 lbs/day

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Phenol	ug/l	lbs/day	4.6E+06 ug/l	1.92E+04 lbs/day
Bis(2-ethylhexyl)phthala	ug/l	lbs/day	5.9 ug/l	0.02 lbs/day
Butyl benzyl phthalate	ug/l	lbs/day	5200.0 ug/l	21.68 lbs/day
Di-n-butyl phthalate	ug/l	lbs/day	12000.0 ug/l	50.03 lbs/day
Di-n-octyl phthlate				
Diethyl phthalate	ug/l	lbs/day	120000.0 ug/l	500.31 lbs/day
Dimethyl phthlate	ug/l	lbs/day	2.9E+06 ug/l	1.21E+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	45.86 lbs/day
Tetrachloroethylene	ug/l	lbs/day	8.9 ug/l	0.04 lbs/day
Toluene	ug/l	lbs/day	200000 ug/l	833.84 lbs/day
Trichloroethylene	ug/l	lbs/day	81.0 ug/l	0.34 lbs/day
Vinyl chloride	ug/l	lbs/day	525.0 ug/l	2.19 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	0.01 lbs/day
beta-Endosulfan	ug/l	lbs/day	2.0 ug/l	0.01 lbs/day
Endosulfan sulfate	ug/l	lbs/day	2.0 ug/l	0.01 lbs/day
Endrin	ug/l	lbs/day	0.8 ug/l	0.00 lbs/day
Endrin aldehyde	ug/l	lbs/day	0.8 ug/l	0.00 lbs/day
Heptachlor	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Heptachlor epoxide				
PCB's				
PCB 1242 (Arochlor 124	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1254 (Arochlor 124	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1221 (Arochlor 122	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1232 (Arochlor 122	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1248 (Arochlor 124	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1260 (Arochlor 126	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1016 (Arochlor 101	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		

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Metals

Antimony	ug/l	lbs/day		
Arsenic	ug/l	lbs/day	4300.00 ug/l	17.93 lbs/day
Asbestos	ug/l	lbs/day		
Beryllium				
Cadmium				
Chromium (III)				
Chromium (VI)				
Copper				
Cyanide	ug/l	lbs/day	2.2E+05 ug/l	917.23 lbs/day
Lead	ug/l	lbs/day		
Mercury			0.15 ug/l	0.00 lbs/day
Nickel			4600.00 ug/l	19.18 lbs/day
Selenium	ug/l	lbs/day		
Silver	ug/l	lbs/day		
Thallium			6.30 ug/l	0.03 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.

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

VIII. Modeling Information

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

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

Other Conditions

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

Model Inputs

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

Current Upstream Information

		Stream							
		Critical Low							
		Flow	Temp.	pH	T-NH3	BOD5	DO	TRC	TDS
		cfs	Deg. C		mg/l as N	mg/l	mg/l	mg/l	mg/l
Summer (Irrig. Season)		0.0	20.0	8.1	0.01	0.50	10.30	0.00	464.0
	Fall	0.0	12.0	8.1	0.01	0.50	---	0.00	464.0
	Winter	0.0	5.0	8.1	0.01	0.50	---	0.00	464.0
	Spring	0.0	12.0	8.1	0.01	0.50	---	0.00	464.0
Dissolved	Al	As	Cd	CrIII	CrVI	Copper	Fe	Pb	
Metals	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	Hg	Ni	Se	Ag	Zn	Boron			
Metals	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	0.50000	15.0	500.00	1.04229
Fall	0.50000	15.0		
Winter	0.50000	15.0		
Spring	0.50000	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	0.500 MGD	0.774 cfs
Fall	0.500 MGD	0.774 cfs
Winter	0.500 MGD	0.774 cfs
Spring	0.500 MGD	0.774 cfs

Flow Requirement or Loading Requirement

The calculations in this wasteload analysis utilize the maximum effluent discharge flow of 0.5 MGD. If the discharger is allowed to have a flow greater than 0.5 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 >	100.0% 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	104.2 lbs/day
Fall	25.0 mg/l as BOD5	104.2 lbs/day
Winter	25.0 mg/l as BOD5	104.2 lbs/day
Spring	25.0 mg/l as BOD5	104.2 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	2.6 mg/l as N	10.9 lbs/day
	1 Hour Avg. - Acute	8.6 mg/l as N	36.0 lbs/day
Fall	4 Day Avg. - Chronic	2.6 mg/l as N	10.9 lbs/day
	1 Hour Avg. - Acute	8.6 mg/l as N	36.0 lbs/day
Winter	4 Day Avg. - Chronic	2.6 mg/l as N	10.9 lbs/day
	1 Hour Avg. - Acute	9.3 mg/l as N	38.8 lbs/day
Spring	4 Day Avg. - Chronic	2.6 mg/l as N	10.9 lbs/day
	1 Hour Avg. - Acute	8.6 mg/l as N	36.0 lbs/day

Acute limit calculated with an Acute Zone of Initial Dilution (ZID) to be equal to 100.0%.

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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	0.011	mg/l	0.05	lbs/day
	1 Hour Avg. - Acute	0.019	mg/l	0.08	lbs/day
Fall	4 Day Avg. - Chronic	0.011	mg/l	0.05	lbs/day
	1 Hour Avg. - Acute	0.019	mg/l	0.08	lbs/day
Winter	4 Day Avg. - Chronic	0.011	mg/l	0.05	lbs/day
	1 Hour Avg. - Acute	0.019	mg/l	0.08	lbs/day
Spring	4 Day Avg. - Chronic	0.011	mg/l	0.00	lbs/day
	1 Hour Avg. - Acute	0.019	mg/l	0.00	lbs/day

Effluent Limitations for Total Dissolved Solids based upon Water Quality Standards

Season		Concentration		Load	
Summer	Maximum, Acute	3000.0	mg/l	6.25	tons/day
Fall	Maximum, Acute	3000.0	mg/l	6.25	tons/day
Winter	Maximum, Acute	3000.0	mg/l	6.25	tons/day
Spring	4 Day Avg. - Chronic	3000.0	mg/l	6.25	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		Load	1 Hour Average		Load
	Concentration			Concentration		
Aluminum*	N/A		N/A	750.0	ug/l	3.1 lbs/day
Arsenic*	190.00	ug/l	0.5 lbs/day	340.0	ug/l	1.4 lbs/day
Cadmium	0.61	ug/l	0.0 lbs/day	6.5	ug/l	0.0 lbs/day
Chromium III	211.92	ug/l	0.6 lbs/day	4,433.8	ug/l	18.5 lbs/day
Chromium VI*	11.00	ug/l	0.0 lbs/day	16.0	ug/l	0.1 lbs/day
Copper	23.85	ug/l	0.1 lbs/day	39.4	ug/l	0.2 lbs/day
Iron*	N/A		N/A	1,000.0	ug/l	4.2 lbs/day
Lead	12.88	ug/l	0.0 lbs/day	330.6	ug/l	1.4 lbs/day
Mercury*	0.01	ug/l	0.0 lbs/day	2.4	ug/l	0.0 lbs/day
Nickel	132.13	ug/l	0.4 lbs/day	1,188.5	ug/l	5.0 lbs/day
Selenium*	4.60	ug/l	0.0 lbs/day	20.0	ug/l	0.1 lbs/day
Silver	N/A	ug/l	N/A lbs/day	25.0	ug/l	0.1 lbs/day

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Zinc	303.94 ug/l	0.8 lbs/day	303.9	ug/l	1.3 lbs/day
Cyanide*	5.20 ug/l	0.0 lbs/day	22.0	ug/l	0.1 lbs/day

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

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

Summer	22.0 Deg. C.	71.6 Deg. F
Fall	14.0 Deg. C.	57.2 Deg. F
Winter	7.0 Deg. C.	44.6 Deg. F
Spring	14.0 Deg. C.	57.2 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		1 Hour Average		
	Concentration	Load	Concentration	Load	
Aldrin			1.5E+00	ug/l	9.69E-03 lbs/day
Chlordane	4.30E-03 ug/l	1.79E-02 lbs/day	1.2E+00	ug/l	7.75E-03 lbs/day
DDT, DDE	1.00E-03 ug/l	4.17E-03 lbs/day	5.5E-01	ug/l	3.55E-03 lbs/day
Dieldrin	1.90E-03 ug/l	7.92E-03 lbs/day	1.3E+00	ug/l	8.08E-03 lbs/day
Endosulfan	5.60E-02 ug/l	2.33E-01 lbs/day	1.1E-01	ug/l	7.11E-04 lbs/day
Endrin	2.30E-03 ug/l	9.59E-03 lbs/day	9.0E-02	ug/l	5.82E-04 lbs/day
Guthion	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l	6.46E-05 lbs/day
Heptachlor	3.80E-03 ug/l	1.58E-02 lbs/day	2.6E-01	ug/l	1.68E-03 lbs/day
Lindane	8.00E-02 ug/l	3.34E-01 lbs/day	1.0E+00	ug/l	6.46E-03 lbs/day
Methoxychlor	0.00E+00 ug/l	0.00E+00 lbs/day	3.0E-02	ug/l	1.94E-04 lbs/day
Mirex	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l	6.46E-05 lbs/day
Parathion	0.00E+00 ug/l	0.00E+00 lbs/day	4.0E-02	ug/l	2.58E-04 lbs/day
PCB's	1.40E-02 ug/l	5.84E-02 lbs/day	2.0E+00	ug/l	1.29E-02 lbs/day
Pentachlorophenol	1.30E+01 ug/l	5.42E+01 lbs/day	2.0E+01	ug/l	1.29E-01 lbs/day
Toxephene	2.00E-04 ug/l	8.34E-04 lbs/day	7.3E-01	ug/l	4.72E-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	20.9 lbs/day
Nitrates as N	4.0 mg/l	16.7 lbs/day
Total Phosphorus as P	0.05 mg/l	0.2 lbs/day
Total Suspended Solids	90.0 mg/l	376.0 lbs/day

Note: Pollution indicator targets are for information purposes only.

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

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

	Maximum Concentration	
	Concentration	Load
Toxic Organics		
Acenaphthene	2.70E+03 ug/l	1.13E+01 lbs/day
Acrolein	7.80E+02 ug/l	3.25E+00 lbs/day
Acrylonitrile	6.60E-01 ug/l	2.75E-03 lbs/day
Benzene	7.10E+01 ug/l	2.96E-01 lbs/day
Benzidine	ug/l	lbs/day
Carbon tetrachloride	4.40E+00 ug/l	1.83E-02 lbs/day
Chlorobenzene	2.10E+04 ug/l	8.76E+01 lbs/day
1,2,4-Trichlorobenzene		
Hexachlorobenzene	7.70E-04 ug/l	3.21E-06 lbs/day
1,2-Dichloroethane	9.90E+01 ug/l	4.13E-01 lbs/day
1,1,1-Trichloroethane		
Hexachloroethane	8.90E+00 ug/l	3.71E-02 lbs/day
1,1-Dichloroethane		
1,1,2-Trichloroethane	4.20E+01 ug/l	1.75E-01 lbs/day
1,1,2,2-Tetrachloroethane	1.10E+01 ug/l	4.59E-02 lbs/day
Chloroethane		
Bis(2-chloroethyl) ether	1.40E+00 ug/l	5.84E-03 lbs/day
2-Chloroethyl vinyl ether		
2-Chloronaphthalene	4.30E+03 ug/l	1.79E+01 lbs/day
2,4,6-Trichlorophenol	6.50E+00 ug/l	2.71E-02 lbs/day
p-Chloro-m-cresol		
Chloroform (HM)	4.70E+02 ug/l	1.96E+00 lbs/day
2-Chlorophenol	4.00E+02 ug/l	1.67E+00 lbs/day
1,2-Dichlorobenzene	1.70E+04 ug/l	7.09E+01 lbs/day
1,3-Dichlorobenzene	2.60E+03 ug/l	1.08E+01 lbs/day

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1,4-Dichlorobenzene	2.60E+03 ug/l	1.08E+01 lbs/day
3,3'-Dichlorobenzidine	7.70E-02 ug/l	3.21E-04 lbs/day
1,1-Dichloroethylene	3.20E+00 ug/l	1.33E-02 lbs/day
1,2-trans-Dichloroethylene1		
2,4-Dichlorophenol	7.90E+02 ug/l	3.29E+00 lbs/day
1,2-Dichloropropane	3.90E+01 ug/l	1.63E-01 lbs/day
1,3-Dichloropropylene	1.70E+03 ug/l	7.09E+00 lbs/day
2,4-Dimethylphenol	2.30E+03 ug/l	9.59E+00 lbs/day
2,4-Dinitrotoluene	9.10E+00 ug/l	3.79E-02 lbs/day
2,6-Dinitrotoluene		
1,2-Diphenylhydrazine	5.40E-01 ug/l	2.25E-03 lbs/day
Ethylbenzene	2.90E+04 ug/l	1.21E+02 lbs/day
Fluoranthene	3.70E+02 ug/l	1.54E+00 lbs/day
4-Chlorophenyl phenyl ether		
4-Bromophenyl phenyl ether		
Bis(2-chloroisopropyl) ether	1.70E+05 ug/l	7.09E+02 lbs/day
Bis(2-chloroethoxy) methane		
Methylene chloride (HM)	1.60E+03 ug/l	6.67E+00 lbs/day
Methyl chloride (HM)		
Methyl bromide (HM)		
Bromoform (HM)	3.60E+02 ug/l	1.50E+00 lbs/day
Dichlorobromomethane(HM)	2.20E+01 ug/l	9.17E-02 lbs/day
Chlorodibromomethane (HM)	3.40E+01 ug/l	1.42E-01 lbs/day
Hexachlorocyclopentadiene	1.70E+04 ug/l	7.09E+01 lbs/day
Isophorone	6.00E+02 ug/l	2.50E+00 lbs/day
Naphthalene		
Nitrobenzene	1.90E+03 ug/l	7.92E+00 lbs/day
2-Nitrophenol		
4-Nitrophenol		
2,4-Dinitrophenol	1.40E+04 ug/l	5.84E+01 lbs/day
4,6-Dinitro-o-cresol	7.65E+02 ug/l	3.19E+00 lbs/day
N-Nitrosodimethylamine	8.10E+00 ug/l	3.38E-02 lbs/day
N-Nitrosodiphenylamine	1.60E+01 ug/l	6.67E-02 lbs/day
N-Nitrosodi-n-propylamine	1.40E+00 ug/l	5.84E-03 lbs/day
Pentachlorophenol	8.20E+00 ug/l	3.42E-02 lbs/day
Phenol	4.60E+06 ug/l	1.92E+04 lbs/day
Bis(2-ethylhexyl)phthalate	5.90E+00 ug/l	2.46E-02 lbs/day
Butyl benzyl phthalate	5.20E+03 ug/l	2.17E+01 lbs/day
Di-n-butyl phthalate	1.20E+04 ug/l	5.00E+01 lbs/day
Di-n-octyl phthlate		
Diethyl phthalate	1.20E+05 ug/l	5.00E+02 lbs/day
Dimethyl phthlate	2.90E+06 ug/l	1.21E+04 lbs/day
Benzo(a)anthracene (PAH)	3.10E-02 ug/l	1.29E-04 lbs/day
Benzo(a)pyrene (PAH)	3.10E-02 ug/l	1.29E-04 lbs/day
Benzo(b)fluoranthene (PAH)	3.10E-02 ug/l	1.29E-04 lbs/day
Benzo(k)fluoranthene (PAH)	3.10E-02 ug/l	1.29E-04 lbs/day
Chrysene (PAH)	3.10E-02 ug/l	1.29E-04 lbs/day
Acenaphthylene (PAH)		
Anthracene (PAH)		
Dibenzo(a,h)anthracene (PAH)	3.10E-02 ug/l	1.29E-04 lbs/day
Indeno(1,2,3-cd)pyrene (PAH)	3.10E-02 ug/l	1.29E-04 lbs/day

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Pyrene (PAH)	1.10E+04 ug/l	4.59E+01 lbs/day
Tetrachloroethylene	8.90E+00 ug/l	3.71E-02 lbs/day
Toluene	2.00E+05 ug/l	8.34E+02 lbs/day
Trichloroethylene	8.10E+01 ug/l	3.38E-01 lbs/day
Vinyl chloride	5.25E+02 ug/l	2.19E+00 lbs/day

Pesticides

Aldrin	1.40E-04 ug/l	5.84E-07 lbs/day
Dieldrin	1.40E-04 ug/l	5.84E-07 lbs/day
Chlordane	5.90E-04 ug/l	2.46E-06 lbs/day
4,4'-DDT	5.90E-04 ug/l	2.46E-06 lbs/day
4,4'-DDE	5.90E-04 ug/l	2.46E-06 lbs/day
4,4'-DDD	8.40E-04 ug/l	3.50E-06 lbs/day
alpha-Endosulfan	2.00E+00 ug/l	8.34E-03 lbs/day
beta-Endosulfan	2.00E+00 ug/l	8.34E-03 lbs/day
Endosulfan sulfate	2.00E+00 ug/l	8.34E-03 lbs/day
Endrin	8.10E-01 ug/l	3.38E-03 lbs/day
Endrin aldehyde	8.10E-01 ug/l	3.38E-03 lbs/day
Heptachlor	2.10E-04 ug/l	8.76E-07 lbs/day
Heptachlor epoxide		

PCB's

PCB 1242 (Arochlor 1242)	4.50E-05 ug/l	1.88E-07 lbs/day
PCB-1254 (Arochlor 1254)	4.50E-05 ug/l	1.88E-07 lbs/day
PCB-1221 (Arochlor 1221)	4.50E-05 ug/l	1.88E-07 lbs/day
PCB-1232 (Arochlor 1232)	4.50E-05 ug/l	1.88E-07 lbs/day
PCB-1248 (Arochlor 1248)	4.50E-05 ug/l	1.88E-07 lbs/day
PCB-1260 (Arochlor 1260)	4.50E-05 ug/l	1.88E-07 lbs/day
PCB-1016 (Arochlor 1016)	4.50E-05 ug/l	1.88E-07 lbs/day

Pesticide

Toxaphene	7.50E-04 ug/l	3.13E-06 lbs/day
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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		

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Dioxin
Dioxin (2,3,7,8-TCDD) 1.40E-08 ug/l 5.84E-11 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		750.0				750.0	N/A
Antimony				4300.1		4300.1	
Arsenic	100.0	340.0			0.0	100.0	190.0
Barium						0.0	
Beryllium						0.0	
Cadmium	10.0	6.5			0.0	6.5	0.6
Chromium (III)		4433.8			0.0	4433.8	211.9
Chromium (VI)	100.0	16.0			0.0	16.00	11.00
Copper	200.0	39.4				39.4	23.9
Cyanide		22.0	220002.8			22.0	5.2
Iron		1000.0				1000.0	
Lead	100.0	330.6			0.0	100.0	12.9
Mercury		2.40		0.15	0.0	0.15	0.012
Nickel		1188.5		4600.1		1188.5	132.1
Selenium	50.0	20.0			0.0	20.0	4.6
Silver		25.0			0.0	25.0	
Thallium				6.3		6.3	
Zinc		303.9				303.9	303.9
Boron	750.0					750.0	

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	750.0	N/A	
Antimony	4300.06		
Arsenic	100.0	190.0	Acute Controls
Asbestos	0.00E+00		
Barium			
Beryllium			
Cadmium	6.5	0.6	
Chromium (III)	4433.8	212	
Chromium (VI)	16.0	11.0	
Copper	39.4	23.9	

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Cyanide	22.0	5.2
Iron	1000.0	
Lead	100.0	12.9
Mercury	0.150	0.012
Nickel	1188.5	132
Selenium	20.0	4.6
Silver	25.0	N/A
Thallium	6.3	
Zinc	303.9	303.9
Boron	750.01	

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. Basic renewal, no increase in effluent flow or concentration.

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.

XIV. TMDL Requirements

Soldier Creek Mine discharges to Soldier Creek which is a tributary of the Price River. This segment of the Price River is 303(d) listed total dissolved solids (TDS). A TMDL was completed for this portion of the Price River on August 4, 2004. No load allocation was indicated for Soldier Creek Mine. This segment of the Price River has a site has a site specific standard of 3000 mg/l.

*Calculation based on limited flow and concentration data

	1/day	1/day	1/day	1/day	1/day	1/day	1/day	1/day	
	0.000	0.000	4.000	1.596	0.000	0.000	32.000	9.979	
BENTHIC DEMAND (SOD)20 gm/m2/day	1.000	BENTHIC DEMAND (SOD)T gm/m2/day	0.284						
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

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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 the proposed discharge will not require a Level II Antidegradation Review. The Proposed permit is a simple renewal. No increase in effluent flow or concentration.

Antidegradation Review Form

Part A: Applicant Information

Facility Name: Soldier Canyon Mine

Facility Owner: Canyon Fuel Company, LLC

Facility Location: 13 Miles NorthEast of Wellington

Form Prepared By: David G. Spillman

Outfall Number: 001, 002 & 003

Receiving Water: Soldier Creek

What Are the Designated Uses of the Receiving Water (R317-2-6)?

Domestic Water Supply: None
Recreation: 2B - Secondary Contact
Aquatic Life: 3C - Nongame Fish
Agricultural Water Supply: 4
Great Salt Lake: None

Category of Receiving Water (R317-2-3.2, -3.3, and -3.4): Category 3

UPDES Permit Number (if applicable): UT0023680

Effluent Flow Reviewed:

Typically, this should be the maximum daily discharge at the design capacity of the facility. Exceptions should be noted.

What is the application for? (check all that apply)

- A UPDES permit for a new facility, project, or outfall.
- A UPDES permit renewal with an expansion or modification of an existing wastewater treatment works.
- A UPDES permit renewal requiring limits for a pollutant not covered by the previous permit and/or an increase to existing permit limits.
- A UPDES permit renewal with no changes in facility operations.

Part B. Is a Level II ADR required?

This section of the form is intended to help applicants determine if a Level II ADR is required for specific permitted activities. In addition, the Executive Secretary may require a Level II ADR for an activity with the potential for major impact on the quality of waters of the state (R317-2-3.5a.1).

B1. The receiving water or downstream water is a Class 1C drinking water source.

Yes A Level II ADR is required (Proceed to Part C of the Form)

No (Proceed to Part B2 of the Form)

B2. The UPDES permit is new or is being renewed and the proposed effluent concentration and loading limits are higher than the concentration and loading limits in the previous permit and any previous antidegradation review(s).

Yes (Proceed to Part B3 of the Form)

No No Level II ADR is required and there is no need to proceed further with review questions.

B3. Will any pollutants use assimilative capacity of the receiving water, i.e. do the pollutant concentrations in the effluent exceed those in the receiving waters at critical conditions? For most pollutants, effluent concentrations that are higher than the ambient concentrations require an antidegradation review? For a few pollutants such as dissolved oxygen, an antidegradation review is required if the effluent concentrations are less than the ambient concentrations in the receiving water. (Section 3.3.3 of Implementation Guidance)

Yes (Proceed to Part B4 of the Form)

No No Level II ADR is required and there is no need to proceed further with review questions.

B4. Are water quality impacts of the proposed project temporary and limited (Section 3.3.4 of Implementation Guidance)? Proposed projects that will have temporary and limited effects on water quality can be exempted from a Level II ADR.

- Yes** Identify the reasons used to justify this determination in Part B4.1 and proceed to Part G. No Level II ADR is required.
- No** A Level II ADR is required (Proceed to Part C)

B4.1 Complete this question only if the applicant is requesting a Level II review exclusion for temporary and limited projects (see R317-2-3.5(b)(3) and R317-2-3.5(b)(4)). For projects requesting a temporary and limited exclusion please indicate the factor(s) used to justify this determination (check all that apply and provide details as appropriate) (Section 3.3.4 of Implementation Guidance):

- Water quality impacts will be temporary and related exclusively to sediment or turbidity and fish spawning will not be impaired.

Factors to be considered in determining whether water quality impacts will be temporary and limited:

- a) The length of time during which water quality will be lowered:
- b) The percent change in ambient concentrations of pollutants:
- c) Pollutants affected:
- d) Likelihood for long-term water quality benefits:
- e) Potential for any residual long-term influences on existing uses:
- f) Impairment of fish spawning, survival and development of aquatic fauna excluding fish removal efforts:

Additional justification, as needed:

Level II ADR

Part C, D, E, and F of the form constitute the Level II ADR Review. The applicant must provide as much detail as necessary for DWQ to perform the antidegradation review. Questions are provided for the convenience of applicants; however, for more complex permits it may be more effective to provide the required information in a separate report. Applicants that prefer a separate report should record the report name here and proceed to Part G of the form.

Optional Report Name:

Part C. Is the degradation from the project socially and economically necessary to accommodate important social or economic development in the area in which the waters are located? *The applicant must provide as much detail as necessary for DWQ to concur that the project is socially and economically necessary when answering the questions in this section. More information is available in Section 6.2 of the Implementation Guidance.*

C1. Describe the social and economic benefits that would be realized through the proposed project, including the number and nature of jobs created and anticipated tax revenues.

C2. Describe any environmental benefits to be realized through implementation of the proposed project.

C3. Describe any social and economic losses that may result from the project, including impacts to recreation or commercial development.

C4. Summarize any supporting information from the affected communities on preserving assimilative capacity to support future growth and development.

C5. Please describe any structures or equipment associated with the project that will be placed within or adjacent to the receiving water.

Part D. Identify and rank (from increasing to decreasing potential threat to designated uses) the parameters of concern. *Parameters of concern are parameters in the effluent at concentrations greater than ambient concentrations in the receiving water. The applicant is responsible for identifying parameter concentrations in the effluent and DWQ will provide parameter concentrations for the receiving water. More information is available in Section 3.3.3 of the Implementation Guidance.*

Parameters of Concern:

Rank	Pollutant	Ambient Concentration	Effluent Concentration
1			
2			
3			
4			
5			

Pollutants Evaluated that are not Considered Parameters of Concern:

Pollutant	Ambient Concentration	Effluent Concentration	Justification

Part E. Alternative Analysis Requirements of a Level II

Antidegradation Review. *Level II ADRs require the applicant to determine whether there are feasible less-degrading alternatives to the proposed project. More information is available in Section 5.5 and 5.6 of the Implementation Guidance.*

E1. The UPDES permit is being renewed without any changes to flow or concentrations. Alternative treatment and discharge options including changes to operations and maintenance were considered and compared to the current processes. No economically feasible treatment or discharge alternatives were identified that were not previously considered for any previous antidegradation review(s).

Yes (Proceed to Part F)

No or Does Not Apply (Proceed to E2)

E2. Attach as an appendix to this form a report that describes the following factors for all alternative treatment options (see 1) a technical description of the treatment process, including construction costs and continued operation and maintenance expenses, 2) the mass and concentration of discharge constituents, and 3) a description of the reliability of the system, including the frequency where recurring operation and maintenance may lead to temporary increases in discharged pollutants. Most of this information is typically available from a Facility Plan, if available.

Report Name:

E3. Describe the proposed method and cost of the baseline treatment alternative. The baseline treatment alternative is the minimum treatment required to meet water quality based effluent limits (WQBEL) as determined by the preliminary or final wasteload analysis (WLA) and any secondary or categorical effluent limits.

E4. Were any of the following alternatives feasible and affordable?

Alternative	Feasible	Reason Not Feasible/Affordable
Pollutant Trading	Yes	
Water Recycling/Reuse	Yes	
Land Application	Yes	
Connection to Other Facilities	Yes	
Upgrade to Existing Facility	Yes	
Total Containment	Yes	
Improved O&M of Existing Systems	Yes	
Seasonal or Controlled Discharge	Yes	
New Construction	Yes	
No Discharge	Yes	

E5. From the applicant's perspective, what is the preferred treatment option?

E6. Is the preferred option also the least polluting feasible alternative?

Yes

No

If no, what were less degrading feasible alternative(s)?

If no, provide a summary of the justification for not selecting the least polluting feasible alternative and if appropriate, provide a more detailed justification as an attachment.

Part F. Optional Information

F1. Does the applicant want to conduct optional public review(s) in addition to the mandatory public review? Level II ADRs are public noticed for a thirty day comment period. More information is available in Section 3.7.1 of the Implementation Guidance.

No

Yes

F2. Does the project include an optional mitigation plan to compensate for the proposed water quality degradation?

No

Yes

Report Name:

Part G. Certification of Antidegradation Review

G1. Applicant Certification

The form should be signed by the same responsible person who signed the accompanying permit application or certification.

Based on my inquiry of the person(s) who manage the system or those persons directly responsible for gathering the information, the information in this form and associated documents is, to the best of my knowledge and belief, true, accurate, and complete.

Print Name: David Spillman
Signature: David Spillman
Date: 2/2/16

G2. DWQ Approval

To the best of my knowledge, the ADR was conducted in accordance with the rules and regulations outlined in UAC R-317-2-3.

Water Quality Management Section

Print Name: _____
Signature: _____
Date: _____

