

STATEMENT OF BASIS AND FACT SHEET
MCWANE DUCTILE – UTAH, A DIVISION OF MCWANE, INC.
(Formerly Pacific States Cast Iron Pipe Company)
PERMIT: DISCHARGE & STORM WATER
UPDES RENEWAL PERMIT NUMBER: UT0000612
UPDES MULTI-SECTOR STORM WATER GENERAL PERMIT NUMBER: UTR000612
MINOR RENEWAL INDUSTRIAL

FACILITY CONTACTS

Person Name:	Kent Brown
Position:	Vice-President and General Manager
Person Name:	Scott Jarvis
Position:	Plant Manager
Person Name:	David Georgeson,
Position:	Environmental Manager
Person Name:	Holly Guerrero, P.E.
Position:	Environmental Engineer
Facility Name:	McWane Ductile - Utah
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Actual Address:	2550 South Industrial Parkway, in Provo

DESCRIPTION OF FACILITY

McWane Ductile - Utah (McWane) operates a ductile iron foundry; there is a landfill also located on site for disposal of non-hazardous solid waste. McWane operations are located at 2550 South Industrial Parkway, in Provo, Utah at latitude 40°N11'54" and longitude 111°W38'00". McWane Standard Industrial Classification (SIC) code is 3321 for cast iron foundries.

McWane produces cement lined ductile iron pipes used in the drinking water industry. Scrap iron is melted in a cupola furnace, poured into molding machines, cooled, then cement coated. Wastewater, contained on site, is generated from hydrostatic testing of the pipe and during the process of cement lining the pipe

Monitoring of copper, lead, and zinc was eliminated during a previous permit cycle based on data demonstrating that these metal concentrations were below the corresponding waste load analysis. To confirm that monitoring is still not required (and at Division of Water Quality's request), McWane provided recent representative samples of effluent from Outfall 001, all of which exhibited concentrations below detection for these metals.

When Reilly Industries did not renew its authorization to discharge to the Ironton Canal, the thermal load calculations were revised to reflect conditions. The thermal loading was, therefore, recalculated reflecting existing UPDES permit contributions and resulting in a revision to McWane authorized load allocation.

In an effort to better address the needs of the watershed and increase efficiency, the DWQ began consolidating permits. Therefore, in addition to the discharge provisions, the renewal permits for McWane have included provisions for storm water discharge. Accordingly, the storm water permit requirements (along with all monitoring obligations) for McWane (including the co-located landfill) are incorporated into this UPDES permit (and the required storm water pollution prevention plan).

CHANGES FROM THE PREVIOUS PERMIT

McWane collects groundwater for their use from springs in a reservoir on site that is referred to as the million gallon reservoir. The water flows over a weir and out of the reservoir to the Ironton Canal through there outfall structure. They take water from the reservoir and/or directly from the Ironton for use in the facility. They can blend both sources of water and manage the incoming temperature to prevent a system failure as a result of temperature shock from Ironton water during the winter. The process cooling water from the plant is also discharged to the reservoir.

The biggest control over how much water is discharged through the outfall is the natural groundwater flow rate into the reservoir. While McWane works to control the algae that grows in the reservoir, it is the source of the majority of total suspended solids (TSS) in the discharge. They have mentioned that during high spring runoff they have a hard time managing the flow rate and the algae that is discharged. McWane has requested that the TSS limit be expressed as (lbs/day). When calculating this out from the standard and McWane flow it comes to 729 lbs/day on average with a maximum of 1021 lbs/day.

Average	$25 \text{ mg/L}(3.5 \text{ MGD})(3.78 \text{ L/gal})(1\text{lbs}/453592 \text{ mg})= 729 \text{ lbs/day}$
Maximum	$35 \text{ mg/L}(3.5 \text{ MGD})(3.78 \text{ L/gal})(1\text{lbs}/453592 \text{ mg})= 1021 \text{ lbs/day}$

Based upon the 40 CFR 122 allowance for load based limits the request has been granted

McWane worked to improve the storm water treatment for the facility. They built a storm water basin on the west side of the yard where the pipe is stored after production and prior to shipping. This basin allows for collection of the storm water and runoff to be collected and sampled before discharge. It also allows for evaporation and infiltration of the water. This basin should reduce the overall storm water discharges from the facility. They also plan to acquire a portable treatment system to treat storm water and other spilled water onsite. The treated water will be collected and used for dust control on site. The acquisition and use of this system does not require design review or approval by DWQ.

During this permit cycle, McWane will be replacing casting equipment and other systems at the facility. In order to properly operate the machines they will be adding closed loop, non-contact cooling water systems for the equipment. This will require them to install cooling towers to maintain the system temperature. As they replace the old machines with new ones, more cooling tower units will be installed. The water for the towers will be drawn from the culinary water supply. It is anticipated that the overall discharge flow from Outfall 001 will be reduced from the system when the changes are complete.

Total dissolved solids (TDS) concentration is commonly increased as a result of use of cooling towers. The waste load allocation (WLA) for McWane has been generated with an expected TDS loading of 800 mg/L from the facility. This is above the current (550 mg/L) and expected (600 mg/L) TDS loading rate for the discharge. Both are also below the in stream concentration of 740 mg/L for TDS used to develop the WLA. Accordingly, issuance of this revised permit is not expected to cause or contribute to violation of water quality standards downstream.

The total residual chlorine limit (TRC) is based on the acute TRC water quality standard at end-of-pipe, and is added to this permit with the addition of the cooling towers. This effluent limit is below the minimum quantification level (MQL) of the most common and practical EPA approved TRC methods. The Division has determined the current acceptable MQL to be 0.06 mg/L and the method detection limit (MDL) to be 0.02 mg/L when using the DPD colorimetric Method #4500 – CL G. Measured values greater than or equal to the MQL of 0.06 mg/l will be considered violations of the permit, and values less than the MQL of 0.06 mg/l will be considered to be in compliance with the permit. For purposes of calculating averages and reporting on the Discharge Monitoring Report form, the following will apply:

- 1) Analytical values less than 0.02 mg/L shall be considered zero; and

- 2) Analytical values less than 0.06 mg/L and equal to or greater than 0.02 mg/L will be recorded as measured.

McWane has completed a Level II anti-degradation review (ADR) in anticipation of the system changes. The ADR addressed the changes in TDS and TRC loading. The determination from the ADR is that the investments in the cooling towers and improvements with the discharge will not negatively impact the designated uses of the Ironton Canal and later Provo Bay.

DISCHARGE

DESCRIPTION OF DISCHARGE

McWane has been reporting self-monitoring results on Discharge Monitoring Reports on a monthly basis. A summary of 3 years of data is included at the end of the Fact Sheet and there were no discharge violations.

McWane' authorized discharges of process water are generated from the non-contact cooling of the cupola and casting machines, i.e., the "cooling water," which is discharged into an on-site holding pond. The cooling water is mixed in the holding pond with water from the Boardman spring, and discharges from the pond to the Ironton Canal are permitted as Outfall 001.

The cooling water is conditioned to prevent corrosion in the system. They currently use a product known as Inhibitor ISI 8220. The dosing concentrations of the additive were not to exceed 5.0 parts per million (ppm) in the plant effluent discharge to the Ironton Canal, and there has been no evidence of any impact from the use. DWQ staff examined the product's chemical properties and environmental data. The resultant concentration of product in the Ironton Canal was determined to have minimal ecological impact.

While using the corrosion inhibitor, DWQ requested that McWane increase the effluent pH monitoring frequency for pH levels to weekly this change has been carried over and incorporated into the new permit.

If the concentration of the additive exceeds 5.0 ppm in the discharge during any 24-hour period, this approval will be void. McWane will take measures to prevent over-application of the inhibitor. If applicable, McWane could be subject to enforcement for any violation of the Narrative Water Quality standards or other regulations pertaining to this or other discharge of pollutants to the receiving water. The permittee is liable for any adverse water quality impacts from use of treatment chemicals pursuant to the Narrative Standard. If the inhibitor use needs to be adjusted or changed during the new permit cycle, the changes will follow the same process as they did for the current product, and approval will be granted or denied in writing.

McWane currently operates a closed system for all other process water generated from its operations. This process water, referred to as "basement water," originates underneath the pipe mold casting machines in a basement or cellar to cool "over-iron" during production. This water is circulated through on-site holding ponds (distinct from the holding pond associated with the UPDES discharge of the noncontact cooling and spring water) and reintroduced to the basement. There are no outfalls associated with "basement water." McWane is currently working with the Division of Water Quality to evaluate alternative process water management systems that may include active treatment and discharge to a publicly owned treatment works (POTW) or to receiving water. These projects, along with potential permit changes associated with other possible operational changes, could result in permit modifications or additions during this permit term.

<u>Outfall</u>	<u>Description of Discharge Point</u>
001	Located at latitude 40°11'59" and longitude 111°37'52". The discharge flows into Ironton Canal thence into the Utah Lake. The Ironton Canal is classified 2B, 3C and 4 at this location according to <i>Utah Administrative Code (UAC) R317-2-13..</i>

RECEIVING WATERS AND STREAM CLASSIFICATION

The final discharge flows into Ironton Canal thence into the Utah Lake. The Ironton Canal is classified 2B, 3C and 4 at this location according to *Utah Administrative Code (UAC) R317-2-13....*

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

The total suspended solids (TSS) and pH limits are based on current Utah Secondary Treatment Standards, *UAC R317-1-3.2*. Based on Best Professional Judgment (BPJ), oil and grease shall not be monitored unless sheen on the effluent is visible. If an oil and grease sample is taken, it shall not exceed 10 mg/L as a daily maximum.

DWQ has evaluated the temperature of the noncontact cooling water discharge from Outfall 001. Utah water quality standards for the receiving waters, i.e., *UAC R317-2-14, Table 2.14.2*, limit temperature to the maximum in the stream of 27°C and no more than a 4°C temperature change. The permittee will monitor Temperature (T_{eff} , °F) and flow (Q_{eff} , MGD) and will calculate the thermal discharge according to the following equations:

$$\text{Summer} \quad T_{eff} \leq 109.56 * (Q_{eff}^{-0.229})$$

$$\text{Fall} \quad T_{eff} \leq 112.46 * (Q_{eff}^{-0.291})$$

$$\text{Spring} \quad T_{eff} \leq 99.18 * (Q_{eff}^{-0.336})$$

$$\text{Winter} \quad T_{eff} \leq 103.43 * (Q_{eff}^{-0.228})$$

Based on effluent monitoring data and the existing treatment facility, the permittee is expected to be able to comply with these limitations. The Wasteload Analysis indicates that these limitations should be sufficiently protective of water quality, in order to meet State standards in the receiving waters.

Parameter	Effluent Limitations			
	Monthly Average	Weekly Maximum	Daily Min.	Daily Max.
Flow, MGD	3.5	NA	NA	NA
TSS, lb/day	729	1021	NA	NA
TDS ^{6,7} , mg/l	NA	NA	NA	1200
TRC, mg/l				
Summer	0.026	0.047	NA	NA
Fall	0.031	0.054	NA	NA
Winter	0.03	0.054	NA	NA
Spring	0.026	0.045	NA	NA
pH, Standard Units	NA	NA	6.5	9.0
Oil & Grease ⁵ , mg/L	NA	NA	NA	10
Thermal ⁴ , °F				
Summer, $T_{eff}/(Q_{eff}^{-0.229})$	NA	NA	NA	109.6
Fall, $T_{eff}/(Q_{eff}^{-0.291})$	NA	NA	NA	112.5
Winter, $T_{eff}/(Q_{eff}^{-0.336})$	NA	NA	NA	99.2
Spring, $T_{eff}/(Q_{eff}^{-0.228})$	NA	NA	NA	103.4

NA – Not Applicable.

SELF-MONITORING AND REPORTING REQUIREMENTS

The following self-monitoring requirements are the same as in the previous permit. The permit will require reports to be submitted monthly and quarterly, as applicable, on Discharge Monitoring Report (DMR) forms due 28 days after the end of the monitoring period. Lab sheets for biomonitoring must be attached to the biomonitoring DMR.

Parameter	Frequency	Sample Type	Units
Flow	Weekly	Reading	MGD
TRC, Effluent ^{6,7}	Weekly	Grab	mg/L
TSS, Effluent	Monthly	Grab	mg/L
TDS, Effluent	Monthly	Grab	mg/L
Temperature ⁴	Weekly	Grab	°F
Oil & Grease ⁵	Monthly	Grab	mg/L
pH	Weekly	Grab	SU

¹See Definitions in Part VI of the permit.

⁴ Thermal Loading
 The thermal discharge shall be calculated using the following equations where effluent temperature, T_{eff} , and flow, Q_{eff} , are variable:

$$\text{Summer } T_{eff} \leq 109.56 * (Q_{eff}^{-0.229}) \Rightarrow \frac{T_{eff}}{Q_{eff}^{-0.229}} \leq 109.56$$

$$\text{Fall } T_{eff} \leq 112.46 * (Q_{eff}^{-0.291}) \Rightarrow \frac{T_{eff}}{Q_{eff}^{-0.291}} \leq 112.46$$

$$\text{Spring } T_{eff} \leq 99.18 * (Q_{eff}^{-0.336}) \Rightarrow \frac{T_{eff}}{Q_{eff}^{-0.336}} \leq 99.18$$

Winter $T_{eff} \leq 103.43 * (Q_{eff}^{-0.228}) \Rightarrow \frac{T_{eff}}{Q_{eff}^{-0.228}} \leq 103.43$

5 Sample only if sheen is observed. If no sheen observed, report 0

6 Sample only if Chlorine has been used, otherwise report 0.

7 Analytical results less than 0.06 mg/l will not be considered out of compliance with the permit. For purposes of calculating averages and reporting on the Discharge Monitoring Report form, the following will apply:

- 1) Analytical values less than 0.02 mg/L shall be considered zero; and
- 2) Analytical values less than 0.06 mg/L and equal to or greater than 0.02 mg/L will be recorded as measured.

TMDL REQUIREMENTS

McWane discharges process water into Utah Lake through the Ironton Canal, which has been identified as impaired for total dissolved solids (TDS) and total phosphorus (TP) based on the 1998, 303(d) assessment process as defined in the Clean Water Act. As required under federal regulation a total maximum daily load (TMDL) will be developed for all impaired waters. The TMDL will focus on developing limitations for those parameters of concern (POC) that were identified during the 305(b) and 303(d) assessment processes. POC's are parameters that are in violation of water quality standards or that contribute to impairment of a beneficial use (a major component of the water quality standards). As noted in the "Changes from Previous Permit" section above, the TDS values discharged are expected to be below ambient values in the receiving stream thus not causing or contributing to a violation of downstream water quality standards.

Currently, a TMDL evaluation is underway for the Utah Lake. If the results of the TMDL process establish effluent limits for any of the POC's, then it would be required by (40 CFR Part 130) to include these effluent limits in the UPDES permit. Therefore, it is strongly recommended that the facility staff participate in the TMDL development process. The staff at the Division of Water Quality will be responsible for scheduling and notifying appropriate facility personnel regarding TMDL meetings. Please contact your UPDES permit writer for information on scheduled TMDL meetings.

STORM WATER

STORMWATER REQUIREMENTS

Storm water provisions are included in this combined UPDES permit.

The storm water requirements are based on the UPDES Multi-Sector General Permit for Storm Water Discharges for Industrial Activity, General Permit No. UTR000000 (MSGP). 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. Elements of this plan are required to include:

1. The development of a pollution prevention team:
2. Development of drainage maps and materials stockpiles:
3. An inventory of exposed materials:

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.

Analytical sampling is required during the second and fourth year of the permit as list in Part II. E.1.f. of the permit.

PRETREATMENT REQUIREMENTS

Any process wastewater that the facility may discharge to the sanitary sewer, either as 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 section 403, the State 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 (WET) 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*.

McWane is a minor industrial facility that discharges non-contact cooling water, in which toxicity is not likely to be present. Based on these considerations, there is no reasonable potential for toxicity in McWane' discharge (per *State of Utah Permitting and Enforcement Guidance Document for WET Control*). As such, there will be no numerical WET limitations or WET monitoring requirements in this permit. However, the permit will contain a toxicity limitation re-opener provision that allows for modification of the permit should additional information indicate the presence of toxicity in the discharge.

PERMIT DURATION

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

Drafted by
Daniel Griffin, Discharge
Mike George, Storm Water
Utah Division of Water Quality

ADDENDUM TO STATEMENT OF BASIS AND FACT SHEET

A public notice for the draft permit was published in The Provo Daily Herald August 11, 2014. The comment period ended on September 10, 2014. The bulk of the comments were minor spelling or date

corrections which were made and are summarized in the section below. One major comment was submitted regarding issues with the TRC limit. This comment and response resulted in changes that require that the permit and FSSOB being re-public noticed.

Responsiveness Summary

During the process of responding to comments, Pacific States submitted notice that the company will be changing their name, effective January 25th, 2015, and requested the permit and records be updated accordingly. The new name for the Permittee is McWane Ductile – Utah. It will frequently be referred to as McWane or McWane Utah in documents and correspondence from here on.

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

However, one substantial comment was received during the Public Notice period. This comment refers to the TRC limit for the permit being so low that it is at or below the sensitivity of the approved analytical test used. Similar comments were received on this item during the PN period for other permits this past year. As a result, the Division of Water Quality determined there is a need for a policy dealing with the discrepancy between TRC Limits, method detection limits (MDL), and minimum quantification levels (MQL).

The TRC limit is based on the acute TRC water quality standard at end-of-pipe, and is retained from the previous permit. This effluent limit is below the MQL of the most common and practical EPA approved TRC methods. The Division has determined the current acceptable MQL to be 0.06 mg/L and the MDL to be 0.02 mg/L when using the DPD colorimetric Method #4500 – CL G. Measured values greater than or equal to the MQL of 0.06 mg/l will be considered violations of the permit, and values less than the MQL of 0.06 mg/l will be considered to be in compliance with the permit. For purposes of calculating averages and reporting on the Discharge Monitoring Report form, the following will apply:

- 1) Analytical values less than 0.02 mg/L shall be considered zero; and
- 2) Analytical values less than 0.06 mg/L and equal to or greater than 0.02 mg/L will be recorded as measured.

A second public notice for the draft permit was published in The Provo Daily Herald on January 28, 2015. The comment period ended on February 27, 2015. No Comments were received during this period.

STATE OF UTAH
DIVISION OF WATER QUALITY
DEPARTMENT OF ENVIRONMENTAL QUALITY
SALT LAKE CITY, UTAH

AUTHORIZATION TO DISCHARGE UNDER THE
UTAH POLLUTANT DISCHARGE ELIMINATION SYSTEM (UPDES)

Minor Industrial Permit No. **UT0000612**
Storm Water Permit No. **UTR000612**

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

MCWANE DUCTILE – UTAH, A DIVISION OF MCWANE, INC
(Formerly Pacific States Cast Iron Pipe Company)

is hereby authorized to discharge from its facility located in Provo, Utah with the outfall located at latitude 40°11'59" and longitude 111°37'52", to receiving waters named

Ironton Canal

in accordance with discharge points, effluent limitations, monitoring requirements and other conditions set forth herein.

This permit shall become effective on April 1st, 2015

This permit and the authorization to discharge shall expire at midnight, March 31st, 2019

Signed this 5 day of March 2015.



Walter L. Baker, P.E.
Director

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I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Description of Discharge Point.

The authorization to discharge wastewater provided under this part is limited to those outfalls specifically designated below as discharge locations. Discharges at any location not authorized under a UPDES permit are violations of the *Act* and may be subject to penalties under the *Act*. Knowingly discharging from an unauthorized location or failing to report an unauthorized discharge may be subject to criminal penalties as provided under the *Act*.

<u>Outfall Number</u>	<u>Location of Surface Water Discharge Points</u>
001	Located at latitude 40°11'59" and longitude 111°37'52". The discharge flows into Ironton Canal thence into the Utah Lake. The Ironton Canal is classified 2B, 3C and 4 at this location according to <i>Utah Administrative Code (UAC) R317-2-13</i> .

B. Narrative Standard.

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

C. Specific Limitations and Self-Monitoring Requirements

1. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from Outfall #001. Such discharges shall be limited and monitored by the permittee as specified below:

The permit limitations for Outfall 001:

Parameter	Effluent Limitations			
	Monthly Average	Weekly Maximum	Daily Min.	Daily Max.
Flow, MGD	3.5	NA	NA	NA
TSS, lb/day	729	1021	NA	NA
TDS, mg/l	NA	NA	NA	1200
TRC ^{6,7} , mg/l				
Summer	0.026	0.047	NA	NA
Fall	0.031	0.054	NA	NA
Winter	0.03	0.054	NA	NA
Spring	0.026	0.045	NA	NA
pH, Standard Units	NA	NA	6.5	9.0
Oil & Grease ⁵ , mg/L	NA	NA	NA	10
Thermal ⁴ , °F				
Summer, $T_{eff} / (Q_{eff}^{-0.229})$	NA	NA	NA	109.6
Fall, $T_{eff} / (Q_{eff}^{-0.291})$	NA	NA	NA	112.5
Winter, $T_{eff} / (Q_{eff}^{-0.336})$	NA	NA	NA	99.2
Spring, $T_{eff} / (Q_{eff}^{-0.228})$	NA	NA	NA	103.4

NA – Not Applicable.

Self-Monitoring and Reporting Requirements ¹			
Parameter	Frequency	Sample Type	Units
Flow ^{2,3}	Weekly	Reading	MGD
TRC, Effluent ^{6,7}	Weekly	Grab	mg/L
TSS, Effluent	Monthly	Grab	mg/L
TDS, Effluent	Monthly	Grab	mg/L
Temperature ⁴	Weekly	Grab	°F
Oil & Grease ⁵	Monthly	Grab	mg/L
pH	Weekly	Grab	SU

¹ See Definitions in *Part VI* of the permit.

² Flow measurements of effluent volume shall be made in such a manner that the permittee can affirmatively demonstrate that representative values are being obtained.

³ If the rate of discharge is controlled, the rate and duration of discharge shall be reported.

⁴ Thermal Loading

The thermal discharge shall be calculated using the following equations where effluent temperature, T_{eff} , and flow, Q_{eff} , are variable:

$$\text{Summer} \quad T_{eff} \leq 109.56 * (Q_{eff}^{-0.229}) \Rightarrow \frac{T_{eff}}{Q_{eff}^{-0.229}} \leq 109.56$$

$$\text{Fall} \quad T_{eff} \leq 112.46 * (Q_{eff}^{-0.291}) \Rightarrow \frac{T_{eff}}{Q_{eff}^{-0.291}} \leq 112.46$$

Spring $T_{eff} \leq 99.18 * (Q_{eff}^{-0.336}) \Rightarrow \frac{T_{eff}}{Q_{eff}^{-0.336}} \leq 99.18$

Winter $T_{eff} \leq 103.43 * (Q_{eff}^{-0.228}) \Rightarrow \frac{T_{eff}}{Q_{eff}^{-0.228}} \leq 103.43$

- ⁵ Sample only if sheen is observed. If no sheen observed, report 0
- ⁶ Sample only if Chlorine has been used, otherwise report 0.
- ⁷ Analytical results less than 0.06 mg/l will not be considered out of compliance with the permit. For purposes of calculating averages and reporting on the Discharge Monitoring Report form, the following will apply:
- 1) Analytical values less than 0.02 mg/L shall be considered zero; and
 - 2) Analytical values less than 0.06 mg/L and equal to or greater than 0.02 mg/L will be recorded as measured.

There shall be no visible sheen or floating solids or visible foam in other than trace amounts.

There shall be no discharge of sanitary wastes.

- D. Reporting of Wastewater Monitoring Results. Monitoring results obtained during the previous month shall be summarized for each quarter and reported on a Discharge Monitoring Report Form (EPA No. 3320-1) or by NetDMR, post-marked or entered into NetDMR no later than the 28th day of the month following the completed reporting period. The first report is due on May 28, 2015. If no discharge occurs during the reporting period, “no discharge” shall be reported. Legible copies of these, and all other reports including whole effluent toxicity (WET) test reports required herein, shall be signed and certified in accordance with the requirements of *Signatory Requirements (see Part VII.G)*, and submitted by NetDMR, or hard copy to the Division of Water Quality at the following address:

Department of Environmental Quality
Division of Water Quality
PO Box 144870
Salt Lake City, Utah 84114-4870

II. STORM WATER DISCHARGE REQUIREMENTS

A. Coverage of This Section. The permittee is authorized to discharge stormwater from the facility in accordance with the requirements listed under this section shall apply to storm water discharges.

1. Discharges Covered Under This Section. The requirements listed under this section shall apply to storm water discharges from the industrial facility and all co-located industrial activities

a. Site Coverage. This section covers discharges of storm water associated with industrial activity and co-located industrial activities to waters of the State from the confines of the facility listed on the cover page. Specific monitoring requirements have been included and are based on the requirements of the UPDES Multi Sector General Permit for Storm Water Discharges Associated with Industrial Activity, Permit No. UTR000000.

B. Prohibition of Non-Storm Water Discharges. Except for discharges identified in *Part I*, and discharges described below in this paragraph, non-storm water discharges are prohibited.

1. The following non-storm water discharges are authorized under this permit provided the non-storm water component of the discharge is in compliance with this section;

- a. discharges from firefighting activities; fire hydrant flushing;
- b. potable water sources including waterline flushing;
- c. drinking fountain water; irrigation drainage and lawn watering;
- d. routine external building wash down water where detergents or other compounds have not been used in the process;
- e. pavement wash waters where spills or leaks of toxic or hazardous materials (including oils and fuels) have not occurred (unless all spilled material has been removed) and where detergents are not used;
- f. air conditioning condensate;
- g. uncontaminated compressor condensate;
- h. uncontaminated springs;
- i. uncontaminated ground water;
- j. and foundation or footing drains where flows are not contaminated with process materials such as solvents.

C. Storm Water Pollution Prevention Plan Requirements. The permittee must have (on site) or develop and implement a storm water pollution prevention plan as a condition of this permit.

1. Contents of the Plan. The plan shall include, at a minimum, the following items:

a. Pollution Prevention Team. Each plan shall identify a specific individual or individuals within the facility organization as members of a storm water Pollution Prevention Team who are responsible for developing the storm water pollution prevention plan and assisting the facility or plant manager in its implementation, maintenance, and revision. The plan shall clearly

identify the responsibilities of each team member. The activities and responsibilities of the team shall address all aspects of the facility's storm water pollution prevention plan.

- b. Description of Potential Pollutant Sources. Each plan shall provide a description of potential sources which may reasonably be expected to add significant amounts of pollutants to storm water discharges or which may result in the discharge of pollutants during dry weather from separate storm sewers draining the facility. Each plan shall identify all activities and significant materials, which may be reasonably expected to have the potential as a significant pollutant source. Each plan shall include, at a minimum:
 2. Drainage. A site map indicating drainage areas and storm water outfalls. For each area of the facility that generates storm water discharges associated with the waste water treatment related activity with a reasonable potential for containing significant amounts of pollutants, a prediction of the direction of flow and an identification of the types of pollutants that are likely to be present in storm water discharges associated with the activity. Factors to consider include the toxicity of the pollutant; quantity of chemicals used, produced or discharged; the likelihood of contact with storm water; and history of significant leaks or spills of toxic or hazardous pollutants. Flows with a significant potential for causing erosion shall be identified. The site map shall include but not be limited to:
 - a. Drainage direction and discharge points from all wastewater associated activities including but not limited to grit screen cleaning, bio-solids drying beds and transport, chemical/material loading, unloading and storage areas, vehicle maintenance areas, salt or sand storage areas.
 - b. Location of any erosion and sediment control structure or other control measures utilized for reducing pollutants in storm water runoff.
 - c. Location of bio-solids drying beds where exposed to precipitation or where the transportation of bio-solids may be spilled onto internal roadways or tracked off site.
 - d. Location where grit screen cleaning or other routinely performed industrial activities are located and are exposed to precipitation.
 - e. Location of any handling, loading, unloading or storage of chemicals or potential pollutants such as caustics, hydraulic fluids, lubricants, solvents or other petroleum products, or hazardous wastes and where these may be exposed to precipitation.
 - f. Locations where any major spills or leaks of toxic or hazardous materials have occurred.
 - g. Location of any sand or salt piles.
 - h. Location of fueling stations or vehicle and equipment maintenance and cleaning areas that are exposed to precipitation.

- i. Location of receiving streams or other surface water bodies.
 - j. Locations of outfalls and the types of discharges contained in the drainage areas of the outfalls.
3. Inventory of Exposed Materials. An inventory of the types of materials handled at the site that potentially may be exposed to precipitation. Such inventory shall include a narrative description of significant materials that have been handled, treated, stored or disposed in a manner to allow exposure to storm water between the time of 3 years prior to the effective date of this permit and the present; method and location of onsite storage or disposal; materials management practices employed to minimize contact of materials with storm water runoff between the time of 3 years prior to the effective date of this permit and the present; the location and a description of existing structural and nonstructural control measures to reduce pollutants in storm water runoff; and a description of any treatment the storm water receives.
 4. Spills and Leaks. A list of significant spills and significant leaks of toxic or hazardous pollutants that occurred at areas that are exposed to precipitation or that otherwise drain to a storm water conveyance at the facility after the date of 3 years prior to the effective date of this permit. Such list shall be updated as appropriate during the term of the permit.
 5. Sampling Data. A summary of existing discharge sampling data describing pollutants in storm water discharges from the facility, including a summary of sampling data collected during the term of this permit.
 6. Summary of Potential Pollutant Sources and Risk Assessment. A narrative description of the potential pollutant sources from the following activities associated with treatment works: access roads/rail lines; loading and unloading operations; outdoor storage activities; material handling sites; outdoor vehicle storage or maintenance sites; significant dust or particulate generating processes; and onsite waste disposal practices. Specific potential pollutants shall be identified where known.
 7. Measures and Controls. The facility shall develop a description of storm water management controls appropriate for the facility, and implement such controls. The appropriateness and priorities of controls in a plan shall reflect identified potential sources of pollutants at the facility. The description of storm water management controls shall address the following minimum components, including a schedule for implementing such controls:
 8. Good Housekeeping. All areas that may contribute pollutants to storm waters discharges shall be maintained in a clean, orderly manner. These are practices that would minimize the generation of pollutants at the source or before it would be necessary to employ sediment ponds or other control measures at the discharge outlets. Areas where good housekeeping practices should be implemented are storage areas for raw materials, waste materials and finished products; loading/unloading areas and waste disposal areas for hazardous and non-hazardous wastes. Examples of good housekeeping measures include;

sweeping; labeling drums containing hazardous materials; and preventive monitoring practices or equivalent measures.

9. Preventive Maintenance. A preventive maintenance program shall involve timely inspection and maintenance of storm water management devices (e.g., cleaning oil/water separators, catch basins) as well as inspecting and testing facility equipment and systems to uncover conditions that could cause breakdowns or failures resulting in discharges of pollutants to surface waters, and ensuring appropriate maintenance of such equipment and systems.
10. Spill Prevention and Response Procedures. Areas where potential spills that can contribute pollutants to storm water discharges can occur, and their accompanying drainage points, shall be identified clearly in the storm water pollution prevention plan. Where appropriate, specifying material handling procedures, storage requirements, and use of equipment such as diversion valves in the plan should be considered. Procedures and equipment for cleaning up spills shall be identified in the plan and made available to the appropriate personnel.
11. Inspections. In addition to the comprehensive site evaluation required under paragraph D. of this part, qualified facility personnel shall be identified to inspect designated equipment and areas of the facility on a periodic basis. The following areas shall be included in all inspections: loading and unloading areas for all significant materials; storage areas, including associated containment areas; waste management units; and vents and stacks from industrial activities. A set of tracking or follow-up procedures shall be used to ensure that appropriate actions are taken in response to the inspections. Records of inspections shall be maintained. The use of a checklist developed by the facility is encouraged.
12. Employee Training. Employee training programs shall inform personnel responsible for implementing activities identified in the storm water pollution prevention plan or otherwise responsible for storm water management at all levels of responsibility of the components and goals of the storm water pollution prevention plan. Training should address topics such as spill response, good housekeeping and material management practices. The pollution prevention plan shall identify how often training will take place, but training should be held at least annually (once per calendar year). Employee training must, at a minimum, address the following areas when applicable to a facility: petroleum product management; process chemical management; spill prevention and control; fueling procedures; general good housekeeping practices; proper procedures for using fertilizers, herbicides and pesticides.
13. Record keeping and Internal Reporting Procedures. A description of incidents (such as spills, or other discharges), along with other information describing the quality and quantity of storm water discharges shall be included in the plan required under this part. Inspections and maintenance activities shall be documented and records of such activities shall be incorporated into the plan.
14. Non-storm Water Discharges.

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- a. Certification. The plan shall include a certification that the discharge has been tested or evaluated for the presence of non-storm water discharges. The certification shall include the identification of potential significant sources of non-storm water at the site, a description of the results of any test and/or evaluation for the presence of non-storm water discharges, the evaluation criteria or testing method used, the date of any testing and/or evaluation, and the onsite drainage points that were directly observed during the test. Certifications shall be signed in accordance with *Part V.G* of this permit.
 - b. Exceptions. Except for flows from firefighting activities, sources of non-storm water listed in *Part II.B. (Prohibition of Non-storm Water Discharges)* of this permit that are combined with storm water discharges associated with industrial activity must be identified in the plan. The plan shall identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge.
 - c. Failure to Certify. Any facility that is unable to provide the certification required (testing for non-storm water discharges), must notify the *Director* within 180 days after the effective date of this permit. If the failure to certify is caused by the inability to perform adequate tests or evaluations, such notification shall describe: the procedure of any test conducted for the presence of non-storm water discharges; the results of such test or other relevant observations; potential sources of non-storm water discharges to the storm sewer; and why adequate tests for such storm sewers were not feasible. Non-storm water discharges to waters of the State, which are not, authorized by a *UPDES* permit are unlawful, and must be terminated.
15. Sediment and Erosion Control. The plan shall identify areas, which, due to topography, activities, or other factors, have a high potential for significant soil erosion, and identify structural, vegetative, and/or stabilization measures to be used to limit erosion.
 16. Management of Runoff. The plan shall contain a narrative consideration of the appropriateness of traditional storm water management practices (practices other than those which control the generation or source(s) of pollutants) used to divert, infiltrate, reuse, or otherwise manage storm water runoff in a manner that reduces pollutants in storm water discharges from the site. The plan shall provide that measures that the permittee determines to be reasonable and appropriate shall be implemented and maintained. The potential of various sources at the facility to contribute pollutants to storm water discharges associated with industrial activity *Part II.C.1.b (Description of Potential Pollutant Sources)* of this permit] shall be considered when determining reasonable and appropriate measures. Appropriate measures or other equivalent measures may include: vegetative swales and practices, reuse of collected storm water (such as for a process or as an irrigation source), inlet controls (such as oil/water separators), snow management activities, infiltration devices, wet detention/retention devices and discharging storm water through the waste water facility for treatment.
- D. Comprehensive Site Compliance Evaluation. Qualified personnel shall conduct site compliance evaluations at appropriate intervals specified in the plan, but in no case less than once a year. Such evaluations shall provide:

1. Areas contributing to a storm water discharge associated with industrial activity shall be visually inspected for evidence of, or the potential for, pollutants entering the drainage system. Measures to reduce pollutant loadings shall be evaluated to determine whether they are adequate and properly implemented in accordance with the terms of the permit or whether additional control measures are needed. Structural storm water management measures, sediment and erosion control measures, and other structural pollution prevention measures identified in the plan shall be observed to ensure that they are operating correctly. A visual inspection of equipment needed to implement the plan, such as spill response equipment, shall be made.
 2. Based on the results of the evaluation, the description of potential pollutant sources identified in the plan in accordance with *Part II.C.1.b* (Description of Potential Pollutant Sources) of this section and pollution prevention measures and controls identified in the plan in accordance with *Part II.C.7* (Measures and Controls) of this section shall be revised as appropriate within 2 weeks of such evaluation and shall provide for implementation of any changes to the plan in a timely manner, but in no case more than 12 weeks after the evaluation.
 3. A report summarizing the scope of the evaluation, personnel making the evaluation, the date(s) of the evaluation, major observations relating to the implementation of the storm water pollution prevention plan, and actions taken in accordance with paragraph *i.* (above) shall be made and retained as part of the storm water pollution prevention plan for at least 3 years after the date of the evaluation. The report shall identify any incidents of noncompliance. Where a report does not identify any incidents of noncompliance, the report shall contain a certification that the facility is in compliance with the storm water pollution prevention plan and this permit. The report shall be signed in accordance with *Part V.G* (Signatory Requirements) of this permit.
 4. *Deadlines for Plan Preparation and Compliance.* The permittee shall prepare and implement a plan in compliance with the provisions of this section within 270 days of the effective date of this permit. If the permittee already has a plan, it shall be revised according to *Part II.D*, Comprehensive Site Evaluation.
 5. *Keeping Plans Current.* The permittee shall amend the plan whenever there is a change in design, construction, operation, or maintenance, that has a significant effect on the potential for the discharge of pollutants to the waters of the state or if the storm water pollution prevention plan proves to be ineffective in eliminating or significantly minimizing pollutants from sources identified by the plan, or in otherwise achieving the general objective of controlling pollutants in storm water discharges associated with the activities at the facility.
- E. Monitoring and Reporting Requirements.
1. Quarterly Visual Examination of Storm Water Quality. Facilities shall perform and document a visual examination of a storm water discharge associated with industrial activity from each outfall, except discharges exempted below. The examination must be made at least once in each of the following designated periods during daylight hours unless there is insufficient rainfall or snow melt to

produce a runoff event: January through March; April through June; July through September; and October through December.

- a. Sample and Data Collection. Examinations shall be made of samples collected within the first 30 minutes (or as soon thereafter as practical, but not to exceed 1 hour) of when the runoff or snowmelt begins discharging. The examinations shall document observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution. The examination must be conducted in a well-lit area. No analytical tests are required to be performed on the samples. All such samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. Where practicable, the same individual should carry out the collection and examination of discharges for entire permit term.
- b. Visual Storm Water Discharge Examination Reports. Visual examination reports must be maintained onsite in the pollution prevention plan. The report shall include the examination date and time, examination personnel, the nature of the discharge (i.e., runoff or snow melt), visual quality of the storm water discharge (including observations of color, odor, clarity, floating solids, settled solids, suspended solids, foam, oil sheen, and other obvious indicators of storm water pollution), and probable sources of any observed storm water contamination.
- c. Representative Discharge. When the permittee has two or more outfalls that, based on a consideration of industrial activity, significant materials, and management practices and activities within the area drained by the outfall, the permittee reasonably believes discharge substantially identical effluents, the permittee may collect a sample of effluent of one of such outfalls and report that the observation data also applies to the substantially identical outfall(s) provided that the permittee includes in the storm water pollution prevention plan a description of the location of the outfalls and explains in detail why the outfalls are expected to discharge substantially identical effluents. In addition, for each outfall that the permittee believes is representative, an estimate of the size of the drainage area (in square feet) and an estimate of the runoff coefficient of the drainage area [e.g., low (under 40 percent), medium (40 to 65 percent), or high (above 65 percent)] shall be provided in the plan.
- d. Adverse Conditions. When a discharger is unable to collect samples over the course of the visual examination period as a result of adverse climatic conditions, the discharger must document the reason for not performing the visual examination and retain this documentation onsite with the results of the visual examination. Adverse weather conditions, which may prohibit the collection of samples, include weather conditions that create dangerous conditions for personnel (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.) or otherwise make the collection of a sample impracticable (drought, extended frozen conditions, etc.).

- e. Inactive and Unstaffed Site. When a discharger is unable to conduct visual storm water examinations at an inactive and unstaffed site, the operator of the facility may exercise a waiver of the monitoring requirement as long as the facility remains inactive and unstaffed. The facility must maintain a certification with the pollution prevention plan stating that the site is inactive and unstaffed so that performing visual examinations during a qualifying event is not feasible.
- f. Analytical Monitoring Requirements. During the odd numbered calendar years of the permit the facility must monitor their storm water discharges associated with industrial activity at least quarterly (4 times per year) except as provided in paragraphs of this section titled (Sampling Waiver), (Representative Discharge), and (Alternative Certification). The facility is required to monitor their storm water discharges for the pollutants of concern listed in the table below. Facilities must report in accordance with the (Reporting) section. In addition to the parameters listed in the table, the permittee shall provide the date and duration (in hours) of the storm event(s) sampled; rainfall measurements or estimates (in inches) of the storm event that generated the sampled runoff; the duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event; and an estimate of the total volume (in gallons) of the discharge sampled.

Iron and Steel Foundries (SIC 332) Monitoring Requirements

Pollutants of Concern	Benchmark Monitoring Cut-Off Concentration
Total Recoverable Aluminum	0.75 mg/L
Total Suspended Solids	100 mg/L
Total Recoverable Copper	0.0636 mg/L
Total Recoverable Iron	1 mg/L
Total Recoverable Zinc	0.117 mg/L

- g. Monitoring Periods. The facility shall monitor samples collected during the sampling periods of: January to March, April to June, July to September, and October to December for the years specified in paragraph above. The facility shall summarize all monitoring data for the calendar years on a storm water discharge monitoring report (SWDMR). The facility shall submit the SWDMR to DWQ by March 31 of the following year at the address listed in Part III D (Reporting of Monitoring Results).
- h. Sample Type. A minimum of one grab sample shall be taken. All such samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. The required 72-hour storm event interval is waived where the preceding measurable storm event did not result in a measurable discharge from the facility. The required 72-hour storm event interval may also be waived where the permittee documents that less than a 72-hour interval is representative for local storm events during the season when sampling is being conducted. The grab sample shall be taken during the first 30 minutes

of the discharge. If the collection of a grab sample during the first 30 minutes is impracticable, a grab sample can be taken during the first hour of the discharge, and the discharger shall submit with the monitoring report a description of why a grab sample during the first 30 minutes was impracticable. If storm water discharges associated with industrial activity commingle with process or non-process water, then where practicable permittees must attempt to sample the storm water discharge before it mixes with the non-storm water discharge.

i. Sampling Waiver

- (1) Adverse Conditions. When a discharger is unable to collect samples within a specified sampling period due to adverse climatic conditions, the discharger shall collect a substitute sample from a separate qualifying event in the next period and submit the data along with data for the routine sample in that period. Adverse weather conditions that may prohibit the collection of samples include weather conditions that create dangerous conditions for personnel (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.) or otherwise make the collection of a sample impracticable (drought, extended frozen conditions, etc.).
- (2) Low Concentration Waiver. When the average concentration for a pollutant calculated from all monitoring data collected from an outfall during the odd numbered calendar years monitoring period is less than the corresponding value for that pollutant listed in *Part II, E, 1, f* under the column Benchmark Monitoring Cut-Off Concentration, a facility may waive monitoring and reporting requirements in the fourth year monitoring period. The facility must submit to the *Director*, in lieu of the monitoring data, a certification that there has not been a significant change in industrial activity or the pollution prevention measures in area of the facility which drains to the outfall for which sampling was waived.
- (3) Inactive and Unstaffed Site. When a discharger is unable to conduct quarterly chemical storm water sampling at an inactive and unstaffed site, the operator of the facility may exercise a waiver of the monitoring requirements as long as the facility remains inactive and unstaffed. The facility must submit to the *Director*, in lieu of monitoring data, a certification statement on the *SWDMR* stating that the site is inactive and unstaffed so that collecting a sample during a qualifying event is not possible

III. MONITORING, RECORDING AND REPORTING REQUIREMENTS

- A. Representative Sampling. Samples taken in compliance with the monitoring requirements established under *Part I* shall be collected from the effluent stream prior to discharge into the receiving waters. Samples and measurements shall be representative of the volume and nature of the monitored discharge. Sludge samples shall be collected at a location representative of the quality of sludge immediately prior to the use-disposal practice.
- B. Monitoring Procedures. Monitoring must be conducted according to test procedures approved under *Utah Administrative Code ("UAC") R317-2-10*, unless other test procedures have been specified in this permit.
- C. Penalties for Tampering. The *Act* provides that any person who falsifies, tampers with, or knowingly renders inaccurate, any monitoring device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than \$10,000 per violation, or by imprisonment for not more than six months per violation, or by both.
- D. Reporting of Monitoring Results. Monitoring results obtained during the previous month shall be summarized for each month and reported on a Discharge Monitoring Report Form (EPA No. 3320-1), post-marked no later than the 28th day of the month following the completed reporting period. The first report is due on May 28th, 2015. If no discharge occurs during the reporting period, "no discharge" shall be reported. Legible copies of these, and all other reports including whole effluent toxicity (WET) test reports required herein, shall be signed and certified in accordance with the requirements of *Signatory Requirements (see Part V.G)*, and submitted to the Director, Division of Water Quality and to EPA at the following addresses:
- original to: Department of Environmental Quality
Division of Water Quality
PO Box 144870
Salt Lake City, Utah 84114-4870
- E. Compliance Schedules. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any Compliance Schedule of this permit shall be submitted no later than 14 days following each schedule date.
- F. Additional Monitoring by the Permittee. If the permittee monitors any parameter more frequently than required by this permit, using test procedures approved under *UAC R317-2-10* or as otherwise specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR. Such increased frequency shall also be indicated. Only those parameters required by the permit need to be reported.
- G. Records Contents. Records of monitoring information shall include:
1. The date, exact place, and time of sampling or measurements;
 2. The individual(s) who performed the sampling or measurements;

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3. The date(s) and time(s) analyses were performed;
 4. The individual(s) who performed the analyses;
 5. The analytical techniques or methods used; and,
 6. The results of such analyses.
- H. Retention of Records. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least three years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time. A copy of this UPDES permit must be maintained on site during the duration of activity at the permitted location.
- I. Twenty-four Hour Notice of Noncompliance Reporting.
1. The permittee shall (orally) report any noncompliance, which may seriously endanger health or environment as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of circumstances. The report shall be made to the Division of Water Quality, (801) 536-4300, or 24-hour answering service (801) 231-1769.
 2. The following occurrences of noncompliance shall be reported by telephone (801) 536-4300 as soon as possible but no later than 24 hours from the time the permittee becomes aware of the circumstances:
 - a. Any noncompliance, which may endanger health or the environment;
 - b. Any unanticipated bypass, which exceeds any effluent limitation in the permit (See *Part IV.G, Bypass of Treatment Facilities.*);
 - c. Any upset which exceeds any effluent limitation in the permit (See *Part IV.H, Upset Conditions.*); or,
 - d. Violation of a maximum daily discharge limitation for any of the pollutants listed in the permit.
 3. A written submission shall also be provided within five days of the time that the permittee becomes aware of the circumstances. The written submission shall contain:
 - a. A description of the noncompliance and its cause;
 - b. The period of noncompliance, including exact dates and times;
 - c. The estimated time noncompliance is expected to continue if it has not been corrected; and,

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- d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.
 - e. Steps taken, if any, to mitigate the adverse impacts on the environment and human health during the noncompliance period.
4. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Division of Water Quality, (801) 536-4300.
5. Reports shall be submitted to the addresses in *Part II.D, Reporting of Monitoring Results*.
- J. Other Noncompliance Reporting. Instances of noncompliance not required to be reported within 24 hours shall be reported at the time that monitoring reports for *Part II.D* are submitted. The reports shall contain the information listed in *Part II.I.3*.
- K. Inspection and Entry. The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:
- 1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;
 - 2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
 - 3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and,
 - 4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the *Act*, any substances or parameters at any location.

IV. COMPLIANCE RESPONSIBILITIES

- A. Duty to Comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements.
- B. Penalties for Violations of Permit Conditions. The Act provides that any person who violates a permit condition implementing provisions of the Act is subject to a civil penalty not to exceed \$10,000 per day of such violation. Any person who willfully or negligently violates permit conditions of the Act is subject to a fine not exceeding \$25,000 per day of violation; Any person convicted under UCA 19-5-115(2) a second time shall be punished by a fine not exceeding \$50,000 per day. Except as provided at Part IV.G, *Bypass of Treatment Facilities* and Part IV.H, *Upset Conditions*, nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.
- C. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- D. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit, which has a reasonable likelihood of adversely affecting human health or the environment.
- E. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems, which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.
- F. Removed Substances. Collected screening, grit, solids, sludges, or other pollutants removed in the course of treatment shall be buried or disposed of in such a manner so as to prevent any pollutant from entering any waters of the state or creating a health hazard. Sludge/digester supernatant and filter backwash shall not directly enter either the final effluent or waters of the state by any other direct route.
- G. Bypass of Treatment Facilities.
1. Bypass Not Exceeding Limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to 2. and 3. of this section.

2. Prohibition of Bypass.

- a. Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:
- (1) Bypass was unavoidable to prevent loss of human life, personal injury, or severe property damage;
 - (2) There were no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance, and
 - (3) The permittee submitted notices as required under section G.3.
- b. The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed in sections G.2a. (1), (2) and (3).

3. Notice.

- a. Anticipated bypass. Except as provided above in section G.2. and below in section G. 3.b, if the permittee knows in advance of the need for a bypass, it shall submit prior notice, at least ninety days before the date of bypass. The prior notice shall include the following unless otherwise waived by the Director:
- (1) Evaluation of alternative to bypass, including cost-benefit analysis containing an assessment of anticipated resource damages;
 - (2) A specific bypass plan describing the work to be performed including scheduled dates and times. The permittee must notify the Director in advance of any changes to the bypass schedule;
 - (3) Description of specific measures to be taken to minimize environmental and public health impacts;
 - (4) A notification plan sufficient to alert all downstream users, the public and others reasonably expected to be impacted by the bypass;
 - (5) A water quality assessment plan to include sufficient monitoring of the receiving water before, during and

following the bypass to enable evaluation of public health risks and environmental impacts; and

- (6) Any additional information requested by the Director.
- b. Emergency Bypass. Where ninety days advance notice is not possible, the permittee must notify the Director, and the Director of the Department of Natural Resources, as soon as it becomes aware of the need to bypass and provide to the Director the information in section G.3.a.(1) through (6) to the extent practicable.
- c. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass to the Director as required under Part II.I., Twenty Four Hour Reporting. The permittee shall also immediately notify the Director of the Department of Natural Resources, the public and downstream users and shall implement measures to minimize impacts to public health and environment to the extent practicable.

H. Upset Conditions.

- 1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of paragraph 2. of this section are met. Director's administrative determination regarding a claim of upset cannot be judiciously challenged by the permittee until such time as an action is initiated for noncompliance.
 - 2. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
 - a. An upset occurred and that the permittee can identify the cause(s) of the upset;
 - b. The permitted facility was at the time being properly operated;
 - c. The permittee submitted notice of the upset as required under Part II.I, Twenty-four Hour Notice of Noncompliance Reporting; and,
 - d. The permittee complied with any remedial measures required under Part III.D, Duty to Mitigate.
 - 3. Burden of proof. In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.
- I. Toxic Pollutants. The permittee shall comply with effluent standards or prohibitions established under Section 307(a) of *The Water Quality Act of 1987*

for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

J. Changes in Discharge of Toxic Substances. Notification shall be provided to the Director as soon as the permittee knows of, or has reason to believe:

1. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - a. One hundred micrograms per liter (100 ug/L);
 - b. Two hundred micrograms per liter (200 ug/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 ug/L) for 2,4-dinitrophenol and for 2-methyl-4, 6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
 - c. Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with *UAC R317-8-3.4(7)* or (10); or,
 - d. The level established by the Director in accordance with *UAC R317-8-4.2(6)*.
2. That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
 - a. Five hundred micrograms per liter (500 ug/L);
 - b. One milligram per liter (1 mg/L) for antimony;
 - c. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with *UAC R317-8-3.4(9)*; or,
 - d. The level established by the Director in accordance with *UAC R317-8-4.2(6)*.

K. Industrial Pretreatment. Any wastewaters discharged to the sanitary sewer, either as a direct discharge or as a hauled waste, are subject to Federal, State and local pretreatment regulations. Pursuant to Section 307 of *The Water Quality Act of 1987*, the permittee shall comply with all applicable federal General Pretreatment Regulations promulgated at *40 CFR 403*, the State Pretreatment Requirements at *UAC R317-8-8*, and any specific local discharge limitations developed by the Publicly Owned Treatment Works (POTW) accepting the wastewaters.

Part IV – Compliance Responsibilities
Permit No UT0000612

In addition, in accordance with *40 CFR 403.12(p)(1)*, the permittee must notify the POTW, the EPA Regional Waste Management Director, and the State hazardous waste authorities, in writing, if they discharge any substance into a POTW which if otherwise disposed of would be considered a hazardous waste under *40 CFR 261*. This notification must include the name of the hazardous waste, the EPA hazardous waste number, and the type of discharge (continuous or batch).

V. GENERAL REQUIREMENTS

- A. Planned Changes. The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when the alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants, which are not subject to effluent limitations in the permit. In addition, if there are any planned substantial changes to the permittee's existing sludge facilities or their manner of operation or to current sludge management practices of storage and disposal, the permittee shall give notice to the Director of any planned changes at least 30 days prior to their implementation.
- B. Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements.
- C. Permit Actions. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.
- D. Duty to Reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee shall apply for and obtain a new permit. The application shall be submitted at least 180 days before the expiration date of this permit.
- E. Duty to Provide Information. The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.
- F. Other Information. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts or information.
- G. Signatory Requirements. All applications, reports or information submitted to the Director shall be signed and certified.
1. All permit applications shall be signed by either a principal executive officer or ranking elected official
 2. All reports required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

Part V – General Requirements
Permit No UT0000612

- a. The authorization is made in writing by a person described above and submitted to the Director, and,
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)
3. Changes to authorization. If an authorization under paragraph IV.G.2 is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph IV.G.2 must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.
 4. Certification. Any person signing a document under this section shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

- H. Penalties for Falsification of Reports. The *Act* provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than \$10,000.00 per violation, or by imprisonment for not more than six months per violation, or by both.
- I. Availability of Reports. Except for data determined to be confidential under *UAC R317-8-3.2*, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the office of Director. As required by the *Act*, permit applications, permits and effluent data shall not be considered confidential
- J. Oil and Hazardous Substance Liability. Nothing in this permit shall be construed to preclude the permittee of any legal action or relieve the permittee

from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under the *Act*.

- K. Property Rights. The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.
- L. Severability. The provisions of this permit are severable, and if any provisions of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.
- M. Transfers. This permit may be automatically transferred to a new permittee if:
1. The current permittee notifies the Director at least 20 days in advance of the proposed transfer date;
 2. The notice includes a written agreement between the existing and new permittees containing a specific date for transfer of permit responsibility, coverage, and liability between them; and,
 3. The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify, or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph 2 above.
- N. State Laws. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authority preserved by *UCA 19-5-117*.
- O. Water Quality-Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate effluent limitations and compliance schedule, if necessary, if one or more of the following events occurs:
1. Water Quality Standards for the receiving water(s) to which the permittee discharges are modified in such a manner as to require different effluent limits than contained in this permit.
 2. A final wasteload allocation is developed and approved by the State and/or EPA for incorporation in this permit.
 3. A revision to the current Water Quality Management Plan is approved and adopted which calls for different effluent limitations than contained in this permit.
- P. Toxicity Limitation-Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include whole effluent toxicity (WET) testing, a WET limitation, a compliance schedule, a compliance

date, additional or modified numerical limitations, or any other conditions related to the control of toxicants if toxicity is detected during the life of this permit.

- Q. Storm Water-Reopener Provision. At any time during the duration (life) of this permit, this permit may be reopened and modified (following proper administrative procedures) as per *UAC R317.8*, to include, any applicable storm water provisions and requirements, a storm water pollution prevention plan, a compliance schedule, a compliance date, monitoring and/or reporting requirements, or any other conditions related to the control of storm water discharges to "Waters-Of-State"
- R. Total Maximum Daily Load-Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include Total Maximum Daily Load (TMDL) monitoring, related effluent limits, a compliance schedule, a compliance date, additional or modified numerical limitations, or any other conditions related to the TMDL Process and activity in effected impaired water body.

VI. DEFINITIONS

1. The "30-day and monthly average" is the arithmetic average of all samples collected during a consecutive 30-day period or calendar month whichever is applicable. The calendar month shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms.
2. The "7-day and weekly average" is the arithmetic average of all samples collected during a consecutive 7-day period or calendar week whichever is applicable. The 7-day and weekly averages are applicable only to those effluent characteristics for which there are 7-day average effluent limitations. The calendar week, beginning on Sunday and ending on Saturday, shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms. Weekly averages shall be calculated for all calendar weeks with Saturdays in the month. If a calendar week overlaps two months (i.e., the Sunday is in one month and the Saturday in the following month), the weekly average calculated for that calendar week shall be included in the data for the month that contains the Saturday.
3. "Daily Maximum" ("Daily Max.") is the maximum value allowable in any single sample or instantaneous measurement.
4. "Composite samples" shall be flow proportioned. The composite sample shall, as a minimum, contain at least four (4) samples collected over the composite sample period. Unless otherwise specified, the time between the collection of the first sample and the last sample shall not be less than six (6) hours nor more than 24 hours. Acceptable methods for preparation of composite samples are as follows:
 - a. Constant time interval between samples, sample volume proportional to flow rate at time of sampling;
 - b. Constant time interval between samples, sample volume proportional to total flow (volume) since last sample. For the first sample, the flow rate at the time the sample was collected may be used;
 - c. Constant sample volume, time interval between samples proportional to flow (i.e., sample taken every "X" gallons of flow); and,
 - d. Continuous collection of sample, with sample collection rate proportional to flow rate.
5. A "grab" sample, for monitoring requirements, is defined as a single "dip and take" sample collected at a representative point in the discharge stream.

PART VI
DISCHARGE PERMIT NO. UT0000612
STORM WATER PERMIT NO. UTR000612

6. An "instantaneous" measurement, for monitoring requirements, is defined as a single reading, observation, or measurement.
7. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.
8. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
9. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.
10. "Director" means Director of the Utah Water Quality Board.
11. "EPA" means the United States Environmental Protection Agency.
12. "Acute toxicity" occurs when 50 percent or more mortality is observed for either test species at any effluent concentration.
13. "Chronic toxicity" occurs when the survival, growth, or reproduction for either test species exposed to a dilution of 20 percent effluent (or lower) is significantly less (at the 95 percent confidence level) than the survival, growth or reproduction of the control specimens.
14. "Act" means the "*Utah Water Quality Act*".
15. "Best Management Practices" ("*BMP's*") means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the State. *BMP's* also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.
16. "Coal pile runoff" means the rainfall runoff from or through any coal storage pile.
17. "CWA" means *The Federal Water Pollution Control Act*, as amended, by *The Clean Water Act of 1987*.
18. "Flow-weighted composite sample" means a composite sample consisting of a mixture of aliquots collected at a constant time interval,

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where the volume of each aliquot is proportional to the flow rate of the discharge.

19. "Illicit discharge" means any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a *UPDES* permit (other than the *UPDES* permit for discharges from the municipal separate storm sewer) and discharges from fire fighting activities, fire hydrant flushing, potable water sources including waterline flushing, uncontaminated ground water (including dewatering ground water infiltration), foundation or footing drains where flows are not contaminated with process materials such as solvents, springs, riparian habitats, wetlands, irrigation water, exterior building wash down where there are no chemical or abrasive additives, pavement wash water where spills or leaks of toxic or hazardous materials have not occurred and where detergents are not used, and air conditioning condensate.
20. "Landfill" means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application unit, surface impoundment, injection well, or waste pile.
21. "Land application unit" means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for treatment or disposal.
22. "Large and Medium municipal separate storm sewer system" means all municipal separate storm sewers that are either:
 - a. Located in an incorporated place with a population of 100,000 or more as determined by the latest *Decennial Census* by the *Bureau of Census*; or
 - b. Located in the counties with unincorporated urbanized areas with a population of 100,000 or more, according to the latest *Decennial Census* by the *Bureau of Census*, except municipal separate storm sewers that are located in the incorporated places, townships or towns within the county; or
 - c. Owned or operated by a municipality other than those described in paragraph (a) or (b) and that are designated by the *Director* as part of the large or medium municipal separate storm sewer system.
23. "Point Source" means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharges. This term does not include return flows from irrigated agriculture or agriculture storm water runoff.

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24. "Runoff coefficient" means the fraction of total rainfall that will appear at a conveyance as runoff.
25. "Section 313 water priority chemical" means a chemical or chemical categories which:
- a. Are listed at *40 CFR 372.65* pursuant to *Section 313 of Title III of the Emergency Planning and Community Right-to-Know Act (EPCRA)* (also known as *Title III of the Superfund Amendments and Reauthorization Act (SARA)* of 1986);
 - b. Are present at or above threshold levels at a facility subject to *EPCRA, Section 313* reporting requirements, and
 - c. Meet at least one of the following criteria:
 - (1) Are listed in *Appendix D of 40 CFR 122* on either *Table II* (organic priority pollutants), *Table III* (certain metals, cyanides, and phenols) or *Table IV* (certain toxic pollutants and hazardous substances);
 - (2) Are listed as a hazardous substance pursuant to *Section 311(b)(2)(A)* of the *CWA* at *40 CFR 116.4*; or
 - (3) Are pollutants for which EPA has published acute or chronic toxicity criteria.
26. "Significant materials" includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under *Section 101(14)* of *CERCLA*; any chemical the facility is required to report pursuant to *EPCRA Section 313*; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with storm water discharges.
27. "Significant spills" includes, but is not limited to: releases of oil or hazardous substances in excess of reportable quantities under *Section 311* of the *Clean Water Act* (see *40 CFR 110.10* and *40 CFR 117.21*) or *Section 102* of *CERCLA* (see *40 CFR 302.4*).
28. "Storm water" means storm water runoff, snowmelt runoff, and surface runoff and drainage.
29. "Time-weighted composite" means a composite sample consisting of a mixture of equal volume aliquots collected at a constant time interval.
30. "Waste pile" means any non-containerized accumulation of solid, non-flowing waste that is used for treatment or storage.

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31. "10-year, 24-hour precipitation event" means the maximum 24-hour precipitation event with a probable reoccurrence interval of once in 10 years. This information is available in *Weather Bureau Technical Paper No. 40*, May 1961 and *NOAA Atlas 2*, 1973 for the 11 Western States, and may be obtained from the National Climatic Center of the Environmental Data Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

Utah Division of Water Quality
Salt Lake City, Utah

WASTELOAD ANALYSIS [WLA]
Addendum: Statement of Basis

7-Aug-12
4:00 PM

Facilities: Pacific States
Discharging to: Ironton Canal

UPDES No: UT-0000612

THIS IS A DRAFT DOCUMENT

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

Ironton Canal:	2B, 3B, 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)	5.50 mg/l (30 Day Average) 4.00 mg/l (7Day Average) 3.00 mg/l (1 Day Average)
Maximum Total Dissolved Solids	1200.0 mg/l

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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**	2.544 lbs/day	750.00	ug/l	21.931 lbs/day
Arsenic	190.00 ug/l	5.556 lbs/day	340.00	ug/l	9.942 lbs/day
Cadmium	0.61 ug/l	0.018 lbs/day	6.52	ug/l	0.191 lbs/day
Chromium III	211.92 ug/l	6.197 lbs/day	4433.71	ug/l	129.645 lbs/day
Chromium VI	11.00 ug/l	0.322 lbs/day	16.00	ug/l	0.468 lbs/day
Copper	23.85 ug/l	0.697 lbs/day	39.41	ug/l	1.152 lbs/day
Iron			1000.00	ug/l	29.241 lbs/day
Lead	12.88 ug/l	0.377 lbs/day	330.60	ug/l	9.667 lbs/day
Mercury	0.0120 ug/l	0.000 lbs/day	2.40	ug/l	0.070 lbs/day
Nickel	132.13 ug/l	3.864 lbs/day	1188.44	ug/l	34.751 lbs/day
Selenium	4.60 ug/l	0.135 lbs/day	20.00	ug/l	0.585 lbs/day
Silver	N/A ug/l	N/A lbs/day	25.04	ug/l	0.732 lbs/day
Zinc	303.93 ug/l	8.887 lbs/day	303.93	ug/l	8.887 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	0.044 lbs/day
Chlordane	0.004 ug/l	0.320 lbs/day	1.200	ug/l	0.035 lbs/day
DDT, DDE	0.001 ug/l	0.074 lbs/day	0.550	ug/l	0.016 lbs/day
Dieldrin	0.002 ug/l	0.141 lbs/day	1.250	ug/l	0.037 lbs/day
Endosulfan	0.056 ug/l	4.170 lbs/day	0.110	ug/l	0.003 lbs/day
Endrin	0.002 ug/l	0.171 lbs/day	0.090	ug/l	0.003 lbs/day
Guthion			0.010	ug/l	0.000 lbs/day
Heptachlor	0.004 ug/l	0.283 lbs/day	0.260	ug/l	0.008 lbs/day
Lindane	0.080 ug/l	5.957 lbs/day	1.000	ug/l	0.029 lbs/day
Methoxychlor			0.030	ug/l	0.001 lbs/day
Mirex			0.010	ug/l	0.000 lbs/day
Parathion			0.040	ug/l	0.001 lbs/day
PCB's	0.014 ug/l	1.042 lbs/day	2.000	ug/l	0.058 lbs/day
Pentachlorophenol	13.00 ug/l	967.982 lbs/day	20.000	ug/l	0.585 lbs/day
Toxephene	0.0002 ug/l	0.015 lbs/day	0.7300	ug/l	0.021 lbs/day

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Salt Lake City, Utah**

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	0.15 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	17.54 tons/day

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

	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Metals				
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
cyclohexane (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	201.04 lbs/day
Acrolein	ug/l	lbs/day	780.0 ug/l	58.08 lbs/day
Acrylonitrile	ug/l	lbs/day	0.7 ug/l	0.05 lbs/day
Benzene	ug/l	lbs/day	71.0 ug/l	5.29 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	0.33 lbs/day
Chlorobenzene	ug/l	lbs/day	21000.0 ug/l	1563.66 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	7.37 lbs/day

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1,1,1-Trichloroethane				
Hexachloroethane	ug/l	lbs/day	8.9 ug/l	0.66 lbs/day
1,1-Dichloroethane				
1,1,2-Trichloroethane	ug/l	lbs/day	42.0 ug/l	3.13 lbs/day
1,1,2,2-Tetrachloroethane	ug/l	lbs/day	11.0 ug/l	0.82 lbs/day
Chloroethane			0.0 ug/l	0.00 lbs/day
Bis(2-chloroethyl) ether	ug/l	lbs/day	1.4 ug/l	0.10 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	320.18 lbs/day
2,4,6-Trichlorophenol	ug/l	lbs/day	6.5 ug/l	0.48 lbs/day
p-Chloro-m-cresol			0.0 ug/l	0.00 lbs/day
Chloroform (HM)	ug/l	lbs/day	470.0 ug/l	35.00 lbs/day
2-Chlorophenol	ug/l	lbs/day	400.0 ug/l	29.78 lbs/day
1,2-Dichlorobenzene	ug/l	lbs/day	17000.0 ug/l	1265.82 lbs/day
1,3-Dichlorobenzene	ug/l	lbs/day	2600.0 ug/l	193.60 lbs/day
1,4-Dichlorobenzene	ug/l	lbs/day	2600.0 ug/l	193.60 lbs/day
3,3'-Dichlorobenzidine	ug/l	lbs/day	0.1 ug/l	0.01 lbs/day
1,1-Dichloroethylene	ug/l	lbs/day	3.2 ug/l	0.24 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	58.82 lbs/day
1,2-Dichloropropane	ug/l	lbs/day	39.0 ug/l	2.90 lbs/day
1,3-Dichloropropylene	ug/l	lbs/day	1700.0 ug/l	126.58 lbs/day
2,4-Dimethylphenol	ug/l	lbs/day	2300.0 ug/l	171.26 lbs/day
2,4-Dinitrotoluene	ug/l	lbs/day	9.1 ug/l	0.68 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	0.04 lbs/day
Ethylbenzene	ug/l	lbs/day	29000.0 ug/l	2159.34 lbs/day
Fluoranthene	ug/l	lbs/day	370.0 ug/l	27.55 lbs/day
4-Chlorophenyl phenyl ether				
4-Bromophenyl phenyl ether				
Bis(2-chloroisopropyl) ether	ug/l	lbs/day	170000.0 ug/l	12658.23 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	119.14 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	26.81 lbs/day
Dichlorobromomethane	ug/l	lbs/day	22.0 ug/l	1.64 lbs/day
Chlorodibromomethane	ug/l	lbs/day	34.0 ug/l	2.53 lbs/day
Hexachlorobutadiene(c)	ug/l	lbs/day	50.0 ug/l	3.72 lbs/day
Hexachlorocyclopentadiene	ug/l	lbs/day	17000.0 ug/l	1265.82 lbs/day
Isophorone	ug/l	lbs/day	600.0 ug/l	44.68 lbs/day
Naphthalene				
Nitrobenzene	ug/l	lbs/day	1900.0 ug/l	141.47 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	1042.44 lbs/day
4,6-Dinitro-o-cresol	ug/l	lbs/day	765.0 ug/l	56.96 lbs/day
N-Nitrosodimethylamine	ug/l	lbs/day	8.1 ug/l	0.60 lbs/day
N-Nitrosodiphenylamine	ug/l	lbs/day	16.0 ug/l	1.19 lbs/day
N-Nitrosodi-n-propylamine	ug/l	lbs/day	1.4 ug/l	0.10 lbs/day
Pentachlorophenol	ug/l	lbs/day	8.2 ug/l	0.61 lbs/day

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Phenol	ug/l	lbs/day	4.6E+06 ug/l	3.43E+05 lbs/day
Bis(2-ethylhexyl)phthalate	ug/l	lbs/day	5.9 ug/l	0.44 lbs/day
Butyl benzyl phthalate	ug/l	lbs/day	5200.0 ug/l	387.19 lbs/day
Di-n-butyl phthalate	ug/l	lbs/day	12000.0 ug/l	893.52 lbs/day
Di-n-octyl phthalate				
Diethyl phthalate	ug/l	lbs/day	120000.0 ug/l	8935.22 lbs/day
Dimethyl phthalate	ug/l	lbs/day	2.9E+06 ug/l	2.16E+05 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	819.06 lbs/day
Tetrachloroethylene	ug/l	lbs/day	8.9 ug/l	0.66 lbs/day
Toluene	ug/l	lbs/day	200000 ug/l	14892.03 lbs/day
Trichloroethylene	ug/l	lbs/day	81.0 ug/l	6.03 lbs/day
Vinyl chloride	ug/l	lbs/day	525.0 ug/l	39.09 lbs/day
				lbs/day
Pesticides				lbs/day
Aldrin	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Dieldrin	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Chlordane	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDT	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDE	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDD	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
alpha-Endosulfan	ug/l	lbs/day	2.0 ug/l	0.15 lbs/day
beta-Endosulfan	ug/l	lbs/day	2.0 ug/l	0.15 lbs/day
Endosulfan sulfate	ug/l	lbs/day	2.0 ug/l	0.15 lbs/day
Endrin	ug/l	lbs/day	0.8 ug/l	0.06 lbs/day
Endrin aldehyde	ug/l	lbs/day	0.8 ug/l	0.06 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 124	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1232 (Arochlor 124	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 124	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1016 (Arochlor 10	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Pesticide				
Toxaphene	ug/l		0.0 ug/l	0.00 lbs/day
Dioxin				
Dioxin (2,3,7,8-TCDD)	ug/l	lbs/day		

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Metals

Antimony	ug/l	lbs/day		
Arsenic	ug/l	lbs/day	4300.00 ug/l	320.18 lbs/day
Asbestos	ug/l	lbs/day		
Beryllium				
Cadmium				
Chromium (III)				
Chromium (VI)				
Copper				
Cyanide	ug/l	lbs/day	2.2E+05 ug/l	16381.23 lbs/day
Lead	ug/l	lbs/day		
Mercury			0.15 ug/l	0.01 lbs/day
Nickel			4600.00 ug/l	342.52 lbs/day
Selenium	ug/l	lbs/day		
Silver	ug/l	lbs/day		
Thallium			6.30 ug/l	0.47 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)	8.40	18.5	7.7	0.01	1.22	6.99	0.00	740.0	
Fall	10.60	14.6	7.7	0.01	0.79	---	0.00	740.0	
Winter	10.50	12.5	7.7	0.01	1.20	---	0.00	740.0	
Spring	7.90	16.3	7.8	0.01	0.94	---	0.00	740.0	
Dissolved Metals	Al	As	Cd	CrIII	CrVI	Copper	Fe	Pb	
	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
All Seasons	1.59*	0.53*	0.053*	0.53*	2.65*	0.53*	0.83*	0.53*	
Dissolved Metals	Hg	Ni	Se	Ag	Zn	Boron			
	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l			
All Seasons	0.0000	0.53*	1.06*	0.1*	0.053*	10.0		* 1/2 MDL	

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Projected Discharge Information

Season	Flow, MGD	Temp.	TDS mg/l	TDS tons/day
Summer	3.50000	na	800.00	11.67366
Fall	3.50000	na		
Winter	3.50000	na		
Spring	3.50000	na		

All model numerical inputs, intermediate calculations, outputs and graphs are available for discussion, inspection and copy at the Division of Water Quality.

IX. Effluent Limitations

Current State water quality standards are required to be met under a variety of conditions including in-stream flows targeted to the 7-day, 10-year low flow (R317-2-9).

Other conditions used in the modeling effort coincide with the environmental conditions expected at low stream flows.

Effluent Limitation for Flow based upon Water Quality Standards

In-stream criteria of downstream segments will be met with an effluent flow maximum value as follows:

Season	Daily Average	
Summer	3.500 MGD	5.415 cfs
Fall	3.500 MGD	5.415 cfs
Winter	3.500 MGD	5.415 cfs
Spring	3.500 MGD	5.415 cfs

Flow Requirement or Loading Requirement

The calculations in this wasteload analysis utilize the maximum effluent discharge flow of 3.5 MGD. If the discharger is allowed to have a flow greater than 3.5 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 >	39.2% 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	729.6 lbs/day
Fall	25.0 mg/l as BOD5	729.6 lbs/day
Winter	25.0 mg/l as BOD5	729.6 lbs/day
Spring	25.0 mg/l as BOD5	729.6 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	4.00
Fall	4.00
Winter	4.00
Spring	4.00

Effluent Limitation for Total Ammonia based upon Water Quality Standards

In-stream criteria of downstream segments for Total Ammonia will be met with an effluent limitation (expressed as Total Ammonia as N) as follows:

Season		Concentration	Load
Summer	4 Day Avg. - Chronic	8.3 mg/l as N	243.0 lbs/day
	1 Hour Avg. - Acute	14.9 mg/l as N	434.3 lbs/day
Fall	4 Day Avg. - Chronic	8.4 mg/l as N	246.1 lbs/day
	1 Hour Avg. - Acute	16.2 mg/l as N	472.8 lbs/day
Winter	4 Day Avg. - Chronic	9.8 mg/l as N	286.4 lbs/day
	1 Hour Avg. - Acute	21.2 mg/l as N	619.6 lbs/day
Spring	4 Day Avg. - Chronic	10.4 mg/l as N	302.6 lbs/day
	1 Hour Avg. - Acute	19.3 mg/l as N	564.3 lbs/day

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

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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	0.026 mg/l	0.77 lbs/day
	1 Hour Avg. - Acute	0.047 mg/l	1.37 lbs/day
Fall	4 Day Avg. - Chronic	0.031 mg/l	0.89 lbs/day
	1 Hour Avg. - Acute	0.054 mg/l	1.58 lbs/day
Winter	4 Day Avg. - Chronic	0.030 mg/l	0.89 lbs/day
	1 Hour Avg. - Acute	0.054 mg/l	1.57 lbs/day
Spring	4 Day Avg. - Chronic	0.026 mg/l	0.00 lbs/day
	1 Hour Avg. - Acute	0.045 mg/l	0.00 lbs/day

Effluent Limitations for Total Dissolved Solids based upon Water Quality Standards

Season		Concentration	Load
Summer	Maximum, Acute	1913.6 mg/l	27.92 tons/day
Fall	Maximum, Acute	1913.6 mg/l	27.92 tons/day
Winter	Maximum, Acute	1913.6 mg/l	27.92 tons/day
Spring	4 Day Avg. - Chronic	1913.6 mg/l	27.92 tons/day

Colorado Salinity Forum Limits Determined by Permitting Section

Effluent Limitations for Total Recoverable Metals based upon Water Quality Standards

In-stream criteria of downstream segments for Dissolved Metals will be met with an effluent limitation as follows (based upon a hardness of 300 mg/l):

	4 Day Average		1 Hour Average	
	Concentration	Load	Concentration	Load
Aluminum*	N/A	N/A	1,329.9 ug/l	38.9 lbs/day
Arsenic*	483.53 ug/l	9.1 lbs/day	603.1 ug/l	17.6 lbs/day
Cadmium	1.43 ug/l	0.0 lbs/day	11.5 ug/l	0.3 lbs/day
Chromium III	539.45 ug/l	10.2 lbs/day	7,872.3 ug/l	230.2 lbs/day
Chromium VI*	21.90 ug/l	0.4 lbs/day	25.3 ug/l	0.7 lbs/day
Copper	59.62 ug/l	1.1 lbs/day	69.4 ug/l	2.0 lbs/day
Iron*	N/A	N/A	1,774.7 ug/l	51.9 lbs/day
Lead	31.64 ug/l	0.6 lbs/day	586.4 ug/l	17.1 lbs/day
Mercury*	0.03 ug/l	0.0 lbs/day	4.3 ug/l	0.1 lbs/day
Nickel	335.89 ug/l	6.3 lbs/day	2,109.7 ug/l	61.7 lbs/day
Selenium*	9.27 ug/l	0.2 lbs/day	34.3 ug/l	1.0 lbs/day
Silver	N/A ug/l	N/A lbs/day	44.5 ug/l	1.3 lbs/day

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Zinc	775.33 ug/l	14.6 lbs/day	539.6	ug/l	15.8 lbs/day
Cyanide*	13.27 ug/l	0.3 lbs/day	39.1	ug/l	1.1 lbs/day

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

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

Temperature Limit variable based on effluent flow according to the following equations

Summer	$T_{ei} = 109.56 Q_e^{-0.229}$	
Fall	$T_{ei} = 112.46 Q_e^{-0.291}$	T_{ei} = Effluent Limit (degrees F)
Winter	$T_{ei} = 99.18 Q_e^{-0.336}$	Q_e = Effluent Flow (mgd)
Spring	$T_{ei} = 103.43 Q_e^{-0.228}$	

**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	6.79E-02 lbs/day
Chlordane	4.30E-03 ug/l	1.25E-01 lbs/day	1.2E+00	ug/l	5.43E-02 lbs/day
DDT, DDE	1.00E-03 ug/l	2.92E-02 lbs/day	5.5E-01	ug/l	2.49E-02 lbs/day
Dieldrin	1.90E-03 ug/l	5.54E-02 lbs/day	1.3E+00	ug/l	5.65E-02 lbs/day
Endosulfan	5.60E-02 ug/l	1.63E+00 lbs/day	1.1E-01	ug/l	4.98E-03 lbs/day
Endrin	2.30E-03 ug/l	6.71E-02 lbs/day	9.0E-02	ug/l	4.07E-03 lbs/day
Guthion	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l	4.52E-04 lbs/day
Heptachlor	3.80E-03 ug/l	1.11E-01 lbs/day	2.6E-01	ug/l	1.18E-02 lbs/day
Lindane	8.00E-02 ug/l	2.33E+00 lbs/day	1.0E+00	ug/l	4.52E-02 lbs/day
Methoxychlor	0.00E+00 ug/l	0.00E+00 lbs/day	3.0E-02	ug/l	1.36E-03 lbs/day
Mirex	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l	4.52E-04 lbs/day
Parathion	0.00E+00 ug/l	0.00E+00 lbs/day	4.0E-02	ug/l	1.81E-03 lbs/day
PCB's	1.40E-02 ug/l	4.09E-01 lbs/day	2.0E+00	ug/l	9.05E-02 lbs/day
Pentachlorophenol	1.30E+01 ug/l	3.79E+02 lbs/day	2.0E+01	ug/l	9.05E-01 lbs/day
Toxephene	2.00E-04 ug/l	5.84E-03 lbs/day	7.3E-01	ug/l	3.30E-02 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	146.2 lbs/day
Nitrates as N	4.0 mg/l	117.0 lbs/day
Total Phosphorus as P	0.05 mg/l	1.5 lbs/day
Total Suspended Solids	90.0 mg/l	2631.7 lbs/day

Note: Pollution indicator targets are for information purposes only.

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

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

	Maximum Concentration	
	Concentration	Load
Toxic Organics		
Acenaphthene	6.89E+03 ug/l	2.01E+02 lbs/day
Acrolein	1.99E+03 ug/l	5.81E+01 lbs/day
Acrylonitrile	1.68E+00 ug/l	4.91E-02 lbs/day
Benzene	1.81E+02 ug/l	5.29E+00 lbs/day
Benzidine	ug/l	lbs/day
Carbon tetrachloride	1.12E+01 ug/l	3.28E-01 lbs/day
Chlorobenzene	5.36E+04 ug/l	1.56E+03 lbs/day
1,2,4-Trichlorobenzene		
Hexachlorobenzene	1.96E-03 ug/l	5.73E-05 lbs/day
1,2-Dichloroethane	2.53E+02 ug/l	7.37E+00 lbs/day
1,1,1-Trichloroethane		
Hexachloroethane	2.27E+01 ug/l	6.63E-01 lbs/day
1,1-Dichloroethane		
1,1,2-Trichloroethane	1.07E+02 ug/l	3.13E+00 lbs/day
1,1,2,2-Tetrachloroethane	2.81E+01 ug/l	8.19E-01 lbs/day
Chloroethane		
Bis(2-chloroethyl) ether	3.57E+00 ug/l	1.04E-01 lbs/day
2-Chloroethyl vinyl ether		
2-Chloronaphthalene	1.10E+04 ug/l	3.20E+02 lbs/day
2,4,6-Trichlorophenol	1.66E+01 ug/l	4.84E-01 lbs/day
p-Chloro-m-cresol		
Chloroform (HM)	1.20E+03 ug/l	3.50E+01 lbs/day
2-Chlorophenol	1.02E+03 ug/l	2.98E+01 lbs/day
1,2-Dichlorobenzene	4.34E+04 ug/l	1.27E+03 lbs/day
1,3-Dichlorobenzene	6.63E+03 ug/l	1.94E+02 lbs/day

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1,4-Dichlorobenzene	6.63E+03 ug/l	1.94E+02 lbs/day
3,3'-Dichlorobenzidine	1.96E-01 ug/l	5.73E-03 lbs/day
1,1-Dichloroethylene	8.16E+00 ug/l	2.38E-01 lbs/day
1,2-trans-Dichloroethylene1		
2,4-Dichlorophenol	2.02E+03 ug/l	5.88E+01 lbs/day
1,2-Dichloropropane	9.95E+01 ug/l	2.90E+00 lbs/day
1,3-Dichloropropylene	4.34E+03 ug/l	1.27E+02 lbs/day
2,4-Dimethylphenol	5.87E+03 ug/l	1.71E+02 lbs/day
2,4-Dinitrotoluene	2.32E+01 ug/l	6.78E-01 lbs/day
2,6-Dinitrotoluene		
1,2-Diphenylhydrazine	1.38E+00 ug/l	4.02E-02 lbs/day
Ethylbenzene	7.40E+04 ug/l	2.16E+03 lbs/day
Fluoranthene	9.44E+02 ug/l	2.76E+01 lbs/day
4-Chlorophenyl phenyl ether		
4-Bromophenyl phenyl ether		
Bis(2-chloroisopropyl) ether	4.34E+05 ug/l	1.27E+04 lbs/day
Bis(2-chloroethoxy) methane		
Methylene chloride (HM)	4.08E+03 ug/l	1.19E+02 lbs/day
Methyl chloride (HM)		
Methyl bromide (HM)		
Bromoform (HM)	9.19E+02 ug/l	2.68E+01 lbs/day
Dichlorobromomethane(HM)	5.61E+01 ug/l	1.64E+00 lbs/day
Chlorodibromomethane (HM)	8.67E+01 ug/l	2.53E+00 lbs/day
Hexachlorocyclopentadiene	4.34E+04 ug/l	1.27E+03 lbs/day
Isophorone	1.53E+03 ug/l	4.47E+01 lbs/day
Naphthalene		
Nitrobenzene	4.85E+03 ug/l	1.41E+02 lbs/day
2-Nitrophenol		
4-Nitrophenol		
2,4-Dinitrophenol	3.57E+04 ug/l	1.04E+03 lbs/day
4,6-Dinitro-o-cresol	1.95E+03 ug/l	5.70E+01 lbs/day
N-Nitrosodimethylamine	2.07E+01 ug/l	6.03E-01 lbs/day
N-Nitrosodiphenylamine	4.08E+01 ug/l	1.19E+00 lbs/day
N-Nitrosodi-n-propylamine	3.57E+00 ug/l	1.04E-01 lbs/day
Pentachlorophenol	2.09E+01 ug/l	6.11E-01 lbs/day
Phenol	1.17E+07 ug/l	3.43E+05 lbs/day
Bis(2-ethylhexyl)phthalate	1.51E+01 ug/l	4.39E-01 lbs/day
Butyl benzyl phthalate	1.33E+04 ug/l	3.87E+02 lbs/day
Di-n-butyl phthalate	3.06E+04 ug/l	8.94E+02 lbs/day
Di-n-octyl phthlate		
Diethyl phthalate	3.06E+05 ug/l	8.94E+03 lbs/day
Dimethyl phthlate	7.40E+06 ug/l	2.16E+05 lbs/day
Benzo(a)anthracene (PAH)	7.91E-02 ug/l	2.31E-03 lbs/day
Benzo(a)pyrene (PAH)	7.91E-02 ug/l	2.31E-03 lbs/day
Benzo(b)fluoranthene (PAH)	7.91E-02 ug/l	2.31E-03 lbs/day
Benzo(k)fluoranthene (PAH)	7.91E-02 ug/l	2.31E-03 lbs/day
Chrysene (PAH)	7.91E-02 ug/l	2.31E-03 lbs/day
Acenaphthylene (PAH)		
Anthracene (PAH)		
Dibenzo(a,h)anthracene (PAH)	7.91E-02 ug/l	2.31E-03 lbs/day
Indeno(1,2,3-cd)pyrene (PAH)	7.91E-02 ug/l	2.31E-03 lbs/day

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Pyrene (PAH)	2.81E+04 ug/l	8.19E+02 lbs/day
Tetrachloroethylene	2.27E+01 ug/l	6.63E-01 lbs/day
Toluene	5.10E+05 ug/l	1.49E+04 lbs/day
Trichloroethylene	2.07E+02 ug/l	6.03E+00 lbs/day
Vinyl chloride	1.34E+03 ug/l	3.91E+01 lbs/day

Pesticides

Aldrin	3.57E-04 ug/l	1.04E-05 lbs/day
Dieldrin	3.57E-04 ug/l	1.04E-05 lbs/day
Chlordane	1.51E-03 ug/l	4.39E-05 lbs/day
4,4'-DDT	1.51E-03 ug/l	4.39E-05 lbs/day
4,4'-DDE	1.51E-03 ug/l	4.39E-05 lbs/day
4,4'-DDD	2.14E-03 ug/l	6.25E-05 lbs/day
alpha-Endosulfan	5.10E+00 ug/l	1.49E-01 lbs/day
beta-Endosulfan	5.10E+00 ug/l	1.49E-01 lbs/day
Endosulfan sulfate	5.10E+00 ug/l	1.49E-01 lbs/day
Endrin	2.07E+00 ug/l	6.03E-02 lbs/day
Endrin aldehyde	2.07E+00 ug/l	6.03E-02 lbs/day
Heptachlor	5.36E-04 ug/l	1.56E-05 lbs/day
Heptachlor epoxide		

PCB's

PCB 1242 (Arochlor 1242)	1.15E-04 ug/l	3.35E-06 lbs/day
PCB-1254 (Arochlor 1254)	1.15E-04 ug/l	3.35E-06 lbs/day
PCB-1221 (Arochlor 1221)	1.15E-04 ug/l	3.35E-06 lbs/day
PCB-1232 (Arochlor 1232)	1.15E-04 ug/l	3.35E-06 lbs/day
PCB-1248 (Arochlor 1248)	1.15E-04 ug/l	3.35E-06 lbs/day
PCB-1260 (Arochlor 1260)	1.15E-04 ug/l	3.35E-06 lbs/day
PCB-1016 (Arochlor 1016)	1.15E-04 ug/l	3.35E-06 lbs/day

Pesticide

Toxaphene	1.91E-03 ug/l	5.58E-05 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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Cyanide	39.1	13.3	
Iron	1774.7		
Lead	253.9	31.6	
Mercury	0.383	0.031	
Nickel	2109.7	336	
Selenium	34.3	9.3	
Silver	44.5	N/A	
Thallium	16.1		
Zinc	539.6	775.3	Acute Controls
Boron	1913.54		

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.

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.

Variable Flow-based Effluent Temperature Limits 8/7/2012 Date of Analysis

Substance: Heat
 Discharger: Pacific States
 Receiving Water: Ironton Canal
 Classification: 2B, 3B, 4

Receiving Water Information

	Flow cfs	Deg. C.
Summer	8.40	18.5
Fall	10.60	14.6
Winter	10.50	12.5
Spring	7.90	16.3

Effluent Information

	Flow MGD	Flow cfs
Summer	3.5	5.41
Fall	3.5	5.41
Winter	3.5	5.41
Spring	3.5	5.41

Stream Standard

Temperature, Deg. C. 27.0 Deg. C.
 Temperature Increase, Deg. C 4.0 Deg. C.

Discharge Q (mgd)		1.0	1.5	2.0	2.5	3.0	3.5
Temperature Effluent Limits (Degrees F)	summer	111.6	98.5	92.0	88.1	85.5	83.6
	fall	114.9	98.4	90.2	85.2	82.0	79.6
	winter	101.4	85.1	77.0	72.1	68.8	66.5
	spring	105.3	93.1	86.9	83.2	80.8	79.0

Effluent Limit Equation

$$T_{el} = 109.56 Q_e^{-0.229}$$

$$T_{el} = 112.46 Q_e^{-0.291}$$

$$T_{el} = 89.18 Q_e^{-0.338}$$

$$T_{el} = 103.43 Q_e^{-0.228}$$

T_{el} = Effluent Limit (degrees F)

Q_e = Effluent Flow (mgd)

