

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)

FILE COPY

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

GENWAL RESOURCES, INC.

is hereby authorized to discharge from its facility located in Crandall Canyon, approximately 1 ½ miles northwest of Huntington, Utah, with outfalls located as indicated in the permit, to receiving waters named

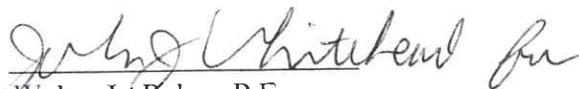
CRANDALL CREEK (TRIBUTARY OF THE COLORADO RIVER)

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

This permit shall become effective on December 1, 2005.

This permit and the authorization to discharge shall expire at midnight, November 30, 2010.

Signed this 16th day of November, 2005.



Walter L. Baker, P.E.
Executive Secretary
Utah Water Quality Board

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I. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Definitions.

1. "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.
2. "10-year, 24-hour precipitation event" means the maximum 24-hour precipitation event with a probable recurrence interval of once in 10 years. This information is available in *Weather Bureau Technical Paper No. 40*, May 1961 and *National Oceanographic and Atmospheric Administration 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.
3. "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.
4. "Act" means the "*Utah Water Quality Act*".
5. "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.
6. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

7. "Chronic toxicity" occurs when the inhibitory concentration to 25% of the population (IC_{25}) is less than or equal to 66% effluent.
8. "Coal pile runoff" means the rainfall runoff from or through any coal storage pile.
9. "Composite samples" shall be flow proportioned. The composite sample shall contain, as a minimum, 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.
10. "CWA" means *The Federal Water Pollution Control Act*, as amended, by *The Clean Water Act of 1987*.
11. "Daily Maximum" (Daily Max.) is the maximum value allowable in any single sample or instantaneous measurement.
12. "EPA" means the United States Environmental Protection Agency.
13. "Executive Secretary" means Executive Secretary of the Utah Water Quality Board.
14. "Flow-weighted composite sample" means a composite sample consisting of a mixture of aliquots collected at a constant time interval, where the volume of each aliquot is proportional to the flow rate of the discharge.
15. "Grab" sample, for monitoring requirements, is defined as a single "dip and take" sample collected at a representative point in the discharge stream.

16. "IC₂₅" is the concentration of toxicant (given in % effluent) that would cause a 25% reduction in mean young per female or a 25% reduction in overall growth for the test population.
17. "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.
18. An "instantaneous" measurement, for monitoring requirements, is defined as a single reading, observation, or measurement.
19. "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.
20. "Runoff coefficient" means the fraction of total rainfall that will appear at a conveyance as runoff.
21. "*Section 313* water priority chemical" means a chemical or chemical categories which:
 - a. Are listed at *40 Code of Federal Regulations (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* 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 *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.
22. "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.
23. "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 *Comprehensive Environmental Response, Compensation, and Liability Act (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.
24. "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*).
25. "Storm water" means storm water runoff, snowmelt runoff, and surface runoff and drainage.
26. "Time-weighted composite" means a composite sample consisting of a mixture of equal volume aliquots collected at a constant time interval.
27. "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.

28. "Waste pile" means any non-containerized accumulation of solid, non-flowing waste that is used for treatment or storage.

Acronym List

BMP	Best Management Practices
CERCLA	Comprehensive Environmental Response, Compensation, & Liability Act
CFR	Code of Federal Regulations
DMR	Discharge Monitoring Report
DO	Dissolved Oxygen
EPCRA	Emergency Planning & Community Right-to-Know Act
TDS	Total Dissolved Solids
TIE	Toxicity Identification Evaluation
TRE	Toxicity Reduction Evaluation
TSS	Total Suspended Solids
UAC	Utah Administrative Code
UCA	Utah Code Annotated
UPDES	Utah Pollutant Discharge Elimination System
WET	Whole Effluent Toxicity

Unit List

mg/L	milligrams per liter
MGD	million gallons per day
ml/L	milliliters per liter
SU	standard units
µg/L	micrograms per liter

B. Description of Discharge Points.

The authorization to discharge provided under this permit is limited to those outfalls specifically designated below as discharge locations. Discharges at any location not authorized under a UPDES permit are in violation 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*.

Outfall Number

001

Location of Discharge Point

An 18-inch discharge pipe on the east side of the sedimentation pond. Coordinates: 39° 27' 38" north, 111° 09' 59" west.

Outfall Number
002

Location of Discharge Point
A 12-inch discharge pipe within the Crandall Creek bypass culvert riser pipe, west of the Master Control Console building in the lower yard of the facility.
Coordinates: 39° 27' 38" north, 111° 09' 59" west.

C. 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.

D. Specific Limitations and Self-monitoring Requirements.

1. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from Outfalls 001 and 002. Such discharges shall be limited and monitored by the permittee as specified in *Parts I.D.1. through I.D.5.*

Effluent Characteristics	Effluent Limitations ¹				Monitoring Requirements	
	30 Day Average	7 Day Average	Daily Minimum	Daily Maximum	Sample Frequency	Sample Type
Flow, ² MGD	Report	³ NA	NA	Report	Monthly	Continuous Recorder
Total Suspended Solids (TSS), ⁴ mg/L	25	35	NA	70	Monthly	Grab
Total Iron, mg/L	NA	NA	NA	1.0	Monthly	Grab
Oil & Grease, mg/L <i>a/</i>	NA	NA	NA	10	Monthly	Grab
Total Dissolved Solids (TDS), mg/L <i>Interim b/</i>	NA	NA	NA	1200	2 x Month	Grab
TDS, mg/L <i>Final b/</i>	500	NA	NA	1200	1 x Month	Grab

¹ See Part I. A., "Definitions", for definition of terms. ²MGD: million gallons per day
³ NA – Not Applicable ⁴ mg/L: milligrams per liter

Effluent Characteristics	Effluent Limitations ¹ (continued)				Monitoring Requirements	
	30 Day Average	7 Day Average	Daily Minimum	Daily Maximum	Sample Frequency	Sample Type
Dissolved Oxygen, mg/L d/	≥ 4.0	NA	NA	NA	Monthly	Grab
Sanitary Waste e/	NA	NA	NA	None	Monthly	Visual
Whole Effluent Toxicity, Chronic (outfall 002)	NA	NA	NA	Pass, IC ₂₅ = 66% effluent	Quarterly	Composite
¹ See Part I. A., "Definitions", for definition of terms.				² MGD: million gallons per day		
³ NA – Not Applicable				⁴ mg/L: milligrams per liter		

a/ In addition to monthly sampling for oil and grease, a visual inspection for oil and grease, floating solids, and visible foam shall be performed at least twice per month at 001 and 002. There shall be no sheen, floating solids, or visible foam in other than trace amounts. If a sheen is observed, a sample of that effluent shall be collected immediately thereafter and oil and grease shall not exceed 10 mg/L in concentration.

b/ *Interim limits for TDS shall be effective from the effective date of this permit until February 28, 2006. The final TDS limits will be enforceable beginning March 1, 2006 or sooner if the permittee can make it so.* The interim TDS concentration from each of the outfalls shall not exceed 1200 mg/L as a daily maximum limit. Because the permittee is not likely to meet the final 500 mg/L 30-day average and will not meet the 1 ton per day loading limit, the permittee is required to complete an intercepted groundwater survey and/or participate in and/or fund a salinity-offset project, to include TDS offset credits, by February 28, 2006.

The salinity-offset project shall include TDS credits on a ton-for-ton basis for which the permittee is over the 1 ton per day loading limit. The tonnage reduction from the offset project must be calculated by a method similar to one used by the Natural Resources Conservation Service, Colorado River Basin Salinity Control Forum, or other applicable agency.

If the permittee will be participating in the construction and implementation of a salinity-offset project, then a project description and implementation schedule shall be submitted to the Executive Secretary within 6 months of the determination by the Executive Secretary, which will then be reviewed for approval. The salinity offset project description and implementation schedule must be approved by the Executive Secretary and shall be appended to this permit.

If the permittee is funding a salinity-offset project through third parties, the permittee shall provide satisfactory evidence to the Executive Secretary that the required funds have been deposited to the third party within 6 months of the determination by the Executive Secretary. A monitoring and adjustment plan to track the TDS credits shall also be submitted to the Executive Secretary within 6 months of the aforementioned determination, which will then be reviewed for approval. The monitoring and adjustment plan must be approved by the Executive Secretary and shall be appended to this permit.

c/ The pH shall not be less than 6.5 SU nor greater than 9.0 SU in any sample and shall be monitored monthly by instantaneous grab sample.

d/ The 30-day average DO shall not be less than 4.0 mg/L and shall be monitored monthly by an instantaneous grab sample.

e/ There shall be no discharge of sanitary waste.

2. Samples collected in compliance with the monitoring requirements specified above shall be collected at outfalls 001 and 002 prior to mixing with the receiving water.
3. Should any discharge or increase in the volume of a discharge caused by precipitation within any 24-hour period that is less than or equal to the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume) may, at outfall 001, substitute the following limitations for the TSS and pH limitations contained in *Part I.D.1*:

Effluent Characteristics	Daily Minimum	Daily Maximum
Settleable solids (SS), milliliter/liter	NA	0.5
pH, SU	6.0	9.0

In order to substitute the above limitations, the sample collected during the storm event must be analyzed for all permitted parameters specified under *Part I.D.1*. (excepting TSS). Such analyses shall be conducted on either grab or composite samples.

Should any discharge or increase in the volume of a discharge caused by precipitation within any 24-hour period that is greater than the 10-year, 24-hour precipitation event (or snowmelt of equivalent volume) may, at outfall 001, comply with the following pH limitation instead of the limitation contained in *Part I.D.1*:

Effluent Characteristics	Daily Minimum	Daily Maximum
pH, SU	6.0	9.0

In order to substitute the above limitation, the sample collected during the storm event must be analyzed for all permitted parameters specified under *Part I.D.1*. Such analyses shall be conducted on either grab or composite samples.

4. The operator shall have the burden of proof that the increase in discharge was caused by the applicable precipitation event described in *Part I.D.3*. The alternate limitation in *Part I.D.3* shall not apply to treatment systems that treat exclusively underground mine water (i.e. outfall 002).
5. Whole Effluent Testing - Chronic Toxicity. Starting on the effective date of the permit, the permittee shall quarterly conduct chronic short-term toxicity tests on a composite sample of the final effluent. The sample shall be collected at outfall 002.

The monitoring frequency shall be quarterly. Samples shall be collected on a two-day progression; i.e., if the first sample is on a Monday, during the next sampling period, sampling shall be on a Wednesday. If chronic toxicity is detected, the test shall be repeated in less than four weeks from the date the initial sample was taken. The need for any additional samples, and/or a Toxicity Reduction Evaluation (TRE) (*see Part I.D.5.*) shall be determined by the Executive Secretary. If the second test shows no chronic toxicity, routine monitoring shall be resumed.

The chronic toxicity tests shall be conducted in general accordance with the procedures set out in the latest revision of *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, Fourth Edition, October 2002, EPA-821-R-02-013* as per 40 CFR 136.3(a) TABLE IA-LIST OF APPROVED BIOLOGICAL METHODS, and the *Region VIII EPA NPDES Chronic Test Conditions - Static Renewal Whole Effluent Toxicity Test (August 1997)*. In case of conflicts, the Region VIII procedure will prevail. Tests will be conducted quarterly using *Ceriodaphnia dubia* and semi-annually using *Pimephales promelas* (fathead minnow). A CO₂ atmosphere may be used (in conjunction with an unmodified test) in order to account for pH drift.

Chronic toxicity occurs when the IC₂₅ is less than or equal to an effluent concentration of 66%. If any of the acceptable control performance criteria are not met, the test shall be considered invalid.

Quarterly test results shall be reported along with the Discharge Monitoring Report Form (DMR) submitted for the end of the reporting calendar quarter. For example, biomonitoring results for the calendar quarter ending March 31 shall be reported with the standard DMR due April 28, with the remaining biomonitoring reports submitted with standard DMRs due each July 28, October 28, and January 28. Biomonitoring results shall be reported on a biomonitoring DMR form, shall be consistent with the latest revision of the *Region VIII NPDES Whole Effluent Toxics Control Program, August 1997, Appendix C: Region VIII Guidance for Chronic Whole Effluent Toxicity Reporting*, and shall include all chemical and physical data as specified.

If the results for one year of testing indicate no chronic toxicity, the permittee may request a reduction in testing frequency and/or reduction to one species. The Executive Secretary may approve, partially approve, or deny the request based on results and other available information. If approval is given, the modification will take place without a public notice.

The current Utah whole effluent toxicity (WET) policy is in the process of being updated and revised to assure its consistency with the Environmental Protection Agency's national and regional WET policy. When the revised WET policy has been finalized and officially adopted, this permit may be reopened and modified to incorporate satisfactory follow-up chronic toxicity language (chronic pattern of toxicity, preliminary toxicity investigation, and/or toxicity identification evaluation (TIE)/TRE, etc.) without a public notice, as warranted and appropriate.

6. Toxicity Reduction Evaluation. If toxicity is detected during the life of this permit and it is determined by the Executive Secretary that a TRE is necessary, the permittee shall be so notified and shall initiate a TRE immediately thereafter. The purpose of the TRE will be to establish the cause of the toxicity, locate the source(s) of the toxicity, and control or provide treatment for the toxicity.

A TRE may include but is not limited to one, all, or a combination of the following:

- a. Phase I - Toxicity Characterization
- b. Phase II - Toxicity Identification Procedures
- c. Phase III - Toxicity Control Procedures

- d. Any other appropriate procedures for toxicity source elimination and control

If the TRE establishes that the toxicity cannot be eliminated immediately, the permittee shall submit a proposed compliance plan to the Executive Secretary. The plan shall include the proposed approach to control toxicity and a proposed compliance schedule for achieving control. If the approach and schedule are acceptable to the Executive Secretary, this permit may be reopened and modified.

If the TRE shows that the toxicity is caused by a toxicant(s) that may be controlled with specific numerical limitations, the permittee may:

- a. Submit an alternative control program for compliance with the numerical requirements.
- b. If necessary, provide a modified biomonitoring protocol that compensates for the pollutant(s) being controlled numerically.

If acceptable to the Executive Secretary, this permit may be reopened and modified to incorporate any additional numerical limitations, a modified compliance schedule if judged necessary by the Executive Secretary, and/or a modified biomonitoring protocol.

Failure to conduct an adequate TRE, or failure to submit a plan or program as described above, or the submittal of a plan or program judged inadequate by the Executive Secretary, shall be considered a violation of this permit.

II. STORM WATER DISCHARGE REQUIREMENTS

A. Coverage of This Section.

1. Discharges Covered Under This Section. The requirements listed under this section shall apply to storm water discharges from the industrial facility.

a. Site Coverage. This section covers discharges of storm water associated with industrial activity 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.

The following non-storm water discharges may be authorized under this permit provided the non-storm water component of the discharge is in compliance with this section; discharges from fire fighting activities; fire hydrant flushing; potable water sources including waterline flushing; drinking fountain water; irrigation drainage and lawn watering; routine external building wash down water where detergents or other compounds have not been used in the process; 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; air conditioning condensate; uncontaminated compressor condensate; uncontaminated springs; uncontaminated ground water; and foundation or footing drains where flows are not contaminated with process materials such as solvents.

C. Storm Water Pollution Prevention Plan Requirements: Contents of the Plan. The plan shall include, at a minimum, the following:

1. 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.

2. 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:

a. Drainage. A site map must be maintained 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:

- (1) Drainage direction and discharge points from all wastewater associated discharges.
- (2) Location of any erosion and sediment control structure or other control measures utilized for reducing pollutants in storm water runoff.
- (3) 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.
- (4) Locations where any major spills or leaks of toxic or hazardous materials have occurred
- (5) Location of any sand or salt piles.

- (6) Location of fueling stations or vehicle and equipment maintenance and cleaning areas that are exposed to precipitation.
 - (7) Location of receiving streams or other surface water bodies.
 - (8) Locations of outfalls and the types of discharges contained in the drainage areas of the outfalls.
- b. 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; 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.
- c. 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.
- d. 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.
- e. 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.

3. 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:
 - a. 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.
 - b. 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.
 - c. 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.

- d. Inspections. In addition to the comprehensive site evaluation required under *Part II.D.*, 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.
- e. 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.
- f. 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 *Part II.C.* Inspections and maintenance activities shall be documented and records of such activities shall be incorporated into the plan.
- g. Non-storm Water Discharges.
- (1) 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.

- (2) Exceptions. Except for flows from fire fighting activities, sources of non-storm water listed in *Part II.B. (Prohibition of Non-storm Water Discharges)* 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.
 - (3) Failure to Certify. Any facility that is unable to provide the certification required (testing for non-storm water discharges), must notify the Executive Secretary within 180 days of 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 that are not authorized by a UPDES permit are unlawful, and must be terminated.
- h. 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.
 - i. 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 (*see Part II.C.2, Description of Potential Pollutant Sources*) 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.2. (Description of Potential Pollutant Sources)* and pollution prevention measures and controls identified in the plan in accordance with *Part II.C.3. (Measures and Controls)* 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 *Part II.C.3.i.* 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 IV.G (Signatory Requirements)* of this permit.
4. Deadlines for Plan Preparation and Compliance. The facility shall prepare and implement a plan in compliance with the provisions of *Part II* of this permit within 270 days of the permit effective date.
5. Keeping Plans Current. The facility 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. The facility 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. If the permittee reasonably believes multiple outfalls discharge substantially identical effluents, based on a consideration of industrial activity, significant materials, and management practices and activities within the area drained by an outfall, the permittee may collect a sample of effluent from one such outfall 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. EPCRA Section 313 Requirements.

1. In areas where *Section 313* water priority chemicals are stored, processed or otherwise handled, appropriate containment, drainage control and/or diversionary structures shall be provided. At a minimum, one of the following preventive systems or its equivalent shall be used:
 - a. Curbing, culverting, gutters, sewers, or other forms of drainage control to prevent or minimize the potential for storm water run-on to come into contact with significant sources of pollutants; or
 - b. Roofs, covers or other forms of appropriate protection to prevent storage piles from exposure to storm water and wind.
2. No tank or container shall be used for the storage of a *Section 313* water priority chemical unless its material and construction are compatible with the material stored and conditions of storage such as pressure and temperature, etc.

Liquid storage areas for *Section 313* water priority chemicals shall be operated to minimize discharges of *Section 313* chemicals. Appropriate measures to minimize discharges of *Section 313* chemicals may include secondary containment provided for at least the entire contents of the largest single tank plus sufficient freeboard to allow for precipitation, a strong spill contingency and integrity testing plan, and/or other equivalent measures.

3. Material storage areas for *Section 313* water priority chemicals

other than liquids that are subject to runoff, leaching, or wind shall incorporate drainage or other control features that will minimize the discharge of *Section 313* water priority chemicals by reducing storm water contact with *Section 313* water priority chemicals.

4. Truck and rail car loading and unloading areas for liquid *Section 313* water priority chemicals shall be operated to minimize discharges of *Section 313* water priority chemicals. Protection such as overhangs or door skirts to enclose trailer ends at truck loading/unloading docks shall be provided as appropriate. Appropriate measures to minimize discharges of *Section 313* chemicals may include: the placement and maintenance of drip pans (including the proper disposal of materials collected in the drip pans) where spillage may occur (such as hose connections, hose reels and filler nozzles) for use when making and breaking hose connections; a strong spill contingency and integrity testing plan; and/or other equivalent measures.
5. Processing equipment and materials handling equipment shall be operated so as to minimize discharges of *Section 313* water priority chemicals. Materials used in piping and equipment shall be compatible with the substances handled. Drainage from process and materials handling areas shall minimize storm water contact with *Section 313* water priority chemicals. Additional protection such as covers or guards to prevent exposure to wind, spraying or releases from pressure relief vents from causing a discharge of *Section 313* water priority chemicals to the drainage system shall be provided as appropriate. Visual inspections or leak tests shall be provided for overhead piping conveying *Section 313* water priority chemicals without secondary containment.
6. Drainage from areas covered by *Parts II.F. 1, 2, 3, or 4* should be restrained by valves or other positive means to prevent the discharge of a spill or other excessive leakage of *Section 313* water priority chemicals. Where containment units are employed, such units may be emptied by pumps or ejectors; however, these shall be manually activated.

Flapper-type drain valves shall not be used to drain containment areas. Valves used for the drainage of containment areas should, as far as is practical, be of manual, open-and-closed design. If facility drainage is not engineered as above, the final discharge of all in-facility storm sewers shall be equipped to be equivalent with a diversion system that could, in the event of an uncontrolled spill of *Section 313* water priority chemicals, return the spilled material to the facility.

Records shall be kept of the frequency and estimated volume (in gallons) of discharges from containment areas.

7. Other areas of the facility (those not addressed in *Parts II.F. 1, 2, 3, or 4*, from which runoff that may contain *Section 313* water priority chemicals or spills of *Section 313* water priority chemicals could cause a discharge shall incorporate the necessary drainage or other control features to prevent discharge of spilled or improperly disposed material and ensure the mitigation of pollutants in runoff or leachate.
8. All areas of the facility shall be inspected at specific intervals identified in the plan for leaks or conditions that could lead to discharges of *Section 313* water priority chemicals or direct contact of storm water with raw materials, intermediate materials, waste materials or products. In particular, facility piping, pumps, storage tanks and bins, pressure vessels, process and material handling equipment, and material bulk storage areas shall be examined for any conditions or failures that could cause a discharge. Inspection shall include examination for leaks, wind blowing, corrosion, support or foundation failure, or other forms of deterioration or non-containment. Inspection intervals shall be specified in the plan and shall be based on design and operational experience. Different areas may require different inspection intervals. Where a leak or other condition is discovered that may result in significant releases of *Section 313* water priority chemicals to waters of the State, action to stop the leak or otherwise prevent the significant release of *Section 313* water priority chemicals to waters of the State shall be immediately taken or the unit or process shut down until such action can be taken. When a leak or non-containment of a *Section 313* water priority chemical has occurred, contaminated soil, debris, or other material must be promptly removed and disposed in accordance with Federal, State, and local requirements and as described in the plan.
9. Facilities shall have the necessary security systems to prevent accidental or intentional entry that could cause a discharge. Security systems described in the plan shall address fencing, lighting, vehicular traffic control, and securing of equipment and buildings.
10. Facility employees and contractor personnel that work in areas where *Section 313* water priority chemicals are used or stored shall be trained in and informed of preventive measures at the facility. Employee training shall be conducted at intervals specified in the

plan, but not less than once per year. Training shall address: pollution control laws and regulations, the storm water pollution prevention plan and the particular features of the facility and its operation that are designed to minimize discharges of *Section 313* water priority chemicals. The plan shall designate a person who is accountable for spill prevention at the facility and who will set up the necessary spill emergency procedures and reporting requirements so that spills and emergency releases of *Section 313* water priority chemicals can be isolated and contained before a discharge of a *Section 313* water priority chemical can occur. Contractor or temporary personnel shall be informed of facility operation and design features in order to prevent discharges or spills from occurring.

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 DMR 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 December 28, 2005. If no discharge occurs during the reporting period, "no discharge" shall be reported. Legible copies of these, and all other reports including WET test reports required herein, shall be signed and certified in accordance with the requirements of *Signatory Requirements (Part V.G.)*, and submitted to the Director, Division of Water Quality at the following address:
- original to: Department of Environmental Quality
Division of Water Quality
288 North 1460 West
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;
 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 Executive Secretary 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 that may seriously endanger health or environment as soon as possible, but no later than 24 hours from the time the permittee first became aware of circumstances. The report shall be made to the Division of Water Quality, (801) 538-6146, or 24-hour answering service (801) 536-4123.
 2. The following occurrences of noncompliance shall be reported by telephone (801) 536-4123 as soon as possible but no later than 24 hours from the time the permittee becomes aware of the circumstances:
 - a. Any noncompliance that may endanger health or the environment;
 - b. Any unanticipated bypass that 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,
 - 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 Executive Secretary 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) 538-6146.
 5. Reports shall be submitted to the addresses in *Part III.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 III.D* are submitted. The reports shall contain the information listed in *Part III.I.3.*
- K. Inspection and Entry. The permittee shall allow the Executive Secretary, 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.

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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 re-issuance, or modification; or for denial of a permit renewal application. The permittee shall give advance notice to the Executive Secretary of any planned changes in the permitted facility or activity that 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 that 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 that 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, sludge, or other pollutants removed in the course of treatment shall be buried or disposed of in such a manner 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 *Parts IV.G.2. and IV.G.3.*
2. Prohibition of Bypass.
 - a. Bypass is prohibited, and the Executive Secretary 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 *Part IV.G.3.*
 - b. The Executive Secretary may approve an anticipated bypass, after considering its adverse effects, if the Executive Secretary determines that it will meet the three conditions listed in *Part IV.G.2a. (1), (2) and (3).*
3. Notice.
 - a. Anticipated bypass. Except as provided in *Part IV.G.2. and Part IV.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 Executive Secretary:

- (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 Executive Secretary 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 Executive Secretary.
- b. Emergency Bypass. Where ninety days advance notice is not possible, the permittee must notify the Executive Secretary, and the Director of the Department of Natural Resources, as soon as it becomes aware of the need to bypass and provide to the Executive Secretary the information in *Part IV.G.3.a.(1) through (6)* to the extent practicable.
- c. Unanticipated bypass. The permittee shall submit notice of an unanticipated bypass to the Executive Secretary as required under *Part III.I., Twenty-four-Hour Notice of Non-Compliance 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 *Part IV.H.2.* are met. Executive Secretary'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 III.1, Twenty-four Hour Notice of Noncompliance Reporting*; and,
 - d. The permittee complied with any remedial measures required under *Part IV.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 Executive Secretary as soon as the permittee knows of, or has reason to believe:

1. That any activity has occurred or will occur that 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 µg/L);
 - b. Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/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 Executive Secretary 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 µg/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 Executive Secretary 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.

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 Executive Secretary 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 that 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 Executive Secretary of any planned changes at least 30 days prior to their implementation.
- B. Anticipated Noncompliance. The permittee shall give advance notice to the Executive Secretary of any planned changes in the permitted facility or activity that 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 re-issuance, 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 Executive Secretary, within a reasonable time, any information which the Executive Secretary 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 Executive Secretary, upon request, copies of records this permit requires to be kept.
- 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 Executive Secretary, it shall promptly submit such facts or information.
- G. Signatory Requirements. All applications, reports or information submitted to the Executive Secretary 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 Executive Secretary 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:
 - a. The authorization is made in writing by a person described above and submitted to the Executive Secretary, 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 *Part V.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 *Part V.G.2.* must be submitted to the Executive Secretary 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 *Part V.G.* 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 Executive Secretary. 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 provision 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 Executive Secretary 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 Executive Secretary 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 *Part V.M.2*.

- 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-Re-opener Provision. This permit may be reopened and modified (following proper administrative procedures) to include 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.

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**STATEMENT OF BASIS
GENWAL RESOURCES, INC.
UTAH POLLUTANT DISCHARGE ELIMINATION SYSTEM (UPDES) PERMIT
NUMBER: UT0024368
UPDES MULTI-SECTOR STORM WATER GENERAL PERMIT NUMBER: UTR000000
MINOR INDUSTRIAL**

FACILITY CONTACTS

Facility Contact:	Gary Gray	Responsible Official:	Laine Adair
Position:	Engineer	Position:	General Manager
Phone:	(435) 888-4000	Phone:	(435) 888-4000

DESCRIPTION OF FACILITY

Facility Name: Genwal Resources, Inc. Crandall Canyon Mine
Mailing Address: P.O. Box 1077
Price, Utah 84501
Physical Address: Approximately 15 miles northwest of Huntington, Utah in Crandall Canyon (1.5 miles west of Utah Highway 30)
Latitude: 39° 27' 38"
Longitude: 111° 09' 59"
Standard Industrial Classification (SIC): 1222 - *Bituminous Coal Underground Mining*

Genwal Resources, Inc. (Genwal) is an underground coal mining facility located near the head of Crandall Canyon, a tributary to Huntington Canyon, in the Manti-La Sal National Forest.

Genwal extracts coal from the Wasatch Plateau Coal Field (WPCF) using a combination of continuous and long-wall mining. The WPCF is composed of low-sulfur bituminous coal, which produces drainage with pH greater than 6.0 standard units (SU) and a total iron concentration less than 10 milligrams per liter (mg/L) prior to any treatment. The Environmental Protection Agency (EPA) defines this type of mine drainage as "alkaline mine drainage."

Production from the Crandall Canyon Mine decreased during Genwal's 2000 - 2005 permit cycle. From 2000 to 2002, Genwal produced approximately 3.71 million tons of coal per year, while from 2003 to 2004 the mine produced 1.02 million tons of coal per year.

DESCRIPTION OF DISCHARGE

<u>Outfall</u>	<u>Description</u>
001	Effluent comprises drainage from surface facilities of the mine. Outfall 001 is an 18-inch pipe on the east side of the sediment pond dam. Genwal has not discharged through this outfall during their 2000 - 2005 permit cycle.

<u>Outfall</u>	<u>Description</u>
002	Outfall 002 is a 12-inch pipe that discharges mine water from several large underground sumps that allow sediment to settle out of the water prior to discharge. The discharge pipe is located within in a riser pipe from the bypass culvert of Crandall Creek, just west of the Master Control Console building in the lower yard of the facility.

RECEIVING WATERS AND STREAM CLASSIFICATION

As a tributary to Huntington Creek, Crandall Creek is classified as 1C, 2B, 3A, and 4 according to *Utah Administrative Code (UAC) R317-2-13*.

- Class 1C - Protected for domestic purposes with prior treatment by treatment processes as required by the Utah Division of Drinking Water.
- Class 2B -Protected for secondary contact recreation such as boating, wading, or similar uses.
- Class 3A -Protected for cold-water species of game fish and other cold-water aquatic life, including the necessary aquatic organisms in their food chain.
- Class 4 -Protected for agricultural uses including irrigation of crops and stock watering.

BASIS FOR EFFLUENT LIMITATIONS

In accordance with regulations promulgated in *40 Code of Federal Regulations (CFR) Part 122.44* and in *UAC R317-8-4.2*, effluent limitations are derived from technology-based effluent limitations guidelines, Utah Secondary Treatment Standards (*UAC R317-1-3.2*) or Utah Water Quality Standards (*UAC R317-2*). In cases where multiple limits have been developed, those that are more stringent apply. In cases where no limits have been developed, Best Professional Judgment (BPJ) may be used where applicable.

Effluent limitations are also derived using a wasteload analysis (WLA) (Addendum I). The WLA incorporates Secondary Treatment Standards, Water Quality Standards, and designated uses into a water quality model that projects the effects of discharge concentrations on receiving water quality. Effluent limitations are those that the model demonstrates are sufficient to meet Utah Water Quality Standards in the receiving waters.

- 1) Genwal's discharge meets the EPA definition of "alkaline mine drainage." As such, it is subject to the technology based effluent limitations in *40 CFR Part 434.45*. Technology based limits used in the permit are listed below.

- a. Total suspended solids (TSS) daily maximum limit.

- b. For discharges composed of surface water or mine water commingled with surface water (outfall 001), *40 CFR Part 434.63* allows alternate effluent limits to be applied when discharges result from specific runoff events, detailed below and in the permit. Genwal has the burden of proof that the described runoff event occurred.
 - i. For runoff events (rainfall or snowmelt) less than or equal to a 10-year 24-hour precipitation event, settleable solids shall be substituted for TSS and shall be limited to 0.5 milliliters per liter (ml/L). All other effluent limitations must be achieved concurrently, as described in the permit.
- 2) TSS 30-day and 7-day averages are based on Utah Secondary Treatment Standards.
- 3) Daily minimum and daily maximum limitations on pH are derived from Utah Secondary Treatment Standards and Water Quality Standards.
- 4) Total dissolved solids (TDS) are limited according to Water Quality Standards and policies established by the Colorado River Basin Salinity Control Forum, authorized in *UAC R317-2-4*.
- 5) Limitations on total iron and dissolved oxygen (DO) are water quality based and derived in the WLA.
- 6) Oil and Grease are limited to 10 mg/L by BPJ.
- 7) In addition to the WLA, a Level I Anti-Degradation review was completed. Based on the Level I review, a Level II review is not required.

EFFLUENT LIMITATIONS, SELF-MONITORING, AND REPORTING REQUIREMENTS

Excepting whole effluent testing, the effluent limitations and monitoring requirements listed below apply to both outfalls 001 and 002. Monitoring shall be completed as outlined below. Effluent self-monitoring requirements are developed in the *Utah Monitoring, Recording and Reporting Frequency Guidelines* as effective December 1, 1991. Reports shall be made on Discharge Monitoring Report (DMR) forms and are due 28 days after the end of the monitoring period (month, quarter, year, etc.). Lab sheets for biomonitoring must be attached to the biomonitoring DMR.

Genwal has collected and reported self-monitoring data as required in their 2000 - 2005 permit. A table containing this data is attached as Addendum II. One weather-related effluent limit violation for TDS occurred in October 2004.

Additional monitoring data were available from the STORET database. STORET data from August 2001 through March 2005 are presented as Addendum III.

Effluent Characteristics	Effluent Limitations				Monitoring Requirements	
	30 Day Average	7 Day Average	Daily Minimum	Daily Maximum	Sample Frequency	Sample Type
Flow, ¹ MGD	Report	² NA	NA	Report	Monthly	Continuous Recorder
TSS, mg/L	25	35	NA	70	Monthly	Grab
Total Iron, mg/L	NA	NA	NA	1.0	Monthly	Grab
Oil & Grease, mg/L a/	NA	NA	NA	10	Monthly	Grab
TDS, mg/L <i>Interim</i> b/	NA	NA	NA	1200	2 x Month	Grab
TDS, mg/L <i>Final</i> b/	500	NA	NA	1200	1 x Month	Grab
pH, standard units c/	NA	NA	6.5	9.0	Monthly	Grab
DO, mg/L d/	≥ 4.0	NA	NA	NA	Monthly	Grab
Sanitary Waste e/	NA	NA	NA	None	Monthly	Visual
Chronic Whole Effluent Toxicity (outfall 002)	NA	NA	NA	³ Pass, IC ₂₅ = 66% effluent	Quarterly	Composite

¹ MGD: million gallons per day ² NA: not applicable ³ See Biomonitoring Requirements

- a/ In addition to monthly sampling for oil and grease, a visual inspection for oil and grease, floating solids, and visible foam shall be performed at least twice per month at 001 and 002. There shall be no sheen, floating solids, or visible foam in other than trace amounts. If a sheen is observed, a sample of the effluent shall be collected immediately thereafter and oil and grease shall not exceed 10 mg/L in concentration.
- b/ *Interim limits for TDS shall be effective from the effective date of this permit until March 1, 2006. The final TDS limits will be enforceable beginning March 1, 2006 or sooner if the permittee can make it so.* The interim concentration of TDS from each of the outfalls shall not exceed 1200 mg/L as a daily maximum limit. Because Genwal is not likely to meet the final 500 mg/L 30-day average concentration limit and cannot meet the tons per day loading limit, a compliance schedule has been incorporated in the permit. The schedule will allow Genwal to retain its current permit limits until February 28, 2006, during which time it must participate in an intercepted groundwater survey and/or a salinity offset project as described in the permit. If Genwal does meet the 500-mg/L 30-day average concentration limit during any month, no salinity offsets will be required for that month.
- c/ The pH shall not be less than 6.5 standard units (SU) nor greater than 9.0 SU in any sample and shall be monitored monthly by instantaneous grab sample.
- d/ The 30-day average DO shall not be less than 4.0 mg/L and shall be monitored monthly by an instantaneous grab sample.
- e/ There shall be no discharge of sanitary waste.

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

- 1) Total iron has been changed from 1.3 mg/L to 1.0 mg/L, the limit set in the Water Quality Standard. Genwal's total iron concentration for the 2000 - 2005 permit averaged 0.14 mg/L, demonstrating that Genwal can easily meet this limit.
- 2) The visual monitoring frequency for oil and grease has been increased from once per month to twice per month to account for the possible release of translucent longwall mining fluid. This is consistent with requirements at similar facilities with similar discharge.
- 3) The TDS limitation in the previous permit was a daily maximum of 723 mg/L, monitored once per month. In order to comply with more recent requirements established by the Colorado River Basin Salinity Control Forum, a 30-day average TDS limitation of 500 mg/L has been added to the permit. However, data from Genwal indicates that it will not be able to meet either the 500-mg/L 30-day average limit or the 1-ton per day loading limit. As such, a compliance schedule has been placed in the permit to give Genwal time to complete an intercepted groundwater survey and/or a salinity-offset project. The interim limit during this period will be 1200 mg/L TDS as a daily maximum (based on Water Quality Standards), sampled twice per month. The final TDS limits will include the 1200 mg/L daily maximum and a 500 mg/L as a monthly average, sampled once per month. The interim limit will be in effect until February 28, 2006, with the final limits becoming effective on March 1, 2006.
- 4) Based on the WLA, the DO limit has been increased from a daily minimum of 3.0 mg/L to a daily minimum of 4.0 mg/L. Genwal's monitoring data show that the minimum DO concentration during the last permit interval was 5.1 mg/L. In order to comply with the anti-backsliding requirements in *Section 402* of the *Clean Water Act*, lowering this limit will not be considered in future permits unless a substantive change in operating conditions or available water quality information occurs.
- 5) See the Biomonitoring section for changes to Whole Effluent Toxicity (WET) requirements.

STORM WATER REQUIREMENTS

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

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

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

PRETREATMENT REQUIREMENTS

Any process wastewater that the facility may discharge to the public 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 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 accepting the waste.

BIOMONITORING REQUIREMENTS

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

As in the previous permit, Genwal will conduct chronic whole effluent toxicity (WET) testing quarterly using *Ceriodaphnia dubia* and semi-annually using *Pimephales promelas* (fathead minnow) at outfall 002. Chronic toxicity occurs when the inhibitory concentration to 25% of the population (IC_{25}) is less than or equal to an effluent concentration of 66%. The IC_{25} is the concentration of toxicant (given in % effluent) that would cause a 25% reduction in mean young per female or a 25% reduction in overall growth for the test population. This limit is the same as in the previous permit due to anti-backsliding considerations. A reduction in the effluent concentration may be considered if additional flow data is collected for Crandall Creek.

During the 2000 - 2005 permit cycle, Genwal failed the WET test using *Ceriodaphnia dubia*. A laboratory investigation indicated that pH drift during the test caused an artifactual increase in metal concentrations, which resulted in toxicity. According to the method set forth by EPA (*Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms, Fourth Edition, October 2002, EPA-821-R-02-013*), it is acceptable to use a carbon dioxide atmosphere to prevent pH drift once it has been demonstrated that pH drift

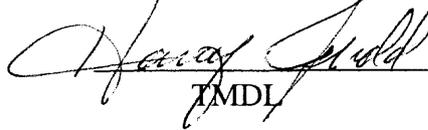
is artificially impacting the toxicity of the sample. As such, the new permit allows the use of a carbon dioxide atmosphere in routine testing in conjunction with an unmodified test.

PERMIT DURATION

It is recommended that this permit be effective for 5 years.

Drafted by
Kari Lundeen, Discharge/Biomonitoring
July 21, 2005

Reviewed by
Jeff Studenka, Colorado River Basin Salinity Control Forum Policies
Tom Rushing, Storm Water
Jennifer Robinson, Pretreatment

 12 SEP 2005
TMDL Date

Utah Division of Water Quality

ADDENDA

- I. Wasteload Analysis, Anti-Degradation Review
- II. Available DMR Data for the 2000 - 2005 Permit Cycle
- III. Available STORET Data for August 2001 to May 2005

26-Sep-05
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UPDES No: UT- 0024368

Addendum: Statement of Basis

Facilities: Genwal Resources Inc.
Discharging to: Crandall Creek -> Huntington Creek

I. Introduction

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

Mathematical water quality modeling is employed to determine stream quality response to point source discharge. 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

Crandall Creek -> Huntington Creek: 1C, 2B, 3A, 4
Antidegradation Review: Antidegradation Level II Review is NOT Required

III. Numeric Stream Standards for Protection of Aquatic Wildlife

Total Ammonia (TNH3)	Varies as a function of Temperature and pH Rebound. See Water Quality Standards
Chronic Total Residual Chlorine (TRC)	0.011 mg/l (4 Day Average) 0.019 mg/l (1 Hour Average)
Chronic Dissolved Oxygen (DO)	6.50 mg/l (30 Day Average) 5.00 mg/l (7Day Average) 4.00 mg/l (1 Day Average)
Maximum Total Dissolved Solids [See Water Quality Standards for special provisions]	1200.0 mg/l - Agricultural Use 2000.0 mg/l - Stock Watering

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Acute and Chronic Heavy Metals (Dissolved)

Parameter	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard		
	Concentration	Load*	Concentration		Load*
Aluminum	87.00 ug/l**	0.725 lbs/day	750.00	ug/l	6.254 lbs/day
Arsenic	190.00 ug/l	1.584 lbs/day	340.00	ug/l	2.835 lbs/day
Cadmium	0.61 ug/l	0.005 lbs/day	6.52	ug/l	0.054 lbs/day
Chromium III	211.92 ug/l	1.767 lbs/day	4433.71	ug/l	36.970 lbs/day
ChromiumVI	11.00 ug/l	0.092 lbs/day	16.00	ug/l	0.133 lbs/day
Copper	23.85 ug/l	0.199 lbs/day	39.41	ug/l	0.329 lbs/day
Iron			1000.00	ug/l	8.338 lbs/day
Lead	12.88 ug/l	0.107 lbs/day	330.60	ug/l	2.757 lbs/day
Mercury	0.0120 ug/l	0.000 lbs/day	2.40	ug/l	0.020 lbs/day
Nickel	132.13 ug/l	1.102 lbs/day	1188.44	ug/l	9.910 lbs/day
Selenium	4.60 ug/l	0.038 lbs/day	20.00	ug/l	0.167 lbs/day
Silver	N/A ug/l	N/A lbs/day	25.04	ug/l	0.209 lbs/day
Zinc	303.93 ug/l	2.534 lbs/day	303.93	ug/l	2.534 lbs/day

* Allowed below discharge

**Chronic Aluminum standard applies only to waters with a pH < 7.0 and a Hardness < 50 mg/l as

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	0.013 lbs/day
Chlordane	0.004 ug/l	0.061 lbs/day	1.200	ug/l	0.010 lbs/day
DDT, DDE	0.001 ug/l	0.014 lbs/day	0.550	ug/l	0.005 lbs/day
Dieldrin	0.002 ug/l	0.027 lbs/day	1.250	ug/l	0.010 lbs/day
Endosulfan	0.056 ug/l	0.799 lbs/day	0.110	ug/l	0.001 lbs/day
Endrin	0.002 ug/l	0.033 lbs/day	0.090	ug/l	0.001 lbs/day
Guthion			0.010	ug/l	0.000 lbs/day
Heptachlor	0.004 ug/l	0.054 lbs/day	0.260	ug/l	0.002 lbs/day
Lindane	0.080 ug/l	1.141 lbs/day	1.000	ug/l	0.008 lbs/day
Methoxychlor			0.030	ug/l	0.000 lbs/day
Mirex			0.010	ug/l	0.000 lbs/day
Parathion			0.040	ug/l	0.000 lbs/day
PCB's	0.014 ug/l	0.200 lbs/day	2.000	ug/l	0.017 lbs/day
Pentachlorophenol	13.00 ug/l	185.475 lbs/day	20.000	ug/l	0.167 lbs/day
Toxephene	0.0002 ug/l	0.003 lbs/day	0.7300	ug/l	0.006 lbs/day

IV. Numeric Stream Standards for Protection of Agriculture

	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Arsenic			100.0 ug/l	lbs/day

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Boron	750.0 ug/l	3.13 lbs/day
Cadmium	10.0 ug/l	0.04 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	1200.0 mg/l	5.00 tons/day

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

Metals	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Arsenic			50.0 ug/l	0.713 lbs/day
Barium			1000.0 ug/l	14.267 lbs/day
Cadmium			10.0 ug/l	0.143 lbs/day
Chromium			50.0 ug/l	0.713 lbs/day
Lead			50.0 ug/l	0.713 lbs/day
Mercury			2.0 ug/l	0.029 lbs/day
Selenium			10.0 ug/l	0.143 lbs/day
Silver			50.0 ug/l	0.713 lbs/day
Fluoride (3)			1.4 ug/l	0.020 lbs/day
to			2.4 ug/l	0.034 lbs/day
Nitrates as N			10.0 ug/l	0.143 lbs/day

Chlorophenoxy Herbicides

2,4-D	100.0 ug/l	1.427 lbs/day
2,4,5-TP	10.0 ug/l	0.143 lbs/day
Endrin	0.2 ug/l	0.003 lbs/day
cyclohexane (Lindane)	4.0 ug/l	0.057 lbs/day
Methoxychlor	100.0 ug/l	1.427 lbs/day
Toxaphene	5.0 ug/l	0.071 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 [2 Liters/Day for 70 Kg Person over 70 Yr]		Class 3A, 3B [6.5 g for 70 Kg Person over 70 Yr.]	
Acenaphthene	1200.00 ug/l	17.12 lbs/day	2700.0 ug/l	38.52 lbs/day
Acrolein	320.00 ug/l	4.57 lbs/day	780.0 ug/l	11.13 lbs/day
Acrylonitrile	0.06 ug/l	0.00 lbs/day	0.7 ug/l	0.01 lbs/day
Benzene	1.20 ug/l	0.02 lbs/day	71.0 ug/l	1.01 lbs/day
Benzidine	0.00012 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Carbon tetrachloride	0.25 ug/l	0.00 lbs/day	4.4 ug/l	0.06 lbs/day
Chlorobenzene	680.00 ug/l	9.70 lbs/day	21000.0 ug/l	299.61 lbs/day
1,2,4-Trichlorobenzene				
Hexachlorobenzene	0.00075 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
1,2-Dichloroethane	0.38 ug/l	0.01 lbs/day	99.0 ug/l	1.41 lbs/day
1,1,1-Trichloroethane				
Hexachloroethane	1.90 ug/l	0.03 lbs/day	8.9 ug/l	0.13 lbs/day

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1,1-Dichloroethane				
1,1,2-Trichloroethane	0.61 ug/l	0.01 lbs/day	42.0 ug/l	0.60 lbs/day
1,1,2,2-Tetrachloroethane	0.17 ug/l	0.00 lbs/day	11.0 ug/l	0.16 lbs/day
Chloroethane			0.0 ug/l	0.00 lbs/day
Bis(2-chloroethyl) ether	0.03 ug/l	0.00 lbs/day	1.4 ug/l	0.02 lbs/day
2-Chloroethyl vinyl ether	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
2-Chloronaphthalene	1700.00 ug/l	24.25 lbs/day	4300.0 ug/l	61.35 lbs/day
2,4,6-Trichlorophenol	2.10 ug/l	0.03 lbs/day	6.5 ug/l	0.09 lbs/day
p-Chloro-m-cresol			0.0 ug/l	0.00 lbs/day
Chloroform (HM)	5.70 ug/l	0.08 lbs/day	470.0 ug/l	6.71 lbs/day
2-Chlorophenol	120.00 ug/l	1.71 lbs/day	400.0 ug/l	5.71 lbs/day
1,2-Dichlorobenzene	2700.00 ug/l	38.52 lbs/day	17000.0 ug/l	242.54 lbs/day
1,3-Dichlorobenzene	400.00 ug/l	5.71 lbs/day	2600.0 ug/l	37.10 lbs/day
1,4-Dichlorobenzene	400.00 ug/l	5.71 lbs/day	2600.0 ug/l	37.10 lbs/day
3,3'-Dichlorobenzidine	0.04 ug/l	0.00 lbs/day	0.1 ug/l	0.00 lbs/day
1,1-Dichloroethylene	0.06 ug/l	0.00 lbs/day	3.2 ug/l	0.05 lbs/day
1,2-trans-Dichloroethylene	700.00 ug/l	9.99 lbs/day	0.0 ug/l	0.00 lbs/day
2,4-Dichlorophenol	93.00 ug/l	1.33 lbs/day	790.0 ug/l	11.27 lbs/day
1,2-Dichloropropane	0.52 ug/l	0.01 lbs/day	39.0 ug/l	0.56 lbs/day
1,3-Dichloropropylene	10.00 ug/l	0.14 lbs/day	1700.0 ug/l	24.25 lbs/day
2,4-Dimethylphenol	540.00 ug/l	7.70 lbs/day	2300.0 ug/l	32.81 lbs/day
2,4-Dinitrotoluene	0.11 ug/l	0.00 lbs/day	9.1 ug/l	0.13 lbs/day
2,6-Dinitrotoluene	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
1,2-Diphenylhydrazine	0.04 ug/l	0.00 lbs/day	0.5 ug/l	0.01 lbs/day
Ethylbenzene	3100.00 ug/l	44.23 lbs/day	29000.0 ug/l	413.75 lbs/day
Fluoranthene	300.00 ug/l	4.28 lbs/day	370.0 ug/l	5.28 lbs/day
4-Chlorophenyl phenyl ether				
4-Bromophenyl phenyl ether				
Bis(2-chloroisopropyl) ether	1400.00 ug/l	19.97 lbs/day	170000.0 ug/l	2425.45 lbs/day
Bis(2-chloroethoxy) methane	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Methylene chloride (HM)	4.70 ug/l	0.07 lbs/day	1600.0 ug/l	22.83 lbs/day
Methyl chloride (HM)	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Methyl bromide (HM)	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Bromoform (HM)	4.30 ug/l	0.06 lbs/day	360.0 ug/l	5.14 lbs/day
Dichlorobromomethane	0.27 ug/l	0.00 lbs/day	22.0 ug/l	0.31 lbs/day
Chlorodibromomethane	0.41 ug/l	0.01 lbs/day	34.0 ug/l	0.49 lbs/day
Hexachlorobutadiene(cyclohexane)	0.44 ug/l	0.01 lbs/day	50.0 ug/l	0.71 lbs/day
Hexachlorocyclopentadiene	240.00 ug/l	3.42 lbs/day	17000.0 ug/l	242.54 lbs/day
Isophorone	8.40 ug/l	0.12 lbs/day	600.0 ug/l	8.56 lbs/day
Naphthalene				
Nitrobenzene	17.00 ug/l	0.24 lbs/day	1900.0 ug/l	27.11 lbs/day
2-Nitrophenol	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
4-Nitrophenol	0.00 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
2,4-Dinitrophenol	70.00 ug/l	1.00 lbs/day	14000.0 ug/l	199.74 lbs/day
4,6-Dinitro-o-cresol	13.00 ug/l	0.19 lbs/day	765.0 ug/l	10.91 lbs/day
N-Nitrosodimethylamine	0.00069 ug/l	0.00 lbs/day	8.1 ug/l	0.12 lbs/day
N-Nitrosodiphenylamine	5.00 ug/l	0.07 lbs/day	16.0 ug/l	0.23 lbs/day
N-Nitrosodi-n-propylamine	0.01 ug/l	0.00 lbs/day	1.4 ug/l	0.02 lbs/day
Pentachlorophenol	0.28 ug/l	0.00 lbs/day	8.2 ug/l	0.12 lbs/day

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Phenol	2.10E+04 ug/l	3.00E+02 lbs/day	4.6E+06 ug/l	6.56E+04 lbs/day
Bis(2-ethylhexyl)phthal.	1.80 ug/l	0.03 lbs/day	5.9 ug/l	0.08 lbs/day
Butyl benzyl phthalate	3000.00 ug/l	42.80 lbs/day	5200.0 ug/l	74.19 lbs/day
Di-n-butyl phthalate	2700.00 ug/l	38.52 lbs/day	12000.0 ug/l	171.21 lbs/day
Di-n-octyl phthlate				
Diethyl phthalate	23000.00 ug/l	328.15 lbs/day	120000.0 ug/l	1712.08 lbs/day
Dimethyl phthlate	3.13E+05 ug/l	4.47E+03 lbs/day	2.9E+06 ug/l	4.14E+04 lbs/day
Benzo(a)anthracene (F	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(a)pyrene (PAH)	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(b)fluoranthene (0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(k)fluoranthene (0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Chrysene (PAH)	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Acenaphthylene (PAH)				
Anthracene (PAH)	9600.00 ug/l	136.97 lbs/day	0.0 ug/l	0.00 lbs/day
Dibenzo(a,h)anthracen	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Indeno(1,2,3-cd)pyrene	0.0028 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Pyrene (PAH)	960.00 ug/l	13.70 lbs/day	11000.0 ug/l	156.94 lbs/day
Tetrachloroethylene	0.80 ug/l	0.01 lbs/day	8.9 ug/l	0.13 lbs/day
Toluene	6800.00 ug/l	97.02 lbs/day	200000.0 ug/l	2853.47 lbs/day
Trichloroethylene	2.70 ug/l	0.04 lbs/day	81.0 ug/l	1.16 lbs/day
Vinyl chloride	2.00 ug/l	0.03 lbs/day	525.0 ug/l	7.49 lbs/day
			0.0	0.00 lbs/day
			0.0	0.00 lbs/day
Pesticides				
Aldrin	0.0001 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Dieldrin	0.0001 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Chlordane	0.0006 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDT	0.0006 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDE	0.0006 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
4,4'-DDD	0.0008 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
alpha-Endosulfan	0.9300 ug/l	0.01 lbs/day	2.0 ug/l	0.03 lbs/day
beta-Endosulfan	0.9300 ug/l	0.01 lbs/day	2.0 ug/l	0.03 lbs/day
Endosulfan sulfate	0.9300 ug/l	0.01 lbs/day	2.0 ug/l	0.03 lbs/day
Endrin	0.7600 ug/l	0.01 lbs/day	0.8 ug/l	0.01 lbs/day
Endrin aldehyde	0.7600 ug/l	0.01 lbs/day	0.8 ug/l	0.01 lbs/day
Heptachlor	0.0002 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Heptachlor epoxide				
PCB's				
PCB 1242 (Arochlor 12	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1254 (Arochlor 12	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1221 (Arochlor 12	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1232 (Arochlor 12	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1248 (Arochlor 12	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1260 (Arochlor 12	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1016 (Arochlor 10	0.000044 ug/l	0.00 lbs/day	0.0 ug/l	0.00 lbs/day
Pesticide				
Toxaphene	0.000750 ug/l	0.00	0.0 ug/l	0.00 lbs/day

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Dioxin

Dioxin (2,3,7,8-TCDD)	1.30E-08 ug/l	0.00 lbs/day	1.40E-08	0.00
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Metals

Antimony	14.0 ug/l	0.20 lbs/day		
Arsenic	50.0 ug/l	0.71 lbs/day	4300.00 ug/l	61.35 lbs/day
Asbestos	7.00E+06 ug/l	9.99E+04 lbs/day		
Beryllium				
Cadmium				
Chromium (III)				
Chromium (VI)				
Copper				
Cyanide	1.30E+03 ug/l	18.55 lbs/day	2.2E+05 ug/l	3138.81 lbs/day
Lead	700.0 ug/l	9.99 lbs/day		
Mercury			0.15 ug/l	0.00 lbs/day
Nickel			4600.00 ug/l	65.63 lbs/day
Selenium	0.1 ug/l	0.00 lbs/day		
Silver	610.0 ug/l	8.70 lbs/day		
Thallium			6.30 ug/l	0.09 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 model used for this wasteload analysis:

(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) including the AMMTOX Model, University of Colorado, Center of Limnology, and EPA Region 8.

The model used in this wasteload can be obtained by contacting the Utah Division of Water Quality. The model is in an Excel format with the following file name: Genwall Coal 2005

General principles used for modeling:

(1) *Principles of Surface Water Quality Modeling and Control*. Robert V. Thomann, et.al. Harper Collins Publisher, Inc. 1987, pp. 644. (General approaches and basic equations.)

Coefficients used in the model were based upon the following references:

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(1) *Rates, Constants, and Kinetics Formulations in Surface Water Quality Modeling*. Environmental Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Athens Georgia. EPA/600/3-85/040 June 1985.

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

(3) EPA Region 8 Guidance, Bruce Zander

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

Note: In those cases where chemical parameters in the discharger's waste stream are below the surface water quality standard for that parameter, and will not be included in the permit, a default value for the instream parameter concentration is equal to one half the MDL or an estimated average value may be utilized.

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.

Upstream Information

	Stream	Flow	Temp. Deg. C	pH	T-NH3 mg/l as N	BOD5 mg/l	DO mg/l	TRC mg/l	TDS mg/l
Summer		1.1	20.0	8.2	0.10	0.50	6.10	0.00	231.1
Fall		1.1	12.0	8.1	0.10	0.50	---	0.00	231.1
Winter		1.1	8.0	8.0	0.10	0.50	---	0.00	231.1
Spring		1.1	12.0	8.1	0.10	0.50	---	0.00	231.1

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Dissolved	Al	As	Cd	CrIII	CrVI	Copper	Fe	Pb
Metals	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
All Seasons	1.59*	0.53*	0.053*	0.53*	2.65*	0.53*	0.83*	0.53*
Dissolved	Hg	Ni	Se	Ag	Zn	Boron		
Metals	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l		
All Seasons	0.0001	0.53*	1.06*	0.1*	0.053*	10.0		* 1/2 MDL

Note: Stream flow of the receiving water are usually based upon the 20th percentile of data available to the Utah Division of Water Quality. Where that data is not available or incomplete, best professional judgement (BPJ) may be used. The 20th percentile has been determined to be equivalent to 7Q10, the critical low flow. In the case of TDS, average values of flow are used. To see data set used, see the Appendix to this Wasteload Analysis.

Discharge Information

Season	Flow, MGD	Temp.
Summer	1.00000	17.0
Fall	1.00000	15.0
Winter	1.00000	12.0
Spring	1.00000	15.0

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

IX. Effluent Limitations

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

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

Effluent Limitation for Flow based upon Water Quality Standards

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

Season	Daily Average	
Summer	1.000 MGD	1.547 cfs
Fall	1.000 MGD	1.547 cfs
Winter	1.000 MGD	1.547 cfs
Spring	1.000 MGD	1.547 cfs

Flow Requirement or Loading Requirement

The calculations in this wasteload analysis utilize the maximum effluent discharge flow of 1 MGD. If the discharger is allowed to have a flow greater than 1 MGD during 7Q10 conditions, and effluent limit

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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 >	58.4% Effluent	[Chronic]

Effluent Limitation for Biological Oxygen Demand (BOD) based upon Water Quality Standards or Regulations

In-stream criteria of downstream segments for Dissolved Oxygen will be met with an effluent BOD limitation as follows:

Season	Concentration	
Summer	25.0 mg/l as BOD5	208.5 lbs/day
Fall	25.0 mg/l as BOD5	208.5 lbs/day
Winter	25.0 mg/l as BOD5	208.5 lbs/day
Spring	25.0 mg/l as BOD6	208.5 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	7.4 mg/l as N	61.6 lbs/day
	1 Hour Avg. - Acute	33.8 mg/l as N	282.2 lbs/day
Fall	4 Day Avg. - Chronic	9.3 mg/l as N	77.9 lbs/day

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	1 Hour Avg. - Acute	28.2 mg/l as N	235.2	lbs/day
Winter	4 Day Avg. - Chronic	9.3 mg/l as N	77.5	lbs/day
	1 Hour Avg. - Acute	22.8 mg/l as N	189.8	lbs/day
Spring	4 Day Avg. - Chronic	9.3 mg/l as N	0.0	lbs/day
	1 Hour Avg. - Acute	28.2 mg/l as N	0.0	lbs/day

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

Effluent Limitation for Total Residual Chlorine based upon Water Quality Standards

In-stream criteria of downstream segments for Total Residual Chlorine will be met with an effluent limitation as follows:

Season		Concentration		Load	
Summer	4 Day Avg. - Chronic	0.019	mg/l	0.16	lbs/day
	1 Hour Avg. - Acute	0.033	mg/l	0.27	lbs/day
Fall	4 Day Avg. - Chronic	0.019	mg/l	0.16	lbs/day
	1 Hour Avg. - Acute	0.033	mg/l	0.27	lbs/day
Winter	4 Day Avg. - Chronic	0.019	mg/l	0.16	lbs/day
	1 Hour Avg. - Acute	0.033	mg/l	0.27	lbs/day
Spring	4 Day Avg. - Chronic	0.019	mg/l	0.00	lbs/day
	1 Hour Avg. - Acute	0.033	mg/l	0.00	lbs/day

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		Load
	Concentration	Load	Concentration	Load	
Aluminum	N/A	N/A	1,015.8	ug/l	8.5 lbs/day
Arsenic	324.53 ug/l	1.7 lbs/day	460.6	ug/l	3.8 lbs/day
Cadmium	0.99 ug/l	0.0 lbs/day	8.8	ug/l	0.1 lbs/day
Chromium III	362.04 ug/l	2.0 lbs/day	6,009.7	ug/l	50.1 lbs/day
Chromium VI	16.00 ug/l	0.1 lbs/day	20.3	ug/l	0.2 lbs/day
Copper	40.25 ug/l	0.2 lbs/day	53.1	ug/l	0.4 lbs/day
Iron	N/A	N/A	1,355.1	ug/l	11.3 lbs/day
Lead	21.48 ug/l	0.1 lbs/day	447.9	ug/l	3.7 lbs/day
Mercury	0.02 ug/l	0.0 lbs/day	3.3	ug/l	0.0 lbs/day
Nickel	225.52 ug/l	1.2 lbs/day	1,610.7	ug/l	13.4 lbs/day
Selenium	6.74 ug/l	0.0 lbs/day	26.5	ug/l	0.2 lbs/day
Silver	N/A ug/l	N/A lbs/day	33.9	ug/l	0.3 lbs/day

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Zinc	519.99 ug/l	2.8 lbs/day	412.0	ug/l	3.4 lbs/day
Cyanide	8.90 ug/l	0.0 lbs/day	29.8	ug/l	0.2 lbs/day
TDS, mg/l	Utah Class 4 @ 1200 mg/l Standard		1,888.9	mg/l	7.9 tons/day
	Utah Class 4 @ 2000 mg/l Standard		3,257.8	mg/l	13.6 tons/day

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

Summer	58.1 Deg. C.	136.6 Deg. F
Fall	17.3 Deg. C.	63.1 Deg. F
Winter	13.3 Deg. C.	55.9 Deg. F
Spring	17.3 Deg. C.	63.1 Deg. F

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

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

	4 Day Average		1 Hour Average	
	Concentration	Load	Concentration	Load
Aldrin			1.5E+00	ug/l 1.93E-02 lbs/day
Chlordane	4.30E-03 ug/l	3.59E-02 lbs/day	1.2E+00	ug/l 1.55E-02 lbs/day
DDT, DDE	1.00E-03 ug/l	8.34E-03 lbs/day	5.5E-01	ug/l 7.09E-03 lbs/day
Dieldrin	1.90E-03 ug/l	1.58E-02 lbs/day	1.3E+00	ug/l 1.61E-02 lbs/day
Endosulfan	5.60E-02 ug/l	4.67E-01 lbs/day	1.1E-01	ug/l 1.42E-03 lbs/day
Endrin	2.30E-03 ug/l	1.92E-02 lbs/day	9.0E-02	ug/l 1.16E-03 lbs/day
Guthion	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l 1.29E-04 lbs/day
Heptachlor	3.80E-03 ug/l	3.17E-02 lbs/day	2.6E-01	ug/l 3.35E-03 lbs/day
Lindane	8.00E-02 ug/l	6.67E-01 lbs/day	1.0E+00	ug/l 1.29E-02 lbs/day
Methoxychlor	0.00E+00 ug/l	0.00E+00 lbs/day	3.0E-02	ug/l 3.87E-04 lbs/day
Mirex	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l 1.29E-04 lbs/day
Parathion	0.00E+00 ug/l	0.00E+00 lbs/day	4.0E-02	ug/l 5.16E-04 lbs/day
PCB's	1.40E-02 ug/l	1.17E-01 lbs/day	2.0E+00	ug/l 2.58E-02 lbs/day
Pentachlorophenol	1.30E+01 ug/l	1.08E+02 lbs/day	2.0E+01	ug/l 2.58E-01 lbs/day
Toxephene	2.00E-04 ug/l	1.67E-03 lbs/day	7.3E-01	ug/l 9.42E-03 lbs/day

**Effluent Targets for Pollution Indicators
Based upon Water Quality Standards**

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

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	1 Hour Average	
	Concentration	Loading
Gross Beta (pCi/l)	50.0 pCi/L	
BOD (mg/l)	5.0 mg/l	41.7 lbs/day
Nitrates as N	4.0 mg/l	33.4 lbs/day
Total Phosphorus as P	0.05 mg/l	0.4 lbs/day
Total Suspended Solids	90.0 mg/l	750.4 lbs/day

Note: Pollution indicator targets are for information purposes only.

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

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

	Maximum Concentration	
	Concentration	Load
Toxic Organics		
Acenaphthene	2.05E+03 ug/l	1.71E+01 lbs/day
Acrolein	5.48E+02 ug/l	4.57E+00 lbs/day
Acrylonitrile	1.01E-01 ug/l	8.42E-04 lbs/day
Benzene	2.05E+00 ug/l	1.71E-02 lbs/day
Benzidine	ug/l	lbs/day
Carbon tetrachloride	4.28E-01 ug/l	3.57E-03 lbs/day
Chlorobenzene	1.16E+03 ug/l	9.70E+00 lbs/day
1,2,4-Trichlorobenzene		
Hexachlorobenzene	1.28E-03 ug/l	1.07E-05 lbs/day
1,2-Dichloroethane	6.50E-01 ug/l	5.42E-03 lbs/day
1,1,1-Trichloroethane		
Hexachloroethane	3.25E+00 ug/l	2.71E-02 lbs/day
1,1-Dichloroethane		
1,1,2-Trichloroethane	1.04E+00 ug/l	8.70E-03 lbs/day
1,1,2,2-Tetrachloroethane	2.91E-01 ug/l	2.43E-03 lbs/day
Chloroethane		
Bis(2-chloroethyl) ether	5.30E-02 ug/l	4.42E-04 lbs/day
2-Chloroethyl vinyl ether		
2-Chloronaphthalene	2.91E+03 ug/l	2.43E+01 lbs/day
2,4,6-Trichlorophenol	3.59E+00 ug/l	3.00E-02 lbs/day
p-Chloro-m-cresol		
Chloroform (HM)	9.75E+00 ug/l	8.13E-02 lbs/day
2-Chlorophenol	2.05E+02 ug/l	1.71E+00 lbs/day
1,2-Dichlorobenzene	4.62E+03 ug/l	3.85E+01 lbs/day
1,3-Dichlorobenzene	6.84E+02 ug/l	5.71E+00 lbs/day
1,4-Dichlorobenzene	6.84E+02 ug/l	5.71E+00 lbs/day
3,3'-Dichlorobenzidine	6.84E-02 ug/l	5.71E-04 lbs/day
1,1-Dichloroethylene	9.75E-02 ug/l	8.13E-04 lbs/day
1,2-trans-Dichloroethylene1		

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2,4-Dichlorophenol	1.59E+02 ug/l	1.33E+00 lbs/day
1,2-Dichloropropane	8.90E-01 ug/l	7.42E-03 lbs/day
1,3-Dichloropropylene	1.71E+01 ug/l	1.43E-01 lbs/day
2,4-Dimethylphenol	9.24E+02 ug/l	7.70E+00 lbs/day
2,4-Dinitrotoluene	1.88E-01 ug/l	1.57E-03 lbs/day
2,6-Dinitrotoluene		
1,2-Diphenylhydrazine	6.84E-02 ug/l	5.71E-04 lbs/day
Ethylbenzene	5.30E+03 ug/l	4.42E+01 lbs/day
Fluoranthene	5.13E+02 ug/l	4.28E+00 lbs/day
4-Chlorophenyl phenyl ether		
4-Bromophenyl phenyl ether		
Bis(2-chloroisopropyl) ether	2.40E+03 ug/l	2.00E+01 lbs/day
Bis(2-chloroethoxy) methane		
Methylene chloride (HM)	8.04E+00 ug/l	6.71E-02 lbs/day
Methyl chloride (HM)		
Methyl bromide (HM)		
Bromoform (HM)	7.36E+00 ug/l	6.13E-02 lbs/day
Dichlorobromomethane(HM)	4.62E-01 ug/l	3.85E-03 lbs/day
Chlorodibromomethane (HM)	7.02E-01 ug/l	5.85E-03 lbs/day
Hexachlorocyclopentadiene	4.11E+02 ug/l	3.42E+00 lbs/day
Isophorone	1.44E+01 ug/l	1.20E-01 lbs/day
Naphthalene		
Nitrobenzene	2.91E+01 ug/l	2.43E-01 lbs/day
2-Nitrophenol		
4-Nitrophenol		
2,4-Dinitrophenol	1.20E+02 ug/l	9.99E-01 lbs/day
4,6-Dinitro-o-cresol	2.22E+01 ug/l	1.85E-01 lbs/day
N-Nitrosodimethylamine	1.18E-03 ug/l	9.84E-06 lbs/day
N-Nitrosodiphenylamine	8.56E+00 ug/l	7.13E-02 lbs/day
N-Nitrosodi-n-propylamine	8.56E-03 ug/l	7.13E-05 lbs/day
Pentachlorophenol	4.79E-01 ug/l	3.99E-03 lbs/day
Phenol	3.59E+04 ug/l	3.00E+02 lbs/day
Bis(2-ethylhexyl)phthalate	3.08E+00 ug/l	2.57E-02 lbs/day
Butyl benzyl phthalate	5.13E+03 ug/l	4.28E+01 lbs/day
Di-n-butyl phthalate	4.62E+03 ug/l	3.85E+01 lbs/day
Di-n-octyl phthlate		
Diethyl phthalate	3.94E+04 ug/l	3.28E+02 lbs/day
Dimethyl phthlate	5.36E+05 ug/l	4.47E+03 lbs/day
Benzo(a)anthracene (PAH)	4.79E-03 ug/l	3.99E-05 lbs/day
Benzo(a)pyrene (PAH)	4.79E-03 ug/l	3.99E-05 lbs/day
Benzo(b)fluoranthene (PAH)	4.79E-03 ug/l	3.99E-05 lbs/day
Benzo(k)fluoranthene (PAH)	4.79E-03 ug/l	3.99E-05 lbs/day
Chrysene (PAH)	4.79E-03 ug/l	3.99E-05 lbs/day
Acenaphthylene (PAH)		
Anthracene (PAH)		
Dibenzo(a,h)anthracene (PAH)	4.79E-03 ug/l	3.99E-05 lbs/day
Indeno(1,2,3-cd)pyrene (PAH)	4.79E-03 ug/l	3.99E-05 lbs/day
Pyrene (PAH)	1.64E+03 ug/l	1.37E+01 lbs/day
Tetrachloroethylene	1.37E+00 ug/l	1.14E-02 lbs/day

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Toluene	1.16E+04 ug/l	9.70E+01 lbs/day
Trichloroethylene	4.62E+00 ug/l	3.85E-02 lbs/day
Vinyl chloride	3.42E+00 ug/l	2.85E-02 lbs/day

Pesticides

Aldrin	2.22E-04 ug/l	1.85E-06 lbs/day
Dieldrin	2.40E-04 ug/l	2.00E-06 lbs/day
Chlordane	9.75E-04 ug/l	8.13E-06 lbs/day
4,4'-DDT	1.01E-03 ug/l	8.42E-06 lbs/day
4,4'-DDE	1.01E-03 ug/l	8.42E-06 lbs/day
4,4'-DDD	1.42E-03 ug/l	1.18E-05 lbs/day
alpha-Endosulfan	1.59E+00 ug/l	1.33E-02 lbs/day
beta-Endosulfan	1.59E+00 ug/l	1.33E-02 lbs/day
Endosulfan sulfate	1.59E+00 ug/l	1.33E-02 lbs/day
Endrin	1.30E+00 ug/l	1.08E-02 lbs/day
Endrin aldehyde	1.30E+00 ug/l	1.08E-02 lbs/day
Heptachlor	3.59E-04 ug/l	3.00E-06 lbs/day
Heptachlor epoxide		

PCB's

PCB 1242 (Arochlor 1242)	7.53E-05 ug/l	6.28E-07 lbs/day
PCB-1254 (Arochlor 1254)	7.53E-05 ug/l	6.28E-07 lbs/day
PCB-1221 (Arochlor 1221)	7.53E-05 ug/l	6.28E-07 lbs/day
PCB-1232 (Arochlor 1232)	7.53E-05 ug/l	6.28E-07 lbs/day
PCB-1248 (Arochlor 1248)	7.53E-05 ug/l	6.28E-07 lbs/day
PCB-1260 (Arochlor 1260)	7.53E-05 ug/l	6.28E-07 lbs/day
PCB-1016 (Arochlor 1016)	7.53E-05 ug/l	6.28E-07 lbs/day

Pesticide

Toxaphene	1.25E-03 ug/l	1.04E-05 lbs/day
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Metals

Antimony	23.95 ug/l	0.20 lbs/day
Arsenic	84.99 ug/l	0.71 lbs/day
Asbestos	1.20E+07 ug/l	9.99E+04 lbs/day
Beryllium		
Cadmium		
Chromium (III)		
Chromium (VI)		
Copper	2224.37 ug/l	18.55 lbs/day
Cyanide	1197.74 ug/l	9.99 lbs/day
Lead	0.00	0.00
Mercury	0.24 ug/l	0.00 lbs/day
Nickel	1043.74 ug/l	8.70 lbs/day
Selenium	0.00	0.00
Silver	0.00	0.00
Thallium	2.91 ug/l	0.02 lbs/day
Zinc		

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Dioxin
Dioxin (2,3,7,8-TCDD) 2.22E-08 ug/l 1.85E-10 lbs/day

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

	Class 4 Acute Agricultural ug/l	Class 3 Acute Aquatic Wildlife ug/l	Acute Toxics Drinking Water Source ug/l	Acute Toxics Wildlife ug/l	1C Acute Health Criteria ug/l	Acute Most Stringent ug/l	Class 3 Chronic Aquatic Wildlife ug/l
Aluminum		1015.8				1015.8	N/A
Antimony			24.0	7357.5		24.0	
Arsenic	171.1	460.6	85.0		0.0	85.0	324.5
Asbestos			1.20E+07			1.20E+07	
Barium					1711.1	1711.1	
Beryllium						0.0	
Cadmium	17.1	8.8			0.0	8.8	1.0
Chromium (III)		6009.7			0.0	6009.7	362.0
Chromium (VI)	170.5	20.3			0.0	20.28	16.00
Copper	341.6	53.1	2224.4			53.1	40.2
Cyanide		29.8	376431.8			29.8	8.9
Iron		1355.1				1355.1	
Lead	170.5	447.9			0.0	170.5	21.5
Mercury		3.25	0.2	0.26	0.0	0.24	0.020
Nickel		1610.7	1043.7	7870.8		1043.7	225.5
Selenium	84.4	26.5			0.0	26.5	6.7
Silver		33.9			0.0	33.9	
Thallium			2.9	10.8		2.9	
Zinc		412.0				412.0	520.0
Boron	1283.3					1283.3	

Summary Effluent Limitations for Metals [Wasteload Allocation, TMDL]

[If Acute is more stringent than Chronic, then the Chronic takes on the Acute value.]

	WLA Acute ug/l	WLA Chronic ug/l	
Aluminum	1015.8	N/A	
Antimony	23.95		
Arsenic	85.0	324.5	Acute Controls
Asbestos	1.20E+07		
Barium			
Beryllium			
Cadmium	8.8	1.0	
Chromium (III)	6009.7	362	

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Chromium (VI)	20.3	16.0	
Copper	53.1	40.2	
Cyanide	29.8	8.9	
Iron	1355.1		
Lead	170.5	21.5	
Mercury	0.239	0.020	
Nickel	1043.7	226	
Selenium	26.5	6.7	
Silver	33.9	N/A	
Thallium	2.9		
Zinc	412.0	520.0	Acute Controls
Boron	1283.29		

Other Effluent Limitations are based upon R317-1.

X. Antidegradation Considerations

The Utah Antidegradation Policy allows for degradation of existing quality where it is determined that such lowering of water quality is necessary to accommodate important economic or social development in the area in which the waters are protected [R317-2-3]. It has been determined that certain chemical parameters introduced by this discharge will cause an increase of the concentration of said parameters in the receiving waters. Under no conditions will the increase in concentration be allowed to interfere with existing instream water uses.

The antidegradation rules and procedures allow for modification of effluent limits less than those based strictly upon mass balance equations utilizing 100% of the assimilative capacity of the receiving water. Additional factors include considerations for "Blue-ribbon" fisheries, special recreational areas, threatened and endangered species, and drinking water sources.

An Antidegradation Level I Review was conducted on this discharge and its effect on the receiving water. Based upon that review, it has been determined that an Antidegradation Level II Review is NOT Required

XI. Colorado River Salinity Forum Considerations

Discharges in the Colorado River Basin are required to have their discharge at a TDS loading of less than 1.00 tons/day unless certain exemptions apply. Refer to the Forum's Guidelines for additional information allowing for any 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.

XIII. Notice of UPDES Requirement

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Salt Lake City, Utah**

This Addendum to the Statement of Basis does not authorize any entity or party to discharge to the waters of the State of Utah. That authority is granted through a UPDES permit issued by the Utah Division of Water Quality. The numbers presented here may be changed as a function of other factors. Dischargers are strongly urged to contact the Permits Section for further information. Permit writers may utilize other information to adjust these limits and/or to determine other limits based upon best available technology and other considerations provided that the values in this wasteload analysis [TMDL] are not compromised. See special provisions in Utah Water Quality Standards for adjustments in the Total Dissolved Solids values based upon background concentration.

XIV. Special Considerations

None

Prepared by:
William O. Moellmer, Ph.D.
Utah Division of Water Quality
801-538-6329

File Name: Genwall Coal 2005

APPENDIX - Coefficients and Other Model Information

Rate Coefficients

CBOD COEFF. (Kd)20 1/day 2.000	CBOD COEFF. FORCED (Kd)/day 0.000	CBOD (Ka)T 1/day 1.932	REAER. COEFF. (Ka)20 (Ka)/day 80.685	REAER. COEFF. FORCED 1/day 0.000	REAER. (Ka)T 1/day 79.263	NBOD Coeff COEFF. (Kn)20 1/day 0.400	(Kn)T 1/day 0.378
Open COEFF. (K4)20 1/day 0.000	Open (K4)T 1/day 0.000	NH3 LOSS (K5)20 1/day 4.400	NH3 (K5)T 1/day 3.865	NO2+NO3 LOSS (K6)20 1/day 0.000	NO2+NO3 (K6)T 1/day 0.000	TRC Decay K(CI)20 1/day 32.000	TRC K(CI)(T) 1/day 30.632
BENTHIC DEMAND (SOD)20 gm/m2/day 0.000		(SOD)T gm/m2/day 0.000					

Temperature Theta Coefficients

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

Rate Coefficients x Time

K1(t)	K2(t)	K3(t)	K4(t)	K5(t)	K6(t)	K(Cl)(t)	CBODK1	CBODK2
0.022	0.587	0.005	0.000	0.044	0.000	0.342	0.900	0.512

NODK3	NODK2
0.147	0.082

Pertinant Receiving Water Data

Appendix - Receiving Water Data for Flow and Parameter of Concern Genwal Resources Inc.

name	arrival_date	short_form	display_n	min_detect_limit
HUNTINGTON CK AB UP&L DIVERSION	7/29	172.0	mg/l	Dissolved Solids
HUNTINGTON CK AB UP&L DIVERSION	8/25	182.0	mg/l	Dissolved Solids
HUNTINGTON CK AB UP&L DIVERSION	9/16	184.0	mg/l	Dissolved Solids
HUNTINGTON CK AB UP&L DIVERSION	10/28	178.0	mg/l	Dissolved Solids
HUNTINGTON CK AB UP&L DIVERSION	11/20	236.0	mg/l	Dissolved Solids
HUNTINGTON CK AB UP&L DIVERSION	1/21	284.0	mg/l	Dissolved Solids
HUNTINGTON CK AB UP&L DIVERSION	2/24	254.0	mg/l	Dissolved Solids
HUNTINGTON CK AB UP&L DIVERSION	4/1	254.0	mg/l	Dissolved Solids
HUNTINGTON CK AB UP&L DIVERSION	4/29	234.0	mg/l	Dissolved Solids
HUNTINGTON CK AB UP&L DIVERSION	5/20	208.0	mg/l	Dissolved Solids
HUNTINGTON CK AB UP&L DIVERSION	6/10	190.0	mg/l	Dissolved Solids
HUNTINGTON CK AB UP&L DIVERSION	7/17	186.0	mg/l	Dissolved Solids
HUNTINGTON CK AB UP&L DIVERSION	8/21	176.0	mg/l	Dissolved Solids
HUNTINGTON CK AB UP&L DIVERSION	9/18	246.0	mg/l	Dissolved Solids
HUNTINGTON CK AB UP&L DIVERSION	10/16	304.0	mg/l	Dissolved Solids
HUNTINGTON CK AB UP&L DIVERSION	11/20	262.0	mg/l	Dissolved Solids
HUNTINGTON CK AB UP&L DIVERSION	1/22	246.0	mg/l	Dissolved Solids
HUNTINGTON CK AB UP&L DIVERSION	2/27	286.0	mg/l	Dissolved Solids
HUNTINGTON CK AB UP&L DIVERSION	3/26	312.0	mg/l	Dissolved Solids
HUNTINGTON CK AB UP&L DIVERSION	4/16	272.0	mg/l	Dissolved Solids
HUNTINGTON CK AB UP&L DIVERSION	5/6	260.0	mg/l	Dissolved Solids
HUNTINGTON CK AB UP&L DIVERSION	5/21	206.0	mg/l	Dissolved Solids
HUNTINGTON CK AB UP&L DIVERSION	6/3	210.0	mg/l	Dissolved Solids
HUNTINGTON CK AB UP&L DIVERSION	6/17	204.0	mg/l	Dissolved Solids
HUNTINGTON CK AB UP&L DIVERSION	7/29	144.0	cfs	Flow
HUNTINGTON CK AB UP&L DIVERSION	8/25	129.0	cfs	Flow
HUNTINGTON CK AB UP&L DIVERSION	9/16	115.0	cfs	Flow
				266.0 80th %
				231.1 Average

HUNTINGTON CK AB UP&L DIVERSION
 HUNTINGTON CK AB UP&L DIVERSION

10/28 135.0 cfs
 11/20 37.0 cfs
 1/21 17.0 cfs
 2/24 25.0 cfs
 4/1 42.0 cfs
 4/29 95.0 cfs
 5/20 282.0 cfs
 6/10 380.0 cfs
 10/16 22.1 cfs
 11/20 26.4 cfs
 5/6 46.8 cfs
 5/21 134.0 cfs
 6/17 99.8 cfs

Flow
 Flow

26.4 20th %
 108.1 Average

1.10

Background Flow: Crandall Creek
 Information from Genwall per Keri Lundeen.

Level I Antidegradation Review for: Genwal Resources Inc.

Parameter of concern	TDS	Average Flow & Conc. Used
Current Stream Conditions Above Discharge		
Flow, Average	108.0	cfs
Concentration	231.0	mg/l
Loading	24540.7	tons/year
Flow, Critical Low	26.4	cfs (20th Percentile)
Concentration	266.1	mg/l (80th Percentile)
Loading	6910.4	tons/year
Flow Utilized in Calculations:	108.0	cfs
Concentration Utilized in Calculations:	231.0	mg/l
Loading Utilized in Calculations:	24540.7	tons/year

Current Discharge Limits:

Flow	1.5	cfs
Concentration	723.0	mg/l
Loading	1100.2	tons/year

Projected Discharge Limits:

Flow	1.5	cfs
Concentration	500.0	mg/l
Loading	760.9	tons/year

Current Stream Conditions Below Discharge

Average Flow (TDS)	109.5	cfs
Concentration	237.9	mg/l
Loading	25640.9	tons/year

Projected Stream Conditions Below Discharge

Average Flow (TDS)	109.5	cfs
Concentration	234.8	mg/l
Loading	25301.6	tons/year

Proposed Discharge Conc. <= Current.	Yes	Off-ramped	
Discharge limits are from a TMDL.	No		
Impacts to stream are temporary.	No		See 317-2-3.4(a-e)
Impacts are related to sediments only.	No		
Fish spawning will be impaired.	No		
Current assimilative capacity @ 100%	No		
Classification excludes 3A or 3B	No		
Considered as "poor quality" (DNR)	No		
Water body listed on 303(d) list	No		
Existing stream WQ > standard	No		

Water Quality Impacts are minor			
Increase in project loading < 20%	Yes	Off-ramped	-1.3%
Increase in pollutant loading of receiving stream below discharge is < 20%.	Yes	Off-ramped	3.1%

Appendix - Receiving Water Data for Flow and Parameter of Concern Genwal Resources Inc.

name	arrival_date	short_form	display_nr	min_detect_limit
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HUNTINGTON CK AB UP&L DIVERSION	9/16	115.0	cfs	Flow
				266.0 80th %
				231.1 Average

DISCHARGE MONITORING REPORT DATA - OUTFALL 001 2003-2005 PERMIT CYCLE GENERAL RESOURCES INCORPORATED																				
Report Date	Discharge Y/N	DO mg/L		pH eu		TSS mg/L		SIS m/L		Total Fe mg/L		TDS mg/L		BOD mg/L		Fecal Coliform Visual		Sanitary Waste		
		min.	max.	min.	max.	7 day avg.	30 day avg.	daily max.	daily max.	daily max.	daily max.	30 day avg.	daily max.	daily max.	daily max.	Y/N	Y/N	Y/N	Y/N	
5/31/2005	N	5.0	9.0	35	25	70	0.5	1.3	723.0	10.0	Rep.	Rep.	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N	
4/30/2005	N																			
3/21/2005	N																			
2/28/2005	N																			
1/31/2005	N																			
12/31/2004	N																			
11/30/2004	N																			
10/31/2004	N																			
9/30/2004	N																			
8/31/2004	N																			
7/31/2004	N																			
6/30/2004	N																			
5/31/2004	N																			
4/30/2004	N																			
3/31/2004	N																			
2/29/2004	N																			
1/31/2004	N																			
12/31/2003	N																			
11/30/2003	N																			
10/31/2003	N																			
9/30/2003	N																			
8/31/2003	N																			
7/31/2003	N																			
6/30/2003	N																			
5/31/2003	N																			
4/30/2003	N																			
3/31/2003	N																			
2/28/2003	N																			
1/31/2003	N																			

DISCHARGE MONITORING REPORT DATA OUTFALL 001 2000 PERMIT TO DISCHARGE GENWATER RESOURCES INCORPORATED																						
Report Date	Discharge Y/N	DO mg/L		pH su		TSS mg/L		SIS m/L		Total Fe mg/L		TDS		Flow MGD		D/G mg/L		Floating Solids Visual		Sanitary Waste		
		min.	max.	min.	max.	7 day avg.	30 day avg.	daily max.	daily max.	30-day avg.	daily max.	daily max.	30-day avg.	daily max.	30-day avg.	daily max.	30-day avg.	daily max.	30-day avg.	daily max.	30-day avg.	daily max.
12/31/2002	N	5.0	9.0	35	70	0.5	1.3	7230	Rep.	10.0	Y/N	Y/N	Y/N									
11/30/2002	N																					
10/31/2002	N																					
9/30/2002	N																					
8/31/2002	N																					
7/31/2002	N																					
6/30/2002	N																					
5/31/2002	N																					
4/30/2002	N																					
3/31/2002	N																					
2/28/2002	N																					
1/31/2002	N																					
12/31/2001	N																					
11/30/2001	N																					
10/31/2001	N																					
9/30/2001	N																					
8/31/2001	N																					
7/31/2001	N																					
6/30/2001	N																					
5/31/2001	N																					
4/30/2001	N																					
3/31/2001	N																					
2/28/2001	N																					
1/31/2001	N																					
12/31/2000	N																					
11/30/2000	N																					
10/31/2000	N																					
9/30/2000	N																					

DISCHARGE MONITORING REPORT DATA OUTFALL 002 2000-2005 PERMIT CYCLE GEWA RESOURCES INCORPORATED																					
Report Date	Discharge Yes/No (Y/N)	Dissolved Oxygen (mg/L)		pH		Total Suspended Solids (mg/L)		Settleable Solids (m/L)		Total Iron (mg/L)		Total Dissolved Solids (mg/L)		Flow (MGD)		Oil & Grease (mg/L)		Floating Solids (Visual)		Sanitary Waste	
		minimum	maximum	minimum	maximum	7 day average	30 day average	daily maximum	daily maximum	daily maximum	daily maximum	daily maximum	daily maximum	Report	daily maximum	Report	Report	Report	Y/N	Y/N	Y/N
5/31/2005	Y	8.9	7.70	6.5	9.0	<5.0	<5.0	<5.0	0.5	1.3	723.0	0.829	1080	<2.0	N	N	N	N			
4/30/2005	Y	7.1	7.60	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.06	438	0.617	1080	<2.0	N	N	N	N			
3/31/2005	Y	7.8	7.60	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.08	555	0.878	1080	<2.0	N	N	N	N			
2/28/2005	Y	7.7	7.50	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.13	538	1.070	1296	<2.0	N	N	N	N			
1/31/2005	Y	8.3	7.50	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.19	486	0.984	1296	<2.0	N	N	N	N			
12/31/2004	Y	8.1	7.50	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.05	503	1.006	1296	<2.0	N	N	N	N			
11/30/2004	Y	8.3	7.50	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.05	508	0.952	1300	<2.0	N	N	N	N			
10/31/2004	Y	8.1	7.50	12.00	12.00	12.00	12.00	12.00	Conditional	0.21	1206	0.975	1296	<2.0	N	N	N	N			
9/30/2004	Y	8.2	7.30	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.08	513	0.939	1300	<2.0	N	N	N	N			
8/31/2004	Y	8.1	7.30	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.10	521	0.970	1300	<2.0	N	N	N	N			
7/31/2004	Y	9.3	7.20	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	1.08	517	0.926	1300	<2.0	N	N	N	N			
6/30/2004	Y	8.7	7.30	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.16	498	1.080	1296	<2.0	N	N	N	N			
5/31/2004	Y	8.5	7.20	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.20	491	0.833	1296	<2.0	N	N	N	N			
4/30/2004	Y	9.0	7.80	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.08	526	0.753	1300	<2.0	N	N	N	N			
3/31/2004	Y	7.3	7.60	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.07	578	0.965	1296	<2.0	N	N	N	N			
2/29/2004	Y	6.5	7.50	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.30	467	0.781	1540	<2.0	N	N	N	N			
1/31/2004	Y	6.8	7.9	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.05	511	0.697	1296	<2.0	N	N	N	N			
12/31/2003	Y	5 L	7.8	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.041	471	0.622	1296	<2.0	N	N	N	N			
11/30/2003	Y	8.5	7.5	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.079	508	1.170	1510	L	N	N	N	N			
10/31/2003	Y	8.6	7.9	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.02	549	1.233	1512	L	N	N	N	N			
9/30/2003	Y	8.9	7.6	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.059	501	1.028	1410	L	N	N	N	N			
8/31/2003	Y	9.7	7.7	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.02	504	0.895	1470	<2.0	N	N	N	N			
7/31/2003	Y	8.1	7.9	6.0	6.0	6.0	6.0	6.0	Conditional	0.301	499	1.267	1510	L	N	N	N	N			
6/30/2003	Y	8.4	7.8	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.028	430	1.257	1540	L	N	N	N	N			
5/31/2003	Y	8.1	7.8	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.021	427	1.350	1510	<2.0	N	N	N	N			
4/30/2003	Y	6.8	7.2	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.135	448	1.002	1512	<2.0	N	N	N	N			
3/31/2003	Y	9.6	7.2	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.1	443	1.336	1512	<2.0	N	N	N	N			
2/28/2003	Y	6.8	7.3	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.09	395	1.305	1370	L	N	N	N	N			
1/31/2003	Y	6.4	7.4	<5.0	<5.0	<5.0	<5.0	<5.0	Conditional	0.07	398	1.073	1150	L	N	N	N	N			

⁵ L missing data

³ mL/L milliliters per liter

⁴ MGD million gallons per day

¹ mg/L milligrams per liter

² su standard units

Report Date	Discharge Yes/No (Y/N)	Dissolved Oxygen mg/L		pH		Total Suspended Solids mg/L			Settleable Solids mg/L		Total Dissolved Solids mg/L		Iron mg/L		Flow MGD		Oil & Grease mg/L		Floating Solids Visual		Sanitary Waste	
		minimum	maximum	minimum	maximum	7 day average	30 day average	daily maximum	daily maximum	daily maximum	30-day average	daily maximum	Report	maximum	Report	maximum	Y/N	Y/N	Y/N	Y/N		
		3.0	9.0	6.5	9.0	35	25	70	0.5	1.3	723.0	1.097	10.0	Y/N	Y/N	Y/N	Y/N	Y/N	Y/N			
12/31/2002	Y	7.6	7.5	7.5	7.5	<5.0	<5.0	Conditional	0.1	422	1.097	<2.0	N	N	N	N	N	N	N	N		
11/30/2002	Y	7.8	7.4	<5.0	7.4	<5.0	<5.0	Conditional	0.1	395	0.987	L	N	N	N	N	N	N	N	N		
10/31/2002	Y	6.8	7.4	<5.0	7.4	<5.0	<5.0	Conditional	L	440	1.068	L	N	N	N	N	N	N	N	N		
9/30/2002	Y	6.8	7.4	<5.0	7.4	<5.0	<5.0	Conditional	0.1	456	1.010	<2.0	N	N	N	N	N	N	N	N		
8/31/2002	Y	6.8	7.5	<5.0	7.5	<5.0	<5.0	Conditional	0.1	458	1.300	<2.0	N	N	N	N	N	N	N	N		
7/31/2002	Y	7.1	7.7	<5.0	7.7	<5.0	<5.0	Conditional	0.1	424	0.748	L	N	N	N	N	N	N	N	N		
6/30/2002	Y	9.0	7.7	<5.0	7.7	<5.0	<5.0	Conditional	0.1	425	0.797	<2.0	N	N	N	N	N	N	N	N		
5/31/2002	Y	8.2	7.7	6.00	7.7	6.00	6.00	Conditional	0.1	442	0.810	L	N	N	N	N	N	N	N	N		
4/30/2002	Y	11.2	7.8	<5.0	7.8	<5.0	<5.0	Conditional	0.1	448	0.200	L	N	N	N	N	N	N	N	N		
3/31/2002	Y	9.6	7.2	<5.0	7.2	<5.0	<5.0	Conditional	0.1	443	0.867	<2.0	N	N	N	N	N	N	N	N		
2/28/2002	Y	9.6	7.9	<5.0	7.9	<5.0	<5.0	Conditional	0.1	420	0.569	L	N	N	N	N	N	N	N	N		
1/31/2002	Y	8.2	7.1	<5.0	7.1	<5.0	<5.0	Conditional	0.1	390	0.870	L	N	N	N	N	N	N	N	N		
12/31/2001	Y	9.3	7.1	<5.0	7.1	<5.0	<5.0	Conditional	0.1	438	0.915	L	N	N	N	N	N	N	N	N		
11/30/2001	Y	6.2	7.3	<5.0	7.3	<5.0	<5.0	Conditional	0.1	451	0.734	L	N	N	N	N	N	N	N	N		
10/31/2001	Y	9.3	7.1	<5.0	7.1	<5.0	<5.0	Conditional	0.1	438	0.595	L	N	N	N	N	N	N	N	N		
9/30/2001	Y	8.2	7.4	<5.0	7.4	<5.0	<5.0	Conditional	0.1	456	0.685	<2.0	N	N	N	N	N	N	N	N		
8/31/2001	Y	L	7.1	<5.0	7.1	<5.0	<5.0	Conditional	0.1	478	1.072	<2.0	N	N	N	N	N	N	N	N		
7/31/2001	Y	L	6.9	<5.0	6.9	<5.0	<5.0	Conditional	0.1	499	1.017	<2.0	N	N	N	N	N	N	N	N		
6/30/2001	Y	8.0	7.1	<5.0	7.1	<5.0	<5.0	Conditional	0.1	449	1.240	L	N	N	N	N	N	N	N	N		
5/31/2001	Y	L	7.6	<5.0	7.6	<5.0	<5.0	Conditional	0.1	L	L	<2.0	N	N	N	N	N	N	N	N		
4/30/2001	Y	L	7.8	<5.0	7.8	<5.0	<5.0	Conditional	0.1	419	1.050	<2.0	N	N	N	N	N	N	N	N		
3/31/2001	Y	5.1	7.1	<5.0	7.1	<5.0	<5.0	Conditional	0.1	454	1.020	L	N	N	N	N	N	N	N	N		
2/28/2001	Y	9.5	7.8	<5.0	7.8	<5.0	<5.0	Conditional	0.1	412	1.000	<2.0	N	N	N	N	N	N	N	N		
1/31/2001	Y	8.5	7.4	<5.0	7.4	<5.0	<5.0	Conditional	0.1	402	0.917	4.0	N	N	N	N	N	N	N	N		
12/31/2000	Y	7.9	7.3	<5.0	7.3	<5.0	<5.0	Conditional	0.1	442	1.085	4.0	N	N	N	N	N	N	N	N		
11/30/2000	Y	9.1	7.5	<5.0	7.5	<5.0	<5.0	Conditional	0.1	401	0.970	L	N	N	N	N	N	N	N	N		
10/31/2000	Y	10.2	7.7	6.00	7.7	6.00	6.00	Conditional	0.1	413	1.015	L	N	N	N	N	N	N	N	N		
9/30/2000	Y	L	7.1	<5.0	7.1	<5.0	<5.0	Conditional	0.1	407	0.897	<2.0	N	N	N	N	N	N	N	N		

¹ mg/L, milligrams per liter

² su, standard units

³ mL/L, milliliters per liter

⁴ MGD, million gallons per day

⁵ L, missing data

WHOLE EFFLUENT TOXICITY DATA - OUTFALL 002 - 2001-2005 PERMIT YEAR				
GENERAL RESOURCES INC. - WYOMING				
Ceriodaphnia dubia monitored quarterly; Pimephales promelas monitored semi-annually.				
Report Date	Ceriodaphnia dubia Chronic (IC ₂₅ : 88.5%)	Pimephales promelas Chronic (IC ₂₅ : 66.5%)	Ceriodaphnia dubia Acute (EOP) ²	Pimephales promelas Acute
	Pass / Fail	Pass / Fail	Pass / Fail	Pass / Fail
4th Quarter (02) 12/26/2002	Pass (w/o CO2)	Pass	NA	NA
3rd Quarter (02) 9/16/2002	Pass (w/o CO2)	NR	NA	NA
2nd Quarter (02) 5/7/2002	Pass (w/o CO2)	Pass	Pass	Pass
1st Quarter (02) 3/5/2002	Pass (w/o CO2)	NR	NA	NA
4th Quarter (01) 12/17/2001	Pass (w/o CO2)	NR	NA	NA
3rd Quarter (01) 9/10/2001	Pass (w/o CO2)	Pass	NA	NA
2nd Quarter (01) 5/1/2001	Pass (w/o CO2)	Pass	Pass	Pass
1st Quarter (01) 3/13/2001	Pass (w/o CO2) Pass (w/ CO2)	Pass	Pass	Pass
4th Quarter (00) 12/5/2000	Fail (w/o CO2)	Pass	NA	NA

¹ IC₂₅ the concentration of toxicant (% effluent) that would cause a 25% reduction in mean young per female or in growth for the test population

² EOP: End-of-pipe, equal to 100% effluent

