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

UTAH POLLUTANT DISCHARGE ELIMINATION SYSTEM (UPDES) PERMITS

Minor Industrial Permit No. **UT0025526**

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

CASPER'S ICE CREAM, INC.

is hereby authorized to discharge from its wastewater treatment facility to receiving waters named **CUB RIVER**,

and to distribute effluent for reuse,

in accordance with specific limitations, outfalls, and other conditions set forth herein.

This permit shall become effective on February 1, 2021.

This permit expires at midnight on January 31, 2026.

Signed this 25th day of January, 2021.

Erica Brown Gaddis, PhD
Director

DWQ-2021-000442

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I. DISCHARGE LIMITATIONS AND REPORTING REQUIREMENTS

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

Casper's has two outfalls for discharging. Outfall 001 to discharge non-contact cooling water to the Cub River and Outfall 001R to reuse the process wastewater on a total of 102 acres.

Outfall	Description of Discharge Point
001	Located at latitude 41°56' 59" North and longitude 111°49'55' West. The discharge is piped to an unnamed pond which connects to the Cub River.
001R	Located at latitude 41°56' 53" North and longitude 111°49'37" West. This Outfall is for Recycled Process Water from the storage lagoons for land application. During the winter months, December through February, the process water is stored in two lagoons located near the irrigation fields with an approximate capacity of 1.5 million gallons each. During the summer months, the stored process water is used to irrigate approximately 12 acres of alfalfa located on land the east of the process building/west of the storage lagoons and 90 acres, pivot system, located on the east side of the processing building. Additional land application sites are being added to Casper's disposal sites. The first location is 28 acres and is north of the facility; it will begin to be used for land application by Spring 2021. The second location is 86 acres west of the facility. This location currently splits the non-contact cooling water pond, it projected to be purchased and used by 2022.

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

C. Specific Limitations and Self-Monitoring Requirements.

1. Effective immediately, and lasting through the life of this permit, there shall be no acute or chronic toxicity in Outfall(s) 001 and 001R as defined in *Part VIII*, and determined by test procedures described in *Part V.A* of this permit.
2.
   a. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from Outfall 001 and 001R. Such discharges shall be limited and monitored as specified in Tables 1 through 4.

Table 1				
Parameter	**Outfall 001 Effluent Limitations [a]**			
	Maximum Monthly Avg	**Maximum Weekly Avg**	**Daily Minimum**	**Daily Maximum**
Flow, MGD	--	--	--	0.08
TSS, mg/L	25	35	--	--
pH, Standard Units	--	--	6.5	9
DO, mg/L	--	--	5.5	--
Oil & Grease, mg/L	--	--	--	10.0
Total Phosphorus, mg/L				0.05
Temperature, °C				84

Table 2			
Outfall 001 Self-Monitoring and Reporting Requirements [a]			
Parameter	**Frequency**	**Sample Type**	**Units**
Total Flow [b, c, d]	Continuous	Recorder	MGD
TSS	Monthly	Grab	mg/L
pH	Monthly	Grab	SU
DO	Monthly	Grab	mg/L
Oil & Grease [e]	Monthly	Grab	mg/L
Total Phosphorus	Monthly	Grab	mg/L
Temperature	Monthly	Grab	Celsius
Metals [f, g, h]	Annual	Grab/Comp	mg/L

Table 3			
Outfall 001 R Recycled Process Water Self-Monitoring and Reporting Requirements [a, j, k, l]			
Parameter	**Frequency**	**Sample Type**	**Units**
Total Flow [c, m]	Continuous/Seasonally	Recorder	MGD
BOD	Monthly/Seasonally	Grab	mg/L
TSS	Monthly/Seasonally	Grab	mg/L
pH	Monthly/Seasonally	Grab	SU
Total Phosphorus	Monthly/Seasonally	Grab	mg/L
Nitrate	Monthly/Seasonally	Grab	mg/L
Nitrite	Monthly/Seasonally	Grab	mg/L
Total Nitrogen	Monthly/Seasonally	Grab	mg/L

Table 4	
Land Application per Crop Type [m]	
Crop Type	List of crops grown on each site
Crop Harvest (tons/yr)	As measured based on harvest records
Land Application Area (acres)	Land treated process water effluent was applied based on application area
Number of Days per Season	Estimated (About 180 days/growing season)

Table References

a. See Definitions, ***Part VIII***, for definition of terms.

b. All parameters in this table will be reported on the monthly Discharge Monitoring Report.

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

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

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

f. Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report 9 under "NODI" in NetDMR.

g. Metals samples should be analyzed using a method that meets MDL requirements. If a test method is not available the permittee must submit documentation to the Director regarding the method that will be used. The sample type (composite or grab) should be performed according to the methods requirements.

h. Metals are being sampled in support of the work being done for the Reasonable Potential Analysis. The Metal parameters will be monitored and reported on an annual basis by the facility in NetDMR, but will not have a limit associated with them, if Casper's decides to sample more frequently for these parameters, the additional data is required to be reported.

i. Metals

Arsenic	Copper	Nickel
Cadmium	Cyanide	Selenium
Total	Lead	Silver
Chromium	Mercury	Zinc

j. Recycled Process Water monitoring results obtained during the previous month for recycled water discharges shall be summarized for each month and reported annually, no later than January 28th day of the month following the completed reporting period.

k. Recycled Process Water monitoring shall be conducted during the seasonal usage. Months the recycled process water is not used, "No Discharge" shall be reports in NetDMR.

l. E.coli shall not be present in the discharge.

m. Land Application Reports shall be summarized per crop type and submitted annually, no later than the January 28th day of the month following the completed reporting period.

End Table References

Management Practices for Land Application:

(1) The application of treated effluent to frozen, ice-covered, or snow covered land is prohibited.
(2) No person shall apply treated effluent where the slope of the site exceeds 6 percent.
(3) The use should not result in a surface water runoff.
(4) The use must not result in the creation of an unhealthy or nuisance condition, as determined by the local health department.
(5) Any irrigation with treated effluent must be at least 300 feet from a potable well.
(6) Impoundments of treated effluent, if not sealed, must be at least 500 feet from any potable well.
(7) Public access to effluent storage and irrigation or disposal sites shall be restricted by a stock-tight fence or other comparable means which shall be posted and controlled to exclude the public.

D. Reporting of Monitoring Results.

1. Reporting of Wastewater Monitoring Results Monitoring results obtained during the previous month shall be summarized for each month and reported on a Discharge Monitoring Report Form on NetDMR, no later than the 28th day of the month following the completed reporting period. If no discharge occurs during the reporting period, "no discharge" shall be reported. Legible copies of these, and all other required herein, shall be signed and certified in accordance with the requirements of *Signatory Requirements (see Part VII.G*), and submitted by NetDMR, or to the Division of Water Quality at the following address:

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

2. Reporting of Reuse Monitoring Results. Monitoring results obtained during the previous month shall be summarized for each month and reported annually, no later than January 28th day of the month following the completed reporting period. The first report is due on January 28, 2022. If no reuse occurs during the reporting period, "no reuse" shall be reported for those applicable effluent parameters. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the requirements of Signatory Requirements (see Part VII.G), and submitted to the Division of Water Quality at the following address:

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

3. Annual Reporting of Land Application per Crop Type. Monitoring results obtained during the previous year shall be summarized and reported annually, no later than January 28th day of the month following the completed reporting period. The first report is due on January 28, 2022. If no reuse occurs during the reporting period, "no reuse" shall be reported for those applicable effluent parameters. Legible copies of these, and all other reports required herein, shall be signed and certified in accordance with the requirements of Signatory Requirements (see Part VII.G), and submitted to the Division of Water Quality at the following address:

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

II. PRETREATMENT REQUIREMENTS

A. Discharge to POTW. 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. At a minimum the discharge, into a POTW, must met the requirements of Part II of the permit.

B. Hazardous Waste Notification. 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).

C. General and Specific Prohibitions.

1. General Prohibitions. The permittee may not introduce into a POTW any pollutant(s) which cause Pass Through or Interference. These general prohibitions and the specific prohibitions in paragraph 2. of this section apply to the introducing pollutants into a POTW whether or not the permittee is subject to other National Pretreatment Standards or any national, State, or local Pretreatment Requirements.

2. Specific Prohibitions. The following pollutants shall not be introduced into a POTW:

   a. Pollutants which create a fire or explosion hazard in the publicly owned treatment works (POTW), including, but not limited to, wastestreams with a closed cup flashpoint of less than 140˚F (60˚C);

   b. Pollutants, which will cause corrosive structural damage to the POTW, but in no case, discharges with a pH lower than 5.0;

   c. Solid or viscous pollutants in amounts which will cause obstruction to the flow in the POTW resulting in interference;

   d. Any pollutant, including oxygen demanding pollutants (BOD, etc.), released in a discharge at such volume or strength as to cause interference in the POTW;

   e. Heat in amounts, which will inhibit biological activity in the POTW, resulting in interference, but in no case, heat in such quantities that the influent to the sewage treatment works exceeds 104˚F (40˚C));

   f. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;

   g. Pollutants, which result in the presence of toxic gases, vapor, or fumes within the POTW in a quantity that may cause worker health or safety problems;

   h. Any trucked or hauled pollutants, except at discharge points designated by the POTW; or

   i. Any pollutant that causes pass through or interference at the POTW.

j. Any specific pollutant which exceeds any local limitation established by the POTW.

D. Categorical Standards. In addition to the general and specific limitations expressed in *Part II. C.* of this section, applicable National Categorical Pretreatment Standards must be met by all industrial users discharging into a POTW. These standards are published in the federal regulations at *40 CFR 405 through 471*.

E. Definitions. For this section the following definitions shall apply:

1. *Indirect Discharge* means the introduction of pollutants into a publicly-owned treatment works (POTW) from any non-domestic source regulated under section 307 (b), (c) or (d) of the CWA.

2. *Interference* means a discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

   a. Inhibits or disrupts the POTW, its treatment processes or operations, or its sludge processes, use or disposal; and

   b. Therefore is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the Clean Water Act, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

3. *Pass Through means* a Discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

4. *Publicly Owned Treatment Works* or *POTW* means a treatment works as defined by section 212 of the CWA, which is owned by a State or municipality (as defined by section 502(4) of the CWA). This definition includes any devices and systems used in the storage, treatment, recycling and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW Treatment Plant. The term also means the municipality as defined in section 502(4) of the CWA, which has jurisdiction over the Indirect Discharges to and the discharges from such a treatment works.

5. *Significant industrial user (SIU)* is defined as an industrial user discharging to a POTW that satisfies any of the following:

   a. Has a process wastewater flow of 25,000 gallons or more per average work day;

   b. Has a flow greater than five percent of the flow carried by the municipal system receiving the waste;

c. Is subject to Categorical Pretreatment Standards, or

d. Has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement.

6. *User or Industrial User (IU)* means a source of Indirect Discharge.

III. BIOSOLIDS REQUIREMENTS

The State of Utah has adopted the 40 CFR 503 federal regulations for the disposal of sewage sludge (biosolids) by reference. However, since this facility does not receive, generate, treat or dispose of biosolids. Therefore 40 CFR 503 does not apply at this time.

IV. STORM WATER REQUIREMENTS.

A. Industrial Storm Water Permit. Based on the type of industrial activities occurring at the facility, the permittee is required to maintain separate coverage or an appropriate exclusion under the Multi-Sector General Permit (MSGP) for Storm Water Discharges Associated with Industrial Activities (UTR000000). If the facility is not already covered, the permittee has 30 days from when this permit is issued to submit the appropriate Notice of Intent (NOI) for the MSGP or exclusion documentation.

V. MONITORING, RECORDING & GENERAL 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. Samples of biosolids shall be collected at a location representative of the quality of biosolids 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 and 40CFR Part 503*, 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. 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.

E. 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* and *40 CFR 503* or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or the Biosolids Report Form. Such increased frequency shall also be indicated. Only those parameters required by the permit need to be reported.

F. 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.

G. 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 five years from the date of the sample, measurement, report or application. This period may be extended by request of the Director at any time. A copy of this UPDES permit must be maintained on site during the duration of activity at the permitted location

H. Twenty-four Hour Notice of Noncompliance Reporting.

1. The permittee shall (orally) report any noncompliance including transportation accidents, spills, and uncontrolled runoff from biosolids transfer or land application sites which may seriously endanger health or environment, as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of circumstances. The report shall be made to the Division of Water Quality, (801) 536-4300, or 24-hour answering service (801) 536-4123.

2. The following occurrences of noncompliance shall be reported by telephone (801) 536-4300 as soon as possible but no later than 24 hours from the time the permittee becomes aware of the circumstances:

   a. Any noncompliance which may endanger health or the environment;

   b. Any unanticipated bypass, which exceeds any effluent limitation in the permit (See *Part VI.G, Bypass of Treatment Facilities.)*;

   c. Any upset which exceeds any effluent limitation in the permit (See *Part VI.H, Upset Conditions*.);

   d. Violation of a daily discharge limitation for any of the pollutants listed in the permit; or,

   e. Violation of any of the Table 3 metals limits, the pathogen limits, the vector attraction reduction limits or the management practices for biosolids that have been sold or given away.

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;

   d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and,

   e. Steps taken, if any, to mitigate the adverse impacts on the environment and human health during the noncompliance period.

4. The Director may waive the written report on a case-by-case basis if the oral report has been received within 24 hours by the Division of Water Quality, (801) 536-4300.

5. Reports shall be submitted to the addresses in *Part I.D, Reporting of Monitoring Results*.

I. 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 I.D* are submitted. The reports shall contain the information listed in *Part V.H.3*

J. Inspection and Entry The permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of the permit;

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, including but

not limited to, biosolids treatment, collection, storage facilities or area, transport vehicles and containers, and land application sites;

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, including, but not limited to, digested biosolids before dewatering, dewatered biosolids, biosolids transfer or staging areas, any ground or surface waters at the land application sites or biosolids, soils, or vegetation on the land application sites; and,

5. The permittee shall make the necessary arrangements with the landowner or leaseholder to obtain permission or clearance, the Director, or authorized representative, upon the presentation of credentials and other documents as may be required by law will be permitted to enter without delay for the purposes of performing their responsibilities.

VI. COMPLIANCE RESPONSIBILITIES

A. Duty to Comply. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements.

B. Penalties for Violations of Permit Conditions. The *Act* provides that any person who violates a permit condition implementing provisions of the *Act* is subject to a civil penalty not to exceed $10,000 per day of such violation. Any person who willfully or negligently violates permit conditions or 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 VI.G, Bypass of Treatment Facilities* and *Part VI.H, Upset Conditions*, nothing in this permit shall be construed to relieve the permittee of the civil or criminal penalties for noncompliance.

C. Need to Halt or Reduce Activity not a Defense. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D. Duty to Mitigate. The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit, which has a reasonable likelihood of adversely affecting human health or the environment. The permittee shall also take all reasonable steps to minimize or prevent any land application in violation of this permit.

E. Proper Operation and Maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems, which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of the permit.

F. Removed Substances. Collected screening, grit, solids, sludge, or other pollutants removed in the course of treatment shall be disposed of in such a manner so as to prevent any pollutant from entering any waters of the state or creating a health hazard. Sludge/digester supernatant and filter backwash shall not directly enter either the final effluent or waters of the state by any other direct route.

G. Bypass of Treatment Facilities.

1. Bypass Not Exceeding Limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to paragraph 2 and 3 of this section.

2. Prohibition of Bypass.

a. Bypass is prohibited, and the Director may take enforcement action against a permittee for bypass, unless:

(1) Bypass was unavoidable to prevent loss of human life, personal injury, or severe property damage;

(2) There were no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgement 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 VI.G.3*.

b. The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed in *Parts VI.G.2.a (1), (2) and (3)*.

3. Notice.

a. *Anticipated bypass*. Except as provided above in *Part VI.G.2* and below in *Part VI.G.3.b*, if the permittee knows in advance of the need for a bypass, it shall submit prior notice, at least ninety days before the date of bypass. The prior notice shall include the following unless otherwise waived by the Director:

(1) Evaluation of alternative to bypass, including cost-benefit analysis containing an assessment of anticipated resource damages:

(2) A specific bypass plan describing the work to be performed including scheduled dates and times. The permittee must notify the Director in advance of any changes to the bypass schedule;

(3) Description of specific measures to be taken to minimize environmental and public health impacts;

(4) A notification plan sufficient to alert all downstream users, the public and others reasonably expected to be impacted by the bypass;

(5) A water quality assessment plan to include sufficient monitoring of the receiving water before, during and following the bypass to enable evaluation of public health risks and environmental impacts; and,

(6) Any additional information requested by the Director.

b. *Emergency Bypass*. Where ninety days advance notice is not possible, the permittee must notify the Director, and the Director of the Department of Natural Resources, as soon as it becomes aware of the need to bypass and provide to the Director the information in *Part VI.G.3.a.(1) through (6)* to the extent practicable.

c. *Unanticipated bypass*. The permittee shall submit notice of an unanticipated bypass to the Director as required under *Part V.H*, Twenty Four Hour Reporting. The permittee shall also immediately notify the Director of the Department of Natural

Resources, the public and downstream users and shall implement measures to minimize impacts to public health and environment to the extent practicable.

H. Upset Conditions.

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of paragraph 2 of this section are met. Director's administrative determination regarding a claim of upset cannot be judiciously challenged by the permittee until such time as an action is initiated for noncompliance.

2. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

   a. An upset occurred and that the permittee can identify the cause(s) of the upset;

   b. The permitted facility was at the time being properly operated;

   c. The permittee submitted notice of the upset as required under *Part V.H, Twenty-four Hour Notice of Noncompliance Reporting*; and,

   d. The permittee complied with any remedial measures required under *Part VI.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.

VII. GENERAL REQUIREMENTS

A. Planned Changes. The permittee shall give notice to the Director as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when the alteration or addition could significantly change the nature or increase the quantity of parameters discharged or pollutant sold or given away. This notification applies to pollutants, which are not subject to effluent limitations in the permit. In addition, if there are any planned substantial changes to the permittee's existing sludge facilities or their manner of operation or to current sludge management practices of storage and disposal, the permittee shall give notice to the Director of any planned changes at least 30 days prior to their implementation.

B. Anticipated Noncompliance. The permittee shall give advance notice to the Director of any planned changes in the permitted facility or activity, which may result in noncompliance with permit requirements.

C. Permit Actions. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

D. Duty to Reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee shall apply for and obtain a new permit. The application shall be submitted at least 180 days before the expiration date of this permit.

E. Duty to Provide Information. The permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

F. Other Information. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or any report to the Director, it shall promptly submit such facts or information.

G. Signatory Requirements. All applications, reports or information submitted to the Director shall be signed and certified.

1. All permit applications shall be signed by either a principal executive officer or ranking elected official.

2. All reports required by the permit and other information requested by the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described above and submitted to the Director, and,

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters. A duly authorized

representative may thus be either a named individual or any individual occupying a named position.

3. Changes to authorization. If an authorization under *paragraph VII.G.2* is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of *paragraph VII.G.2.* must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.

4. Certification. Any person signing a document under this section shall make the following certification:

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

H. Penalties for Falsification of Reports. The *Act* provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance shall, upon conviction be punished by a fine of not more than $10,000.00 per violation, or by imprisonment for not more than six months per violation, or by both.

I. Availability of Reports. Except for data determined to be confidential under *UAC R317-8-3.2*, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the office of Director. As required by the *Act*, permit applications, permits and effluent data shall not be considered confidential.

J. Oil and Hazardous Substance Liability. Nothing in this permit shall be construed to preclude the permittee of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under the *Act*.

K. Property Rights. The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

L. Severability. The provisions of this permit are severable, and if any provisions of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

M. Transfers. This permit may be automatically transferred to a new permittee if:

1. The current permittee notifies the Director at least 20 days in advance of the proposed transfer date;

2. The notice includes a written agreement between the existing and new permittee's containing a specific date for transfer of permit responsibility, coverage, and liability between them; and,

3. The Director does not notify the existing permittee and the proposed new permittee of his or her intent to modify, or revoke and reissue the permit. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph *2* above.

N. State or Federal 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* and *Section 510* of the *Act* or any applicable Federal or State transportation regulations, such as but not limited to the Department of Transportation regulations.

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. Revisions to the current CWA § 208 areawide treatment management plans or promulgations/revisions to TMDLs (40 CFR 130.7) approved by the EPA and adopted by DWQ which calls for different effluent limitations than contained in this permit.

P. Biosolids – Reopener Provision. This permit may be reopened and modified (following proper administrative procedures) to include the appropriate biosolids limitations (and compliance schedule, if necessary), management practices, other appropriate requirements to protect public health and the environment, or if there have been substantial changes (or such changes are planned) in biosolids use or disposal practices; applicable management practices or numerical limitations for pollutants in biosolids have been promulgated which are more stringent than the requirements in this permit; and/or it has been determined that the permittees biosolids use or land application practices do not comply with existing applicable state of federal regulations.

Q. Toxicity Limitation - Reopener 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.

R. Storm Water-Reopener Provision. At any time during the duration (life) of this permit, this permit may be reopened and modified (following proper administrative procedures) as per *UAC R317.8*, to include, any applicable storm water provisions and requirements, a storm water pollution prevention plan, a compliance schedule, a compliance date, monitoring and/or reporting requirements, or any other conditions related to the control of storm water discharges to "waters-of-State".

VIII. DEFINITIONS

A. Wastewater.

1. The "7-day (and weekly) average", other than for *E. coli* bacteria, fecal coliform bacteria, and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. Geometric means shall be calculated for *E. coli* bacteria, fecal coliform bacteria, and total coliform bacteria. 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, which begins on Sunday and ends 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 Saturday.

2. The "30-day (and monthly) average," other than for *E. coli* bacteria, fecal coliform bacteria and total coliform bacteria, is the arithmetic average of all samples collected during a consecutive 30-day period or calendar month, whichever is applicable. Geometric means shall be calculated for *E. coli* bacteria, fecal coliform bacteria and total coliform bacteria. The calendar month shall be used for purposes of reporting self-monitoring data on discharge monitoring report forms.

3. "Act," means the *Utah Water Quality Act*.

4. "Acute toxicity" occurs when 50 percent or more mortality is observed for either test species at any effluent concentration (lethal concentration or "LC_{50}").

5. "Bypass," means the diversion of waste streams from any portion of a treatment facility.

6. "Chronic toxicity" occurs when the IC_{25}< XX% effluent. The XX% effluent is the concentration of the effluent in the receiving water, at the end of the mixing zone expressed as per cent effluent.

7. "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.

8. "Composite Samples" shall be flow proportioned. The composite sample shall, as a minimum, contain at least four (4) samples collected over the compositing 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 sample volume, with sample collection rate proportional to flow rate.

9. "CWA" means *The Federal Water Pollution Control Act*, as amended, by *The Clean Water Act of 1987*.

10. "Daily Maximum" (Daily Max.) is the maximum value allowable in any single sample or instantaneous measurement.

11. "EPA," means the United States Environmental Protection Agency.

12. "Director," means Director of the Division of Water Quality.

13. A "grab" sample, for monitoring requirements, is defined as a single "dip and take" sample collected at a representative point in the discharge stream.

14. An "instantaneous" measurement, for monitoring requirements, is defined as a single reading, observation, or measurement.

15. "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.

16. "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 preventative maintenance, or careless or improper operation.

FACT SHEET AND STATEMENT OF BASIS
CASPER'S ICE CREAM, INC.
RENEWAL PERMIT: DISCHARGE, & REUSE
UPDES PERMIT NUMBER: UT0025526
MINOR INDUSTRIAL

FACILITY CONTACTS

Person Name:	Shawn Anderson	**Person Name:**	Kyle Smith
Position:	Facility Engineer	**Position:**	President
Phone Number:	435.258.2477 Ext 13	**Phone Number:**	435.258.2477 Ext 18
Email:	engineer@caspersicecream.com	**Email:**	

Facility Name:	Casper's Ice Cream, Inc.
Mailing and Facility Address:	11805 North 200 East Richmond, Utah 84333
Telephone:	435.258.2477

DESCRIPTION OF FACILITY

Casper's Ice Cream, Inc. (Casper's) is an ice cream manufacturing company that produces novelty products such as ice cream sandwiches as well as hard ice cream. It is located about 1.5 miles north of Richmond Utah at 11805 North 200 East in Richmond, Utah at latitude 41°58.81' and longitude 111°49.89'. Casper's Standard Industrial Classification (SIC) code is 2024, with a North American Industry Classification System (NAICS) Code of 311520 for Ice Cream and Frozen Dessert Manufacturing.

Casper's has two pipes that leave the facility; one contains non-contact cooling water and the other contains process water. Approximately 8,000 gallons of process water is generated per day at the facility. The process water is currently being treated through several grease traps, septic tanks and to an aerated containment pond. Process water will be blended with irrigation and non-contact cooling water then land applied on cropland located east and west of the facility.

Casper's generates up to approximately 75,000 gallons of non-contact cooling water effluent per day. The non-contact cooling water is collected and discharged through Outfall 001 to a pond located between Casper's property, and a farm to the West. The pond discharges to the Cub River. During the months when the irrigation is needed for the fields, the non-contact cooling water will be added to the process water to be used for make-up water for the irrigation system. This will bring about long periods of no discharge for the non-contact cooling water.

In 2005 Casper's constructed two wastewater storage lagoons to contain 100% of its process water and a portion of the plant non-contact cooling water which eliminated the process water discharge to the Cub River. The process wastewater goes through grease interceptors to help settle out the solids prior to being pumped to the lagoons. The lagoons are located east of the processing building. Aerators are installed to help prevent odors and solids settle to the bottom of the lagoons prior to being applied to the farmland. During the winter months, December through February, the process water is stored in two lagoons located near the irrigation fields with an approximate capacity of 1.5 million gallons each. During the summer months, the stored process water is used to irrigate approximately 12 acres of alfalfa located on land the east of the process building/west of the storage lagoons and 90 acres located on the east side of the processing building. The 90 acres is irrigated with a pivot system; 17 of the 90 acres are owned by Casper's the other 73 acres is owned by a family named Christensen. Additional land application sites are being

added to Casper's disposal sites. The first location is 28 acres and is north of the facility; it will begin to be used for land application by Spring 2021. The second location is 86 acres west of the facility. This location currently splits the non-contact cooling water pond, it projected to be purchased and used by 2022.

During the winter months, excess non-contact cooling water is discharged to the Cub River.

Casper's is on the fourth UPDES permit renewal cycle. The initial permit in 2005 the facility did not have their disposal system finalized for the process wash down water which also connected with the cooling water system. Therefore, chemical oxygen demand (COD) and biological oxygen demand (BOD) were included in the permit. Prior to the 2010 permit issuance, Casper's separated the process wash down and non-cooling water system and installed a land application system. As a result of the changes, COD and BOD monitoring were removed from the permit and monitoring frequency for pH and total suspended solids were adjusted.

SUMMARY OF CHANGES FROM PREVIOUS PERMIT

Casper's has not made any improvements at the facility.

The addition of annual metal monitoring has been added for Outfall 001 to collect data for reasonable potential analysis. The daily minimum dissolved oxygen (DO) has been changed to 5.5 mg/L based on the wasteload analysis.

Outfall 001R has been added to the permit as a description and approval to use the process wastewater for irrigation on the 12, 90, 28 and 86 acre parcels surrounding the Casper facility as Type II Reuse for land application. There will not be limits on the land application but monitoring requirements.

DISCHARGE

DESCRIPTION OF DISCHARGE

Casper's has two outfalls for discharging. Outfall 001 to discharge non-contact cooling water to the Cub River and Outfall 001R to recycle the process wastewater on a total of 102 to 216 acres.

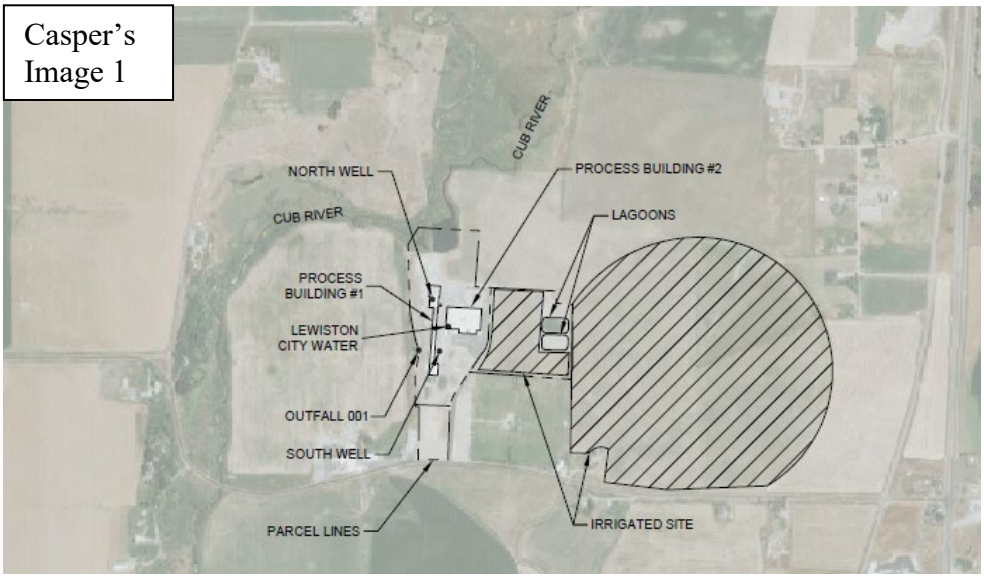
Outfall	Description of Discharge Point
001	Located at latitude 41°56' 59" North and longitude 111°49'55' West. The discharge is piped to an unnamed pond which connects to the Cub River. *Outfall location Image 1*
001R	Located at latitude 41°56' 53" North and longitude 111°49'37" West. This Outfall is for Recycled Process Water from the storage lagoons for land application.

During the winter months, December through February, the process water is stored in two lagoons located near the irrigation fields with an approximate capacity of 1.5 million gallons each.

During the summer months, the stored process water is used to irrigate approximately 12 acres of alfalfa located on land the east of the process building/west of the storage lagoons and 90 acres, pivot system, located on the east side of the processing building.

Additional land application sites are being added to Casper's disposal sites. The first location is 28 acres and is north of the facility; it will begin to be used for land application by Spring 2021. The second location is 86 acres west of the facility. This location currently splits the non-contact cooling water pond, it projected to be purchased and used by 2022.
Outfall location Image 2

Casper's Image 1



Casper's Image 2

RECEIVING WATERS AND STREAM CLASSIFICATION
The receiving water for Outfall 001 is the Cub River.

Per UAC R317-2-13.3(a), the designated beneficial uses for the Cub River and Cub River and tributaries, from confluence with Bear River to state line is 2B, 3B and 4.

Class 2B	Protected for infrequent primary contact recreation. Also protected for secondary contact recreation where there is a low likelihood of ingestion of water or a low degree of bodily contact with the water. Examples include, but are not limited to, wading, hunting, and fishing.
Class 3B	Protected for warm water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain.
Class 4	Protected for agricultural uses including irrigation of crops and stock watering.

BASIS FOR EFFLUENT LIMITATIONS
Limitations on total suspended solids (TSS) and pH are based on current Utah Secondary Treatment Standards, UAC R317-1-3.2. The oil and grease is based on best professional judgment (BPJ). Temperature and total phosphorus are based on the Wasteload Analysis (WLA) and in consulting with the Watershed Coordinator for Class 3B waters. Class 3B is for warm water aquatic life, therefore temperature will remain as 84º C as required in the previous permit. Casper's does not discharge sanitary waste; therefore E.coli will not be required to be monitored. Chlorine is not used in Outfall 001 therefore total residual chlorine will not have a limit.

Attached is a WLA for this discharge into the unnamed pond. It has been determined that this discharge will not cause a violation of water quality standards. An Antidegradation Level II review is not required

since the Level I review shows that water quality impacts are minimal. The permittee is expected to be able to comply with these limitations.

Parameters of Concern
The potential parameters of concern identified for the discharge/receiving water were temperature and total phosphorus as determined in consultation with the UPDES Permit Writer.

Total Maximum Daily Load (TMDL)
The Cub River from the confluence with the Bear River to the Utah-Idaho State Line (UT16010202-010-00) is listed as impaired (Class 4A, Impaired: TMDL approved) on the 2016 303(d) list for phosphorus and sedimentation.

A TMDL was completed for the Middle Bear River on February 23, 2010 (UDWQ 2010). The TMDL identified an instream concentration goal of 0.05 mg/l total phosphorus in the Cub River.

Reasonable Potential Analysis
Since January 1, 2016, DWQ has conducted reasonable potential analysis (RP) on all new and renewal applications received after that date. To complete a RP analysis, more than 10 data points per parameter are needed. Casper's was not required to sample for metal parameters in their previous permit, therefore, analysis data is not available to perform a RP analysis. For this permit cycle, Casper's will be required to permit, at a minimum, annual metal sampling. If additional sampling is performed, it shall be reported to DWQ. Less than 10 data points may affect the RP outcomes which may require additional monitoring in the future.

Table 1

Parameter	Outfall 001 Effluent Limitations [a]			
	Maximum Monthly Avg	Maximum Weekly Avg	Daily Minimum	Daily Maximum
Flow, MGD	--	--	--	0.08
TSS, mg/L	25	35	--	--
pH, Standard Units	--	--	6.5	9
DO, mg/L	--	--	5.5	--
Oil & Grease, mg/L	--	--	--	10.0
Total Phosphorus, mg/L				0.05
Temperature, °C				84

SELF-MONITORING AND REPORTING REQUIREMENTS

The permit will require reports to be submitted monthly and annually, as applicable, on Discharge Monitoring Report (DMR) in NetDMR unless the permittee has successfully petitioned for an exception. Lab sheets for metals must be attached to the DMRs.

Table 2			
Outfall 001 **Self-Monitoring and Reporting Requirements [a]**			
Parameter	**Frequency**	**Sample Type**	**Units**
Total Flow [b, c, d]	Continuous	Recorder	MGD
TSS	Monthly	Grab	mg/L
pH	Monthly	Grab	SU
DO	Monthly	Grab	mg/L
Oil & Grease [e, f]	Monthly	Grab	mg/L
Total Phosphorus	Monthly	Grab	mg/L
Temperature	Monthly	Grab	Celsius
Metals [g, h, i]	Annual	Grab/Comp	mg/L

The following is a summary of the Recycled Process Water self-monitoring and reporting requirements.

Table 3			
Outfall 001 R **Recycled Process Water** **Self-Monitoring and Reporting Requirements [a, j, k, l]**			
Parameter	**Frequency**	**Sample Type**	**Units**
Total Flow [c, m]	Continuous/Seasonally	Recorder	MGD
BOD	Monthly/Seasonally	Grab	mg/L
TSS	Monthly/Seasonally	Grab	mg/L
pH	Monthly/Seasonally	Grab	SU
Total Phosphorus	Monthly/Seasonally	Grab	mg/L
Nitrate	Monthly/Seasonally	Grab	mg/L
Nitrite	Monthly/Seasonally	Grab	mg/L
Total Nitrogen	Monthly/Seasonally	Grab	mg/L

Table 4	
Land Application per Crop Type [m]	
Crop Type	List of crops grown on each site
Crop Harvest (tons/yr)	As measured based on harvest records
Land Application Area (acres)	Land treated process water effluent was applied based on application area
Number of Days per Season	Estimated (About 180 days/growing season)

Table References

a. See Definitions, ***Part VIII***, for definition of terms.

b. All parameters in this table will be reported on the monthly Discharge Monitoring Report.

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

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

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

f. Oil & Grease sampled when sheen is present or visible. If no sheen is present or visible, report 9 under "NODI" in NetDMR.

g. Metals samples should be analyzed using a method that meets MDL requirements. If a test method is not available the permittee must submit documentation to the Director regarding the method that will be used. The sample type (composite or grab) should be performed according to the methods requirements.

h. Metals are being sampled in support of the work being done for the Reasonable Potential Analysis. The Metal parameters will be monitored and reported on an annual basis by the facility on Discharge Monitoring Report, but will not have a limit associated with them, if Casper's decides to sample more frequently for these parameters, the additional data is required to be reported.

i. Metals

Arsenic	Copper	Nickel
Cadmium	Cyanide	Selenium
Total	Lead	Silver
Chromium	Mercury	Zinc

j. Recycled Process Water monitoring results obtained during the previous month for recycled water discharges shall be summarized for each month and reported annually, no later than January 28th day of the month following the completed reporting period.

k. Recycled Process Water monitoring shall be conducted during the seasonal usage. Months the recycled process water is not used, "No Discharge" shall be reports in NetDMR.

l. E.coli shall not be present in the discharge.

m. Land Application Reports shall be summarized per crop type and submitted annually, no later than the January 28th day of the month following the completed reporting period.

End Table References

Management Practices for Land Application:

(1) The application of treated effluent to frozen, ice-covered, or snow covered land is prohibited.
(2) No person shall apply treated effluent where the slope of the site exceeds 6 percent.
(3) The use should not result in a surface water runoff.
(4) The use must not result in the creation of an unhealthy or nuisance condition, as determined by the local health department.
(5) Any irrigation with treated effluent must be at least 300 feet from a potable well.
(6) Impoundments of treated effluent, if not sealed, must be at least 500 feet from any potable well.
(7) Public access to effluent storage and irrigation or disposal sites shall be restricted by a stock-tight fence or other comparable means which shall be posted and controlled to exclude the public.

BIOSOLIDS

The State of Utah has adopted the 40 CFR 503 federal regulations for the disposal of sewage sludge (biosolids) by reference. However, since this facility does not receive, generate, treat or dispose biosolids. Therefore 40 CFR 503 does not apply at this time.

STORM WATER

Separate storm water permits may be required based on the types of activities occurring on site.

Permit coverage under the Multi Sector General Permit (MSGP) for Storm Water Discharges from Industrial Activities is required based on the Standard Industrial Classification (SIC) code for the facility and the types of industrial activities occurring. If the facility is not already covered, it has 30 days from when this permit is issued to submit the appropriate Notice of Intent (NOI) for the MSGP or exclusion documentation. Previously storm water discharge requirements and coverage were combined in this individual permit. These have been separated to provide consistency among permittees, electronic reporting for storm water discharge monitoring reports, and increase flexibility to changing site conditions.

Permit coverage under the Construction General Storm Water Permit (CGP) is required for any construction at the facility which disturb an acre or more, or is part of a common plan of development or sale that is an acre or greater. A Notice of Intent (NOI) is required to obtain a construction storm water permit prior to the period of construction.

Information on storm water permit requirements can be found at http://stormwater.utah.gov

PRETREATMENT REQUIREMENTS

Any wastewater discharged to the sanitary sewer, either as a direct discharge or as a hauled waste, is subject to Federal, State and local pretreatment regulations. Pursuant to Section 307 of the CWA, the permittee shall comply with all applicable Federal Pretreatment Regulations promulgated at 40 CFR Part 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 Part 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 the permittee discharges any substance into a POTW which if otherwise disposed of would be considered a hazardous waste under 40 CFR Part 261. This notification must include the name of the hazardous waste, the EPA hazardous waste number, and the type of discharge (continuous or batch).

BIOMONITORING REQUIREMENTS

A nationwide effort to control toxic discharges where effluent toxicity is an existing or potential concern is regulated in accordance with the Utah Pollutant Discharge Elimination System Permit and Enforcement Guidance Document for Whole Effluent Toxicity Control (biomonitoring), dated February 2018. Authority to require effluent biomonitoring is provided in Permit Conditions, UAC R317-8-4.2, Permit Provisions, UAC R317-8-5.3 and Water Quality Standards, UAC R317-2-5 and R317 -2-7.2.

The permittee is a minor industrial facility that will be discharging an infrequent amount of effluent, in

which toxicity is neither an existing concern, nor likely to be present. Based on these considerations and the absence of receiving stream water quality monitoring data, there is no reasonable potential for toxicity in the permittee's discharge (per State of Utah Permitting and Enforcement Guidance Document for WET Control). As such, there will be no numerical WET limitations or WET monitoring requirements in this permit. However, the permit will contain a toxicity limitation re-opener provision that allows for modification of the permit should additional information indicate the presence of toxicity in the discharge.

PERMIT DURATION

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

Drafted by
Sarah Ward, Discharge & Reuse
Daniel Griffin, Biosolids
Jennifer Robinson, Pretreatment
Lonnie Shull, Biomonitoring
Lisa Stevens, Storm Water
Suzan Tahir, Wasteload Analysis
Utah Division of Water Quality, (801) 536-4300

PUBLIC NOTICE

Began: December 4, 2020
Ended: January 4, 2021

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

The Public Noticed of the draft permit will be published on the Department of Environmental Quality Division of Water Quality website.

ADDENDUM TO FSSOB

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

Responsiveness Summary

No comments were received.

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ATTACHMENT 1

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ATTACHMENT 2

Effluent Monitoring Data

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Casper's Ice Cream Inc.
Effluent Monitoring Data
https://echo.epa.gov/effluent-charts#UT0025526

Month/Year	Temperature		Dissolved Oxygen		pH			TSS			Oil & Grease		Total Phosphorus		Flow	
	Daily Max	Units	Daily Min	Unit	Daily Min	Daily Max	Unit	Max Mon Ave	Max Wk Ave	Unit	Daily Max	Units	Daily Max	Units	Max Mon Ave	Units
11/17/2017	No Discharge	Celcius degrees	No Discharge	mg/L	No Discharge	No Discharge	SU	No Discharge	No Discharge	mg/L	No Discharge	mg/L	No Discharge	mg/L	No Discharge	MGD
2/7/2018	13.89	Celcius degrees	6.7	mg/L	7.8	7	SU	-	-	mg/L	Conditional Monitoring - Not Required	mg/L	0.11	mg/L	0.013	MGD
4/30/2018	11.6	Celcius degrees	6.8	mg/L	7	7	SU	4	4	mg/L	Conditional Monitoring - Not Required	mg/L	0.03	mg/L	0.02	MGD
7/31/2018	24	Celcius degrees	6.8	mg/L	7	7	SU	4	4	mg/L	Conditional Monitoring - Not Required	mg/L	0.03	mg/L	0.04	MGD
11/15/2018	No Discharge	Celcius degrees	No Discharge	mg/L	No Discharge	No Discharge	SU	No Discharge	No Discharge	mg/L	No Discharge	mg/L	No Discharge	mg/L	No Discharge	MGD
2/5/2019	15.6	Celcius degrees	7.2	mg/L	7.7	7	SU	4	4	mg/L	Conditional Monitoring - Not Required	mg/L	0.02	mg/L	0.035	MGD
5/8/2019	15.6	Celcius degrees	7.7	mg/L	7	7.5	SU	4	4	mg/L	Conditional Monitoring - Not Required	mg/L	0.01	mg/L	0.048	MGD
8/16/2019	16	Celcius degrees	7.3	mg/L	7.5	7.5	SU	4	4	mg/L	Conditional Monitoring - Not Required	mg/L	0.02	mg/L	0.039	MGD
11/30/2019	11.7	Celcius degrees	8.3	mg/L	7.5	7.5	SU	4	4	mg/L	Conditional Monitoring - Not Required	mg/L	0.01	mg/L	0.027	MGD
2/12/2020	13.9	Celcius degrees	8.5	mg/L	7.5	7.5	SU	4	4	mg/L	Conditional Monitoring - Not Required	mg/L	0.06	mg/L	0.027	MGD
5/8/2020	11.1	Celcius degrees	8.7	mg/L	7.5	7.5	SU	4	4	mg/L	Conditional Monitoring - Not Required	mg/L	0.03	mg/L	0.028	MGD
8/11/2020	21.7	Celcius degrees	8.5	mg/L	7.5	7.5	SU	4	4	mg/L	Conditional Monitoring - Not Required	mg/L	0.02	mg/L	0.03	MGD
10/19/2020	No Discharge	Celcius degrees	No Discharge	mg/L	No Discharge	No Discharge	SU	No Discharge	No Discharge	mg/L	No Discharge	mg/L	No Discharge	mg/L	No Discharge	MGD

ATTACHMENT 3

Wasteload Analysis

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

Date: **October 5, 2020**

Prepared by: **Suzan Tahir**
Standards and Technical Services

Facility: **Casper Ice Cream**
UPDES No. UT- UT0025623

Receiving water: **Cub River (2B, 3B, 4)**

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

Discharge

Outfall 001: Cub River

The mean monthly design discharge is 0.075 MGD (0.14 cfs) for the facility.

Receiving Water
The receiving water for Outfall 001 the Cub River.

Per UAC R317-2-13.3(a), the designated beneficial uses for the Cub River and Cub River and tributaries, from confluence with Bear River to state line is 2B, 3B and 4.

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

- *Class 3B - Protected for warm water species of game fish and other warm water aquatic life, including the necessary aquatic organisms in their food chain.*

- *Class 4 - Protected for agricultural uses including irrigation of crops and stock watering.*

Typically, the critical flow for the wasteload analysis is considered the lowest stream flow for seven consecutive days with a ten year return frequency (7Q10). Due to a lack of flow data, the 7Q10 flow was estimated by calculating the 20th percentile of available flow data. Cub River flows were determined from DWQ monitoring station 4904340 (Cub River at 800 South Above High Creek) for the period 2000-2020. This station is located upstream of the facility. The calculated critical low flow values for each season are listed in Table 1.
In the past, Cub River flows were determined from DWQ monitoring station 4904240 (Cub River at Casper Ice Cream Road). This station is located downstream of the facility, however in the past, it was selected as the most appropriate station for the following reasons: 1) it is the only station with a reasonable data set in the vicinity of the discharge; 2) the Casper facility has very low flows compared to the receiving water, and; 3) the nearest upstream station is quite a bit above this location, (4903770, Cub River at U61Crossing) and has very limited flow data. Additionally, there are several tributaries and Lewiston's Lagoon discharge between that station and this point.

Table 1. Seasonal Flow Values (20th percentile)

Season	Average Flow (cfs)
Summer	11.6
Fall	11.6
Winter	11.6
Spring	11.6
Overall	44.1

The receiving water quality in the Cub River was characterized by samples collected from DWQ monitoring site 4904340 (Cub River at 800 South Above High Creek) for the period 2000-2020.

TMDL
The Cub River from the confluence with the Bear River to the Utah-Idaho State Line (UT16010202-010-00) is listed as impaired (Class 4A, Impaired: TMDL approved) on the 2016 303(d) list for phosphorous and sedimentation.
A TMDL was completed for the Middle Bear River on February 23, 2010 (UDWQ 2010). The TMDL identified an instream concentration goal of 0.05 mg/l total phosphorous in the Cub River.

Mixing Zone
The maximum allowable mixing zone is 15 minutes of travel time for acute conditions, not to exceed 50% of stream width, and 2,500 feet for chronic conditions, per UAC R317-2-5. Water quality standards must be met at the end of the mixing zone.

The mixing zone analysis shows the discharge to be fully mixed by the end of the mixing zone. Acute limits were calculated using 50% of the seasonal critical low flow.

Parameters of Concern

The potential parameters of concern identified for the discharge/receiving water were temperature and total phosphorous as determined in consultation with the UPDES Permit Writer.

WET Limits

The percent of effluent in the receiving water in a fully mixed condition, and acute and chronic dilution in a not fully mixed condition are calculated in the WLA in order to generate WET limits. The LC_{50} (lethal concentration, 50%) percent effluent for acute toxicity and the IC_{25} (inhibition concentration, 25%) percent effluent for chronic toxicity, as determined by the WET test, needs to be below the WET limits, as determined by the WLA. The WET limit for LC_{50} is typically 100% effluent and does not need to be determined by the WLA.

Table 2: WET Limits for IC_{25}

Outfall	Percent Effluent
Outfall 001	1.1%

Wasteload Allocation Methods

Effluent limits were determined for conservative constituents using a simple mass balance mixing analysis (UDWQ 2012). The mass balance analysis is summarized in the Wasteload Addendum.

Effluent limits for total phosphorous are based on the approved Middle Bear River TMDL (UDWQ 2010).

The water quality standard for chronic ammonia toxicity is dependent on temperature and pH, and the water quality standard for acute ammonia toxicity is dependent on pH. The AMMTOX Model developed by University of Colorado and adapted by Utah DWQ and EPA Region VIII was used to determine ammonia effluent limits (Lewis et al. 2002). The analysis is summarized in the Wasteload Addendum.

Models and supporting documentation are available for review upon request.

Antidegradation Level I Review

The objective of the Level I ADR is to ensure the protection of existing uses, defined as the beneficial uses attained in the receiving water on or after November 28, 1975. No evidence is known that the existing uses deviate from the designated beneficial uses for the receiving water. Therefore, the beneficial uses will be protected if the discharge remains below the WQBELs presented in this wasteload.

A Level II Antidegradation Review (ADR) is not required for this facility.

Documents:

WLA Document*: CasperIceCream_WLA_2020.docx*
Wasteload Analysis and Addendum: *CasperIceCream_WLA_2020.xlsm*

References:

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

Utah Division of Water Quality. 2010. Middle Bear River TMDL, February 23, 2010.

Lewis, B., J. Saunders, and M. Murphy. 2002. *Ammonia Toxicity Model (AMMTOX, Version2): A Tool for Determining Effluent Ammonia Limits*. University of Colorado, Center for Limnology.

Utah Division of Water Quality
Salt Lake City, Utah

WASTELOAD ANALYSIS [WLA]
Addendum: Statement of Basis

20-Oct-20
4:00 PM

Facilities: **Casper Ice Cream** **UPDES No: UT-0025526**
Discharging to: **Cub River**

I. Introduction

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

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

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

II. Receiving Water and Stream Classification

Cub River:	2B, 3B, 4
Antidegradation Review:	Level I review completed. Level II review is not required.

III. Numeric Stream Standards for Protection of Aquatic Wildlife

Total Ammonia (TNH3)	Varies as a function of Temperature and pH Rebound. See Water Quality Standards
Chronic Total Residual Chlorine (TRC)	0.011 mg/l (4 Day Average) 0.019 mg/l (1 Hour Average)
Chronic Dissolved Oxygen (DO)	5.50 mg/l (30 Day Average) 4.00 mg/l (7Day Average) 3.00 mg/l (1 Day Average
Maximum Total Dissolved Solids	1200.0 mg/l

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Acute and Chronic Heavy Metals (Dissolved)

Parameter	4 Day Average (Chronic) Standard Concentration		Load*		1 Hour Average (Acute) Standard Concentration		Load*	
Aluminum	87.00	ug/l**	0.058	lbs/day	750.00	ug/l	0.501	lbs/day
Arsenic	190.00	ug/l	0.127	lbs/day	340.00	ug/l	0.227	lbs/day
Cadmium	0.46	ug/l	0.000	lbs/day	4.36	ug/l	0.003	lbs/day
Chromium III	153.37	ug/l	0.103	lbs/day	3208.79	ug/l	2.145	lbs/day
ChromiumVI	11.00	ug/l	0.007	lbs/day	16.00	ug/l	0.011	lbs/day
Copper	17.02	ug/l	0.011	lbs/day	27.17	ug/l	0.018	lbs/day
Iron					1000.00	ug/l	0.668	lbs/day
Lead	7.79	ug/l	0.005	lbs/day	200.00	ug/l	0.134	lbs/day
Mercury	0.0120	ug/l	0.000	lbs/day	2.40	ug/l	0.002	lbs/day
Nickel	94.61	ug/l	0.063	lbs/day	850.98	ug/l	0.569	lbs/day
Selenium	4.60	ug/l	0.003	lbs/day	20.00	ug/l	0.013	lbs/day
Silver	N/A	ug/l	N/A	lbs/day	12.70	ug/l	0.008	lbs/day
Zinc	217.52	ug/l	0.145	lbs/day	217.52	ug/l	0.145	lbs/day

* Allowed below discharge

**Chronic Aluminum standard applies only to waters with a pH < 7.0 and a Hardness < 50 mg/l as CaCO3

Metals Standards Based upon a Hardness of 202.14 mg/l as CaCO3

Organics [Pesticides]

Parameter	4 Day Average (Chronic) Standard Concentration		Load*		1 Hour Average (Acute) Standard Concentration		Load*	
Aldrin					1.500	ug/l	0.001	lbs/day
Chlordane	0.004	ug/l	0.272	lbs/day	1.200	ug/l	0.001	lbs/day
DDT, DDE	0.001	ug/l	0.063	lbs/day	0.550	ug/l	0.000	lbs/day
Dieldrin	0.002	ug/l	0.120	lbs/day	1.250	ug/l	0.001	lbs/day
Endosulfan	0.056	ug/l	3.539	lbs/day	0.110	ug/l	0.000	lbs/day
Endrin	0.002	ug/l	0.145	lbs/day	0.090	ug/l	0.000	lbs/day
Guthion					0.010	ug/l	0.000	lbs/day
Heptachlor	0.004	ug/l	0.240	lbs/day	0.260	ug/l	0.000	lbs/day
Lindane	0.080	ug/l	5.055	lbs/day	1.000	ug/l	0.001	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	0.885	lbs/day	2.000	ug/l	0.001	lbs/day
Pentachlorophenol	13.00	ug/l	821.484	lbs/day	20.000	ug/l	0.013	lbs/day
Toxephene	0.0002	ug/l	0.013	lbs/day	0.7300	ug/l	0.000	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
Boron			750.0	ug/l	lbs/day
Cadmium			10.0	ug/l	0.00 lbs/day
Chromium			100.0	ug/l	lbs/day
Copper			200.0	ug/l	lbs/day
Lead			100.0	ug/l	lbs/day
Selenium			50.0	ug/l	lbs/day
TDS, Summer			1200.0	mg/l	0.40 tons/day

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

	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard		
Metals	Concentration	Load*	Concentration		Load*
Arsenic				ug/l	lbs/day
Barium				ug/l	lbs/day
Cadmium				ug/l	lbs/day
Chromium				ug/l	lbs/day
Lead				ug/l	lbs/day
Mercury				ug/l	lbs/day
Selenium				ug/l	lbs/day
Silver				ug/l	lbs/day
Fluoride (3)				ug/l	lbs/day
to				ug/l	lbs/day
Nitrates as N				ug/l	lbs/day
Chlorophenoxy Herbicides					
2,4-D				ug/l	lbs/day
2,4,5-TP				ug/l	lbs/day
Endrin				ug/l	lbs/day
ocyclohexane (Lindane)				ug/l	lbs/day
Methoxychlor				ug/l	lbs/day
Toxaphene				ug/l	lbs/day

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

	Maximum Conc., ug/l - Acute Standards				
	Class 1C		Class 3A, 3B		
Toxic Organics	[2 Liters/Day for 70 Kg Person over 70 Yr.]		[6.5 g for 70 Kg Person over 70 Yr.]		
Acenaphthene	ug/l	lbs/day	2700.0	ug/l	170.62 lbs/day
Acrolein	ug/l	lbs/day	780.0	ug/l	49.29 lbs/day
Acrylonitrile	ug/l	lbs/day	0.7	ug/l	0.04 lbs/day
Benzene	ug/l	lbs/day	71.0	ug/l	4.49 lbs/day
Benzidine	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
Carbon tetrachloride	ug/l	lbs/day	4.4	ug/l	0.28 lbs/day
Chlorobenzene	ug/l	lbs/day	21000.0	ug/l	1327.01 lbs/day
1,2,4-Trichlorobenzene					
Hexachlorobenzene	ug/l	lbs/day	0.0	ug/l	0.00 lbs/day
1,2-Dichloroethane	ug/l	lbs/day	99.0	ug/l	6.26 lbs/day
1,1,1-Trichloroethane					
Hexachloroethane	ug/l	lbs/day	8.9	ug/l	0.56 lbs/day

1,1-Dichloroethane						
1,1,2-Trichloroethane	ug/l	lbs/day	42.0	ug/l	2.65	lbs/day
1,1,2,2-Tetrachloroethar	ug/l	lbs/day	11.0	ug/l	0.70	lbs/day
Chloroethane			0.0	ug/l	0.00	lbs/day
Bis(2-chloroethyl) ether	ug/l	lbs/day	1.4	ug/l	0.09	lbs/day
2-Chloroethyl vinyl ether	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
2-Chloronaphthalene	ug/l	lbs/day	4300.0	ug/l	271.72	lbs/day
2,4,6-Trichlorophenol	ug/l	lbs/day	6.5	ug/l	0.41	lbs/day
p-Chloro-m-cresol			0.0	ug/l	0.00	lbs/day
Chloroform (HM)	ug/l	lbs/day	470.0	ug/l	29.70	lbs/day
2-Chlorophenol	ug/l	lbs/day	400.0	ug/l	25.28	lbs/day
1,2-Dichlorobenzene	ug/l	lbs/day	17000.0	ug/l	1074.25	lbs/day
1,3-Dichlorobenzene	ug/l	lbs/day	2600.0	ug/l	164.30	lbs/day
1,4-Dichlorobenzene	ug/l	lbs/day	2600.0	ug/l	164.30	lbs/day
3,3'-Dichlorobenzidine	ug/l	lbs/day	0.1	ug/l	0.00	lbs/day
1,1-Dichloroethylene	ug/l	lbs/day	3.2	ug/l	0.20	lbs/day
1,2-trans-Dichloroethyle	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
2,4-Dichlorophenol	ug/l	lbs/day	790.0	ug/l	49.92	lbs/day
1,2-Dichloropropane	ug/l	lbs/day	39.0	ug/l	2.46	lbs/day
1,3-Dichloropropylene	ug/l	lbs/day	1700.0	ug/l	107.42	lbs/day
2,4-Dimethylphenol	ug/l	lbs/day	2300.0	ug/l	145.34	lbs/day
2,4-Dinitrotoluene	ug/l	lbs/day	9.1	ug/l	0.58	lbs/day
2,6-Dinitrotoluene	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
1,2-Diphenylhydrazine	ug/l	lbs/day	0.5	ug/l	0.03	lbs/day
Ethylbenzene	ug/l	lbs/day	29000.0	ug/l	1832.54	lbs/day
Fluoranthene	ug/l	lbs/day	370.0	ug/l	23.38	lbs/day
4-Chlorophenyl phenyl ether						
4-Bromophenyl phenyl ether						
Bis(2-chloroisopropyl) et	ug/l	lbs/day	170000.0	ug/l	10742.48	lbs/day
Bis(2-chloroethoxy) met	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
Methylene chloride (HM)	ug/l	lbs/day	1600.0	ug/l	101.11	lbs/day
Methyl chloride (HM)	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
Methyl bromide (HM)	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
Bromoform (HM)	ug/l	lbs/day	360.0	ug/l	22.75	lbs/day
Dichlorobromomethane(	ug/l	lbs/day	22.0	ug/l	1.39	lbs/day
Chlorodibromomethane	ug/l	lbs/day	34.0	ug/l	2.15	lbs/day
Hexachlorobutadiene(c)	ug/l	lbs/day	50.0	ug/l	3.16	lbs/day
Hexachlorocyclopentadi	ug/l	lbs/day	17000.0	ug/l	1074.25	lbs/day
Isophorone	ug/l	lbs/day	600.0	ug/l	37.91	lbs/day
Naphthalene						
Nitrobenzene	ug/l	lbs/day	1900.0	ug/l	120.06	lbs/day
2-Nitrophenol	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
4-Nitrophenol	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
2,4-Dinitrophenol	ug/l	lbs/day	14000.0	ug/l	884.67	lbs/day
4,6-Dinitro-o-cresol	ug/l	lbs/day	765.0	ug/l	48.34	lbs/day
N-Nitrosodimethylamine	ug/l	lbs/day	8.1	ug/l	0.51	lbs/day
N-Nitrosodiphenylamine	ug/l	lbs/day	16.0	ug/l	1.01	lbs/day
N-Nitrosodi-n-propylami	ug/l	lbs/day	1.4	ug/l	0.09	lbs/day
Pentachlorophenol	ug/l	lbs/day	8.2	ug/l	0.52	lbs/day
Phenol	ug/l	lbs/day	4.6E+06	ug/l	2.91E+05	lbs/day
Bis(2-ethylhexyl)phthala	ug/l	lbs/day	5.9	ug/l	0.37	lbs/day
Butyl benzyl phthalate	ug/l	lbs/day	5200.0	ug/l	328.59	lbs/day
Di-n-butyl phthalate	ug/l	lbs/day	12000.0	ug/l	758.29	lbs/day
Di-n-octyl phthlate						

Diethyl phthalate	ug/l	lbs/day	120000.0	ug/l	7582.93	lbs/day
Dimethyl phthlate	ug/l	lbs/day	2.9E+06	ug/l	1.83E+05	lbs/day
Benzo(a)anthracene (PA	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
Benzo(a)pyrene (PAH)	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
Benzo(b)fluoranthene (F	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
Benzo(k)fluoranthene (F	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
Chrysene (PAH)	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
Acenaphthylene (PAH)						
Anthracene (PAH)	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
Dibenzo(a,h)anthracene	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
Indeno(1,2,3-cd)pyrene	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
Pyrene (PAH)	ug/l	lbs/day	11000.0	ug/l	695.10	lbs/day
Tetrachloroethylene	ug/l	lbs/day	8.9	ug/l	0.56	lbs/day
Toluene	ug/l	lbs/day	200000	ug/l	12638.21	lbs/day
Trichloroethylene	ug/l	lbs/day	81.0	ug/l	5.12	lbs/day
Vinyl chloride	ug/l	lbs/day	525.0	ug/l	33.18	lbs/day
						lbs/day
Pesticides						lbs/day
Aldrin	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
Dieldrin	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
Chlordane	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
4,4'-DDT	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
4,4'-DDE	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
4,4'-DDD	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
alpha-Endosulfan	ug/l	lbs/day	2.0	ug/l	0.13	lbs/day
beta-Endosulfan	ug/l	lbs/day	2.0	ug/l	0.13	lbs/day
Endosulfan sulfate	ug/l	lbs/day	2.0	ug/l	0.13	lbs/day
Endrin	ug/l	lbs/day	0.8	ug/l	0.05	lbs/day
Endrin aldehyde	ug/l	lbs/day	0.8	ug/l	0.05	lbs/day
Heptachlor	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
Heptachlor epoxide						
PCB's						
PCB 1242 (Arochlor 124	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
PCB-1254 (Arochlor 125	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
PCB-1221 (Arochlor 122	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
PCB-1232 (Arochlor 123	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
PCB-1248 (Arochlor 124	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
PCB-1260 (Arochlor 126	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
PCB-1016 (Arochlor 101	ug/l	lbs/day	0.0	ug/l	0.00	lbs/day
Pesticide						
Toxaphene	ug/l		0.0	ug/l	0.00	lbs/day
Dioxin						
Dioxin (2,3,7,8-TCDD)	ug/l	lbs/day				
Metals						
Antimony	ug/l	lbs/day				
Arsenic	ug/l	lbs/day	4300.00	ug/l	271.72	lbs/day
Asbestos	ug/l	lbs/day				
Beryllium						
Cadmium						

Chromium (III)					
Chromium (VI)					
Copper					
Cyanide	ug/l	lbs/day	2.2E+05 ug/l	13902.03	lbs/day
Lead	ug/l	lbs/day			
Mercury			0.15 ug/l	0.01	lbs/day
Nickel			4600.00 ug/l	290.68	lbs/day
Selenium	ug/l	lbs/day			
Silver	ug/l	lbs/day			
Thallium			6.30 ug/l	0.40	lbs/day
Zinc					

There are additional standards that apply to this receiving water, but were not considered in this modeling/waste load allocation analysis.

VII. Mathematical Modeling of Stream Quality

Model configuration was accomplished utilizing standard modeling procedures. Data points were plotted and coefficients adjusted as required to match observed data as closely as possible.

The modeling approach used in this analysis included one or a combination of the following models.

(1) The Utah River Model, Utah Division of Water Quality, 1992. Based upon STREAMDO IV (Region VIII) and Supplemental Ammonia Toxicity Models; EPA Region VIII, Sept. 1990 and QUAL2E (EPA, Athens, GA).

(2) Utah Ammonia/Chlorine Model, Utah Division of Water Quality, 1992.

(3) AMMTOX Model, University of Colorado, Center of Limnology, and EPA Region 8

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

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

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

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

VIII. Modeling Information

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

Flow, Q, (cfs or MGD)	D.O. mg/l
Temperature, Deg. C.	Total Residual Chlorine (TRC), mg/l

pH	Total NH3-N, mg/l
BOD5, mg/l	Total Dissolved Solids (TDS), mg/l
Metals, ug/l	Toxic Organics of Concern, ug/l

Other Conditions

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

Model Inputs

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

Current Upstream Information

	Stream Critical Low Flow cfs	Temp. Deg. C	pH	T-NH3 mg/l as N	BOD5 mg/l	DO mg/l	TRC mg/l	TDS mg/l
Summer (Irrig. Season)	11.6	17.0	7.9	0.03	6.00	7.39	0.00	285.3
Fall	11.6	3.6	8.1	0.03	1.50	---	0.00	250.8
Winter	11.6	3.7	8.1	0.06	3.00	---	0.00	290.7
Spring	11.6	10.4	8.1	0.04	1.50	---	0.00	182.3

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	5.00	1.76	0.05	0.53*	1.00	0.50	10.0	0.05

Dissolved	Hg	Ni	Se	Ag	Zn	Boron		
Metals	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l		
All Seasons	0.1000	2.50	0.50	0.25	5.00	10.0		* 1/2 MDL

Projected Discharge Information

Season	Flow, MGD	Temp.	TDS mg/l	TDS tons/day
Summer	0.08000	16.9	500.00	0.16677
Fall	0.08000	16.9		
Winter	0.08000	13.1		
Spring	0.08000	18.0		

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

IX. Effluent Limitations

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

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

Effluent Limitation for Flow based upon Water Quality Standards

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

Season	Daily Average	
Summer	0.080 MGD	0.124 cfs
Fall	0.080 MGD	0.124 cfs
Winter	0.080 MGD	0.124 cfs
Spring	0.080 MGD	0.124 cfs

Flow Requirement or Loading Requirement

The calculations in this wasteload analysis utilize the maximum effluent discharge flow of 0.08 MGD. If the discharger is allowed to have a flow greater than 0.08 MGD during 7Q10 conditions, and effluent limit concentrations as indicated, then water quality standards will be violated. In order to prevent this from occuring, the permit writers must include the discharge flow limititation as indicated above; or, include loading effluent limits in the permit.

Effluent Limitation for Whole Effluent Toxicity (WET) based upon WET Policy

Effluent Toxicity will not occur in downstream segements if the values below are met.

WET Requirements	LC50 >	7.1% Effluent	[Acute]
	IC25 >	1.1% 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	16.7 lbs/day
Fall	25.0 mg/l as BOD5	16.7 lbs/day
Winter	25.0 mg/l as BOD5	16.7 lbs/day
Spring	25.0 mg/l as BOD5	16.7 lbs/day

Effluent Limitation for Dissolved Oxygen (DO) based upon Water Quality Standards

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

Season	**Concentration**
Summer	5.50
Fall	5.50
Winter	5.50
Spring	5.50

Effluent Limitation for Total Ammonia based upon Water Quality Standards

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

Season		**Concentration**		**Load**	
Summer	4 Day Avg. - Chronic	232.9	mg/l as N	155.4	lbs/day
	1 Hour Avg. - Acute	206.2	mg/l as N	137.6	lbs/day
Fall	4 Day Avg. - Chronic	187.0	mg/l as N	124.7	lbs/day
	1 Hour Avg. - Acute	150.6	mg/l as N	100.4	lbs/day
Winter	4 Day Avg. - Chronic	210.7	mg/l as N	140.6	lbs/day
	1 Hour Avg. - Acute	181.5	mg/l as N	121.0	lbs/day
Spring	4 Day Avg. - Chronic	185.7	mg/l as N	123.9	lbs/day
	1 Hour Avg. - Acute	150.6	mg/l as N	100.4	lbs/day

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

Effluent Limitation for Total Residual Chlorine based upon Water Quality Standards

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

Season		Concentration		Load	
Summer	4 Day Avg. - Chronic	0.946	mg/l	0.63	lbs/day
	1 Hour Avg. - Acute	0.861	mg/l	0.57	lbs/day
Fall	4 Day Avg. - Chronic	0.946	mg/l	0.63	lbs/day
	1 Hour Avg. - Acute	0.861	mg/l	0.57	lbs/day
Winter	4 Day Avg. - Chronic	0.946	mg/l	0.63	lbs/day
	1 Hour Avg. - Acute	0.861	mg/l	0.57	lbs/day
Spring	4 Day Avg. - Chronic	0.946	mg/l	0.00	lbs/day
	1 Hour Avg. - Acute	0.861	mg/l	0.00	lbs/day

Effluent Limitations for Total Dissolved Solids based upon Water Quality Standards

Season		Concentration		Load	
Summer	Maximum, Acute	86931.0	mg/l	28.99	tons/day
Fall	Maximum, Acute	90168.3	mg/l	30.07	tons/day
Winter	Maximum, Acute	86431.3	mg/l	28.83	tons/day
Spring	4 Day Avg. - Chronic	96593.5	mg/l	32.22	tons/day

Colorado Salinity Forum Limits — Determined by Permitting Section

Effluent Limitations for Total Recoverable Metals based upon Water Quality Standards

In-stream criteria of downstream segments for Dissolved Metals will be met with an effluent limitation as follows (based upon a hardness of 202.14 mg/l):

	4 Day Average Concentration		Load		1 Hour Average Concentration		Load	
Aluminum*	N/A		N/A		35,664.4	ug/l	23.8	lbs/day
Arsenic*	17,833.79	ug/l	7.7	lbs/day	16,191.6	ug/l	10.8	lbs/day
Cadmium	38.50	ug/l	0.0	lbs/day	206.5	ug/l	0.1	lbs/day
Chromium III	14,454.17	ug/l	6.2	lbs/day	153,551.2	ug/l	102.6	lbs/day
Chromium VI*	948.30	ug/l	0.4	lbs/day	719.0	ug/l	0.5	lbs/day
Copper	1,565.65	ug/l	0.7	lbs/day	1,277.1	ug/l	0.9	lbs/day
Iron*	N/A		N/A		47,396.3	ug/l	31.7	lbs/day
Lead	733.62	ug/l	0.3	lbs/day	9,570.7	ug/l	6.4	lbs/day
Mercury*	(8.24)	ug/l	0.0	lbs/day	110.2	ug/l	0.1	lbs/day
Nickel	8,728.34	ug/l	3.8	lbs/day	40,615.1	ug/l	27.1	lbs/day
Selenium*	388.89	ug/l	0.2	lbs/day	933.9	ug/l	0.6	lbs/day
Silver	N/A	ug/l	N/A	lbs/day	596.1	ug/l	0.4	lbs/day
Zinc	20,137.07	ug/l	8.7	lbs/day	10,177.3	ug/l	6.8	lbs/day
Cyanide*	492.59	ug/l	0.2	lbs/day	1,053.0	ug/l	0.7	lbs/day

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

Effluent Limitations for Heat/Temperature based upon Water Quality Standards

Summer	100.0 Deg. C.	212.0 Deg. F
Fall	99.3 Deg. C.	210.7 Deg. F
Winter	99.4 Deg. C.	210.9 Deg. F
Spring	100.0 Deg. C.	212.0 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	1.55E-03 lbs/day
Chlordane	4.30E-03	ug/l	2.87E-03 lbs/day	1.2E+00	ug/l	1.24E-03 lbs/day
DDT, DDE	1.00E-03	ug/l	6.67E-04 lbs/day	5.5E-01	ug/l	5.69E-04 lbs/day
Dieldrin	1.90E-03	ug/l	1.27E-03 lbs/day	1.3E+00	ug/l	1.29E-03 lbs/day
Endosulfan	5.60E-02	ug/l	3.74E-02 lbs/day	1.1E-01	ug/l	1.14E-04 lbs/day
Endrin	2.30E-03	ug/l	1.53E-03 lbs/day	9.0E-02	ug/l	9.31E-05 lbs/day
Guthion	0.00E+00	ug/l	0.00E+00 lbs/day	1.0E-02	ug/l	1.03E-05 lbs/day
Heptachlor	3.80E-03	ug/l	2.53E-03 lbs/day	2.6E-01	ug/l	2.69E-04 lbs/day
Lindane	8.00E-02	ug/l	5.34E-02 lbs/day	1.0E+00	ug/l	1.03E-03 lbs/day
Methoxychlor	0.00E+00	ug/l	0.00E+00 lbs/day	3.0E-02	ug/l	3.10E-05 lbs/day
Mirex	0.00E+00	ug/l	0.00E+00 lbs/day	1.0E-02	ug/l	1.03E-05 lbs/day
Parathion	0.00E+00	ug/l	0.00E+00 lbs/day	4.0E-02	ug/l	4.14E-05 lbs/day
PCB's	1.40E-02	ug/l	9.34E-03 lbs/day	2.0E+00	ug/l	2.07E-03 lbs/day
Pentachlorophenol	1.30E+01	ug/l	8.67E+00 lbs/day	2.0E+01	ug/l	2.07E-02 lbs/day
Toxephene	2.00E-04	ug/l	1.33E-04 lbs/day	7.3E-01	ug/l	7.55E-04 lbs/day

Effluent Targets for Pollution Indicators
Based upon Water Quality Standards

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

	1 Hour Average Concentration		Average Loading	
Gross Beta (pCi/l)	50.0	pCi/L		
BOD (mg/l)	5.0	mg/l	3.3	lbs/day
Nitrates as N	4.0	mg/l	2.7	lbs/day
Total Phosphorus as P	0.05	mg/l	0.0	lbs/day
Total Suspended Solids	90.0	mg/l	60.2	lbs/day

Note: Pollution indicator targets are for information purposes only.

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

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

	Maximum Concentration Concentration		Load	
Toxic Organics				
Acenaphthene	2.56E+05	ug/l	1.71E+02	lbs/day
Acrolein	7.39E+04	ug/l	4.93E+01	lbs/day
Acrylonitrile	6.25E+01	ug/l	4.17E-02	lbs/day
Benzene	6.73E+03	ug/l	4.49E+00	lbs/day
Benzidine		ug/l		lbs/day
Carbon tetrachloride	4.17E+02	ug/l	2.78E-01	lbs/day
Chlorobenzene	1.99E+06	ug/l	1.33E+03	lbs/day
1,2,4-Trichlorobenzene				
Hexachlorobenzene	7.29E-02	ug/l	4.87E-05	lbs/day
1,2-Dichloroethane	9.38E+03	ug/l	6.26E+00	lbs/day
1,1,1-Trichloroethane				
Hexachloroethane	8.43E+02	ug/l	5.62E-01	lbs/day
1,1-Dichloroethane				
1,1,2-Trichloroethane	3.98E+03	ug/l	2.65E+00	lbs/day
1,1,2,2-Tetrachloroethane	1.04E+03	ug/l	6.95E-01	lbs/day
Chloroethane				
Bis(2-chloroethyl) ether	1.33E+02	ug/l	8.85E-02	lbs/day
2-Chloroethyl vinyl ether				
2-Chloronaphthalene	4.07E+05	ug/l	2.72E+02	lbs/day
2,4,6-Trichlorophenol	6.16E+02	ug/l	4.11E-01	lbs/day
p-Chloro-m-cresol				
Chloroform (HM)	4.45E+04	ug/l	2.97E+01	lbs/day
2-Chlorophenol	3.79E+04	ug/l	2.53E+01	lbs/day
1,2-Dichlorobenzene	1.61E+06	ug/l	1.07E+03	lbs/day
1,3-Dichlorobenzene	2.46E+05	ug/l	1.64E+02	lbs/day
1,4-Dichlorobenzene	2.46E+05	ug/l	1.64E+02	lbs/day
3,3'-Dichlorobenzidine	7.29E+00	ug/l	4.87E-03	lbs/day

1,1-Dichloroethylene	3.03E+02	ug/l	2.02E-01	lbs/day
1,2-trans-Dichloroethylene1				
2,4-Dichlorophenol	7.48E+04	ug/l	4.99E+01	lbs/day
1,2-Dichloropropane	3.69E+03	ug/l	2.46E+00	lbs/day
1,3-Dichloropropylene	1.61E+05	ug/l	1.07E+02	lbs/day
2,4-Dimethylphenol	2.18E+05	ug/l	1.45E+02	lbs/day
2,4-Dinitrotoluene	8.62E+02	ug/l	5.75E-01	lbs/day
2,6-Dinitrotoluene				
1,2-Diphenylhydrazine	5.12E+01	ug/l	3.41E-02	lbs/day
Ethylbenzene	2.75E+06	ug/l	1.83E+03	lbs/day
Fluoranthene	3.51E+04	ug/l	2.34E+01	lbs/day
4-Chlorophenyl phenyl ether				
4-Bromophenyl phenyl ether				
Bis(2-chloroisopropyl) ether	1.61E+07	ug/l	1.07E+04	lbs/day
Bis(2-chloroethoxy) methane				
Methylene chloride (HM)	1.52E+05	ug/l	1.01E+02	lbs/day
Methyl chloride (HM)				
Methyl bromide (HM)				
Bromoform (HM)	3.41E+04	ug/l	2.27E+01	lbs/day
Dichlorobromomethane(HM)	2.08E+03	ug/l	1.39E+00	lbs/day
Chlorodibromomethane (HM)	3.22E+03	ug/l	2.15E+00	lbs/day
Hexachlorocyclopentadiene	1.61E+06	ug/l	1.07E+03	lbs/day
Isophorone	5.68E+04	ug/l	3.79E+01	lbs/day
Naphthalene				
Nitrobenzene	1.80E+05	ug/l	1.20E+02	lbs/day
2-Nitrophenol				
4-Nitrophenol				
2,4-Dinitrophenol	1.33E+06	ug/l	8.85E+02	lbs/day
4,6-Dinitro-o-cresol	7.25E+04	ug/l	4.83E+01	lbs/day
N-Nitrosodimethylamine	7.67E+02	ug/l	5.12E-01	lbs/day
N-Nitrosodiphenylamine	1.52E+03	ug/l	1.01E+00	lbs/day
N-Nitrosodi-n-propylamine	1.33E+02	ug/l	8.85E-02	lbs/day
Pentachlorophenol	7.77E+02	ug/l	5.18E-01	lbs/day
Phenol	4.36E+08	ug/l	2.91E+05	lbs/day
Bis(2-ethylhexyl)phthalate	5.59E+02	ug/l	3.73E-01	lbs/day
Butyl benzyl phthalate	4.93E+05	ug/l	3.29E+02	lbs/day
Di-n-butyl phthalate	1.14E+06	ug/l	7.58E+02	lbs/day
Di-n-octyl phthlate				
Diethyl phthalate	1.14E+07	ug/l	7.58E+03	lbs/day
Dimethyl phthlate	2.75E+08	ug/l	1.83E+05	lbs/day
Benzo(a)anthracene (PAH)	2.94E+00	ug/l	1.96E-03	lbs/day
Benzo(a)pyrene (PAH)	2.94E+00	ug/l	1.96E-03	lbs/day
Benzo(b)fluoranthene (PAH)	2.94E+00	ug/l	1.96E-03	lbs/day
Benzo(k)fluoranthene (PAH)	2.94E+00	ug/l	1.96E-03	lbs/day
Chrysene (PAH)	2.94E+00	ug/l	1.96E-03	lbs/day
Acenaphthylene (PAH)				
Anthracene (PAH)				
Dibenzo(a,h)anthracene (PAH)	2.94E+00	ug/l	1.96E-03	lbs/day
Indeno(1,2,3-cd)pyrene (PAH)	2.94E+00	ug/l	1.96E-03	lbs/day
Pyrene (PAH)	1.04E+06	ug/l	6.95E+02	lbs/day
Tetrachloroethylene	8.43E+02	ug/l	5.62E-01	lbs/day
Toluene	1.89E+07	ug/l	1.26E+04	lbs/day
Trichloroethylene	7.67E+03	ug/l	5.12E+00	lbs/day
Vinyl chloride	4.97E+04	ug/l	3.32E+01	lbs/day

Pesticides				
Aldrin	1.33E-02	ug/l	8.85E-06	lbs/day
Dieldrin	1.33E-02	ug/l	8.85E-06	lbs/day
Chlordane	5.59E-02	ug/l	3.73E-05	lbs/day
4,4'-DDT	5.59E-02	ug/l	3.73E-05	lbs/day
4,4'-DDE	5.59E-02	ug/l	3.73E-05	lbs/day
4,4'-DDD	7.96E-02	ug/l	5.31E-05	lbs/day
alpha-Endosulfan	1.89E+02	ug/l	1.26E-01	lbs/day
beta-Endosulfan	1.89E+02	ug/l	1.26E-01	lbs/day
Endosulfan sulfate	1.89E+02	ug/l	1.26E-01	lbs/day
Endrin	7.67E+01	ug/l	5.12E-02	lbs/day
Endrin aldehyde	7.67E+01	ug/l	5.12E-02	lbs/day
Heptachlor	1.99E-02	ug/l	1.33E-05	lbs/day
Heptachlor epoxide				
PCB's				
PCB 1242 (Arochlor 1242)	4.26E-03	ug/l	2.84E-06	lbs/day
PCB-1254 (Arochlor 1254)	4.26E-03	ug/l	2.84E-06	lbs/day
PCB-1221 (Arochlor 1221)	4.26E-03	ug/l	2.84E-06	lbs/day
PCB-1232 (Arochlor 1232)	4.26E-03	ug/l	2.84E-06	lbs/day
PCB-1248 (Arochlor 1248)	4.26E-03	ug/l	2.84E-06	lbs/day
PCB-1260 (Arochlor 1260)	4.26E-03	ug/l	2.84E-06	lbs/day
PCB-1016 (Arochlor 1016)	4.26E-03	ug/l	2.84E-06	lbs/day
Pesticide				
Toxaphene	7.10E-02	ug/l	4.74E-05	lbs/day
Metals				
Antimony		ug/l		lbs/day
Arsenic		ug/l		lbs/day
Asbestos		ug/l		lbs/day
Beryllium				
Cadmium				
Chromium (III)				
Chromium (VI)				
Copper		ug/l		lbs/day
Cyanide		ug/l		lbs/day
Lead				
Mercury		ug/l		lbs/day
Nickel		ug/l		lbs/day
Selenium				
Silver				
Thallium		ug/l		lbs/day
Zinc				
Dioxin				
Dioxin (2,3,7,8-TCDD)	1.33E-06	ug/l	8.85E-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		35664.4				35664.4	N/A
Antimony				407338.1		407338.1	
Arsenic	9473.0	16191.6			0.0	9473.0	17833.8
Barium						0.0	
Beryllium						0.0	
Cadmium	942.6	206.5			0.0	206.5	38.5
Chromium (III)		153551.2			0.0	153551.2	14454.2
Chromium (VI)	9398.5	719.0			0.0	718.97	948.30
Copper	18899.1	1277.1				1277.1	1565.7
Cyanide		1053.0	20840555.9			1053.0	492.6
Iron		47396.3				47396.3	
Lead	9468.3	9570.7			0.0	9468.3	733.6
Mercury		110.19		14.21	0.0	14.21	-8.236
Nickel		40615.1		435757.1		40615.1	8728.3
Selenium	4689.6	933.9			0.0	933.9	388.9
Silver		596.1			0.0	596.1	
Thallium				596.8		596.8	
Zinc		10177.3				10177.3	20137.1
Boron	69641.4					69641.4	

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	35664.4	N/A	
Antimony	407338.14		
Arsenic	9473.0	17833.8	Acute Controls
Asbestos	0.00E+00		
Barium			
Beryllium			
Cadmium	206.5	38.5	
Chromium (III)	153551.2	14454	
Chromium (VI)	719.0	948.3	Acute Controls
Copper	1277.1	1565.7	Acute Controls
Cyanide	1053.0	492.6	
Iron	47396.3		
Lead	9468.3	733.6	
Mercury	14.209	-8.236	
Nickel	40615.1	8728	
Selenium	933.9	388.9	
Silver	596.1	N/A	
Thallium	596.8		
Zinc	10177.3	20137.1	Acute Controls
Boron	69641.40		

Other Effluent Limitations are based upon R317-1.

E. coli	126.0	organisms per 100 ml

X. Antidegradation Considerations

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

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

An Antidegradation Level I Review was conducted on this discharge and its effect on the receiving water. Based upon that review, it has been determined that an Antidegradation Level II Review is not required. Basic renewal, no increase in effluent flow or concentration.

XI. Colorado River Salinity Forum Considerations

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

XII. Summary Comments

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

XIII. Notice of UPDES Requirement

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

XIV. TMDL Requirements

Casper Ice Cream discharges to a segment of the Cub River that is 303(d) listed for total phosphorous (TP). A TP TMDL was completed for the Cub River on December 23, 1997. The TMDL requires a total phosphorous effluent limit of .05 mg/L for Casper Ice Cream.

*Calculation based on limited flow and concentration data

1/day	1/day	1/day	1/day	1/day	1/day	1/day	1/day
0.000	0.000	4.000	3.477	0.000	0.000	32.000	26.790

BENTHIC DEMAND (SOD)20 gm/m2/day	BENTHIC DEMAND (SOD)T gm/m2/day
1.000	0.825

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

Antidegredation Review

An antidegradation review (ADR) was conducted to determine whether the proposed activity complies with the applicable antidegradation requirements for receiving waters that may be affected. The Level I ADR evaluated the criteria of R317-2-3.5(b) and determined that the proposed discharge will not require a Level II Antidegradation Review. The Proposed permit is a simple renewal. No increase in effluent flow or concentration.

ATTACHMENT 4

Reasonable Potential Analysis

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REASONABLE POTENTIAL ANALYSIS

Water Quality has worked to improve our reasonable potential analysis (RP) for the inclusion of limits for parameters in the permit by using an EPA provided model. As a result of the model, more parameters may be included in the renewal permit. A Copy of the Reasonable Potential Analysis Guidance (RP Guide) is available at water Quality. There are four outcomes for the RP Analysis[1]. They are;

Outcome A: A new effluent limitation will be placed in the permit.
Outcome B: No new effluent limitation. Routine monitoring requirements will be placed or increased from what they are in the permit,
Outcome C: No new effluent limitation. Routine monitoring requirements maintained as they are in the permit,
Outcome D: No limitation or routine monitoring requirements are in the permit.

Since January 1, 2016, DWQ has conducted reasonable potential analysis (RP) on all new and renewal applications received after that date. To complete a RP analysis, more than 10 data points per parameter are needed. Casper's was not required to sample for metal parameters in their previous permit, therefore, analysis data is not available to perform a RP analysis. For this permit cycle, Casper's will be required to permit, at a minimum, annual metal sampling. If additional sampling is performed, it shall be reported to DWQ. Less than 10 data points may affect the RP outcomes which may require additional monitoring in the future.

[1] See Reasonable Potential Analysis Guidance for definitions of terms