

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. **UT0024210**

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

**AIR PRODUCTS AND CHEMICALS, INC.**

is hereby authorized to discharge from its wastewater treatment facility to receiving waters named **STONE CREEK**,

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 25<sup>th</sup> day of January, 2021.



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Erica Brown Gaddis, PhD  
Director

DWQ-2021-000433

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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*.

<b>Outfall</b> 001	<b>Description of Discharge Point</b> Located at latitude 40°54'28" North and longitude 111°53'18" West. Discharging effluent containing both blowdown water from the cooling tower and storm water flows over a v-notch weir, through a grate, into a storm water cement pipe, and then to Stone Creek.
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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 001 as defined in *Part VIII*.
2.
  - a. Effective immediately and lasting the duration of this permit, the permittee is authorized to discharge from Outfall 001. Such discharges shall be limited and monitored by the permittee as specified in Table 1 and 2.

<b>Table 1</b>				
<b>Parameter</b>	<b>Outfall 001</b>			
	<b>Effluent Limitations<sup>a</sup></b>			
	<b>Maximum Monthly Avg</b>	<b>Maximum Weekly Avg</b>	<b>Daily Minimum</b>	<b>Daily Maximum</b>
<b>TSS, mg/L</b>	25	35	--	--
<b>pH, Standard Units</b>	--	--	6.5	9
<b>TRC, mg/L</b>	0.39	--	--	0.348
<b>Oil &amp; Grease, mg/L</b>	--	--	--	10.0

<b>Table 2</b>			
<b>Outfall 001</b>			
<b>Self-Monitoring and Reporting Requirements <sup>a</sup></b>			
<b>Parameter</b>	<b>Frequency</b>	<b>Sample Type</b>	<b>Units</b>
<b>Total Flow, MGD <sup>b, c, d</sup></b>	Continuous	Recorder	MGD
<b>TSS, mg/L</b>	Monthly	Grab	mg/L
<b>pH, Standard Units</b>	Monthly	Grab	SU
<b>TRC</b>	Monthly	Grab	mg/L
<b>DO, mg/L</b>	Monthly	Grab	mg/L
<b>Oil &amp; Grease, mg/L <sup>e</sup></b>	Monthly	Grab	mg/L
<b>TDS, mg/L</b>	Monthly	Grab	mg/L
<b>Temperature, °F</b>	Monthly	Grab	F
<b>Total Organic Nitrogen</b>	Quarterly	Grab	mg/L
<b>Copper</b>	Quarterly	Grab/Comp	mg/L
<b>Nickel</b>	Quarterly	Grab/Comp	mg/L
<b>Zinc</b>	Quarterly	Grab/Comp	mg/L
<b>Metals <sup>f, g, h</sup></b>	Annually	Grab/Comp	mg/L

**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. 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.
- g. 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 Air Products decides to sample more frequently for these parameters, the additional data is required to be reported.
- h. Metals
 

Arsenic	Total Chromium	Lead	Selenium
Cadmium	Cyanide	Mercury	Silver

**End Table References**

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 28<sup>th</sup> 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 reports 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

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**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 meet 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

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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 biosolids. Therefore 40 CFR 503 does not apply at this time.

**PART IV**  
**STORM WATER PERMIT**

**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). DWQ will regulate and Air Products will manage storm water discharges associated with industrial activity that are not treated and discharged to outfall 1 via a separate storm water permit, as necessary. 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.

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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

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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:

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- (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 *Part 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.

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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

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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;



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**DISCHARGE PERMIT NO. UT0024210**

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 or 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<sub>50</sub>").
5. "Bypass," means the diversion of waste streams from any portion of a treatment facility.
6. "Chronic toxicity" occurs when the IC<sub>25</sub> < 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<sub>25</sub>" 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;

**PART VIII**  
**DISCHARGE PERMIT NO. UT0024210**

- 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  
AIR PRODUCTS AND CHEMICALS, INC.  
RENEWAL PERMIT: DISCHARGE  
UPDES PERMIT NUMBER: UT0024210  
MINOR INDUSTRIAL**

**FACILITY CONTACTS**

**Person Name:** Eileen Hartsock  
**Position:** Corporate Officer  
**Phone Number:** 562.619.9893  
**Email:** [Hartsoen@airproducts.com](mailto:Hartsoen@airproducts.com)  
**Address:** 7201 Hamilton Boulevard  
Allentown, PA 18195-1501

**Person Name:** Steve Knudsen  
**Position:** Plant Manager  
**Phone Number:** 775.397.5707  
**Email:** [knudsesk@airproducts.com](mailto:knudsesk@airproducts.com)

**Facility Name:** Air Products and Chemicals, Inc.  
**Mailing and Facility Address:** 745 Frontage Road  
Centerville, Utah 84014  
**Telephone:** 801.298.4881  
**Actual Address:** 745 Frontage Road  
Centerville, Utah 84014

**DESCRIPTION OF FACILITY**

Air Products and Chemicals, Inc. (Air Products) liquefies atmospheric gases via compression and cooling processes for industrial, medical and scientific purposes. The resulting liquid gases are oxygen, nitrogen and argon totaling approximately 22 tons per day on average. Air Products is categorized with a Standard Industrial Classification (SIC) code of 2813 for *Industrial Gas Manufacturing (NAICS 325120)*.

Wastewater from Air Products consists of blowdown water from the cooling tower, as well as any storm water runoff from the facility. Both are captured in a single onsite pond that is approximately 75 feet by 45 feet with an average depth of 3 feet. The pond regularly discharges to a storm water culvert which flows to Stone Creek near Centerville, Utah.

**SUMMARY OF CHANGES FROM PREVIOUS PERMIT**

Air Products believes copper, nickel, zinc and total organic nitrogen are present in the discharge. These parameters will be required to be monitored on a quarterly basis.

In the previous permit, total dissolved solids (TDS) was limited to 2500 mg/L. The basis for this limit could not be confirmed. 40 CFR 122.44(l), Section 402(o)(2), provides that the establishment of less stringent limits may be allowed where new information is available that was not available at the time of permit issuance which would have justified a less stringent effluent limit. There is not an impairment for Stone Creek and therefore monitoring only will be required for TDS for this permit cycle.

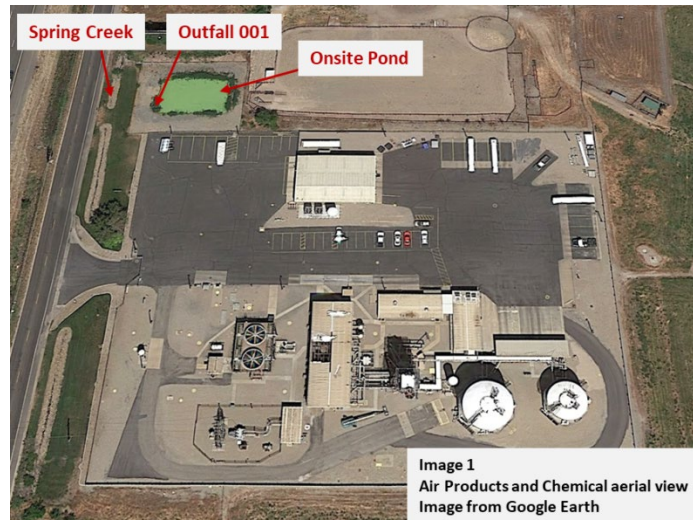
The total residual chlorine limit (TRC) is based on the acute TRC water quality standard at end-of-pipe, and is retained from the previous permit. This effluent limit is below the minimum quantification level (ML) of the most common and practical EPA approved TRC methods. The Division has determined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

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

**DESCRIPTION OF DISCHARGE**

Air Products has one outfall for discharging wastewater and storm water effluent.

<b>Outfall</b>	<b>Description of Discharge Point</b>
001	Located at latitude 40°54'28" North and longitude 111°53'18" West. Discharging effluent containing both blowdown water from the cooling tower and storm water flows over a v-notch weir, through a grate, into a storm water cement pipe, and then to Stone Creek. <i>Outfall location Image 1</i>



**RECEIVING WATERS AND STREAM CLASSIFICATION**

The receiving water for Outfall 001 is Stone Creek.

Per UAC R317-2-13.7(b), the designated beneficial uses for Stone Creek and tributaries, from Farmington Bay Waterfowl Management Area to U.S. National Forest Boundary is 2B, 3A 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 3A | Protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain   |
| Class 4  | Protected for agricultural uses including irrigation of crops and stock watering.  |

**BASIS FOR EFFLUENT LIMITATIONS**

Limitations on total suspended solids (TSS) and pH are based on current Utah Secondary Treatment

**PART I**  
**DISCHARGE PERMIT NO. UT0024210**  
**WASTEWATER**

Standards, UAC R317-1-3.2. The oil and grease is based on best professional judgment (BPJ). Total residual chlorine is based on the wasteload analysis for the discharge to Stone Creek. Air Products does not discharge sanitary waste through Outfall 001 therefore E.coli is not required to be monitored.

In the previous permit, total dissolved solids (TDS) was limited to 2500 mg/L. The basis for this limit could not be confirmed. 40 CFR 122.44(l), Section 402(o)(2), provides that the establishment of less stringent limits may be allowed where new information is available that was not available at the time of permit issuance which would have justified a less stringent effluent limit. There is not an impairment for Stone Creek and therefore monitoring only will be required for TDS for this permit cycle.

Air Products believes copper, nickel, zinc and total organic nitrogen are present in the discharge. These parameters will be required to be monitored on a quarterly basis.

Attached is a Wasteload Analysis for this discharge into the unnamed irrigation ditch. 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**

There were no potential parameters of concern identified for the discharge/receiving water based on a discussion and consultation with the UPDES Permit Writer.

**TMDL**

Stone Creek from Great Salt Lake to USFS boundary (UT16020102-046\_00) is listed as impaired on the 2016 303(d) list for E.coli, pH, copper and temperature.

**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. Air Products 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, Air Products will be required to conduct 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.

<b>Table 1</b>				
<b>Parameter</b>	<b>Outfall 001</b>			
	<b>Effluent Limitations <sup>a</sup></b>			
	<b>Maximum Monthly Avg</b>	<b>Maximum Weekly Avg</b>	<b>Daily Minimum</b>	<b>Daily Maximum</b>
<b>TSS, mg/L</b>	25	35	--	--
<b>pH, Standard Units</b>	--	--	6.5	9
<b>TRC, mg/L</b>	0.39	--	--	0.348
<b>Oil &amp; Grease, mg/L</b>	--	--	--	10.0

**SELF-MONITORING AND REPORTING REQUIREMENTS**

The permit will require reports to be submitted monthly, quarterly, 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.

<b>Table 2</b>			
<b>Outfall 001</b>			
<b>Self-Monitoring and Reporting Requirements <sup>a</sup></b>			
<b>Parameter</b>	<b>Frequency</b>	<b>Sample Type</b>	<b>Units</b>
<b>Total Flow, MGD <sup>b, c, d</sup></b>	Continuous	Recorder	MGD
<b>TSS, mg/L</b>	Monthly	Grab	mg/L
<b>pH, Standard Units</b>	Monthly	Grab	SU
<b>TRC</b>	Monthly	Grab	mg/L
<b>DO, mg/L</b>	Monthly	Grab	mg/L
<b>Oil &amp; Grease, mg/L <sup>e</sup></b>	Monthly	Grab	mg/L
<b>TDS, mg/L</b>	Monthly	Grab	mg/L
<b>Temperature, °F</b>	Monthly	Grab	F
<b>Total Organic Nitrogen</b>	Quarterly	Grab	mg/L
<b>Copper</b>	Quarterly	Grab/Comp	mg/L
<b>Nickel</b>	Quarterly	Grab/Comp	mg/L
<b>Zinc</b>	Quarterly	Grab/Comp	mg/L
<b>Metals <sup>f, g, h</sup></b>	Annually	Grab/Comp	mg/L

**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. 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.
- g. 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 Air Products decides to sample more frequently for these parameters, the additional data is required to be reported.
- h. Metals
 

Arsenic	Cyanide	Selenium
Cadmium	Lead	Silver
Total Chromium	Mercury	

**End Table References**

### **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 is an industrial facility, there is not any regular sanitary sludge production. Therefore 40 CFR 503 does not apply to the solids in the onsite pond.

### **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 discharge a relatively small volume of effluent to the receiving water. The effluent from this facility is from storm water and/or cooling water, in which toxicity is neither an existing concern, nor likely to be present. Based on these considerations 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  
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 7, 2020  
Ended: January 7, 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 was published on the Department of Environmental Quality Division of Water Quality Public Notice 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.

DWQ-2021-000431

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# **ATTACHMENT 1**

## *Effluent Monitoring Data*

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## Effluent Monitoring Data.

<b>Air Products Mfg. Corp Bountiful Utah Facility</b>						
Sample Date	Chlorine mg/l	Oil & Grease mg/l	TDS mg/l	TSS mg/l	pH	Flow gpm
1/12/2018	0.30	< 5	1620	5	8.18	40.5
2/15/2018	< 0.10	< 5	1270	< 4	8	34.5
3/7/2018	< 0.10	< 5	1440	< 4	8.1	34
4/3/2018	< 0.10	< 5	836	6	8.1	34
5/7/2018	< 0.10	7	1370	< 4	8.32	34
6/4/2018	< 0.10	< 5	1150	< 4	8.1	34
7/2/2018	< 0.10	< 5	1090	< 4	8.31	34
8/6/2018	< 0.10	< 6	1140	< 4	8.6	40.5
9/4/2018	0.12	< 5	948	< 4	8.29	34
10/1/2018	< 0.10	< 5	1240	< 4	7.46	34
11/5/2018	< 0.10	< 5	1240	< 4	8.25	34.5
12/10/2018	0.14	< 5	940	< 4	8.27	34.5
1/9/2019	0.34	< 5	1340	< 4	8.2	34
2/4/2019	0.24	< 5	1480	< 4	8.23	34
3/5/2019	0.19	< 5	1400	< 4	8.25	34
4/18/2019	0.56	< 5	1650	< 4	8.29	34
5/6/2019	0.11	< 5	1690	< 4	8.08	34
6/3/2019	< 0.10	< 5	1650	< 4	8.1	34
7/1/2019	< 0.10	< 6	1580	< 4	7.34	34
8/5/2019	0.19	< 5	1380	< 4	7.54	34
9/9/2019	< 0.10	< 6	1660	< 4	8.15	34
10/7/2019	< 0.10	< 6	1540	< 4	8.24	34
11/4/2019	< 0.10	< 6	1480	< 4	8.35	34
12/11/2019	0.58	< 5	948	< 4	7.99	30
<b>Maximum</b>	<b>0.56</b>	<b>7</b>	<b>1690</b>	<b>6</b>	<b>8.60</b>	<b>40.5</b>
<b>Average</b>	<b>0.16</b>	<b>5</b>	<b>1354</b>	<b>4</b>	<b>8.12</b>	<b>34.6</b>

**Air Products Mfg. Corp Bountiful Utah Facility**

Sample Date	Chlorine mg/l	Oil & Grease mg/l	TDS mg/l	TSS mg/l	pH	Flow gpm
1/7/2015	< 0.10		1300	< 4	8.11	15.9
2/11/2015	< 0.10		1280	< 4	8.2	12.5
3/11/2015	< 0.10		1320	10	8.3	12.5
4/22/2015	0.11		1420	< 4	7.7	29
5/13/2015	< 0.10		1500	4	7.3	19.7
6/17/2015	< 0.10		1190	< 4	7.76	19.7
7/22/2015	< 0.10		1350	< 4	7.7	19.7
8/5/2015	< 0.10		1280	< 4	7.7	19.7
9/2/2015	< 0.10	< 5	1450	< 4	8	19.7
10/14/2015	< 0.10	< 5	1520	< 4	7.55	19.7
11/20/2015	< 0.10	< 5	1280	< 4	7.6	12.5
12/9/2015	< 0.10	< 5	1430	< 4	7.3	15.9
1/6/2016	< 0.10	< 5	1190	< 4	8.45	15.9
2/3/2016	< 0.10	< 5	1180	< 4	8.25	19.7
3/9/2016	< 0.10	< 5	1260	< 4	8.09	19.7
4/13/2016	0.10	< 5	1370	< 4	7.1	19.7
5/18/2016	< 0.10	< 5	1510	< 4	8.2	15.9
6/15/2016	< 0.10	< 5	1500	< 4	8.3	12.5
7/7/2016	< 0.10	< 5	1540	< 4	8.2	13.6
8/10/2016	< 0.10	< 5	1540	< 4	8.2	19.7
9/30/2016	< 0.10	< 5	1330	< 4	7.8	19.7
10/12/2016	< 0.10	< 5	1090	< 4	8.0	12.6
11/15/2016	< 0.10	< 5	912	< 4	8.3	15.9
12/16/2016	< 0.10	< 5	1520	< 4	7.9	15.9
1/26/2017	< 0.10	< 5	1590	< 4	7.9	24.1
2/22/2017	0.11	< 5	1120	12	7.4	24.1
3/27/2017	0.17	< 5	1310	5	8.3	19.7
4/12/2017	0.22	< 5	1320	< 4	8.3	13.1
5/10/2017	0.14	< 5	1250	4	7.8	19.5
6/21/2017	0.14	< 6	1550	< 4	8	19.6
7/22/2017	0.25	< 7	1820	< 4	8.3	29
8/18/2017	< 0.10	< 5	1660	4	7.88	19.7
9/12/2017	0.09	< 5	1570	< 4	8.5	34.5
10/11/2017	0.48	< 5	1630	< 4	8.2	24.1
11/10/2017	0.90	< 5	1440	< 4	8.3	34.5
12/22/2017	0.14	< 6	1320	< 4	8.6	49
<b>Maximum</b>	<b>0.90</b>	<b>7</b>	<b>1820</b>	<b>12</b>	<b>8.60</b>	<b>49.0</b>
<b>Average</b>	<b>0.15</b>	<b>5</b>	<b>1385</b>	<b>4</b>	<b>7.99</b>	<b>20.2</b>

**Air Products Mfg Corp Bountiful Utah Facility**

Sample Date	Ammonia as N mg/l	Total Nitrogen mg/l	Phosphate, ortho mg/l	Phosphorus Total mg/l	TKN mg/l
7/29/2015	< 0.2	3.5	0.47	2.00	< 1.0
8/5/2015	0.3	3	0.26	0.96	2.0
9/2/2015			0.26	1.00	1.0
10/14/2015	< 0.2	2.7		0.28	< 1.0
11/19/2015	0.8	3.6	0.25	1.90	1.0
12/9/2015	0.7	3.7	0.17	1.10	1.0
1/6/2016	< 0.2	4.2		1.30	< 1.0
2/3/2016	< 0.2	3.9	0.36	0.79	< 1.0
3/16/2019	< 0.2	24.5	0.01	0.60	< 1.0
4/13/2016	< 0.2	4.2	0.08	0.60	< 1.0
5/18/2016	< 0.2	4.6	0.17	0.68	< 1.0
6/15/2016	< 0.2	4.3	0.14	1.20	8.0
7/6/2016	< 0.2	4.7	0.12	1.50	2.0
8/10/2016	< 0.2	4	0.12	0.86	1.0
9/20/2016	< 0.2	3.1	0.27	1.40	1.0
10/26/2016	< 0.2	2.7	0.08	0.27	< 1.0
11/2/2016	< 0.2	3.3	0.18	1.10	1.4
12/16/2016	< 0.2	4.6	0.07	1.30	< 1.0
1/17/2017	< 0.2	4.8	0.33	0.95	< 1.0
2/21/2017	< 0.2	3.7	0.22	0.35	< 1.0
3/15/2017	< 0.2	3.5	0.35	0.70	< 1.0
4/11/2017	0.2	2.7	0.66	1.30	< 1.0
5/9/2017	< 0.2	5.3	0.51	1.10	< 1.0
6/20/2017	< 0.2	6.1	0.48	0.82	1.1
7/11/2017	< 0.2	3.9	0.48	1.40	1.0
8/17/2017	0.2	3.7	0.86	2.00	1.9
9/12/2017	0.3	2.9	1.10	3.30	2.2
10/10/2017	< 0.2	4.7	0.63	1.60	1.0
11/9/2017	0.3	3.9	1.70	4.00	< 1.0
12/22/2017	< 0.2	3.6	0.46	1.60	1.1
1/12/2018	< 0.2	4.1	0.20	1.20	1.2
<b>Maximum</b>	<b>0.8</b>	<b>24.5</b>	<b>1.70</b>	<b>4.00</b>	<b>8.0</b>
<b>Average</b>	<b>0.2</b>	<b>4.6</b>	<b>0.4</b>	<b>1.3</b>	<b>1.4</b>

# **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:** November 5, 2020

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

**Facility:** Air Products Manufacturing Corp.  
UPDES No. UT- 0024210

**Receiving water:** Stormwater Pipe→Stone Creek→ Farmington Bay WMA (2B, 3A, 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: Stone Creek

The mean monthly design discharge is 0.065 MGD (0.101 cfs) for the facility.

Receiving Water

The receiving water for Outfall 001 is Stone Creek.

Per UAC R317-2-13.7(b), the designated beneficial uses for Stone Creek and tributaries, from Farmington Bay Waterfowl Management Area to U.S. National Forest Boundary is 2B, 3A 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 3A -- Protected for cold water species of game fish and other cold water aquatic life, including the necessary aquatic organisms in their food chain*
- *Class 4 - Protected for agricultural uses including irrigation of crops and stock watering.*

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UPDES No. UT0024210**

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, default values were used. In the previous permit cycle, Dave Walker (a certified stormwater engineer) estimated regular flows at 8 to 10 cfs and a low flow condition at 2 to 4 cfs. Therefore, 3.5 cfs was used as the 7Q10 flow. The estimated critical low flow values for each season are listed in Table 1.

Table 1. Seasonal Flow Values (estimated)

Season	7Q10 Flow Values (cfs)
Summer	3.5
Fall	3.5
Winter	3.5
Spring	3.5
Overall	8.0

The receiving water quality in Stone Creek was characterized using best professional judgement (as there was no ambient water quality data available).

TMDL

Stone Creek from Great Salt Lake to USFS boundary (UT16020102-046\_00) is listed as impaired on the 2016 303(d) list for *E.coli*, pH, copper and temperature.

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

There were no potential parameters of concern identified for the discharge/receiving water based on a discussion and 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<sub>50</sub> (lethal concentration, 50%) percent effluent for acute toxicity and the IC<sub>25</sub> (inhibition concentration, 25%) (Table 2) percent effluent for chronic toxicity, as determined by

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the WET test, needs to be below the WET limits, as determined by the WLA. The WET limit for LC<sub>50</sub> is typically 100% effluent and does not need to be determined by the WLA.

Table 2. WET Limits for IC<sub>25</sub>

<b>Outfall</b>	<b>Percent Effluent</b>
Outfall 001	2.8 %

Wasteload Allocation Methods

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

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

Models and supporting documentation are available for review upon request.

Antidegradation Level I Review

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

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

Documents:

WLA Document: *AirProducts\_WLA\_2020.docx*

Wasteload Analysis and Addendum: *AirProducts\_WLA\_2020.xlsm*

References:

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

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.

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WASTELOAD ANALYSIS [WLA]  
Addendum: Statement of Basis

23-Oct-20
4:00 PM

Facilities: Air Products  
Discharging to: Stormwater Pipe => Stone Ck.=>Farmington Bay WMA

UPDES No: UT-0024210

I. Introduction

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

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

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

II. Receiving Water and Stream Classification

Stormwater Pipe => Stone Ck.=>Farmington Bay WMA 2B, 3A, 4  
Antidegradation Review: Antidegradation Level II Review is NOT Required

III. Numeric Stream Standards for Protection of Aquatic Wildlife

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

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**Acute and Chronic Heavy Metals (Dissolved)**

Parameter	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard		
	Concentration	Load*	Concentration		Load*
Aluminum	87.00 ug/l**	0.047 lbs/day	750.00	ug/l	0.406 lbs/day
Arsenic	190.00 ug/l	0.103 lbs/day	340.00	ug/l	0.184 lbs/day
Cadmium	0.46 ug/l	0.000 lbs/day	4.47	ug/l	0.002 lbs/day
Chromium III	156.28 ug/l	0.085 lbs/day	3269.74	ug/l	1.772 lbs/day
ChromiumVI	11.00 ug/l	0.006 lbs/day	16.00	ug/l	0.009 lbs/day
Copper	17.36 ug/l	0.009 lbs/day	27.76	ug/l	0.015 lbs/day
Iron			1000.00	ug/l	0.542 lbs/day
Lead	8.03 ug/l	0.004 lbs/day	205.94	ug/l	0.112 lbs/day
Mercury	0.0120 ug/l	0.000 lbs/day	2.40	ug/l	0.001 lbs/day
Nickel	96.47 ug/l	0.052 lbs/day	867.69	ug/l	0.470 lbs/day
Selenium	4.60 ug/l	0.002 lbs/day	20.00	ug/l	0.011 lbs/day
Silver	N/A ug/l	N/A lbs/day	13.21	ug/l	0.007 lbs/day
Zinc	221.80 ug/l	0.120 lbs/day	221.80	ug/l	0.120 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 206.84 mg/l as CaCO3

**Organics [Pesticides]**

Parameter	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard		
	Concentration	Load*	Concentration		Load*
Aldrin			1.500	ug/l	0.001 lbs/day
Chlordane	0.004 ug/l	0.083 lbs/day	1.200	ug/l	0.001 lbs/day
DDT, DDE	0.001 ug/l	0.019 lbs/day	0.550	ug/l	0.000 lbs/day
Dieldrin	0.002 ug/l	0.037 lbs/day	1.250	ug/l	0.001 lbs/day
Endosulfan	0.056 ug/l	1.087 lbs/day	0.110	ug/l	0.000 lbs/day
Endrin	0.002 ug/l	0.045 lbs/day	0.090	ug/l	0.000 lbs/day
Guthion			0.010	ug/l	0.000 lbs/day
Heptachlor	0.004 ug/l	0.074 lbs/day	0.260	ug/l	0.000 lbs/day
Lindane	0.080 ug/l	1.553 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	0.272 lbs/day	2.000	ug/l	0.001 lbs/day
Pentachlorophenol	13.00 ug/l	252.291 lbs/day	20.000	ug/l	0.011 lbs/day
Toxephene	0.0002 ug/l	0.004 lbs/day	0.7300	ug/l	0.000 lbs/day

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**IV. Numeric Stream Standards for Protection of Agriculture**

	4 Day Average (Chronic) Standard		1 Hour Average (Acute) Standard	
	Concentration	Load*	Concentration	Load*
Arsenic			100.0 ug/l	lbs/day
Boron			750.0 ug/l	lbs/day
Cadmium			10.0 ug/l	0.00 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	0.33 tons/day

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

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

Toxic Organics	Class 1C [2 Liters/Day for 70 Kg Person over 70 Yr.]		Class 3A, 3B [6.5 g for 70 Kg Person over 70 Yr.]	
	ug/l	lbs/day	ug/l	lbs/day
Acenaphthene	ug/l	lbs/day	2700.0 ug/l	52.40 lbs/day
Acrolein	ug/l	lbs/day	780.0 ug/l	15.14 lbs/day
Acrylonitrile	ug/l	lbs/day	0.7 ug/l	0.01 lbs/day
Benzene	ug/l	lbs/day	71.0 ug/l	1.38 lbs/day
Benzidine	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Carbon tetrachlorid	ug/l	lbs/day	4.4 ug/l	0.09 lbs/day
Chlorobenzene	ug/l	lbs/day	21000.0 ug/l	407.55 lbs/day
1,2,4-Trichlorobenzene				
Hexachlorobenzene	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
1,2-Dichloroethane	ug/l	lbs/day	99.0 ug/l	1.92 lbs/day
1,1,1-Trichloroethane				
Hexachloroethane	ug/l	lbs/day	8.9 ug/l	0.17 lbs/day
1,1-Dichloroethane				

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1,1,2-Trichloroethane	ug/l	lbs/day	42.0 ug/l	0.82 lbs/day
1,1,2,2-Tetrachloroethane	ug/l	lbs/day	11.0 ug/l	0.21 lbs/day
Chloroethane			0.0 ug/l	0.00 lbs/day
Bis(2-chloroethyl) ether	ug/l	lbs/day	1.4 ug/l	0.03 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	83.45 lbs/day
2,4,6-Trichlorophenol	ug/l	lbs/day	6.5 ug/l	0.13 lbs/day
p-Chloro-m-cresol			0.0 ug/l	0.00 lbs/day
Chloroform (HM)	ug/l	lbs/day	470.0 ug/l	9.12 lbs/day
2-Chlorophenol	ug/l	lbs/day	400.0 ug/l	7.76 lbs/day
1,2-Dichlorobenzene	ug/l	lbs/day	17000.0 ug/l	329.92 lbs/day
1,3-Dichlorobenzene	ug/l	lbs/day	2600.0 ug/l	50.46 lbs/day
1,4-Dichlorobenzene	ug/l	lbs/day	2600.0 ug/l	50.46 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	0.06 lbs/day
1,2-trans-Dichloroethane	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
2,4-Dichlorophenol	ug/l	lbs/day	790.0 ug/l	15.33 lbs/day
1,2-Dichloropropane	ug/l	lbs/day	39.0 ug/l	0.76 lbs/day
1,3-Dichloropropylene	ug/l	lbs/day	1700.0 ug/l	32.99 lbs/day
2,4-Dimethylphenol	ug/l	lbs/day	2300.0 ug/l	44.64 lbs/day
2,4-Dinitrotoluene	ug/l	lbs/day	9.1 ug/l	0.18 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	0.01 lbs/day
Ethylbenzene	ug/l	lbs/day	29000.0 ug/l	562.80 lbs/day
Fluoranthene	ug/l	lbs/day	370.0 ug/l	7.18 lbs/day
4-Chlorophenyl phenyl ether				
4-Bromophenyl phenyl ether				
Bis(2-chloroisopropyl) ether	ug/l	lbs/day	170000.0 ug/l	3299.19 lbs/day
Bis(2-chloroethoxy) ether	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Methylene chloride	ug/l	lbs/day	1600.0 ug/l	31.05 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	6.99 lbs/day
Dichlorobromomethane	ug/l	lbs/day	22.0 ug/l	0.43 lbs/day
Chlorodibromomethane	ug/l	lbs/day	34.0 ug/l	0.66 lbs/day
Hexachlorobutadiene	ug/l	lbs/day	50.0 ug/l	0.97 lbs/day
Hexachlorocyclopentadiene	ug/l	lbs/day	17000.0 ug/l	329.92 lbs/day
Isophorone	ug/l	lbs/day	600.0 ug/l	11.64 lbs/day
Naphthalene				
Nitrobenzene	ug/l	lbs/day	1900.0 ug/l	36.87 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	271.70 lbs/day
4,6-Dinitro-o-cresol	ug/l	lbs/day	765.0 ug/l	14.85 lbs/day
N-Nitrosodimethylamine	ug/l	lbs/day	8.1 ug/l	0.16 lbs/day
N-Nitrosodiphenylamine	ug/l	lbs/day	16.0 ug/l	0.31 lbs/day
N-Nitrosodi-n-propylamine	ug/l	lbs/day	1.4 ug/l	0.03 lbs/day
Pentachlorophenol	ug/l	lbs/day	8.2 ug/l	0.16 lbs/day
Phenol	ug/l	lbs/day	4.6E+06 ug/l	8.93E+04 lbs/day
Bis(2-ethylhexyl)phthalate	ug/l	lbs/day	5.9 ug/l	0.11 lbs/day
Butyl benzyl phthalate	ug/l	lbs/day	5200.0 ug/l	100.92 lbs/day
Di-n-butyl phthalate	ug/l	lbs/day	12000.0 ug/l	232.88 lbs/day
Di-n-octyl phthalate				
Diethyl phthalate	ug/l	lbs/day	120000.0 ug/l	2328.84 lbs/day



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Dimethyl phthlate	ug/l	lbs/day	2.9E+06 ug/l	5.63E+04 lbs/day
Benzo(a)anthracene	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(a)pyrene (P	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(b)fluoranthene	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Benzo(k)fluoranthene	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)anthra	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Indeno(1,2,3-cd)pyr	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Pyrene (PAH)	ug/l	lbs/day	11000.0 ug/l	213.48 lbs/day
Tetrachloroethylene	ug/l	lbs/day	8.9 ug/l	0.17 lbs/day
Toluene	ug/l	lbs/day	200000 ug/l	3881.40 lbs/day
Trichloroethylene	ug/l	lbs/day	81.0 ug/l	1.57 lbs/day
Vinyl chloride	ug/l	lbs/day	525.0 ug/l	10.19 lbs/day
				lbs/day
				lbs/day
<b>Pesticides</b>				
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	0.04 lbs/day
beta-Endosulfan	ug/l	lbs/day	2.0 ug/l	0.04 lbs/day
Endosulfan sulfate	ug/l	lbs/day	2.0 ug/l	0.04 lbs/day
Endrin	ug/l	lbs/day	0.8 ug/l	0.02 lbs/day
Endrin aldehyde	ug/l	lbs/day	0.8 ug/l	0.02 lbs/day
Heptachlor	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
Heptachlor epoxide				
<b>PCB's</b>				
PCB 1242 (Arochlo	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1254 (Arochlc	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1221 (Arochlc	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1232 (Arochlc	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1248 (Arochlc	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1260 (Arochlc	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
PCB-1016 (Arochlc	ug/l	lbs/day	0.0 ug/l	0.00 lbs/day
<b>Pesticide</b>				
Toxaphene	ug/l		0.0 ug/l	0.00 lbs/day
<b>Dioxin</b>				
Dioxin (2,3,7,8-TCl	ug/l	lbs/day		
<b>Metals</b>				
Antimony	ug/l	lbs/day		
Arsenic	ug/l	lbs/day	4300.00 ug/l	83.45 lbs/day
Asbestos	ug/l	lbs/day		
Beryllium				
Cadmium				
Chromium (III)				

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Chromium (VI)				
Copper				
Cyanide	ug/l	lbs/day	2.2E+05 ug/l	4269.54 lbs/day
Lead	ug/l	lbs/day		
Mercury			0.15 ug/l	0.00 lbs/day
Nickel			4600.00 ug/l	89.27 lbs/day
Selenium	ug/l	lbs/day		
Silver	ug/l	lbs/day		
Thallium			6.30 ug/l	0.12 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

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BOD5, mg/l  
Metals, ug/l

Total Dissolved Solids (TDS), mg/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**

<b>Stream</b>									
<b>Critical Low</b>									
	<b>Flow</b>	<b>Temp.</b>	<b>pH</b>	<b>T-NH3</b>	<b>BOD5</b>	<b>DO</b>	<b>TRC</b>	<b>TDS</b>	
	<b>cfs</b>	<b>Deg. C</b>		<b>mg/l as N</b>	<b>mg/l</b>	<b>mg/l</b>	<b>mg/l</b>	<b>mg/l</b>	
umer (Irrig. Season)	3.5	18.0	8.1	0.03	0.10	7.20	0.00	600.0	
Fall	3.5	12.0	8.1	0.03	0.10	---	0.00	600.0	
Winter	3.5	4.0	8.0	0.03	0.10	---	0.00	600.0	
Spring	3.5	12.0	8.0	0.03	0.10	---	0.00	600.0	
Dissolved Metals	Al	As	Cd	CrIII	CrVI	Copper	Fe	Pb	
	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	
All Seasons	1.59*	0.53*	0.053*	0.53*	2.65*	0.53*	0.83*	0.53*	
Dissolved Metals	Hg	Ni	Se	Ag	Zn	Boron			
	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l			
All Seasons	0.0000	0.53*	1.06*	0.1*	0.053*	10.0			

\* 1/2 MDL

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**Projected Discharge Information**

Season	Flow, MGD	Temp.	TDS mg/l	TDS tons/day
Summer	0.06500	22.2	1729.49	0.46868
Fall	0.06500	12.2		
Winter	0.06500	7.9		
Spring	0.06500	16.9		

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	0.065 MGD	0.101 cfs
Fall	0.065 MGD	0.101 cfs
Winter	0.065 MGD	0.101 cfs
Spring	0.065 MGD	0.101 cfs

**Flow Requirement or Loading Requirement**

The calculations in this wasteload analysis utilize the maximum effluent discharge flow of 0.065 MGD. If the discharger is allowed to have a flow greater than 0.065 MGD during 7Q10 conditions, and effluent limit concentrations as indicated, then water quality standards will be violated. In order to prevent this from occurring, the permit writers must include the discharge flow limitation as indicated above; or, include loading effluent limits in the permit.

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

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

WET Requirements	LC50 >	19.2% Effluent	[Acute]
	IC25 >	2.8% Effluent	[Chronic]

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

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

Season	Concentration	
Summer	25.0 mg/l as BOD5	13.5 lbs/day
Fall	25.0 mg/l as BOD5	13.5 lbs/day
Winter	25.0 mg/l as BOD5	13.5 lbs/day
Spring	25.0 mg/l as BOD5	13.5 lbs/day

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

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

Season	Concentration
Summer	5.00
Fall	5.00
Winter	5.00
Spring	5.00

**Effluent Limitation for Total Ammonia based upon Water Quality Standards**

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

Season		Concentration	Load
Summer	4 Day Avg. - Chronic	64.2 mg/l as N	34.8 lbs/day
	1 Hour Avg. - Acute	74.6 mg/l as N	40.4 lbs/day
Fall	4 Day Avg. - Chronic	79.0 mg/l as N	42.8 lbs/day
	1 Hour Avg. - Acute	71.8 mg/l as N	38.9 lbs/day
Winter	4 Day Avg. - Chronic	88.0 mg/l as N	47.7 lbs/day
	1 Hour Avg. - Acute	75.2 mg/l as N	40.8 lbs/day
Spring	4 Day Avg. - Chronic	79.0 mg/l as N	0.0 lbs/day
	1 Hour Avg. - Acute	71.8 mg/l as N	0.0 lbs/day

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

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**Effluent Limitation for Total Residual Chlorine based upon Water Quality Standards**

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

Season		Concentration		Load	
Summer	4 Day Avg. - Chronic	0.390	mg/l	0.21	lbs/day
	1 Hour Avg. - Acute	0.348	mg/l	0.19	lbs/day
Fall	4 Day Avg. - Chronic	0.390	mg/l	0.21	lbs/day
	1 Hour Avg. - Acute	0.348	mg/l	0.19	lbs/day
Winter	4 Day Avg. - Chronic	0.390	mg/l	0.21	lbs/day
	1 Hour Avg. - Acute	0.348	mg/l	0.19	lbs/day
Spring	4 Day Avg. - Chronic	0.390	mg/l	0.00	lbs/day
	1 Hour Avg. - Acute	0.348	mg/l	0.00	lbs/day

**Effluent Limitations for Total Dissolved Solids based upon Water Quality Standards**

Season		Concentration		Load	
Summer	Maximum, Acute	22084.1	mg/l	5.98	tons/day
Fall	Maximum, Acute	22084.1	mg/l	5.98	tons/day
Winter	Maximum, Acute	22084.1	mg/l	5.98	tons/day
Spring	4 Day Avg. - Chronic	22084.1	mg/l	5.98	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 206.84 mg/l):

	4 Day Average		1 Hour Average		Load
	Concentration	Load	Concentration	Load	
Aluminum	N/A	N/A	13,761.1	ug/l	7.5 lbs/day
Arsenic	6,775.62 ug/l	2.4 lbs/day	6,243.3	ug/l	3.4 lbs/day
Cadmium	13.84 ug/l	0.0 lbs/day	80.8	ug/l	0.0 lbs/day
Chromium III	5,568.33 ug/l	2.0 lbs/day	60,160.6	ug/l	32.6 lbs/day
Chromium VI	255.52 ug/l	0.1 lbs/day	225.3	ug/l	0.1 lbs/day
Copper	593.93 ug/l	0.2 lbs/day	497.1	ug/l	0.3 lbs/day
Iron	N/A	N/A	18,381.7	ug/l	10.0 lbs/day
Lead	259.68 ug/l	0.1 lbs/day	3,776.1	ug/l	2.0 lbs/day
Mercury	0.43 ug/l	0.0 lbs/day	44.2	ug/l	0.0 lbs/day
Nickel	3,426.61 ug/l	1.2 lbs/day	15,954.6	ug/l	8.6 lbs/day
Selenium	109.37 ug/l	0.0 lbs/day	340.4	ug/l	0.2 lbs/day
Silver	N/A ug/l	N/A lbs/day	243.1	ug/l	0.1 lbs/day
Zinc	7,939.08 ug/l	2.8 lbs/day	4,080.4	ug/l	2.2 lbs/day
Cyanide	186.20 ug/l	0.1 lbs/day	404.9	ug/l	0.2 lbs/day

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

Summer	54.8 Deg. C.	130.7 Deg. F
Fall	48.8 Deg. C.	119.9 Deg. F
Winter	40.8 Deg. C.	105.5 Deg. F
Spring	48.8 Deg. C.	119.9 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		Load
	Concentration	Load	Concentration	Load	
Aldrin			1.5E+00	ug/l	1.26E-03 lbs/day
Chlordane	4.30E-03 ug/l	2.33E-03 lbs/day	1.2E+00	ug/l	1.01E-03 lbs/day
DDT, DDE	1.00E-03 ug/l	5.42E-04 lbs/day	5.5E-01	ug/l	4.61E-04 lbs/day
Dieldrin	1.90E-03 ug/l	1.03E-03 lbs/day	1.3E+00	ug/l	1.05E-03 lbs/day
Endosulfan	5.60E-02 ug/l	3.04E-02 lbs/day	1.1E-01	ug/l	9.22E-05 lbs/day
Endrin	2.30E-03 ug/l	1.25E-03 lbs/day	9.0E-02	ug/l	7.55E-05 lbs/day
Guthion	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l	8.38E-06 lbs/day
Heptachlor	3.80E-03 ug/l	2.06E-03 lbs/day	2.6E-01	ug/l	2.18E-04 lbs/day
Lindane	8.00E-02 ug/l	4.34E-02 lbs/day	1.0E+00	ug/l	8.38E-04 lbs/day
Methoxychlor	0.00E+00 ug/l	0.00E+00 lbs/day	3.0E-02	ug/l	2.52E-05 lbs/day
Mirex	0.00E+00 ug/l	0.00E+00 lbs/day	1.0E-02	ug/l	8.38E-06 lbs/day
Parathion	0.00E+00 ug/l	0.00E+00 lbs/day	4.0E-02	ug/l	3.35E-05 lbs/day
PCB's	1.40E-02 ug/l	7.59E-03 lbs/day	2.0E+00	ug/l	1.68E-03 lbs/day
Pentachlorophenol	1.30E+01 ug/l	7.05E+00 lbs/day	2.0E+01	ug/l	1.68E-02 lbs/day
Toxephene	2.00E-04 ug/l	1.08E-04 lbs/day	7.3E-01	ug/l	6.12E-04 lbs/day

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

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

	<b>1 Hour Average</b>	
	Concentration	Loading
Gross Beta (pCi/l)	50.0 pCi/L	
BOD (mg/l)	5.0 mg/l	2.7 lbs/day
Nitrates as N	4.0 mg/l	2.2 lbs/day
Total Phosphorus as P	0.05 mg/l	0.0 lbs/day
Total Suspended Solids	90.0 mg/l	48.8 lbs/day

Note: Pollution indicator targets are for information purposes only.

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

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

	<b>Maximum Concentration</b>	
	Concentration	Load
<b>Toxic Organics</b>		
Acenaphthene	9.67E+04 ug/l	5.24E+01 lbs/day
Acrolein	2.79E+04 ug/l	1.51E+01 lbs/day
Acrylonitrile	2.36E+01 ug/l	1.28E-02 lbs/day
Benzene	2.54E+03 ug/l	1.38E+00 lbs/day
Benzidine	ug/l	lbs/day
Carbon tetrachloride	1.58E+02 ug/l	8.54E-02 lbs/day
Chlorobenzene	7.52E+05 ug/l	4.08E+02 lbs/day
1,2,4-Trichlorobenzene		
Hexachlorobenzene	2.76E-02 ug/l	1.49E-05 lbs/day
1,2-Dichloroethane	3.54E+03 ug/l	1.92E+00 lbs/day
1,1,1-Trichloroethane		
Hexachloroethane	3.19E+02 ug/l	1.73E-01 lbs/day
1,1-Dichloroethane		
1,1,2-Trichloroethane	1.50E+03 ug/l	8.15E-01 lbs/day
1,1,2,2-Tetrachloroethane	3.94E+02 ug/l	2.13E-01 lbs/day
Chloroethane		
Bis(2-chloroethyl) ether	5.01E+01 ug/l	2.72E-02 lbs/day
2-Chloroethyl vinyl ether		
2-Chloronaphthalene	1.54E+05 ug/l	8.35E+01 lbs/day
2,4,6-Trichlorophenol	2.33E+02 ug/l	1.26E-01 lbs/day
p-Chloro-m-cresol		
Chloroform (HM)	1.68E+04 ug/l	9.12E+00 lbs/day
2-Chlorophenol	1.43E+04 ug/l	7.76E+00 lbs/day
1,2-Dichlorobenzene	6.09E+05 ug/l	3.30E+02 lbs/day
1,3-Dichlorobenzene	9.31E+04 ug/l	5.05E+01 lbs/day
1,4-Dichlorobenzene	9.31E+04 ug/l	5.05E+01 lbs/day
3,3'-Dichlorobenzidine	2.76E+00 ug/l	1.49E-03 lbs/day
1,1-Dichloroethylene	1.15E+02 ug/l	6.21E-02 lbs/day



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1,2-trans-Dichloroethylene <sup>1</sup>		
2,4-Dichlorophenol	2.83E+04 ug/l	1.53E+01 lbs/day
1,2-Dichloropropane	1.40E+03 ug/l	7.57E-01 lbs/day
1,3-Dichloropropylene	6.09E+04 ug/l	3.30E+01 lbs/day
2,4-Dimethylphenol	8.24E+04 ug/l	4.46E+01 lbs/day
2,4-Dinitrotoluene	3.26E+02 ug/l	1.77E-01 lbs/day
2,6-Dinitrotoluene		
1,2-Diphenylhydrazine	1.93E+01 ug/l	1.05E-02 lbs/day
Ethylbenzene	1.04E+06 ug/l	5.63E+02 lbs/day
Fluoranthene	1.32E+04 ug/l	7.18E+00 lbs/day
4-Chlorophenyl phenyl ether		
4-Bromophenyl phenyl ether		
Bis(2-chloroisopropyl) ether	6.09E+06 ug/l	3.30E+03 lbs/day
Bis(2-chloroethoxy) methane		
Methylene chloride (HM)	5.73E+04 ug/l	3.11E+01 lbs/day
Methyl chloride (HM)		
Methyl bromide (HM)		
Bromoform (HM)	1.29E+04 ug/l	6.99E+00 lbs/day
Dichlorobromomethane(HM)	7.88E+02 ug/l	4.27E-01 lbs/day
Chlorodibromomethane (HM)	1.22E+03 ug/l	6.60E-01 lbs/day
Hexachlorocyclopentadiene	6.09E+05 ug/l	3.30E+02 lbs/day
Isophorone	2.15E+04 ug/l	1.16E+01 lbs/day
Naphthalene		
Nitrobenzene	6.80E+04 ug/l	3.69E+01 lbs/day
2-Nitrophenol		
4-Nitrophenol		
2,4-Dinitrophenol	5.01E+05 ug/l	2.72E+02 lbs/day
4,6-Dinitro-o-cresol	2.74E+04 ug/l	1.48E+01 lbs/day
N-Nitrosodimethylamine	2.90E+02 ug/l	1.57E-01 lbs/day
N-Nitrosodiphenylamine	5.73E+02 ug/l	3.11E-01 lbs/day
N-Nitrosodi-n-propylamine	5.01E+01 ug/l	2.72E-02 lbs/day
Pentachlorophenol	2.94E+02 ug/l	1.59E-01 lbs/day
Phenol	1.65E+08 ug/l	8.93E+04 lbs/day
Bis(2-ethylhexyl)phthalate	2.11E+02 ug/l	1.15E-01 lbs/day
Butyl benzyl phthalate	1.86E+05 ug/l	1.01E+02 lbs/day
Di-n-butyl phthalate	4.30E+05 ug/l	2.33E+02 lbs/day
Di-n-octyl phthlate		
Diethyl phthalate	4.30E+06 ug/l	2.33E+03 lbs/day
Dimethyl phthlate	1.04E+08 ug/l	5.63E+04 lbs/day
Benzo(a)anthracene (PAH)	1.11E+00 ug/l	6.02E-04 lbs/day
Benzo(a)pyrene (PAH)	1.11E+00 ug/l	6.02E-04 lbs/day
Benzo(b)fluoranthene (PAH)	1.11E+00 ug/l	6.02E-04 lbs/day
Benzo(k)fluoranthene (PAH)	1.11E+00 ug/l	6.02E-04 lbs/day
Chrysene (PAH)	1.11E+00 ug/l	6.02E-04 lbs/day
Acenaphthylene (PAH)		
Anthracene (PAH)		
Dibenzo(a,h)anthracene (PAH)	1.11E+00 ug/l	6.02E-04 lbs/day
Indeno(1,2,3-cd)pyrene (PAH)	1.11E+00 ug/l	6.02E-04 lbs/day
Pyrene (PAH)	3.94E+05 ug/l	2.13E+02 lbs/day
Tetrachloroethylene	3.19E+02 ug/l	1.73E-01 lbs/day
Toluene	7.16E+06 ug/l	3.88E+03 lbs/day
Trichloroethylene	2.90E+03 ug/l	1.57E+00 lbs/day
Vinyl chloride	1.88E+04 ug/l	1.02E+01 lbs/day

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**Pesticides**

Aldrin	5.01E-03 ug/l	2.72E-06 lbs/day
Dieldrin	5.01E-03 ug/l	2.72E-06 lbs/day
Chlordane	2.11E-02 ug/l	1.15E-05 lbs/day
4,4'-DDT	2.11E-02 ug/l	1.15E-05 lbs/day
4,4'-DDE	2.11E-02 ug/l	1.15E-05 lbs/day
4,4'-DDD	3.01E-02 ug/l	1.63E-05 lbs/day
alpha-Endosulfan	7.16E+01 ug/l	3.88E-02 lbs/day
beta-Endosulfan	7.16E+01 ug/l	3.88E-02 lbs/day
Endosulfan sulfate	7.16E+01 ug/l	3.88E-02 lbs/day
Endrin	2.90E+01 ug/l	1.57E-02 lbs/day
Endrin aldehyde	2.90E+01 ug/l	1.57E-02 lbs/day
Heptachlor	7.52E-03 ug/l	4.08E-06 lbs/day
Heptachlor epoxide		

**PCB's**

PCB 1242 (Arochlor 1242)	1.61E-03 ug/l	8.73E-07 lbs/day
PCB-1254 (Arochlor 1254)	1.61E-03 ug/l	8.73E-07 lbs/day
PCB-1221 (Arochlor 1221)	1.61E-03 ug/l	8.73E-07 lbs/day
PCB-1232 (Arochlor 1232)	1.61E-03 ug/l	8.73E-07 lbs/day
PCB-1248 (Arochlor 1248)	1.61E-03 ug/l	8.73E-07 lbs/day
PCB-1260 (Arochlor 1260)	1.61E-03 ug/l	8.73E-07 lbs/day
PCB-1016 (Arochlor 1016)	1.61E-03 ug/l	8.73E-07 lbs/day

**Pesticide**

Toxaphene	2.69E-02 ug/l	1.46E-05 lbs/day
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**Metals**

Antimony	ug/l	lbs/day
Arsenic	ug/l	lbs/day
Asbestos	ug/l	lbs/day
Beryllium		
Cadmium		
Chromium (III)		
Chromium (VI)		
Copper	ug/l	lbs/day
Cyanide	ug/l	lbs/day
Lead		
Mercury	ug/l	lbs/day
Nickel	ug/l	lbs/day
Selenium		
Silver		
Thallium	ug/l	lbs/day
Zinc		

**Dioxin**

Dioxin (2,3,7,8-TCDD)	5.01E-07 ug/l	2.72E-10 lbs/day
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**Metals Effluent Limitations for Protection of All Beneficial Uses  
Based upon Water Quality Standards and Toxics Rule**

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	<b>Class 4 Acute Agricultural ug/l</b>	<b>Class 3 Acute Aquatic Wildlife ug/l</b>	<b>Acute Toxics Drinking Water Source ug/l</b>	<b>Acute Toxics Wildlife ug/l</b>	<b>1C Acute Health Criteria ug/l</b>	<b>Acute Most Stringent ug/l</b>	<b>Class 3 Chronic Aquatic Wildlife ug/l</b>
Aluminum		13761.1				13761.1	N/A
Antimony				153969.3		153969.3	
Arsenic	3580.7	6243.3			0.0	3580.7	6775.6
Barium						0.0	
Beryllium						0.0	
Cadmium	355.3	80.8			0.0	80.8	13.8
Chromium (III)		60160.6			0.0	60160.6	5568.3
Chromium (VI)	3553.0	225.3			0.0	225.28	255.52
Copper	7133.7	497.1				497.1	593.9
Cyanide		404.9	7877500.9			404.9	186.2
Iron		18381.7				18381.7	
Lead	3553.0	3776.1			0.0	3553.0	259.7
Mercury		44.17		5.37	0.0	5.37	0.429
Nickel		15954.6		164711.4		15954.6	3426.6
Selenium	1735.0	340.4			0.0	340.4	109.4
Silver		243.1			0.0	243.1	
Thallium				225.6		225.6	
Zinc		4080.4				4080.4	7939.1
Boron	26855.1					26855.1	

**Summary Effluent Limitations for Metals [Wasteload Allocation, TMDL]**

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

	<b>WLA Acute ug/l</b>	<b>WLA Chronic ug/l</b>	
Aluminum	13761.1	N/A	
Antimony	153969.34		
Arsenic	3580.7	6775.6	Acute Controls
Asbestos	0.00E+00		
Barium			
Beryllium			
Cadmium	80.8	13.8	
Chromium (III)	60160.6	5568	
Chromium (VI)	225.3	255.5	Acute Controls
Copper	497.1	593.9	Acute Controls
Cyanide	404.9	186.2	
Iron	18381.7		
Lead	3553.0	259.7	
Mercury	5.371	0.429	
Nickel	15954.6	3427	
Selenium	340.4	109.4	
Silver	243.1	N/A	
Thallium	225.6		
Zinc	4080.4	7939.1	Acute Controls
Boron	26855.12		

Other Effluent Limitations are based upon R317-1.

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

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**

**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 downstream segments, will not occur for the evaluated parameters of concern as discussed above if the effluent limitations indicated above are met.

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

**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.

Utah Division of Water Quality  
801-538-6052  
File Name: AirProducts\_WLA\_2020.xls

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

**APPENDIX - Coefficients and Other Model Information**

CBOD Coeff. (Kd)20 1/day 2.000	CBOD Coeff. FORCED (Kd)/day 0.000	CBOD Coeff. (Ka)T 1/day 1.824	REAER. Coeff. (Ka)20 (Ka)/day 23.668	REAER. Coeff. FORCED 1/day 0.000	REAER. Coeff. (Ka)T 1/day 22.572	NBOD Coeff. (Kn)20 1/day 0.600	NBOD Coeff. (Kn)T 1/day 0.514
Open Coeff. (K4)20 1/day 0.000	Open Coeff. (K4)T 1/day 0.000	NH3 LOSS (K5)20 1/day 4.000	NH3 (K5)T 1/day 3.649	NO2+NO3 LOSS (K6)20 1/day 0.000	NO2+NO3 (K6)T 1/day 0.000	TRC Decay K(CI)20 1/day 32.000	TRC K(CI)(T) 1/day 28.480
BENTHIC DEMAND (SOD)20 gm/m2/day 1.000	BENTHIC DEMAND (SOD)T gm/m2/day 0.882						
K1 CBOD {theta} 1.0	K2 Reaer. {theta} 1.0	K3 NH3 {theta} 1.1	K4 Open {theta} 1.0	K5 NH3 Loss {theta} 1.0	K6 NO2+3 {theta} 1.0	K(CI) TRC {theta} 1.1	S Benthic {theta} 1.1

**Level I Antidegradation Review for: Air Products**

AirProducts\_WLA\_2020.xls

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 found that the proposed activity meets the requirements of R317-2-3.5(b)(1) (water quality will not be lowered by the proposed activity) and, therefore does not require a Level II review. The proposed activity is a basic permit renewal. No increase in effluent concentration or load is requested over that allowed under the current UPDES Permit.

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Review by: \_\_\_\_\_

11/30/2020

## **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<sup>1</sup>. 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. Air Products 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, Air Products 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.

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<sup>1</sup> See Reasonable Potential Analysis Guidance for definitions of terms