LANCE R. LEFLEUR
DIRECTOR

KAY IVEY
GOVERNOR

Alabama Department of Environmental Management
adem.alabama.gov
1400 Coliseum Blvd. 36110-2400 ▪ Post Office Box 301463
Montgomery, Alabama 36130-1463
(334) 271-7700 ▪ FAX (334) 271-7950

MAY 7, 2020

MR DAVID HAGAN
DIRECTOR OF ENVIRO MANAGEMENT PROG
UNIVERSITY OF AL AT BIRMINGHAM
933 19TH STREET SOUTH, SUITE 445
BIRMINGHAM AL 35294

RE: DRAFT PERMIT
NPDES PERMIT NUMBER AL0078948

Dear Mr. Hagan:

Transmitted herein is a draft of the referenced permit.

We would appreciate your comments on the permit within **30 days** of the date of this letter. Please direct any comments of a technical or administrative nature to the undersigned.

By copy of this letter and the draft permit, we are also requesting comments within the same period from EPA.

Our records indicate that you are currently utilizing the Department's web-based electronic environmental (E2) reporting system for submittal of discharge monitoring reports (DMRs). Your E2 DMRs will automatically update on the effective date of this permit, if issued.

The Alabama Department of Environmental Management encourages your voluntary consideration of pollution prevention practices and alternatives at your facility. Pollution Prevention may assist you in complying with effluent limitations, and possibly reduce or eliminate monitoring requirements.

If you have questions regarding this permit or monitoring requirements, please contact Alex Chavers by e-mail at **adchavers@adem.alabama.gov** or by phone at **(334) 271-7851.**

Sincerely,

Scott Ramsey, Chief
Industrial Section
Industrial/Municipal Branch
Water Division

Enclosure: Draft Permit

pc via website: Montgomery Field Office
EPA Region IV
U.S. Fish & Wildlife Service
AL Historical Commission
Advisory Council on Historic Preservation
Department of Conservation and Natural Resources

Birmingham Branch
110 Vulcan Road
Birmingham, AL 35209-4702
(205) 942-6168
(205) 941-1603 (FAX)

Decatur Branch
2715 Sandlin Road, S.W.
Decatur, AL 35603-1333
(256) 353-1713
(256) 340-9359 (FAX)

Mobile Branch
2204 Perimeter Road
Mobile, AL 36615-1131
(251) 450-3400
(251) 479-2593 (FAX)

Mobile-Coastal
3664 Dauphin Street, Suite B
Mobile, AL 36608
(251) 304-1176
(251) 304-1189 (FAX)

ADEM
Alabama Department of Environmental Management

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

PERMITTEE: UNIVERSITY OF ALABAMA BIRMINGHAM

FACILITY LOCATION: 701 20TH STREET SOUTH
BIRMINGHAM, AL 35233

PERMIT NUMBER: AL0078948

RECEIVING WATERS: DSN001, DSN003 – DSN009, DSN011 – DSN019, DSN021 – DSN032:
UNNAMED TRIBUTRAY TO VALLEY CREEK/VALLEY CREEK

In accordance with and subject to the provisions of the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§1251-1388 (the "FWPCA"), the Alabama Water Pollution Control Act, as amended, Code of Alabama 1975, §§ 22-22-1 to 22-22-14 (the "AWPCA"), the Alabama Environmental Management Act, as amended, Code of Alabama 1975, §§22-22A-1 to 22-22A-17, and rules and regulations adopted thereunder, and subject further to the terms and conditions set forth in this permit, the Permittee is hereby authorized to discharge into the above-named receiving waters.

ISSUANCE DATE:

EFFECTIVE DATE:

EXPIRATION DATE:

Draft

Alabama Department of Environmental Management

INDUSTRIAL SECTION
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT

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PART I DISCHARGE LIMITATIONS, CONDITIONS, AND REQUIREMENTS

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning on the effective date of this permit and lasting through the expiration date of this permit, the permittee is authorized to discharge from the following point source(s) outfall(s), described more fully in the permittee's application:

DSN0011, DSN0041 – DSN0091, DSN0111 – DSN0141, DSN0171 – DSN0191, DSN021 – DSN0241, DSN0261 – DSN0311: Non-contact cooling water
DSN003, DSN015, DSN016, DSN025, DSN032: Boiler blowdown

Such discharge shall be limited and monitored by the permittee as specified below:

	DISCHARGE LIMITATIONS					MONITORING REQUIREMENTS 1/		
EFFLUENT CHARACTERISTIC	Monthly Average	Daily Maximum	Daily Minimum	Monthly Average	Daily Maximum	Measurement Frequency 2/	Sample Type	Seasonal
Temperature, Water Deg. Fahrenheit	-	-	-	-	90 F	Monthly	Grab	-
pH	-	-	6.0 S.U.	-	9.0 S.U.	Monthly	Grab	-
Flow, In Conduit or Thru Treatment Plant	REPORT GPD	REPORT GPD	-	-	-	Monthly	Instantaneous	-
Chlorine, Total Residual	-	-	-	-	1.0 mg/l	Monthly	Grab	-

THE DISCHARGE SHALL HAVE NO SHEEN, AND THERE SHALL BE NO DISCHARGE OF VISIBLE OIL, FLOATING SOLIDS OR VISIBLE FOAM IN OTHER THAN TRACE AMOUNTS.

1/ Samples collected to comply with the monitoring requirements specified above shall be collected at the following location: At the nearest accessible location just prior to discharge and after final treatment. Unless otherwise specified, composite samples shall be time composite samples collected using automatic sampling equipment or a minimum of eight (8) equal volume grab samples collected over equal time intervals. All composite samples shall be collected for the total period of discharge not to exceed 24 hours.

2/ If only one sampling event occurs during a month, the sample result shall be reported on the discharge monitoring report as both the monthly average and daily maximum value for all parameters with a monthly average limitation.

3/ DSN006, DSN017, DSN021, DSN024, and DSN026 have been deemed representative. Monitoring is only required at these discharge locations.

B. DISCHARGE MONITORING AND RECORD KEEPING REQUIREMENTS

1. Representative Sampling

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge and shall be in accordance with the provisions of this permit.

2. Test Procedures

For the purpose of reporting and compliance, permittees shall use one of the following procedures:

a. For parameters with an EPA established Minimum Level (ML), report the measured value if the analytical result is at or above the ML and report "0" for values below the ML. Test procedures for the analysis of pollutants shall conform to 40 CFR Part 136 and guidelines published pursuant to Section 304(h) of the FWPCA, 33 U.S.C. Section 1314(h). If more than one method for analysis of a substance is approved for use, a method having a minimum level lower than the permit limit shall be used. If the minimum level of all methods is higher than the permit limit, the method having the lowest minimum level shall be used and a report of less than the minimum level shall be reported as zero and will constitute compliance; however, should EPA approve a method with a lower minimum level during the term of this permit the permittee shall use the newly approved method.

b. For pollutants parameters without an established ML, an interim ML may be utilized. The interim ML shall be calculated as 3.18 times the Method Detection Level (MDL) calculated pursuant to 40 CFR Part 136, Appendix B.

Permittees may develop an effluent matrix-specific ML, where an effluent matrix prevents attainment of the established ML. However, a matrix specific ML shall be based upon proper laboratory method and technique. Matrix-specific MLs must be approved by the Department, and may be developed by the permittee during permit issuance, reissuance, modification, or during compliance schedule.

In either case the measured value should be reported if the analytical result is at or above the ML and "0" reported for values below the ML.

c. For parameters without an EPA established ML, interim ML, or matrix-specific ML, a report of less than the detection limit shall constitute compliance if the detection limit of all analytical methods is higher than the permit limit using the most sensitive EPA approved method. For the purpose of calculating a monthly average, "0" shall be used for values reported less than the detection limit.

The Minimum Level utilized for procedures A and B above shall be reported on the permittee's DMR. When an EPA approved test procedure for analysis of a pollutant does not exist, the Director shall approve the procedure to be used.

3. Recording of Results

For each measurement or sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

a. The facility name and location, point source number, date, time and exact place of sampling;

b. The name(s) of person(s) who obtained the samples or measurements;

c. The dates and times the analyses were performed;

d. The name(s) of the person(s) who performed the analyses;

e. The analytical techniques or methods used, including source of method and method number; and

f. The results of all required analyses.

4. Records Retention and Production

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 the permit, and records of all data used to complete the above reports or the application for this permit, for a period of at least three years from the date of the sample measurement, report or application. This period may be extended by request of the Director at any time. If litigation or other enforcement action, under the AWPCA and/or the FWPCA, is ongoing which involves any of the above records, the records shall be kept until the litigation is resolved. Upon the written request of the Director or his designee, the permittee shall provide the Director with a copy of any record required to be retained by this paragraph. Copies of these records shall not be submitted unless requested.

All records required to be kept for a period of three years shall be kept at the permitted facility or an alternate location approved by the Department in writing and shall be available for inspection.

5. Monitoring Equipment and Instrumentation

All equipment and instrumentation used to determine compliance with the requirements of this permit shall be installed, maintained, and calibrated in accordance with the manufacturer's instructions or, in the absence of manufacturer's instructions, in accordance with accepted practices. The permittee shall develop and maintain quality assurance procedures to ensure proper operation and maintenance of all equipment and instrumentation. The quality assurance procedures shall include the proper use, maintenance, and installation, when appropriate, of monitoring equipment at the plant site.

C. DISCHARGE REPORTING REQUIREMENTS

1. Reporting of Monitoring Requirements

a. The permittee shall conduct the required monitoring in accordance with the following schedule:

MONITORING REQUIRED MORE FREQUENTLY THAN MONTHLY AND MONTHLY shall be conducted during the first full month following the effective date of coverage under this permit and every month thereafter.

QUARTERLY MONITORING shall be conducted at least once during each calendar quarter. Calendar quarters are the periods of January through March, April through June, July through September, and October through December. The permittee shall conduct the quarterly monitoring during the first complete calendar quarter following the effective date of this permit and is then required to monitor once during each quarter thereafter. Quarterly monitoring may be done anytime during the quarter, unless restricted elsewhere in this permit, but it should be submitted with the last DMR due for the quarter, i.e., (March, June, September and December DMR's).

SEMIANNUAL MONITORING shall be conducted at least once during the period of January through June and at least once during the period of July through December. The permittee shall conduct the semiannual monitoring during the first complete calendar semiannual period following the effective date of this permit and is then required to monitor once during each semiannual period thereafter. Semiannual monitoring may be done anytime during the semiannual period, unless restricted elsewhere in this permit, but it should be submitted with the last DMR for the month of the semiannual period, i.e. (June and December DMR's).

ANNUAL MONITORING shall be conducted at least once during the period of January through December. The permittee shall conduct the annual monitoring during the first complete calendar annual period following the effective date of this permit and is then required to monitor once during each annual period thereafter. Annual monitoring may be done anytime during the year, unless restricted elsewhere in this permit, but it should be submitted with the December DMR.

b. The permittee shall submit discharge monitoring reports (DMRs) on the forms provided by the Department and in accordance with the following schedule:

REPORTS OF MORE FREQUENTLY THAN MONTHLY AND MONTHLY TESTING shall be submitted on a **monthly** basis. The first report is due on the **28th day of (MONTH, YEAR).** The reports shall be submitted so that they are received by the Department no later than the 28th day of the month following the reporting period.

c. Except as allowed by Provision I.C.1.c.(1) or (2), the permittee shall submit all Discharge Monitoring Reports (DMRs) required by Provision I.C.1.b by utilizing the Department's web-based Electronic Environmental (E2) Reporting System.

(1) If the permittee is unable to complete the electronic submittal of DMR data due to technical problems originating with the Department's E2 Reporting system (this could include entry/submittal issues with an entire set of DMRs or individual parameters), the permittee is not relieved of their obligation to submit DMR data to the Department by the date specified in Provision I.C.1.b, unless otherwise directed by the Department.

If the E2 Reporting System is down on the 28th day of the month in which the DMR is due or is down for an extended period of time, as determined by the Department, when a DMR is required to be submitted, the permittee may submit the data in an alternate manner and format acceptable to the Department. Preapproved alternate acceptable methods include faxing, e-mailing, mailing, or hand-delivery of data such that they are received by the required reporting date. Within 5 calendar days of the E2 Reporting System resuming operation, the permittee shall enter the data into the E2 Reporting System, unless an alternate timeframe is approved by the Department. An attachment should be included with the E2 DMR submittal verifying the original submittal date (date of the fax, copy of the dated e-mail, or hand-delivery stamped date), if applicable.

(2) The permittee may submit a request to the Department for a temporary electronic reporting waiver for DMR submittals. The waiver request should include the permit number; permittee name; facility/site name; facility address; name, address, and contact information for the responsible official or duly authorized representative; a detailed statement regarding the basis for requesting such a waiver; and the duration for which the waiver is requested. Approved electronic reporting waivers are not transferrable.

Permittees with an approved electronic reporting waiver for DMRs may submit hard copy DMRs for the period that the approved electronic reporting waiver request is effective. The permittee shall submit the Department-approved DMR forms to the address listed in Provision I.C.1.e.

(3) If a permittee is allowed to submit a hard copy DMR, the DMR must be legible and bear an original signature. Photo and electronic copies of the signature are not acceptable and shall not satisfy the reporting requirements of this permit.

(4) If the permittee, using approved analytical methods as specified in Provision I.B.2, monitors any discharge from a point source for a limited substance identified in Provision I.A. of this permit more frequently than required by this permit, the results of such monitoring shall be included in the calculation and reporting of values on the DMR and the increased frequency shall be indicated on the DMR.

(5) In the event no discharge from a point source identified in Provision I.A. of this permit and described more fully in the permittee's application occurs during a monitoring period, the permittee shall report "No Discharge" for such period on the appropriate DMR.

d. All reports and forms required to be submitted by this permit, the AWPCA and the Department's Rules, shall be electronically signed (or, if allowed by the Department, traditionally signed) by a "responsible official" of the permittee as defined in ADEM Administrative Code Rule 335-6-6-.09 or a "duly authorized representative" of such official as defined in ADEM Administrative Code Rule 335-6-6-.09 and shall bear 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 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."

e. Discharge Monitoring Reports required by this permit, the AWPCA, and the Department's Rules that are being submitted in hard copy shall be addressed to:

Alabama Department of Environmental Management
Permits and Services Division
Environmental Data Section
Post Office Box 301463
Montgomery, Alabama 36130-1463

Certified and Registered Mail containing Discharge Monitoring Reports shall be addressed to:

Alabama Department of Environmental Management
Permits and Services Division
Environmental Data Section
1400 Coliseum Boulevard
Montgomery, Alabama 36110-2400

f. All other correspondence and reports required to be submitted by this permit, the AWPCA, and the Department's Rules shall be addressed to:

Alabama Department of Environmental Management
Water Division
Post Office Box 301463
Montgomery, Alabama 36130-1463

Certified and Registered Mail shall be addressed to:

Alabama Department of Environmental Management
Water Division
1400 Coliseum Boulevard
Montgomery, Alabama 36110-2400

g. If this permit is a re-issuance, then the permittee shall continue to submit DMRs in accordance with the requirements of their previous permit until such time as DMRs are due as discussed in Part I.C.1.b above.

2. Noncompliance Notification

a. 24-Hour Noncompliance Reporting

The permittee shall report to the Director, within 24-hours of becoming aware of the noncompliance, any noncompliance which may endanger health or the environment. This shall include but is not limited to the following circumstances:

(1) does not comply with any daily minimum or maximum discharge limitation for an effluent characteristic specified in Provision I. A. of this permit which is denoted by an "(X)";

(2) threatens human health or welfare, fish or aquatic life, or water quality standards;

(3) does not comply with an applicable toxic pollutant effluent standard or prohibition established under Section 307(a) of the FWPCA, 33 U.S.C. Section 1317(a);

(4) contains a quantity of a hazardous substance which has been determined may be harmful to public health or welfare under Section 311(b)(4) of the FWPCA, 33 U.S.C. Section 1321(b)(4);

(5) exceeds any discharge limitation for an effluent characteristic as a result of an unanticipated bypass or upset; and

(6) is an unpermitted direct or indirect discharge of a pollutant to a water of the state (unpermitted discharges properly reported to the Department under any other requirement are not required to be reported under this provision).

The permittee shall orally report the occurrence and circumstances of such discharge to the Director within 24-hours after the permittee becomes aware of the occurrence of such discharge. In addition to the oral report, the permittee shall submit to the Director or Designee a written report as provided in Part I.C.2.c no later than five (5) days after becoming aware of the occurrence of such discharge.

b. If for any reason, the permittee's discharge does not comply with any limitation of this permit, the permittee shall submit to the Director or Designee a written report as provided in Part I.C.2.c below, such report shall be submitted with the next Discharge Monitoring Report required to be submitted by Part I.C.1 of this permit after becoming aware of the occurrence of such noncompliance.

c. Any written report required to be submitted to the Director or Designee by Part I.C.2 a. or b. shall be submitted using a Noncompliance Notification Form (ADEM Form 421) available on the Department's website (http://adem.alabama.gov/DeptForms/Form421.pdf) and include the following information:

(1) A description of the discharge and cause of noncompliance;

(2) The period of noncompliance, including exact dates and times or, if not corrected, the anticipated time the noncompliance is expected to continue; and

(3) A description of the steps taken and/or being taken to reduce or eliminate the noncomplying discharge and to prevent its recurrence.

D. OTHER REPORTING AND NOTIFICATION REQUIREMENTS

1. Anticipated Noncompliance

The permittee shall give the Director written advance notice of any planned changes or other circumstances regarding a facility which may result in noncompliance with permit requirements.

2. Termination of Discharge

The permittee shall notify the Director, in writing, when all discharges from any point source(s) identified in Provision I. A. of this permit have permanently ceased. This notification shall serve as sufficient cause for instituting procedures for modification or termination of the permit.

3. Updating Information

   a. The permittee shall inform the Director of any change in the permittee's mailing address, telephone number or in the permittee's designation of a facility contact or office having the authority and responsibility to prevent and abate violations of the AWPCA, the Department's Rules, and the terms and conditions of this permit, in writing, no later than ten (10) days after such change. Upon request of the Director or his designee, the permittee shall furnish the Director with an update of any information provided in the permit application.

   b. If 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 in any report to the Director, it shall promptly submit such facts or information with a written explanation for the mistake and/or omission.

4. Duty to Provide Information

   The permittee shall furnish to the Director, within a reasonable time, any information which the Director or his designee may request to determine whether cause exists for modifying, revoking and re-issuing, suspending, or terminating this permit, in whole or in part, or to determine compliance with this permit.

5. Cooling Water and Boiler Water Additives

   a. The permittee shall notify the Director in writing not later than thirty (30) days prior to instituting the use of any biocide corrosion inhibitor or chemical additive in a cooling or boiler system, not identified in the application for this permit, from which discharge is allowed by this permit. Notification is not required for additives that do not contain a heavy metal(s) as an active ingredient and that pass through a wastewater treatment system prior to discharge nor is notification required for additives that should not reasonably be expected to cause the cooling water or boiler water to exhibit toxicity as determined by analysis of manufacturer's data or testing by the permittee. Such notification shall include:

      (1) name and general composition of biocide or chemical;

      (2) 96-hour median tolerance limit data for organisms representative of the biota of the waterway into which the discharge will ultimately reach;

      (2) quantities to be used;

      (3) frequencies of use;

      (4) proposed discharge concentrations; and

      (6) EPA registration number, if applicable.

   b. The use of a biocide or additive containing tributyl tin, tributyl tin oxide, zinc, chromium or related compounds in cooling or boiler system(s), from which a discharge regulated by this permit occurs, is prohibited except as exempted below. The use of a biocide or additive containing zinc, chromium or related compounds may be used in special circumstances if (1) the permit contains limits for these substances, or (2) the applicant demonstrates during the application process that the use of zinc, chromium or related compounds as a biocide or additive will not pose a reasonable potential to violate the applicable State water quality standards for these substances. The use of any additive, not identified in this permit or in the application for this permit or not exempted from notification under this permit is prohibited, prior to a determination by the Department that permit modification to control discharge of the additive is not required or prior to issuance of a permit modification controlling discharge of the additive.

6. Permit Issued Based On Estimated Characteristics

   a. If this permit was issued based on estimates of the characteristics of a process discharge reported on an EPA NPDES Application Form 2D (EPA Form 3510-2D), the permittee shall complete and submit an EPA NPDES Application Form 2C (EPA Form 3510-2C) no later than two years after the date that discharge begins. Sampling required for completion of the Form 2C shall occur when a discharge(s) from the process(s) causing the new or increased discharge is occurring. If this permit was issued based on estimates concerning the composition of a stormwater discharge(s), the permittee shall perform the sampling required by EPA NPDES Application Form 2F (EPA Form 3510-2F) no later than one year after the industrial activity generating the stormwater discharge has been fully initiated.

   b. This permit shall be reopened if required to address any new information resulting from the completion and submittal of the Form 2C and or 2F.

E. SCHEDULE OF COMPLIANCE

1. The permittee shall achieve compliance with the discharge limitations specified in Provision I. A. in accordance with the following schedule:

COMPLIANCE SHALL BE ATTAINED ON THE EFFECTIVE DATE OF THIS PERMIT

2. No later than 14 calendar days following a date identified in the above schedule of compliance, the permittee shall submit either a report of progress or, in the case of specific actions being required by identified dates, a written notice of compliance or noncompliance. In the latter case, the notice shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

PART II OTHER REQUIREMENTS, RESPONSIBILITIES, AND DUTIES

A. OPERATIONAL AND MANAGEMENT REQUIREMENTS

1. Facilities 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 the permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities only when necessary to achieve compliance with the conditions of the permit.

2. Best Management Practices

a. Dilution water shall not be added to achieve compliance with discharge limitations except when the Director or his designee has granted prior written authorization for dilution to meet water quality requirements.

b. The permittee shall prepare, implement, and maintain a Spill Prevention, Control and Countermeasures (SPCC) Plan in accordance with 40 C.F.R. Section 112 if required thereby.

c. The permittee shall prepare, submit for approval and implement a Best Management Practices (BMP) Plan for containment of any or all process liquids or solids, in a manner such that these materials do not present a significant potential for discharge, if so required by the Director or his designee. When submitted and approved, the BMP Plan shall become a part of this permit and all requirements of the BMP Plan shall become requirements of this permit.

3. Spill Prevention, Control, and Management

The permittee shall provide spill prevention, control, and/or management sufficient to prevent any spills of pollutants from entering a water of the state or a publicly or privately owned treatment works. Any containment system used to implement this requirement shall be constructed of materials compatible with the substance(s) contained and which shall prevent the contamination of groundwater and such containment system shall be capable of retaining a volume equal to 110 percent of the capacity of the largest tank for which containment is provided.

B. OTHER RESPONSIBILITIES

1. Duty to Mitigate Adverse Impacts

The permittee shall promptly take all reasonable steps to mitigate and minimize or prevent any adverse impact on human health or the environment resulting from noncompliance with any discharge limitation specified in Provision I. A. of this permit, including such accelerated or additional monitoring of the discharge and/or the receiving waterbody as necessary to determine the nature and impact of the noncomplying discharge.

2. Right of Entry and Inspection

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

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

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

c. inspect any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under the permit; and

d. sample or monitor, for the purposes of assuring permit compliance or as otherwise authorized by the AWPCA, any substances or parameters at any location.

C. BYPASS AND UPSET

1. Bypass

a. Any bypass is prohibited except as provided in b. and c. below:

b. A bypass is not prohibited if:

(1) It does not cause any discharge limitation specified in Provision I. A. of this permit to be exceeded;

(2) It enters the same receiving stream as the permitted outfall; and

(3) It is necessary for essential maintenance of a treatment or control facility or system to assure efficient operation of such facility or system.

c. A bypass is not prohibited and need not meet the discharge limitations specified in Provision I. A. of this permit if:

(1) It is unavoidable to prevent loss of life, personal injury, or severe property damage;

(2) There are no feasible alternatives to the 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 back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance); and

(3) The permittee submits a written request for authorization to bypass to the Director at least ten (10) days prior to the anticipated bypass (if possible), the permittee is granted such authorization, and the permittee complies with any conditions imposed by the Director to minimize any adverse impact on human health or the environment resulting from the bypass.

d. The permittee has the burden of establishing that each of the conditions of Provision II.C.1.b. or c. have been met to qualify for an exception to the general prohibition against bypassing contained in a. and an exemption, where applicable, from the discharge limitations specified in Provision I. A. of this permit.

2. Upset

a. A discharge which results from an upset need not meet the discharge limitations specified in Provision I. A. of this permit if:

(1) No later than 24-hours after becoming aware of the occurrence of the upset, the permittee orally reports the occurrence and circumstances of the upset to the Director or his designee; and

(2) No later than five (5) days after becoming aware of the occurrence of the upset, the permittee furnishes the Director with evidence, including properly signed, contemporaneous operating logs, or other relevant evidence, demonstrating that (i) an upset occurred; (ii) the permittee can identify the specific cause(s) of the upset; (iii) the permittee's facility was being properly operated at the time of the upset; and (iv) the permittee promptly took all reasonable steps to minimize any adverse impact on human health or the environment resulting from the upset.

b. The permittee has the burden of establishing that each of the conditions of Provision II. C.2.a. of this permit have been met to qualify for an exemption from the discharge limitations specified in Provision I.A. of this permit.

D. DUTY TO COMPLY WITH PERMIT, RULES, AND STATUTES

1. Duty to Comply

a. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the AWPCA and the FWPCA and is grounds for enforcement action, for permit termination, revocation and reissuance, suspension, modification; or denial of a permit renewal application.

b. The necessity to halt or reduce production or other activities in order to maintain compliance with the conditions of the permit shall not be a defense for a permittee in an enforcement action.

c. The discharge of a pollutant from a source not specifically identified in the permit application for this permit and not specifically included in the description of an outfall in this permit is not authorized and shall constitute noncompliance with this permit.

d. The permittee shall take all reasonable steps, including cessation of production or other activities, to minimize or prevent any violation of this permit or to minimize or prevent any adverse impact of any permit violation.

e. Nothing in this permit shall be construed to preclude and negate the permittee's responsibility or liability to apply for, obtain, or comply with other ADEM, Federal, State, or Local Government permits, certifications, licenses, or other approvals.

2. Removed Substances

Solids, sludges, filter backwash, or any other pollutant or other waste removed in the course of treatment or control of wastewaters shall be disposed of in a manner that complies with all applicable Department Rules.

3. Loss or Failure of Treatment Facilities

Upon the loss or failure of any treatment facilities, including but not limited to the loss or failure of the primary source of power of the treatment facility, the permittee shall, where necessary to maintain compliance with the discharge limitations specified in Provision I. A. of this permit, or any other terms or conditions of this permit, cease, reduce, or otherwise control production and/or all discharges until treatment is restored. If control of discharge during loss or failure of the primary source of power is to be accomplished by means of alternate power sources, standby generators, or retention of inadequately treated effluent, the permittee must furnish to the Director within six months a certification that such control mechanisms have been installed.

4. Compliance with Statutes and Rules

a. This permit has been issued under ADEM Administrative Code, Chapter 335-6-6. All provisions of this chapter, that are applicable to this permit, are hereby made a part of this permit. A copy of this chapter may be obtained for a small charge from the Office of General Counsel, Alabama Department of Environmental Management, 1400 Coliseum Blvd., Montgomery, AL 36130.

b. This permit does not authorize the noncompliance with or violation of any Laws of the State of Alabama or the United States of America or any regulations or rules implementing such laws. FWPCA, 33 U.S.C. Section 1319, and Code of Alabama 1975, Section 22-22-14.

E. PERMIT TRANSFER, MODIFICATION, SUSPENSION, REVOCATION, AND REISSUANCE

1. Duty to Reapply or Notify of Intent to Cease Discharge

a. If the permittee intends to continue to discharge beyond the expiration date of this permit, the permittee shall file a complete permit application for reissuance of this permit at least 180 days prior to its expiration. If the permittee does not intend to continue discharge beyond the expiration of this permit, the permittee shall submit written notification of this intent which shall be signed by an individual meeting the signatory requirements for a permit application as set forth in ADEM Administrative Code Rule 335-6-6-.09.

b. Failure of the permittee to apply for reissuance at least 180 days prior to permit expiration will void the automatic continuation of the expiring permit provided by ADEM Administrative Code Rule 335-6-6-.06 and should the permit not be reissued for any reason any discharge after expiration of this permit will be an unpermitted discharge.

2. Change in Discharge

a. The permittee shall apply for a permit modification at least 180 days in advance of any facility expansion, production increase, process change, or other action that could result in the discharge of additional pollutants or increase the quantity of a discharged pollutant such that existing permit limitations would be exceeded or that could result iu an additional discharge point. This requirement applies to pollutants that are or that are not subject to discharge limitations in this permit. No new or increased discharge may begin until the Director has authorized it by issuance of a permit modification or a reissued permit.

b. The permittee shall notify the Director as soon as it is known or there is reason to believe:

(1) That any activity has occurred or will occur which would result in the discharge on a routine or frequent basis, of any toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following notification levels:

(a) one hundred micrograms per liter;

(b) two hundred micrograms per liter for acrolein and acrylonitrile; five hundred micrograms per liter for 2,4-dinitrophenol and for 2-methyl-4,6-dini-trophenol; and one milligram per liter for antimony;

(c) five times the maximum concentration value reported for that pollutant in the permit application; or

(2) That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following notification levels:

(a) five hundred micrograms per liter;

(b) one milligram per liter for antimony;

(c) ten times the maximum concentration value reported for that pollutant in the permit application.

3. Transfer of Permit

This permit may not be transferred or the name of the permittee changed without notice to the Director and subsequent modification or revocation and reissuance of the permit to identify the new permittee and to incorporate any other changes as may be required under the FWPCA or AWPCA. In the case of a change in name, ownership or control of the permittee's premises only, a request for permit modification in a format acceptable to the Director is required at least 30 days prior to the change. In the case of a change in name, ownership or control of the permittee's premises accompanied by a change or proposed change in effluent characteristics, a complete permit application is required to be submitted to the Director at least 180 days prior to the change. Whenever the Director is notified of a change in name, ownership or control, he may decide not to modify the existing permit and require the submission of a new permit application.

4. Permit Modification and Revocation

a. This permit may be modified or revoked and reissued, in whole or in part, during its term for cause, including but not limited to, the following:

(1) If cause for termination under Provision II. E. 5. of this permit exists, the Director may choose to revoke and reissue this permit instead of terminating the permit;

(2) If a request to transfer this permit has been received, the Director may decide to revoke and reissue or to modify the permit; or

(3) If modification or revocation and reissuance is requested by the permittee and cause exists, the Director may grant the request.

b. This permit may be modified during its term for cause, including but not limited to, the following:

(1) If cause for termination under Provision II. E. 5. of this permit exists, the Director may choose to modify this permit instead of terminating this permit;

(2) There are material and substantial alterations or additions to the facility or activity generating wastewater which occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit;

(3) The Director has received new information that was not available at the time of permit issuance and that would have justified the application of different permit conditions at the time of issuance;

(4) A new or revised requirement(s) of any applicable standard or limitation is promulgated under Sections 301(b)(2)(C), (D), (E), and (F), and 307(a)(2) of the FWPCA;

(5) Errors in calculation of discharge limitations or typographical or clerical errors were made;

(6) To the extent allowed by ADEM Administrative Code, Rule 335-6-6-.17, when the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued;

(7) To the extent allowed by ADEM Administrative Code, Rule 335-6-6-.17, permits may be modified to change compliance schedules;

(8) To agree with a granted variance under 30l(c), 30l(g), 30l(h), 30l(k), or 3l6(a) of the FWPCA or for fundamentally different factors;

(9) To incorporate an applicable 307(a) FWPCA toxic effluent standard or prohibition;

(10) When required by the reopener conditions in this permit;

(11) When required under 40 CFR 403.8(e) (compliance schedule for development of pretreatment program);

(12) Upon failure of the state to notify, as required by Section 402(b)(3) of the FWPCA, another state whose waters may be affected by a discharge permitted by this permit;

(13) When required to correct technical mistakes, such as errors in calculation, or mistaken interpretations of law made in determining permit conditions; or

(14) When requested by the permittee and the Director determines that the modification has cause and will not result in a violation of federal or state law, regulations or rules.

5. Permit Termination

This permit may be terminated during its term for cause, including but not limited to, the following:

a. Violation of any term or condition of this permit;

b. The permittee's misrepresentation or failure to disclose fully all relevant facts in the permit application or during the permit issuance process or the permittee's misrepresentation of any relevant facts at any time;

c. Materially false or inaccurate statements or information in the permit application or the permit;

d. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge;

e. The permittee's discharge threatens human life or welfare or the maintenance of water quality standards;

f. Permanent closure of the facility generating the wastewater permitted to be discharged by this permit or permanent cessation of wastewater discharge;

g. New or revised requirements of any applicable standard or limitation that is promulgated under Sections 301(b)(2)(C), (D), (E), and (F), and 307(a)(2) of the FWPCA that the Director determines cannot be complied with by the permittee; or

h. Any other cause allowed by the ADEM Administrative Code, Chapter 335-6-6.

6. Permit Suspension

This permit may be suspended during its term for noncompliance until the permittee has taken action(s) necessary to achieve compliance.

7. Request for Permit Action Does Not Stay Any Permit Requirement

The filing of a request by the permittee for modification, suspension or revocation of this permit, in whole or in part, does not stay any permit term or condition.

F. COMPLIANCE WITH TOXIC POLLUTANT STANDARD OR PROHIBITION

If any applicable effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under Section 307(a) of the FWPCA, 33 U.S.C. Section 1317(a), for a toxic pollutant discharged by the permittee and such standard or prohibition is more stringent than any discharge limitation on the pollutant specified in Provision I. A. of this permit, or controls a pollutant not limited in Provision I. A. of this permit, this permit shall be modified to conform to the toxic pollutant effluent standard or prohibition and the permittee shall be notified of such modification. If this permit has not been modified to conform to the toxic pollutant effluent standard or prohibition before the effective date of such standard or prohibition, the permittee shall attain compliance with the requirements of the standard or prohibition within the time period required by the standard or prohibition and shall continue to comply with the standard or prohibition until this permit is modified or reissued.

G. DISCHARGE OF WASTEWATER GENERATED BY OTHERS

The discharge of wastewater, generated by any process, facility, or by any other means not under the operational control of the permittee or not identified in the application for this permit or not identified specifically in the description of an outfall in this permit is not authorized by this permit.

PART III OTHER PERMIT CONDITIONS

A. CIVIL AND CRIMINAL LIABILITY

1. Tampering

Any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained or performed under the permit shall, upon conviction, be subject to penalties as provided by the AWPCA.

2. False Statements

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 subject to penalties as provided by the AWPCA.

3. Permit Enforcement

a. Any NPDES permit issued or reissued by the Department is a permit for the purpose of the AWPCA and the FWPCA and as such any terms, conditions, or limitations of the permit are enforceable under state and federal law.

b. Any person required to have a NPDES permit pursuant to ADEM Administrative Code Chapter 335-6-6 and who discharges pollutants without said permit, who violates the conditions of said permit, who discharges pollutants in a manner not authorized by the permit, or who violates applicable orders of the Department or any applicable rule or standard of the Department, is subject to any one or combination of the following enforcement actions under applicable state statutes.

(1) An administrative order requiring abatement, compliance, mitigation, cessation, clean-up, and/or penalties;

(2) An action for damages;

(3) An action for injunctive relief; or

(4) An action for penalties.

c. If the permittee is not in compliance with the conditions of an expiring or expired permit the Director may choose to do any or all of the following provided the permittee has made a timely and complete application for reissuance of the permit:

(1) initiate enforcement action based upon the permit which has been continued;

(2) issue a notice of intent to deny the permit reissuance. If the permit is denied, the owner or operator would then be required to cease the activities authorized by the continued permit or be subject to enforcement action for operating without a permit;

(3) reissue the new permit with appropriate conditions; or

(4) take other actions authorized by these rules and AWPCA.

4. Relief from Liability

Except as provided in Provision II.C.1 (Bypass) and Provision II.C.2 (Upset), nothing in this permit shall be construed to relieve the permittee of civil or criminal liability under the AWPCA or FWPCA for noncompliance with any term or condition of this permit.

B. OIL AND HAZARDOUS SUBSTANCE LIABILITY

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 to which the permittee is or may be subject under Section 311 of the FWPCA, 33 U.S.C. Section 1321.

C. PROPERTY AND OTHER RIGHTS

This permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to persons or property or invasion of other private rights, trespass, or any infringement of federal, state, or local laws or regulations, nor does it authorize or approve the construction of any physical structures or facilities or the undertaking of any work in any waters of the state or of the United States.

D. AVAILABILITY OF REPORTS

Except for data determined to be confidential under Code of Alabama 1975, Section 22-22-9(c), all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department. Effluent data shall not be considered confidential.

E. EXPIRATION OF PERMITS FOR NEW OR INCREASED DISCHARGES

1. If this permit was issued for a new discharger or new source, this permit shall expire eighteen months after the issuance date if construction of the facility has not begun during the eighteen-month period.

2. If this permit was issued or modified to allow the discharge of increased quantities of pollutants to accommodate the modification of an existing facility and if construction of this modification has not begun during the eighteen month period after issuance of this permit or permit modification, this permit shall be modified to reduce the quantities of pollutants allowed to be discharged to those levels that would have been allowed if the modification of the facility had not been planned.

3. Construction has begun when the owner or operator has:

   a. begun, or caused to begin as part of a continuous on-site construction program:

      (1) any placement, assembly, or installation of facilities or equipment; or

      (2) significant site preparation work including clearing, excavation, or removal of existing buildings, structures, or facilities which is necessary for the placement, assembly, or installation of new source facilities or equipment; or

   b. entered into a binding contractual obligation for the purpose of placement, assembly, or installation of facilities or equipment which are intended to be used in its operation within a reasonable time. Options to purchase or contracts which can be terminated or modified without substantial loss, and contracts for feasibility, engineering, and design studies do not constitute a contractual obligation under the paragraph. The entering into a lease with the State of Alabama for exploration and production of hydrocarbons shall also be considered beginning construction.

F. COMPLIANCE WITH WATER QUALITY STANDARDS

1. On the basis of the permittee's application, plans, or other available information, the Department has determined that compliance with the terms and conditions of this permit should assure compliance with the applicable water quality standards.

2. Compliance with permit terms and conditions notwithstanding, if the permittee's discharge(s) from point sources identified in Provision I. A. of this permit cause or contribute to a condition in contravention of state water quality standards, the Department may require abatement action to be taken by the permittee in emergency situations or modify the permit pursuant to the Department's Rules, or both.

3. If the Department determines, on the basis of a notice provided pursuant to this permit or any investigation, inspection or sampling, that a modification of this permit is necessary to assure maintenance of water quality standards or compliance with other provisions of the AWPCA or FWPCA, the Department may require such modification and, in cases of emergency, the Director may prohibit the discharge until the permit has been modified.

G. GROUNDWATER

Unless specifically authorized under this permit, this permit does not authorize the discharge of pollutants to groundwater. Should a threat of groundwater contamination occur, the Director may require groundwater monitoring to properly assess the degree of the problem and the Director may require that the Permittee undertake measures to abate any such discharge and/or contamination.

H. DEFINITIONS

1. Average monthly discharge limitation - means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month (zero discharge days shall not be included in the number of "daily discharges" measured and a less than detectable test result shall be treated as a concentration of zero if the most sensitive EPA approved method was used).

2. Average weekly discharge limitation - means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week (zero discharge days shall not be included in the number of "daily discharges" measured and a less than detectable test result shall be treated as a concentration of zero if the most sensitive EPA approved method was used).

3. Arithmetic Mean – means the summation of the individual values of any set of values divided by the number of individual values.

4. AWPCA - means the Alabama Water Pollution Control Act.

5. BOD – means the five-day measure of the pollutant parameter biochemical oxygen demand.

6. Bypass - means the intentional diversion of waste streams from any portion of a treatment facility.

7. CBOD – means the five-day measure of the pollutant parameter carbonaceous biochemical oxygen demand.

8. Daily discharge - means the discharge of a pollutant measured during any consecutive 24-hour period in accordance with the sample type and analytical methodology specified by the discharge permit.

9. Daily maximum - means the highest value of any individual sample result obtained during a day.

10. Daily minimum - means the lowest value of any individual sample result obtained during a day.

11. Day - means any consecutive 24-hour period.

12. Department - means the Alabama Department of Environmental Management.

13. Director - means the Director of the Department.

14. Discharge - means "[t]he addition, introduction, leaking, spilling or emitting of any sewage, industrial waste, pollutant or other wastes into waters of the state". Code of Alabama 1975, Section 22-22-1(b)(8).

15. Discharge Monitoring Report (DMR) - means the form approved by the Director to accomplish reporting requirements of an NPDES permit.

16. DO – means dissolved oxygen.

17. 8HC – means 8-hour composite sample, including any of the following:

    a. The mixing of at least 5 equal volume samples collected at constant time intervals of not more than 2 hours over a period of not less than 8 hours between the hours of 6:00 a.m. and 6:00 p.m. If the sampling period exceeds 8 hours, sampling may be conducted beyond the 6:00 a.m. to 6:00 p.m. period.

    b. A sample continuously collected at a constant rate over period of not less than 8 hours between the hours of 6:00 a.m. and 6:00 p.m. If the sampling period exceeds 8 hours, sampling may be conducted beyond the 6:00 a.m. to 6:00 p.m. period.

18. EPA - means the United States Environmental Protection Agency.

19. FC – means the pollutant parameter fecal coliform.

20. Flow – means the total volume of discharge in a 24-hour period.

21. FWPCA - means the Federal Water Pollution Control Act.

22. Geometric Mean – means the Nth root of the product of the individual values of any set of values where N is equal to the number of individual values. The geometric mean is equivalent to the antilog of the arithmetic mean of the logarithms of the individual values. For purposes of calculating the geometric mean, values of zero (0) shall be considered one (1).

23. Grab Sample – means a single influent or effluent portion which is not a composite sample. The sample(s) shall be collected at the period(s) most representative of the discharge.

24. Indirect Discharger – means a nondomestic discharger who discharges pollutants to a publicly owned treatment works or a privately owned treatment facility operated by another person.

25. Industrial User – means those industries identified in the Standard Industrial Classification manual, Bureau of the Budget 1967, as amended and supplemented, under the category "Division D – Manufacturing" and such other classes of significant waste producers as, by regulation, the Director deems appropriate.

26. MGD – means million gallons per day.

27. Monthly Average – means, other than for fecal coliform bacteria, the arithmetic mean of the entire composite or grab samples taken for the daily discharges collected in one month period. The monthly average for fecal coliform bacteria is the geometric mean of daily discharge samples collected in a one month period. The monthly average for flow is the arithmetic mean of all flow measurements taken in a one month period.

28. New Discharger – means a person, owning or operating any building, structure, facility or installation:

    a. from which there is or may be a discharge of pollutants;

    b. that did not commence the discharge of pollutants prior to August 13, 1979, and which is not a new source; and

    c. which has never received a final effective NPDES permit for dischargers at that site.

29. NH3-N – means the pollutant parameter ammonia, measured as nitrogen.

30. Permit application - means forms and additional information that is required by ADEM Administrative Code Rule 335-6-6-.08 and applicable permit fees.

31. Point source - means "any discernible, confined and discrete conveyance, including but not limited to any pipe, channel, ditch, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, . . . from which pollutants are or may be discharged." Section 502(14) of the FWPCA, 33 U.S.C. Section 1362(14).

32. Pollutant - includes for purposes of this permit, but is not limited to, those pollutants specified in Code of Alabama 1975, Section 22-22-1(b)(3) and those effluent characteristics specified in Provision I. A. of this permit.

33. Privately Owned Treatment Works – means any devices or system which is used to treat wastes from any facility whose operator is not the operator of the treatment works, and which is not a "POTW".

34. Publicly Owned Treatment Works – means a wastewater collection and treatment facility owned by the State, municipality, regional entity composed of two or more municipalities, or another entity created by the State or local authority for the purpose of collecting and treating municipal wastewater.

35. Receiving Stream – means the "waters" receiving a "discharge" from a "point source".

36. 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.

37. Significant Source – means a source which discharges 0.025 MGD or more to a POTW or greater than five percent of the treatment work's capacity, or a source which is a primary industry as defined by the U.S. EPA or which discharges a priority or toxic pollutant.

38. Solvent – means any virgin, used or spent organic solvent(s) identified in the F-Listed wastes (F001 through F005) specified in 40 CFR 261.31 that is used for the purpose of solubilizing other materials.

39. TKN – means the pollutant parameter Total Kjeldahl Nitrogen.

40. TON – means the pollutant parameter Total Organic Nitrogen.

41. TRC – means Total Residual Chlorine.

42. TSS – means the pollutant parameter Total Suspended Solids.

43. 24HC – means 24-hour composite sample, including any of the following:

    a. the mixing of at least 12 equal volume samples collected at constant time intervals of not more than 2 hours over a period of 24 hours;

    b. a sample collected over a consecutive 24-hour period using an automatic sampler composite to one sample. As a minimum, samples shall be collected hourly and each shall be no more than one twenty-fourth (1/24) of the total sample volume collected; or

    c. a sample collected over a consecutive 24-hour period using an automatic composite sampler composited proportional to flow.

44. Upset - means an exceptional incident in which there is an unintentional and temporary noncompliance with technology-based permit discharge limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

45. Waters - means "[a]ll waters of any river, stream, watercourse, pond, lake, coastal, ground or surface water, wholly or partially within the state, natural or artificial. This does not include waters which are entirely confined and retained completely upon the property of a single individual, partnership or corporation unless such waters are used in interstate commerce." Code of Alabama 1975, Section 22-22-1(b)(2). Waters "include all navigable waters" as defined in Section 502(7) of the FWPCA, 22 U.S.C. Section 1362(7), which are within the State of Alabama.

46. Week - means the period beginning at twelve midnight Saturday and ending at twelve midnight the following Saturday.

47. Weekly (7-day and calendar week) Average – is the arithmetic mean of all samples collected during a consecutive 7-day period or calendar week, whichever is applicable. The calendar week is defined as beginning on Sunday and ending on Saturday. 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 the calendar week shall be included in the data for the month that contains the Saturday.

I. SEVERABILITY

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

PART IV ADDITIONAL REQUIREMENTS, CONDITIONS, AND LIMITATIONS

A. COOLING WATER INTAKE STRUCTURE (CWIS) REQUIREMENTS

1. The entity providing water to the permittee is a public water system in accordance with Section 1401 of the Safe Drinking Water Act or the water used for cooling consists of effluent, which would otherwise be discharged; therefore, the permittee is exempt from this permit condition.

ADEM PERMIT RATIONALE

PREPARED DATE: April 28, 2020
PREPARED BY: Alex Chavers

Permittee Name: University of Alabama at Birmingham

Facility Name: University of Alabama at Birmingham

Permit Number: AL0078948

PERMIT IS REISSUANCE DUE TO EXPIRATION

DISCHARGE SERIAL NUMBERS & DESCRIPTIONS:

DSN001, DSN004-DSN009, DSN011-DSN014, DSN017-DSN019, DSN021-DSN024, DSN026-DSN031:
Non-contact cooling water
DSN003, DSN015, DSN016, DSN025, DSN032:
Boiler blowdown

INDUSTRIAL CATEGORY: NON-CATEGORICAL

MAJOR: N

STREAM INFORMATION*:

Receiving Stream:	Valley Creek/UT to Valley Creek
Classification:	LWF/F&W
River Basin:	Black Warrior River Basin
7Q10:	0.0 CFS
7Q2:	0.0 CFS
1Q10:	0.0 CFS
Annual Average Flow:	0.0 CFS
303(d) List:	NO
Impairment:	N/A
TMDL:	NO

DISCUSSION:
The University of Alabama at Birmingham (UAB) is a public university located in the downtown Birmingham Area. This permit authorizes the discharges of non-contact cooling water and boiler blowdown from systems within the buildings that are part of the contiguous campus of UAB.

ADEM Administrative Rule 335-6-10-.12 requires applicants to new or expanded discharges to Tier II waters demonstrate that the proposed discharge is necessary for important economic or social development in the area in which the waters are located. The application submitted by the facility is not for a new or expanded discharge. Therefore, the applicant is not required to demonstrate that the discharge is necessary for economic and social development.
EPA has not promulgated specific guidelines for the discharges covered under the proposed permit. Proposed permit limits are based on Best Professional Judgment. The proposed frequencies are based on a review of site-specific conditions and an evaluation of similar facilities.

DSN0011, DSN0031 – DSN0091, DSN0111 – DSN0191, DSN0211 - DSN0321:

Parameter	Monthly Avg Loading	Daily Max Loading	Daily Min Concentration	Monthly Avg Concentration	Daily Max Concentration	Sample Frequency	Sample Type	Basis*
Temperature, Water Deg. Fahrenheit	-	-	-	-	90 F	Monthly	Grab	WQBEL
pH	-	-	6.0 S.U.	-	9.0 S.U.	Monthly	Grab	WQBEL/ BPJ
Flow, In Conduit or Thru Treatment Plant	REPORT GPD	REPORT GPD	-	-	-	Monthly	Instantaneous	BPJ
Chlorine, Total Residual	-	-	-	-	1.0 mg/l	Monthly	Grab	BPJ

*Basis for Permit Limitation

- WQBEL – Water Quality Based Effluent Limitation
- BPJ – Best Professional Judgment

Discussion

This permit authorizes the discharge of non-process wastewater (non-contact cooling water and boiler blowdown) from campus buildings at UAB. All buildings containing outfalls are located within the downtown Birmingham area and travel a minimum of 0.5 miles straight-line distance the nearest receiving water, which is an unnamed tributary to Valley Creek.

Due to the urbanized location of the discharge, it is unknown what path each discharge takes and ultimately whether each outfall discharges to the unnamed tributary or Valley Creek proper. Due to the distance traveled by each discharge, the unknown contributors along the discharge path and the unknown dilution at the point of entry into the receiving stream, the Department will utilize both water quality based effluent limitations and Best Professional Judgment to establish permit limitations.

Non-Process Wastewaters

All outfalls discharge non-process wastewaters from either cooling tower blowdown, chiller blowdown, or boiler blowdown. These waters are all expected to have a similar quality and will have similar permit limitations.

Representative Monitoring

All discharges are expected to be similar in quality; therefore, the Department has determined that the following points will be representative due to the inaccessible nature of many of the discharge points: DSN006, DSN017, DSN021, DSN024, and DSN026.

Cooling Water Additives and Whole Effluent Toxicity

The discharge of biocides and corrosion inhibitors with non-process wastewaters (e.g. once through cooling water, etc.) can introduce the potential for toxicity in receiving waters. The facility is expected to verify that the use of these chemicals will not present potential toxic effects to representative organisms in the receiving waters and to ensure that the chemicals are used in a manner that is consistent with their labeling and standard industry practices.

Monitoring for Whole Effluent Toxicity is not proposed for Outfall DSN001 based on the use of the chemicals specified in the permit application; however, the Permittee should refer to Part I.D.5 of the permit for further requirements regarding Cooling Water and Boiler Water Additives.

Best Professional Judgment (BPJ)

The shortest distance traveled between a discharge point and a surface water is greater than 0.5 miles straight-line distance. Due to the distance traveled, among other unknowns, the Department has used Best Professional Judgment to establish the following permit limitations.

Total Residual Chlorine (TRC)

The previous permit included limitations based on the in-stream water quality standard of 0.011 and 0.019 mg/l for the monthly average and daily maximum, respectively. After a review of the available information, the Department has determined that these limitations are unnecessarily stringent due to the travel time from the point of discharge to the receiving stream. In order to ensure that facility continues to utilize best practices for treating the water, a BPJ limit of 1.0 mg/l is proposed for this permit issuance.

pH

ADEM Administrative Code, Division 6 Regulations, specifically 335-6-10-.09(6)(a) states that "provisions of the Fish and Wildlife use classification at Rule 335-6-10-.09(5) shall apply". Under that rule, wastes "shall not cause the pH to deviate more than one unit from then normal or natural pH, nor be less than 6.0, nor greater than 8.5 standard units." The discharges are expected to have a neutral pH and a significant travel time from the point of discharge to the receiving stream while comingling with other sources; therefore, the existing limitations will be continued in this permit issuance.

Water Quality Based Effluent Limits (WQBEL)

Temperature

ADEM Administrative Code, Division 6 Regulations, specifically 335-6-10-.09(6)(a) states that "provisions of the Fish and Wildlife use classification at Rule 335-6-10-.09(5) shall apply". Under that rule, "the maximum temperature in streams, lakes, and reservoir, other those in river basins listed in subparagraph (ii) hereof, shall not exceed 90°F." Due to the travel time from the point of discharge to the receiving stream, the facility's discharge would be expected to be at ambient temperatures and not have significant effect on the receiving stream. Because the facility has already shown the ability to meet the WQBEL, this limitation will be continued in this permit issuance.

Federal Effluent Guideline Limitations (EGL)

There have been no effluent guidelines promulgated for these discharges.

303(d) List of Impaired Waters/Total Maximum Daily Load (TMDL)

The receiving streams are not listed on the 2018 303(d) List of Impaired Waters, nor has a TMDL been developed; therefore, no additional limitations are proposed for this permit issuance.

DSN00G

The previous permit included DSN00G to represent the numerous groundwater discharges from the campus' buildings; however, these discharges are regulated and allowed under the Jefferson County MS4 permit; therefore, this outfall will be removed from this permit issuance.

DSN002, DSN010, DSN020

These discharge points have been removed from the permit as they are either not part of the contiguous campus or they do not exist anymore due to construction activities.

316(b) Cooling Water Intake Structure Information

The entity providing water to the permittee is a public water system in accordance with Section 1401 of the Safe Drinking Water Act.

Chavers, Alexander

From: Hagan, David <jdhagan@uab.edu>
Sent: Wednesday, April 29, 2020 10:26 AM
To: Chavers, Alexander
Subject: Re: NPDES Permit Renewal

Yes, that should work

Sent from my iPhone

On Apr 29, 2020, at 10:08 AM, Chavers, Alexander <adchavers@adem.alabama.gov> wrote:

David,

Thanks for this information. For now, it seems like including anything in Central Utilities #5, Central Utility #1, and Campbell Hall might be a good start for representative? I can include those in the draft and if you identify different, better, or more points that are good for sampling we can modify before public notice.

I identify these as the following outfalls

- DSN006 – Campbell Hall
- DSN017, DSN024, and DSN026 – Central Utility #1 (various units)
- DSN021 – Central Utilities #5

If this is acceptable for now, please let me know.

Alexander Chavers, P.E.
Env. Eng. Specialist, Sr.
Industrial Section
Industrial/Municipal Branch
(334) 271-7851
<image001.jpg>

From: Hagan, David <jdhagan@uab.edu>
Sent: Tuesday, April 28, 2020 11:45 AM
To: Chavers, Alexander <adchavers@adem.alabama.gov>
Subject: FW: NPDES Permit Renewal

Alex,

Here is the reply I got back from our chiller manager. I asked him about good locations for collecting DMR samples to include in the new permit. I will try to nail some new locations down and get them to you asap.

David

From: "Griffin, William B, Jr" <bgriffin@uab.edu>
Date: Tuesday, April 28, 2020 at 11:36 AM
To: "Hagan, David" <jdhagan@uab.edu>, "Winslett, Matt" <mattw@uab.edu>
Cc: "Gwin, Brad" <bgwin@uab.edu>, "Smith, Claude" <csmith16@uab.edu>, "Holt, Brian P" <bholt@uab.edu>, "Riccio, Amanda R" <riccio@uab.edu>
Subject: RE: NPDES Permit Renewal

David,

My comments for each of your concerns is below in RED.

Thanks,

Billy Griffin
THE UNIVERSITY OF ALABAMA AT BIRMINGHAM
Manager Chilled Water Operations
915 17th Street South, RM 101
Birmingham, AL 35294-4564
205-934-1176
205-975-6380 Fax
205-288-7270 Cell
bgriffin@uab.edu

From: Hagan, David <jdhagan@uab.edu>
Sent: Monday, April 27, 2020 12:18 PM
To: Griffin, William B, Jr <bgriffin@uab.edu>; Winslett, Matt <mattw@uab.edu>
Subject: NPDES Permit Renewal

Matt and Billy,

We are about to get our NPDES permit renewal application approved for chiller water and boiler blowdown discharges. The one missing piece is to identify adequate sampling outfalls. We need locations that have a consistent flow and that are metered for flow.

- The current Sterne location on 14th street between Education and the library is not satisfactory because flow is not metered there plus demo of Education and construction of the new science bldg will soon make it inaccessible. This system will be permanently taken off line during the next few months. The Plant Distribution Loop will take the place of the Chillers in the Education Building and the Cooling Towers will be removed from the Sterne Roof some time during the project.
- Central Plant 5 is good if both the existing York and Carrier Units and the newly installed pair are metered - are they? CUP5 Operations Personnel are recording the York Chiller Readings and were recording the Carrier readings when it was in service. The Compressor for the 4000 Ton Carrier is currently out for repair. There are meters on the NEW Chillers and we are going to determine where the readings can be taken from. Our plans are to automate the readings, but the work from home policy has put this on hold.

- Do all 4 Cent Plt 5 units have separate discharges that can be sampled separately? There are three systems in CUP5, due to the fact that the two new chillers have a common tower system. These three systems can be sampled separately.
- Is Central Plant 1 metered? There are meters in this plant and they are used for sewer credit. Rene Riccio keeps up with these and she has those readings.
- Do either of you know of any other locations that meet this criteria (accessible sampling points, good flow and meters)? We will need to install a sample point, and Campbell Hall will be a good location. We can meet with you to show you this location when things get back to normal.

Please get back with me on this as soon as possible. I was told by our ADEM permit writer that, because of our frequent exceedences for chlorine, USEPA Region 4 has classified UAB as a Significant Non-Compliant facility subject to enforcement action. ADEM understands why this happens and that there isn't anything we can do about. We **have** to treat the water for Legionella and ClO2 is our best biocide for that organism. Apparently EPA is unconvinced and the fact that our permit renewal has not been completed is a complicating factor. So, the sooner I get this information from you, the sooner we will have a final permit that will hopefully satisfy EPA.

J. David Hagan | Director, Environmental Management Program
Environmental Health & Safety | The University of Alabama at Birmingham
P: 205.934.8576 | C:205.306.9801 | jdhagan@uab.edu
<image003.png>
Celebrate our 50th anniversary with us!

Chavers, Alexander

From: Hagan, David <jdhagan@uab.edu>
Sent: Friday, April 24, 2020 3:01 AM
To: Chavers, Alexander
Subject: Form 2F
Attachments: UAB Outfall List.docx

I have attached an updated outfall list which corresponds to Section 1 on the EPA form. The highlighted rows are buildings no longer on campus or, as in the case of OADI, never were. I need to talk to you tomorrow before I print off and sign the Form. I am unsure about how some sections apply to UAB. I will call you Friday morning before 10 am.

J. David Hagan | Director, Environmental Management Program
Environmental Health & Safety | The University of Alabama at Birmingham
P: 205.934.8576 | C:205.306.9801 | jdhagan@uab.edu

Celebrate our 50th anniversary with us!

Appendix 1 - UAB Outfall List					
NAME	Outfall Number	Discharge Compostion	Receiving Stream	Latitude	Longitude
Education Bldg	DSN001	Non Contact Cooling Water	Valley Creek	33° 29' 49" N	86° 48' 30" W
OADI	DSN002	Non Contact Cooling Water	Unnamed Tributary of Shades Creek	33° 25' 46" N	86° 53' 20" W
Steam Plant	DSN003	Boiler Blowdown	Valley Creek	33° 30' 11" N	86° 48' 37" W
UAB Highlands	DSN004	Non Contact Cooling Water	Valley Creek	33° 29' 40" N	86° 48' 22" W
Bartow Arena	DSN005	Non Contact Cooling Water	Valley Creek	33° 30' 07" N	86° 48' 35" W
Campbell Hall	DSN006	Non Contact Cooling Water	Valley Creek	33° 30' 04" N	86° 48' 29" W
Hill Student Center	DSN007	Non Contact Cooling Water	Valley Creek	33° 30' 05" N	86° 48' 26" W
CH 20	DSN008	Non Contact Cooling Water	Valley Creek	33° 30' 07" N	86° 47' 53" W
CH19	DSN009	Non Contact Cooling Water	Valley Creek	33° 30' 06" N	86° 47' 54" W
Continuing Education	DSN010				
Camp Hall	DSN011	Non Contact Cooling Water	Valley Creek	33° 29' 57" N	86° 48' 12" W
Sterne Library	DSN012	Non Contact Cooling Water	Valley Creek	33° 29' 54" N	86° 48' 21" W
Business & Engineering	DSN013	Non Contact Cooling Water	Valley Creek	33° 29' 46" N	86° 48' 35" W
Hulsey	DSN014	Non Contact Cooling Water	Valley Creek	33° 29' 51" N	86° 48' 29" W
West Pavillion	DSN015	Boiler Blowdown	Valley Creek	33° 30' 20" N	86° 48' 08" W
SON/SHP/WEBB	DSN016	Boiler Blowdown	Valley Creek	33° 30' 07" N	86° 48' 10" W
Central Utilities #1	DSN017	Non Contact Cooling Water	Valley Creek	33° 30' 26" N	86° 48' 08" W

Central Utilities #3 – chillers 5&6	DSN018	Non Contact Cooling Water	Valley Creek	33° 30' 13" N	86° 48' 12" W
Admin Bldg	DSN019	Non Contact Cooling Water	Valley Creek	33° 30' 20" N	86° 47' 57" W
Professional Arts	DSN020	Non Contact Cooling Water	Valley Creek		
Central Utilities #5	DSN021	Non Contact Cooling Water	Valley Creek	33° 30' 02" N	86° 48' 06" W
Sterne Libarary #2	DSN022	Non Contact Cooling Water	Valley Creek	33° 29' 54" N	86° 48' 21" W
Central Utilities #3 – chillers 1&2	DSN023	Non Contact Cooling Water	Valley Creek	33° 30' 13" N	86° 48' 12" W
Central Utilities #1 Carrier #2	DSN024	Non Contact Cooling Water	Valley Creek	33° 30' 26" N	86° 48' 08" W
Webb Boiler	DSN025	Boiler Blowdown	Valley Creek	33° 30' 07" N	86° 48' 10" W
Central Utilities #1 – chillers 6&7	DSN026	Non Contact Cooling Water	Valley Creek	33° 30' 26" N	86° 48' 08" W
Central Utilities #3 – chillers 3&4	DSN027	Non Contact Cooling Water	Valley Creek	33° 30' 13" N	86° 48' 12" W
Central Utilities #3 - York	DSN028	Non Contact Cooling Water	Valley Creek	33° 30' 13" N	86° 48' 12" W
501 Bldg	DSN029	Non Contact Cooling Water	Valley Creek	33° 30' 09" N	86° 48' 42" W
Jefferson Tower	DSN030	Non Contact Cooling Water	Valley Creek	33° 30' 22" N	86° 48' 05" W
Campus Rec Ctr	DSN031	Non Contact Cooling Water	Valley Creek	33° 30' 00" N	86° 48' 17" W
Callaghan Eye Foundation	DSN032	Boiler Blowdown	Valley Creek	33° 30' 12" N	86° 48' 09" W

THE UNIVERSITY OF ALABAMA AT BIRMINGHAM

October 19, 2018

Alabama Department of Environmental Management
Industrial Section - Water Division
ATTN: Alexander Chavers
PO Box 301463
Montgomery, Alabama 36130-1463

Dear Mr. Chavers:

Enclosed is the application for renewal of NPDES permit #AL0078948 issued to the University of Alabama at Birmingham on February 25, 2014. Also enclosed is check # 1000610 in the amount of $5615.00 for the renewal fee.

Changes from the current permit are as follows –

Removal of the following point sources because the discharges at those locations have been permanently terminated:

1. OADI – 2800 Milan Court, Birmingham, AL 35211 – Off campus location that is not part of the contiguous facility. This discharge should have never been included in the permit.
2. UAB Special Cancer Research (DSN001-01) – 550 11th Street South, Birmingham, AL 35233

Removal of boiler blowdown wastewater component from Hill University Center discharge (DSN001-4) because the boiler was removed and the building put on steam.

Should you have any questions, please contact me at 205-934-8576.

Sincerely,

J David Hagan

J David Hagan
Director, Environmental Management Program
University of Alabama at Birmingham

Occupational Health and Safety
445 Community Health Services Building
933 19th Street South
205.934.2487
Fax 205.934.7487
www.healthsafe.uab.edu

Mailing Address:
CH19 445
1720 2ND AVE S
BIRMINGHAM AL 35294-2041

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (ADEM)
NPDES INDIVIDUAL PERMIT APPLICATION
SUPPLEMENTARY INFORMATION FOR INDUSTRIAL FACILITIES

Instructions: This form should be used to submit the required supplementary information for an application for an NPDES individual permit for industrial facilities. The completed application should be submitted to ADEM in duplicate. If insufficient space is available to address any item, please continue on an attached sheet of paper. Please mark "N/A" in the appropriate box when an item is not applicable to the applicant. **Please type or print legibly in blue or black ink.** Mail the completed application to:

ADEM-Water Division
Industrial Section
P O Box 301463
Montgomery, AL 36130-1463

RECEIVED
OCT 23 2018
IND. MUN BRANCH

PURPOSE OF THIS APPLICATION

- ☐ Initial Permit Application for New Facility*
- ☐ Initial Permit Application for Existing Facility*
- ☐ Modification of Existing Permit
- ■ Reissuance of Existing Permit
- ☐ Revocation & Reissuance of Existing Permit

* *An application for participation in the ADEM's Electronic Environmental (E2) Reporting must be submitted to allow permittee to electronically submit reports as required.*

SECTION A – GENERAL INFORMATION

1. Facility Name: University of Alabama at Birmingham
   a. Operator Name: J. David Hagan
   b. Is the operator identified in A.1.a, the owner of the facility? ☐ Yes ■ No
   If no, provide name and address of the operator and submit information indicating the operator's scope of responsibility for the facility.
   Director of Environmental Management Program
2. NPDES Permit Number: AL 0 0 7 8 9 4 8 (not applicable if initial permit application)
3. SID Permit Number (if applicable): IU ___ ___ - ___ ___ - ___ ___ ___ ___ ___
4. NPDES General Permit Number (if applicable): ALG 2 5 0 0 3 8
5. Facility Physical Location: **(Attach a map with location marked; street, route no. or other specific identifier)**
   Street: 701 20th Street South
   City: Birmingham County: Jefferson State: AL Zip: 35223
   Facility Location (Front Gate): Latitude: 33 degrees 30' 54.31" N Longitude: 86 degrees 48' 06.63" W
6. Facility Mailing Address: 933 19th Street South Room 445G
   City: Birmingham County: Jefferson State: AL Zip: 35223
7. Responsible Official (as described on the last page of this application):
   Name and Title: David Hagan Director of Environmental Management Program
   Address: 933 19th Street South Room 445G
   City: Birmingham State: AL Zip: 35294
   Phone Number: 205-934-2487 Email Address: jdhagan@uab.edu
8. Designated Facility Contact:
   Name and Title: J. David Hagan- Director of Environmental Management Program
   Phone Number: 205-934-2487 Email Address: jdhagan@uab.edu

9. Designated Discharge Monitoring Report (DMR) Contact:

Name and Title: J. David Hagan Director of Environmental Health and Safety

Phone Number: 205-934-2487 Email Address: jdhagan@uab.edu

10. Type of Business Entity:

☐ Corporation ☐ General Partnership ☐ Limited Partnership ☐ Limited Liability Company ☐ Sole Proprietorship

■ Other (Please Specify) state university and medical facility

11. Complete this section if the Applicant's business entity is a Corporation

a) Location of Incorporation:

Address: _____

City: _____ County: _____ State: _____ Zip: _____

b) Parent Corporation of Applicant:

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

c) Subsidiary Corporation(s) of Applicant:

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

d) Corporate Officers:

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

e) Agent designated by the corporation for purposes of service:

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

12. If the Applicant's business entity is a Partnership, please list the general partners.

Name: _____ Name: _____

Address: _____ Address: _____

City: _____ State: _____ Zip: _____ City: _____ State: _____ Zip: _____

13. If the Applicant's business entity is a Proprietorship, please enter the proprietor's information.

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

14. Permit numbers for Applicant's previously issued NPDES Permits and identification of any other State of Alabama Environmental Permits presently held by the Applicant, its parent corporation, or subsidiary corporations within the State of Alabama:

Permit Name	Permit Number	Held By
NPDES Permit	AL0078948	UAB

15. Identify all Administrative Complaints, Notices of Violation, Directives, Administrative Orders, or Litigation concerning water pollution, if any, against the Applicant, its parent corporation or subsidiary corporations within the State of Alabama within the past five years (attach additional sheets if necessary):

Facility Name	Permit Number	Type of Action	Date of Action
University of Alabama at B	AL0078948	failure to submit	Set 19, 2018

SECTION B – BUSINESS ACTIVITY

1. Indicate applicable Standard Industrial Classification (SIC) Codes for all processes. If more than one applies, list in order of importance:

a. 8221

b. 8062

c. 8011

d. _____

e. _____

f. _____

2. If your facility conducts or will be conducting any of the processes listed below (regardless of whether they generate wastewater, waste sludge, or hazardous waste), place a check beside the category of business activity (check all that apply):

Industrial Categories

- ☐ Aluminum Forming
- ☐ Asbestos Manufacturing
- ☐ Battery Manufacturing
- ☐ Can Making
- ☐ Canned and Preserved Fruit and Vegetables
- ☐ Canned and Preserved Seafood
- ☐ Cement Manufacturing
- ☐ Centralized Waste Treatment
- ☐ Carbon Black
- ☐ Coal Mining
- ☐ Coil Coating
- ☐ Copper Forming
- ☐ Electric and Electronic Components Manufacturing
- ☐ Electroplating
- ☐ Explosives Manufacturing
- ☐ Feedlots
- ☐ Ferroalloy Manufacturing
- ☐ Fertilizer Manufacturing
- ☐ Foundries (Metal Molding and Casting)
- ☐ Glass Manufacturing
- ☐ Grain Mills
- ☐ Gum and Wood Chemicals Manufacturing
- ☐ Inorganic Chemicals
- ☐ Iron and Steel
- ☐ Leather Tanning and Finishing
- ☐ Metal Finishing
- ☐ Meat Products
- ☐ Metal Molding and Casting
- ☐ Metal Products
- ☐ Nonferrous Metals Forming
- ☐ Nonferrous Metals Manufacturing
- ☐ Oil and Gas Extraction
- ☐ Organic Chemicals Manufacturing
- ☐ Paint and Ink Formulating
- ☐ Paving and Roofing Manufacturing
- ☐ Pesticides Manufacturing
- ☐ Petroleum Refining
- ☐ Phosphate Manufacturing
- ☐ Photographic
- ☐ Pharmaceutical
- ☐ Plastic & Synthetic Materials
- ☐ Plastics Processing Manufacturing
- ☐ Porcelain Enamel
- ☐ Pulp, Paper, and Fiberboard Manufacturing
- ☐ Rubber
- ☐ Soap and Detergent Manufacturing
- ☐ Steam and Electric
- ☐ Sugar Processing
- ☐ Textile Mills
- ☐ Timber Products
- ☐ Transportation Equipment Cleaning
- ☐ Waste Combustion
- ☐ Other (specify)_____

A facility with processes inclusive in these business areas may be covered by Environmental Protection (EPA) categorical standards. These facilities are termed "categorical users" and should skip to question 2 of Section C.

3. Give a brief description of all operations at this facility including primary products or services (attach additional sheets if necessary):

Operations at the University of Alabama at Birmingham include heating and cooling of the university's buildings using boilers, chillers, and coolling towers.

SECTION C – WASTEWATER DISCHARGE INFORMATION

Facilities that checked activities in B.2 and are considered Categorical Industrial Users should skip to C.2 of this section.

1. **For Non-Categorical Users Only**: Provide wastewater flows for each of the processes or proposed processes. Using the process flow schematic (Figure 1), enter the description that corresponds to each process. **(The flow schematic should include all treatment units as well as monitoring and discharge points).** [New facilities should provide estimates for each discharge.]

Process Description	Last 12 Months (gals/day) Highest Month Avg. Flow	Highest Flow Year of Last 5 (gals/day) Monthly Avg. Flow	Discharge Type (batch, continuous, intermittent)
See attached spreadsheet.			
See Figure 1.			

If batch discharge occurs or will occur, indicate: [new facilities may estimate.]

a. Number of batch discharges: _____ per day

b. Average discharge per batch: _____ (GPD)

c. Time of batch discharges _____ at _____
(days of week) (hours of day)

d. Flow rate: _____ gallons/minute

e. Percent of total discharge: _____

Non-Process Discharges (e.g. non-contact cooling water)	Last 12 Months (gals/day) Highest Month Avg. Flow	Highest Flow Year of Last 5 (gals/day) Monthly Avg. Flow
see attached spreadsheet		

2. **Complete this Section only if you are subject to Categorical Standards and plan to directly discharge the associated wastewater to a water of the State.** If Categorical wastewater is discharged exclusively via an indirect discharge to a public or privately-owned treatment works, check "Yes" in the appropriate space below and proceed directly to part 2.c .

☐ Yes

For Categorical Users: Provide the wastewater discharge flows or production (whichever is applicable by the effluent guidelines) for each of your processes or proposed processes. Using the process flow schematic (Figure 1, pg 14), enter the description that corresponds to each process. [New facilities should provide estimates for each discharge.]

2a.

Regulated Process	Applicable Category	Applicable Subpart	Type of Discharge Flow (batch, continuous, intermittent)

2b.

Process Description	Last 12 Months (gals/day), (lbs/day), etc. Highest Month Average*	Highest Flow Year of Last 5 (gals/day), (lbs/day), etc. Monthly Average*	Discharge Type (batch, continuous, intermittent)

*** Reported values should be expressed in units of the applicable Federal production-based standard. For example, flow (MGD), production (pounds per day), etc.**

If batch discharge occurs or will occur, indicate: [new facilities may estimate.]

a. Number of batch discharges: _____ per day

b. Average discharge per batch: _____ (GPD)

c. Time of batch discharges _____ at _____
(days of week) (hours of day)

d. Flow rate: _____ gallons/minute

e. Percent of total discharge: _____

2c.

Non categorical Process Description	Last 12 Months (gals/day) Highest Month Avg. Flow	Highest Flow Year of Last 5 (gals/day) Monthly Avg. Flow	Discharge Type (batch, continuous, intermittent)

If batch discharge occurs or will occur, indicate: [new facilities may estimate.]

a. Number of batch discharges: _____ per day

b. Average discharge per batch: _____ (GPD)

c. Time of batch discharges _____ (days of week) at _____ (hours of day)

d. Flow rate: _____ gallons/minute

e. Percent of total discharge: _____

2d.

Non-Process Discharges (e.g. non-contact cooling water)	Last 12 Months (gals/day) Highest Month Avg. Flow	Highest Flow Year of Last 5 (gals/day) Monthly Avg. Flow

All Applicants must complete C.3 – C.6.

3. Do you share an outfall with another facility? ☐ Yes ☐ No (If no, continue to C.4)

For each shared outfall, provide the following:

Applicant's Outfall No.	Name of Other Permittee/Facility	NPDES Permit No.	Where is sample collected by Applicant?

4. Do you have, or plan to have, automatic sampling equipment or continuous wastewater flow metering equipment at this facility?

Current:	Flow Metering	■ Yes	☐ No	☐ N/A
	Sampling Equipment	☐ Yes	■ No	☐ N/A
Planned:	Flow Metering	☐ Yes	☐ No	■ N/A
	Sampling Equipment	☐ Yes	☐ No	☐ N/A

If so, please attach a schematic diagram of the sewer system indicating the present or future location of this equipment and describe the equipment below:

See map attached with physical locations of flow metering equipment..

5. Are any process changes or expansions planned during the next three years that could alter wastewater volumes or characteristics?
☐ Yes ■ No (If no, continue to C.6)

Briefly describe these changes and their anticipated effects on the wastewater volume and characteristics:

6. List the trade name and chemical composition of all biocides and corrosion inhibitors used:

Trade Name	Chemical Composition
see attached MSDS	

For each biocide and/or corrosion inhibitor used, please include the following information:

(1) 96-hour median tolerance limit data for organisms representative of the biota of the waterway into which the discharge will ultimately reach,
(2) quantities to be used,
(3) frequencies of use,
(4) proposed discharge concentrations, and
(5) EPA registration number, if applicable

SECTION D – WATER SUPPLY

Water Sources (check as many as are applicable):

☐ Private Well ☐ Surface Water

■ Municipal Water Utility (Specify City): ☐ Other (Specify): _____

IF MORE THAN ONE WELL OR SURFACE INTAKE, PROVIDE DATA FOR EACH ON AN ATTACHMENT

City:_____MGD* Well:_____MGD* Well Depth:_____Ft. Latitude:_____ Longitude:_____

Surface Intake Volume:_____MGD* Intake Elevation in Relation to Bottom:_____Ft.

Intake Elevation:_____Ft. Latitude:_____ Longitude:_____

Name of Surface Water Source:_____

*** MGD – Million Gallons per Day**

Cooling Water Intake Structure Information

Complete D.1 and D.2 if your water supply is provided by an outside source and not by an onsite water intake structure? (e.g., another industry, municipality, etc...)

1. Does the provider of your source water operate a surface water intake? Yes ☐ No ☐
(If yes, continue, if no, go to Section E.)

a) Name of Provider:_____ b) Location of Provider:_____

c) Latitude:_____ Longitude:_____

2. Is the provider a public water system (defined as a system which provides water to the public for human consumption or which provides only treated water, not raw water)? ☐ Yes ☐ No (If yes, go to Section E, if no, continue.)

Only to be completed if you have a cooling water intake structure or the provider of your water supply uses an intake structure and does not treat the raw water.

3. Is any water withdrawn from the source water used for cooling? ☐ Yes ☐ No

4. Using the average monthly measurements over any 12-month period, approximately what percentage of water withdrawn is used exclusively for cooling purposes? _____%

5. Does the cooling water consist of treated effluent that would otherwise be discharged? ☐ Yes ☐ No
(If yes, go to Section E, if no, complete D.6 – D.17)

6. a. Is the cooling water used in a once-through cooling system? ☐ Yes ☐ No

b. Is the cooling water used in a closed cycle cooling system? ☐ Yes ☐ No

		Yes	No
3.	Does the project involve dredging and/or filling of a wetland area or water way?	☐	☐
	If Yes, has the Corps of Engineers (COE) permit been received?	☐	☐
	COE Project No. _____		
4.	Does the project involve wetlands and/or submersed grassbeds?	☐	☐
5.	Are oyster reefs located near the project site?	☐	☐
	If Yes, include a map showing project and discharge location with respect to oyster reefs		
6.	Does the project involve the site development, construction and operation of an energy facility as defined in ADEM Admin. Code r. 335-8-1-.02(bb)?	☐	☐
7.	Does the project involve mitigation of shoreline or coastal area erosion?	☐	☐
8.	Does the project involve construction on beaches or dune areas?	☐	☐
9.	Will the project interfere with public access to coastal waters?	☐	☐
10.	Does the project lie within the 100-year floodplain?	☐	☐
11.	Does the project involve the registration, sale, use, or application of pesticides?	☐	☐
12.	Does the project propose or require construction of a new well or to alter an existing groundwater well to pump more than 50 gallons per day (GPD)?	☐	☐
	If yes, has the applicable permit for groundwater recovery or for groundwater well installation been obtained?	☐	☐

SECTION G – ANTI-DEGRADATION EVALUATION

In accordance with 40 CFR §131.12 and the ADEM Admin. Code r. 335-6-10-.04 for anti-degradation, the following information must be provided, if applicable. It is the applicant's responsibility to demonstrate the social and economic importance of the proposed activity. If further information is required to make this demonstration, attach additional sheets to the application.

1. Is this a new or increased discharge that began after April 3, 1991? ☐ Yes ■ No
   If yes, complete G.2 below. If no, go to Section H.

2. Has an Anti-Degradation Analysis been previously conducted and submitted to the Department for the new or increased discharge referenced in G.1? ☐ Yes ☐ No

   If yes, do not complete this section. If no, and the discharge is to a Tier II waterbody as defined in ADEM Admin. Code r. 335-6-10-.12(4), complete G.2.A – G.2.F below and ADEM Forms 311 and 313 (attached). ADEM Form 313 must be provided for each alternative considered technically viable.

   Information required for new or increased discharges to high quality waters:

   A. What environmental or public health problem will the discharger be correcting?

   _____

   B. How much will the discharger be increasing employment (at its existing facility or as the result of locating a new facility)?

   _____

   C. How much reduction in employment will the discharger be avoiding?

   _____

   D. How much additional state or local taxes will the discharger be paying?

   _____

   E. What public service to the community will the discharger be providing?

   _____

   F. What economic or social benefit will the discharger be providing to the community?

   _____

SECTION H – EPA Application Forms

All Applicants must submit EPA permit application forms. More than one application form may be required from a facility depending on the number and types of discharges or outfalls found. The EPA application forms are found on the Department's website at http://www.adem.alabama.gov/programs/water/waterforms.cnt . The EPA application forms must be submitted in duplicate as follows:

1. All applicants must submit Form 1.
2. Applicants for existing industrial facilities (including manufacturing facilities, commercial facilities, mining activities, and silvicultural activities) which discharge process wastewater must submit Form 2C.
3. Applicants for new industrial facilities which propose to discharge process wastewater must submit Form 2D.
4. Applicants for new and existing industrial facilities which discharge only non-process wastewater (i.e., non-contact cooling water and/or sanitary wastewater) must submit Form 2E.
5. Applicants for new and existing facilities whose discharge is composed entirely of storm water associated with industrial activity must submit Form 2F, unless exempted by § 122.26(c)(1)(ii). If the discharge is composed of storm water and non-storm water, the applicant must also submit Forms 2C, 2D, and/or 2E, as appropriate (in addition to Form 2F).

SECTION I – ENGINEERING REPORT/BMP PLAN REQUIREMENTS

See ADEM 335-6-6-.08(i) & (j)

SECTION J– RECEIVING WATERS

Outfall No.	Receiving Water(s)	303(d) Segment?		Included in TMDL?*	
		☐ Yes	☐No	☐ Yes	☐No
		☐ Yes	☐No	☐ Yes	☐No
		☐ Yes	☐No	☐ Yes	☐No
		☐ Yes	☐No	☐ Yes	☐No
		☐ Yes	☐No	☐ Yes	☐No

*If a TMDL Compliance Schedule is requested, the following should be attached as supporting documentation:

(1) Justification for the requested Compliance Schedule (e.g. time for design and installation of control equipment, etc.);

(2) Monitoring results for the pollutant(s) of concern which have not previously been submitted to the Department (sample collection dates, analytical results (mass and concentration), methods utilized, MDL/ML, etc. should be submitted as available);

(3) Requested interim limitations, if applicable;

(4) Date of final compliance with the TMDL limitations; and,

(5) Any other additional information available to support requested compliance schedule.

SECTION K – APPLICATION CERTIFICATION

The information contained in this form must be certified by a responsible official as defined in ADEM Administrative Code r. 335-6-6-.09 "signatories to permit applications and reports" (see below).

"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."

Signature of Responsible Official: J David Hagan Date Signed: 8/18/18

Name and Title: J. David Hagan Director, Environmental Management Program

If the Responsible Official signing this application is not identified in Section A.7, provide the following information:

Mailing Address: CH 19 445 1720 2nd Avenue South

City: Birmingham State: AL Zip: 35294-2041

Phone Number: 205-934-2487 Email Address: jdhagan@uab.edu

335-6-6-.09 SIGNATORIES TO PERMIT APPLICATIONS AND REPORTS.

(1) The application for an NPDES permit shall be signed by a responsible official, as indicated below:

(a) In the case of a corporation, by a principal executive officer of at least the level of vice president, or a manager assigned or delegated in accordance with corporate procedures, with such delegation submitted in writing if required by the Department, who is responsible for manufacturing, production, or operating facilities and is authorized to make management decisions which govern the operation of the regulated facility;

(b) In the case of a partnership, by a general partner;

(c) In the case of a sole proprietorship, by the proprietor; or

(d) In the case of a municipal, state, federal, or other public entity, by either a principal executive officer, or ranking elected official.

7. When was the intake installed? _____
(Please provide dates for all major construction/installation of intake components including screens)

8. What is the maximum intake volume? _____
(maximum pumping capacity in gallons per day)

9. What is the average intake volume? _____
(average intake pump rate in gallons per day average in any 30-day period)

10. What is the actual intake flow (AIF) as defined in 40 CFR §125.92(a)? _____MGD

11. How is the intake operated? (e.g., continuously, intermittently, batch) _____

12. What is the mesh size of the screen on your intake?_____

13. What is the intake screen flow-through area?_____

14. What is the through-screen design intake flow velocity? _____ft/sec

15. What is the through-screen actual velocity (in ft/sec)? _____ft/sec

16. What is the mechanism for cleaning the screen? (e.g., does it rotate for cleaning) _____

17. Do you have any additional fish detraction technology on your intake? ☐ Yes ☐ No

18. Have there been any studies to determine the impact of the intake on aquatic organisms? ☐ Yes ☐ No (If yes, please provide.)

19. Attach a site map showing the location of the water intake in relation to the facility, shoreline, water depth, etc.

SECTION E – WASTE STORAGE AND DISPOSAL INFORMATION

Provide a description of the location of all sites involved in the storage of solids or liquids that could be accidentally discharged to a water of the state, either directly or indirectly via such avenues as storm water drainage, municipal wastewater systems, etc., which are located at the facility for which the NPDES application is being made. Where possible, the location should be noted on a map and included with this application:

Description of Waste	Description of Storage Location
N/A	

Provide a description of the location of the ultimate disposal sites of solid or liquid waste by-products (such as sludges) from any wastewater treatment system located at the facility.

Description of Waste	Quantity (lbs/day)	Disposal Method*

***Indicate which wastes identified above are disposed of at an off-site treatment facility and which are disposed of on-site. If any wastes are sent to an off-site centralized waste treatment facility, identify the waste and the facility.**

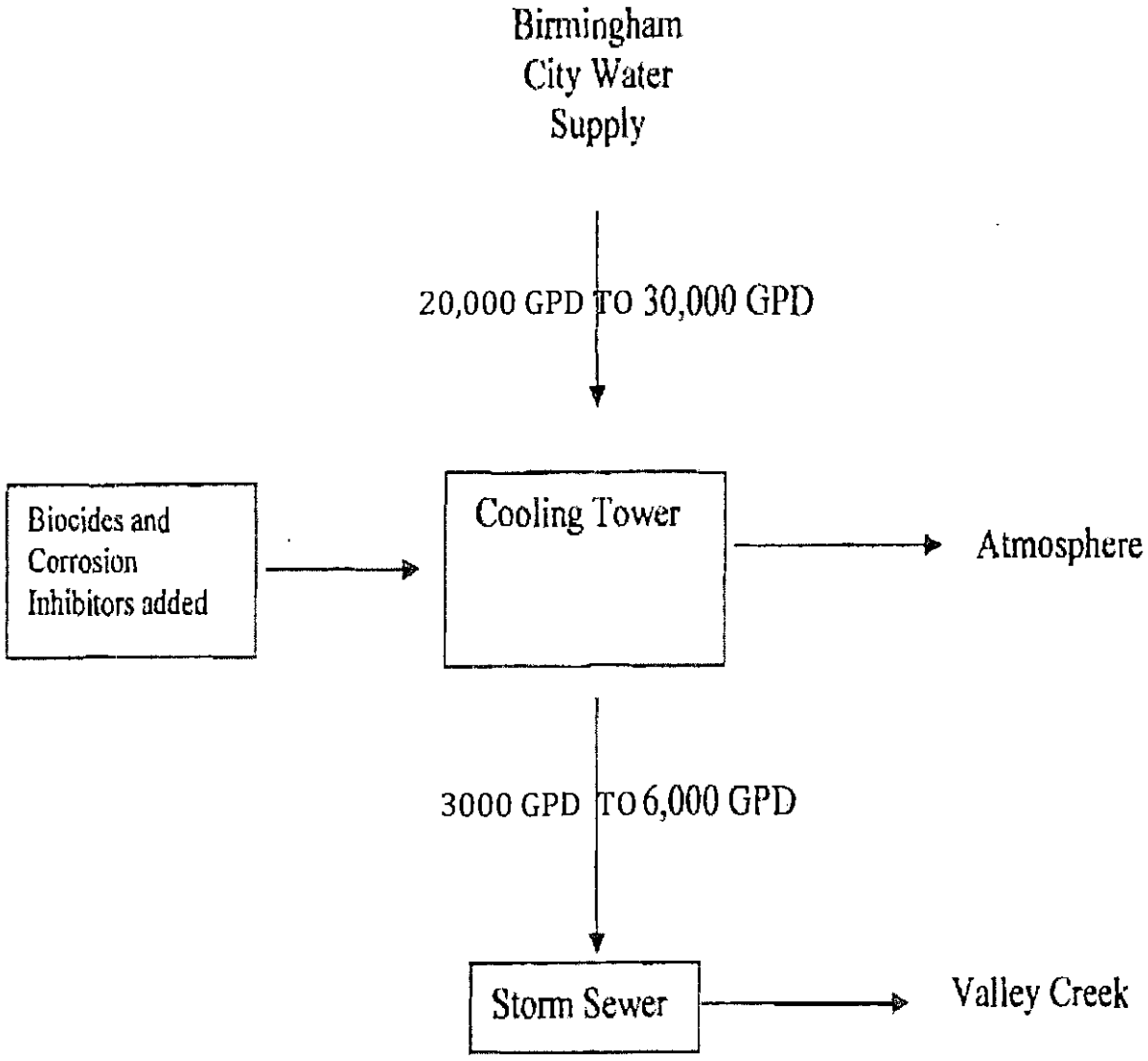
SECTION F – COASTAL ZONE INFORMATION

Is the discharge(s) located within the 10-foot elevation contour and within the limits of Mobile or Baldwin County? ☐ Yes ☐ No

If yes, complete items F.1 – F.12:

		Yes	No
1.	Does the project require new construction?	☐	☐
2.	Will the project be a source of new air emissions?	☐	☐

Figure 1. Typical Cooling Tower



Summary of Additives:

1. GI#160-
   Chemical Compisition :

   Potassium Hydroxide
   Maleic Anhydride Hydrolyzed
   Copolymer
   2-Phosphonobutane-1,2,4-
   Tricarboxylic Acid

   GI#160 Toxicity Data-
   48hr LC50 Ceriodaphnia Dubia 3,090 mg/l
   48hr LC50 Pimephales Promelas 2,340 mg/l

2. BromMax 7.1-
   Chemical Composition :
   Sodium Hypochlorite
   Sodium Bromide

   BroMmax 7.1 Toxicity Data:
   48hr LC50 Ceriodaphnia Dubia 25 mg/l
   48hr LC50 Pimephales Promelas .045 mg/l

   EPA# 63838-5

3. ISO-CIDE 1.5
   Chemical Composition :
   5-Chloro-2-methyl-4-isothiazoline-3-one
   2-Methly-4-isothiazolin-3-one

   ISO-CIDE 1.5 Toxicity Data:
   48hr LC50 Ceriodaphnia Dubia 29 mg/l
   48hr LC50 Pimephales Promelas .036 mg/l

   EPA# 67071-38-74922

4. GI#510:

TOXICOLOGY
48hr LC50 Pimephales Promelus 2,240 mg/l
48hr LC50 Ceriodaphnia Dubia 2,910 mg/l

5. GL540: will average 120 ppm as product in the blowdown

6. GI #570:
   Chemical Compositon:
   Potassium Hydroxide,
   Amino Tri(Methylene Phosphonic Acid)
   Poly (acrylic acid-co-hypophosphite), Sodium Salt
   Polymaleic Acid

   GI#570 will average 60 ppm in blowdown

7. GI#590
   Chemical composition :
   Potassium Hydroxide, 45%

8. GI #628 Oxygen Scavenger:
   Chemical Composition:
   Cobalt Sulfate, heptahydrate

   GI #628 will average 135 ppm in blowdown. It will likely be in the sodium sulfate form rather than sodium sulfite as the sulfite will react with oxygen prior to discharge.

9. GI #760 :
   Chemical Composition:
   Morpholine
   Cyclohexlamine
   Diethylaminoethanol

   Toxicology
   48hr LC50 Pimephales Promelus 1,170 mg/l
   48hr LC50 Ceriodaphnia Dubia 145 mg/l

For the steam plant : GI#760 is fed to the steam. It is unlikely that any will be present in blowdown as the active amines are volatile and will flash out of the boiler water with the steam. At that point they combine with carbon dioxide as the steam condenses in heat exchangers. Some will recycle through the deaerator and a small portion may be lost to atmosphere as the water from the storage tanks (containing condensate and softened make up) flows to the heater section of the deaerator.

10. AC4070:
    Chemical Composition :
    5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE
    2-METHYL-4-ISOTHIAZOLIN-3-ONE
    MAGNESIUM CHLORIDE
    MAGNESIUM NITRATE
    CUPRIC NITRATE TRIHYDRATE
11. AC3991:
    Chemical Composition:
    Sodium molybdate dihydrate
    Sodium polyacrylate
    Proprietary Anionic Surfactant
    Sodium hydroxide
    Butanedioic acid, octenyl-, sodium salt
    2-Phosphonobutane-1,2,4-tricarboxylic acid,
    Polymaleic acid, sodium salt
    Sodium tolyltriazole

12. PURECIDE-E:
    Chemical Composition:
    Sodium Chlorite
    Sodium Chloride
    Sodium Chlorate
    Sodium Sulfate

13. AC3609:
    Chemical Composition :
    Sodium tolyltriazole
    Sodium hydroxide

14. CA117C:
    Chemical Composition:
    Sodium silicate

15. AC4010

Chemical Composition
Phenol, 4-chloro-2-(phenylmethyl)-, sodium SALT
Sodium hydroxide

16. CA42171
    Sulfamic acid, n-bromo, sodium salt
    Sodium chloride
    Sodium hydroxide

17. AS3820
    Polyethylene-polypropylene glycol
    Sodium Alkylnaphthalenesulfonate

Discharge to Storm Sewer Locations

NAME & ADDRESS	BWWB SERVICE ACCOUNT#	PRIVATE METER #	Type	Outfall number	latitude	longitude	Receiving water
501 Building 501 12th Street South	2740803	21100811	Process water		33 30 16.28	86 49 02	VALLEY CREEK
		34045449					
UAB Administration Building 701 - 20th Street South	1516322	2312775	Tower Makeup	DSN001-7 (UAB- 7)	33° 30' 20.87"	86° 47' 58"	VALLEY CREEK
UAB Arena 601 - 13th Street South	2334900	31904125	Tower Makeup	DSN001-2 (UAB-2)	33° 30' 8.7"	86° 48' 35"	VALLEY CREEK
UAB Business & Engineering 100 - 11th Place South	2189390	No Number	Cooling Tower	DSN001-F (UAB-15)	33° 29' 45"	86° 48' 34.4"	VALLEY CREEK
UAB Camp Hall 1530 - 10th Place South	2108370	9903240	Cooling Tower	DSN001-D (UAB-13)	33° 29' 28.94"	86° 48' 43.6"	VALLEY CREEK
UAB Campbell Hall 1300 University Boulevard	1987851	14528513	Tower Makeup	DSN001-3 (UAB-3)	33° 30' 02"	86° 48' 30"	VALLEY CREEK
UAB Community Health Service Bldg - 19th 933 - 19th Street South	1675900	2260457	Tower Makeup	DSN001-9 (UAB-9)	33° 30' 06.5"	86° 47' 55.9"	VALLEY CREEK
UAB Community Health Service Bldg - 20th 933 - 20th Street South	2149082	2232125	Tower Makeup	DSN001-8 (UAB-8)	33° 30' 09.86"	86° 47' 51.77'	VALLEY CREEK
UAB Continuing Education Building 1919 - 8th Avenue South	1421120	9904367	Tower Makeup	DSN001-A (UAB -10)	33° 3'0 14.99"	86° 48' 00.77"	VALLEY CREEK
Central Plant #1 / VH / LHL 1700 University Boulevard	1784111	9206959	CW Makeup		33° 29' 59.79"	86° 48' 26"	VALLEY CREEK
		8905170	Tower Makeup (Trane)				
		38230155	Tower Makeup (Carrier)				
UAB Education Building 901 - 13th Street South	1679271	22721116	CW Makeup		33° 29' 55.73"	86° 48' 24.21"	VALLEY CREEK
UAB Hill University Center 1400 University Boulevard	2189541	9905153	Tower	DSN001-4 (UAB-4)	33° 30' 05.5"	86° 48' 26"	VALLEY CREEK
UAB Hulsey / Stephens Center 912 - 13th Street South	2145130	2222679	Cooling Tower	DSN001-G (UAB-16)	33° 29' 52.5"	86° 48' 29.4"	VALLEY CREEK
		2220386	Cooling Tower				
Jefferson Tower 619 - 19th Street South	734711	22184340	Backwash Filter		33°30'22.28" N	86°48'07.55" W	VALLEY CREEK
UAB OADI / Genesis Center 2800 Milan Court	2665970	97120053	Cooling Tower		33°25'46.93" N	86°53'19.56" W	VALLEY CREEK
UAB Special Cancer Research 550 11th Street South	2151461	99096989	Cooling Tower	DSN001-01 (UAB-1)	33° 30' 3.5"	86° 48' 49"	VALLEY CREEK
UAB Sterne Library 925 - 13th Street South	1823733	9900614	Cooling Tower	DSN001-E (UAB-14)	33° 29' 53"	86° 48' 26.65"	VALLEY CREEK
UAB SON/SHRP/WEBB 1675 University Boulevard	1724791	0100159	Boilers	DSN001-L (UAB-21)	33° 30' 7.6"	86° 48' 11.9"	VALLEY CREEK
UAB Medical Education / West Pavilion/Spain-Wallace Bldg 615 - 18th Street South	1961800	0449240	Boilers	DSN001-I (UAB-18)	33° 30' 21.06"	86° 48' 10.2"	VALLEY CREEK
		20701296	SWB Food Coolers (3rd floor)				
Central Plant #3 (CU-3)	Discharges to Storm Sewer - no sewer charges applied to the account				33°31'10.88" N	86°45'19.56" W	VALLEY CREEK
Central Plant #5 (CU-5)	Discharges to Storm Sewer - no sewer charges applied to the account			DSN-012	33 30 3.2	86 48 5.2	VALLEY CREEK
District Steam Plant 13th Street South	Need approval for boilers/process water to discharge to the storm sewer.				33°30'08.72" N	86°48'37.25" W	VALLEY CREEK
UAB Highlands 12th Street South	Need approval for Chillers to discharge to the storm sewer.				33°29'43.20" N	86°48'26.49" W	VALLEY CREEK

Delete
Delete

Discharge to Storm Sewer Locations

NAME & ADDRESS	BWWB SERVICE ACCOUNT#	PRIVATE METER #	Type	ADDITIVES	DISCHARGE FLOW	
					MAXIMUM DAILY VALUE (GPD)	AVERAGE DAILY VALUE (GPD)
501 Building 501 12th Street South	2740803	21100811 34045449	Process water	NO ADDITIVES JUST PROCESS WATER THAT IS PIPED TO THE STORM DRAIN		after april 23/2013
UAB Administration Building 701 - 20th Street South	1516322	2312775	Tower Makeup	AC3991, AC4070, CA42171	7433	2938
UAB Arena 601 - 13th Street South	2334900	31904125	Tower Makeup	AC3991, AC4070, AC4010	11,273	4466
UAB Business & Engineering 100 - 11th Place South	2189390	No Number	Cooling Tower	AC3991, AC4070, CA42171	6194	2448
UAB Camp Hall 1530 - 10th Place South	2108370	9903240	Cooling Tower	GI #160 Cooling Water Treatment, ISO-CIDE 1.5, BromMax® 7.1	1200	1,000
UAB Campbell Hall 1300 University Boulevard	1987851	14528513	Tower Makeup	AC3991, AC4070, AC4010	9911	3908
UAB Community Health Service Bldg - 19th 933 - 19th Street South	1675900	2260457	Tower Makeup	2725AC3991, AS3820, AC4010, CA42171	2725	1076
UAB Community Health Service Bldg - 20th 933 - 20th Street South	2149082	2232125	Tower Makeup	GI #160 Cooling Water Treatment, ISO-CIDE 1.5, BromMax® 7.1	1200	1,000
Jefferson Tower 619 - 19th Street South	734711	22184340	Backwash Filter		400	400
UAB Continuing Education Building 1919 - 8th Avenue South	1421120	9904367	Tower Makeup	GI #160 Cooling Water Treatment, ISO-CIDE 1.5, BromMax® 7.1	1200	1000
Central Plant #1 / VH / LHL 1700 University Boulevard	1784111	9208959 8905170 38230155	CW Makeup Tower Makeup (Trane) Tower Makeup (Carrier)	AC3609,CA117C, AC4070,AC3991, PURECIDE-E	173,189	68,455
UAB Education Building 901 - 13th Street South	1679271	22721116	CW Makeup	AC3991, AC4070, AC4010	17,344	6846
UAB Hill University Center 1400 University Boulevard	2189541	9905153	Tower i	AC3991, AC4070, AC4010	4580	1968
UAB Hulsey / Stephens Center 912 - 13th Street South	2145130	2222679 2220386	Cooling Tower Cooling Tower	AC3991, AC4070, CA42171	2,306	973
Delete UAB OAB / Genomic Center 2800 Milan Court	2665970	97120053	Cooling Tower	GI #160 Cooling Water Treatment, ISO-CIDE 1.5, BromMax® 7.1	1200	1000
Delete UAB Special Cancer Research 950 11th Street South	2151461	99096989	Cooling Tower	GI #160 Cooling Water Treatment, ISO-CIDE 1.5, BromMax® 7.1	15,683	7919
UAB Sterne Library 925 - 13th Street South	1823733	9900614	Cooling Tower	AC3991, AC4070, CA42171	128,111	30,650
UAB SON/SHRP/WEBB 1675 University Boulevard	1724791	0100159	Boilers	GI510, GI590, GI628 and GI760	165	165
UAB Medical Education / West Pavilion/Spain-Wallace Bldg 615 - 18th Street South	1961300	U449240 20701296	Boilers SWB Food Coolers (3rd floor)	GI510, GI590, GI628 and GI760	300	300
Central Plant #3 (CU-3)	Discharges to Storm Sewer - no sewer charges applied to the account			AC4070,AC3991, PURECIDE-E	198,213	74,445
Central Plant #5 (CU-5)	Discharges to Storm Sewer - no sewer charges applied to the account			AC3609,CA117C, AC4070,AC3991, PURECIDE-E	97,920	39,173
District Steam Plant 13th Street South	Need approval for boilers/process water to discharge to the storm sewer			GL540 Boiler Water Treatment,GI #570 , GI #628 Oxygen Scavenger , GI #760 Steamline Treatment	8200	8200
UAB Highlands 12th Street South	Need approval for Chillers to discharge to the storm sewer.			GI #160 Cooling Water Treatment, ISO-CIDE 1.5, BromMax® 7.1	3800	3800

Physical Location of Flow Metering Equipment

NAME & ADDRESS	BWWB SERVICE ACCOUNT#	PRIVATE METER #	Type	Meter Locations
501 Building 501 12th Street South	2740803	21100811	Process water	Both meters are located in Engineering Lab. One is on the South Wall at equipment. Other is located at ceiling above stairwell on East wall.
		34045449		
UAB Administration Building 701 - 20th Street South	1516322	2312775	Tower Makeup	14th Floor, Penthouse Mech Rm 1420
UAB Arena 601 - 13th Street South	2334900	31904125	Tower Makeup	Mech Rm 140 (Back left side)
UAB Business & Engineering 100 - 11th Place South	2189390	No Number	Cooling Tower	BEC Mech Rm 200 - rear side, ceiling
UAB Camp Hall 1530 - 10th Place South	2108370	9903240	Cooling Tower	Mech Rm 118 (overhead)
UAB Campbell Hall 1300 University Boulevard	1987851	14528513	Tower Makeup	Mech Rm 194M
UAB Campus Recreation Center 1501 University Boulevard	284156	99430887	Condensate quench	Lower level of Pool Rm Mech Rm 120D
UAB Community Health Service Bldg - 19th 933 - 19th Street South	1675900	2260457	Tower Makeup	Roof @ tower
UAB Community Health Service Bldg - 20th 933 - 20th Street South	2149082	2232125	Tower Makeup	Mech Rm 180 (right side, wall)
UAB Continuing Education Building 1919 - 8th Avenue South	1421120	9904367	Tower Makeup	Outside - mounted next to tower
Central Plant #1 / VH / LHL 1700 University Boulevard	1784111	9206959	CW Makeup	CU-1 Mech Rm Marked in Blue (meter at eye level)
		8905170	Tower Makeup (Trane)	CU-1 Mech Rm Marked in Yellow (waist level)
		38230155	Tower Makeup (Carrier)	CU-1 Mech Rm Overhead/ceiling
UAB Education Building 901 - 13th Street South	1679271	22721116	CW Makeup	Mech Rm 101M Overhead
UAB Hill University Center, Accts. Payable 1400 University Boulevard	2189541	9905153	Tower	Mech Rm 170 (Bldg behind Café)
		99825523	Cafeteria Ice Machine	Back of Cafeteria
UAB Hulsey / Stephens Center 912 - 13th Street South	2145130	2222679	Cooling Tower	Mech Rm 130 Ceiling @ overhead door
		2220386	Cooling Tower	Mech Rm 130 Overhead at chillers
Jefferson Tower 619 - 19th Street South	734711	22184340	Backwash Filter	SouthWing Basement Mech Rm located at the sand filter tank)
UAB OADI / Genesis Center 2800 Milan Court	2665970	97120053	Cooling Tower	Mech Rm 339 Back wall

Delete

Physical Location of Flow Metering Equipment

NAME & ADDRESS	BWWB SERVICE ACCOUNT#	PRIVATE METER #	Type	Meter Locations
UAB Research Support Building 1802 - 9th Street South	2894422	514534	Condensate quench (Basement)	Mech Rm 190 - on wall
		516442	Condensate quench (Penthouse)	Mech Rm 600 - overhead @ condensate quench
Delete UAB Special Cancer Research 550 11th Street South	2151461	99096989	Cooling Tower	Mech Rm 198C
UAB Sterne Library 925 - 13th Street South	1823733	9900614	Cooling Tower	Mech Rm 337 - Ceiling/overhead marked ceiling tile
UAB SON/SHRP/WEBB 1675 University Boulevard	1724791	0100159	Boilers	Mech Rm 155 @ deionized water tank
UAB Medical Education / West Pavilion/Spain-Wallace Bldg 615 - 18th Street South	1961800	U449240	Boilers	10th Floor Mech Rm - overhead
		20701296	SWB Food Coolers (3rd floor)	SWB 3rd flr Mech Rm - located behind the Plaza
Central Plant #3 (CU-3)	Discharges to Storm Sewer - no sewer charges applied to the account			N/A
Central Plant #5 (CU-5)	Discharges to Storm Sewer - no sewer charges applied to the account			N/A
District Steam Plant 13th Street South	Need approval for boilers/process water to discharge to the storm sewer.			Meter is located overhead at stairwell.
UAB Highlands 12th Street South	Need approval for Chillers to discharge to the storm sewer.			Metering hasn't been installed yet.

Material Safety Data Sheet: CHEM-AQUA 117C

Supercedes Date 05/18/2009 **Issuing Date** 05/31/2012

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name CHEM-AQUA 117C
Recommended use Water treatment chemical
Information on Manufacturer
CHEM-AQUA, INC
BOX 152170
IRVING, TEXAS 75015

Product Code 841C
Chemical nature Sodium silicate solution
Emergency Telephone Number
CHEMTREC® 800-424-9300

2. HAZARDS IDENTIFICATION

Emergency Overview
WARNING
Severe skin irritation
Severe eye irritation
Causes respiratory tract irritation
Harmful if swallowed

Color Colorless **Physical State** Liquid **Odor** Odorless

Potential Health Effects	
Principle Route of Exposure	Skin contact, Eye contact, Inhalation.
Primary Routes of Entry	None known
Acute Effects	
Eyes	Severe irritation.
Skin	Severe irritation.
Inhalation	Causes respiratory tract irritation.
Ingestion	Irritating to mouth, throat, and stomach.
Chronic Toxicity	None known.
Target Organ Effects	Kidney
Aggravated Medical Conditions	Skin disorders, Respiratory disorders, Kidney disorders.
Potential Environmental Effects	See Section 12 for additional Ecological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS-No
Sodium silicate	1344-09-8

4. FIRST AID MEASURES

General Advice	Avoid contact with skin, eyes and clothing. Avoid breathing vapors or mists.
Eye Contact	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Get medical attention immediately.
Skin Contact	Remove immediately all contaminated clothing. Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately.
Inhalation	If inhaled, remove to fresh air. Get medical attention if symptoms occur.
Ingestion	Drink 1 or 2 glasses of water. Do NOT induce vomiting. Get medical attention immediately. Never give anything by mouth to an unconscious person.
Notes to physician	Treat symptomatically

5. FIRE-FIGHTING MEASURES

Flash Point Does not flash **Method** Not applicable
Autoignition Temperature No information available.
Flammability Limits In Air % No information available. **Upper** No data available **Lower** No data available
Suitable Extinguishing Media
Water spray. Carbon dioxide (CO2). Foam. Dry chemical. Alcohol-resistant foam. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Specific hazards arising from the chemical
Material can create slippery conditions.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA	**Health** 2	**Flammability** 0	**Instability** 0
HMIS	**Health** 2	**Flammability** 0	**Instability** 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Use personal protective equipment. Prevent further leakage or spillage if safe to do so. Material can create slippery

conditions.

Environmental Precautions Do not flush into surface water or sanitary sewer system.

Methods for Containment Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

Methods for Cleaning Up Pick up and transfer to properly labeled containers.

Neutralizing Agent Not applicable.

7. HANDLING AND STORAGE

Handling Avoid contact with skin, eyes and clothing. Avoid breathing vapors or mists.

Storage Store in original container. Metal containers must be lined. Keep containers tightly closed in a dry, cool and well-ventilated place. Freezing will affect the physical condition but will not damage the material. Thaw and mix before using.

Storage Temperature **Minimum** 35 °F / 2 °C **Maximum** 120 °F / 49 °C

Storage Conditions **Indoor** X **Outdoor** **Heated** **Refrigerated**

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH
Sodium silicate	No data available	No data available	No data available

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/Face Protection Tightly fitting safety goggles.

Skin Protection Wear suitable protective clothing, impervious gloves.

Respiratory Protection In case of inadequate ventilation wear respiratory protection.

General Hygiene Considerations Remove and wash contaminated clothing before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid	**Viscosity**	Slight Viscous
Color	Colorless	**Odor**	Odorless
Appearance	Transparent	**pH**	11.8
Specific Gravity	1.39	**Evaporation Rate**	0.1 (Butyl acetate=1)
Percent Volatile (Volume)	62	**VOC Content (%)**	0
Vapor Pressure	18 mmHg @ 70°F	**Vapor Density**	0.6 (Air = 1.0)
Solubility	Completely soluble	**Boiling Point/Range**	212 °F / 100 °C

10. STABILITY AND REACTIVITY

Chemical Stability Stable. Hazardous polymerization does not occur.

Conditions to Avoid None known

Incompatible Products Acids, Metals, Ammonium salts.

Hazardous Decomposition Products None under normal use

Possibility of Hazardous Reactions None under normal processing

11. TOXICOLOGICAL INFORMATION

Product Information No information available.

Component Information

Acute Toxicity

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation	Draize Test	Other
Sodium silicate	= 1153 mg/kg (Rat)	> 4640 mg/kg (Rabbit)	no data available	no data available	no data available

Chronic Toxicity

Component	Mutagenicity	Sensitization	Developmental Toxicity	Reproductive Toxicity	Target Organ Effects
Sodium silicate	no data available	no data available	no data available	no data available	kidneys

Carcinogenicity

Component	ACGIH	IARC	NTP	OSHA	Other
Sodium silicate	not applicable	not applicable	not applicable	not applicable	not applicable

12. ECOLOGICAL INFORMATION

Product Information No information available.

Component Information

Component	Toxicity to Algae	Toxicity to Fish	Microtox	Water Flea	log Pow
Sodium silicate	no data available	LC50 301 - 478 mg/L Lepomis macrochirus 96 h LC50 = 3185 mg/L Brachydanio rerio 96 h	no data available	EC50= 216 mg/L 96 h	N/A

Persistence and Degradability No information available.
Bioaccumulation No information available.
Mobility No information available.

13. DISPOSAL CONSIDERATIONS

Product Disposal Dispose of in accordance with local regulations.
Container Disposal Empty containers should be taken for local recycling, recovery, or waste disposal.

14. TRANSPORT INFORMATION

DOT Not regulated

TDG Not regulated

ICAO Not regulated

IATA Not regulated

IMDG/IMO Not regulated

15. REGULATORY INFORMATION

Inventories
TSCA Complies
DSL Complies
U.S. Federal Regulations
SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and and Title 40n of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Chronic Health Hazard	Fire Hazard	Sudden Release of Pressure Hazard	Reactive Hazard
Yes	No	No	No	No

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs
Sodium silicate	Not applicable	Not applicable

U.S. State Regulations
California Proposition 65 This product contains the following Proposition 65 chemicals

Component	CAS-No	California Prop. 65
Lead	7439-92-1	carcinogen developmental toxicity male reproductive toxicity female reproductive toxicity
Mercury	7439-97-6	developmental toxicity
Nickel	7440-02-0	carcinogen
Arsenic	7440-38-2	carcinogen
Cadmium and compounds (as Cd)	7440-43-9	carcinogen developmental toxicity male reproductive toxicity

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.
WHMIS Hazard Class
D2B Toxic materials

16. OTHER INFORMATION

Prepared By Angela Hutson
Supercedes Date 05/18/2009
Issuing Date 05/31/2012
Reason for Revision No information available.

Glossary	No information available.
List of References.	No information available.

CHEM-AQUA, INC assumes no responsibility for personal injury or property damage caused by the use, storage, or disposal of the product in a manner not recommended on the product label. Users assume all risks associated with such unrecommended use, storage or disposal of the product. The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

Material Safety Data Sheet

SECTION I - MANUFACTURER'S INFORMATION

Manufacturer's Name: Guardian-IPCO, Inc.
44 Vann Drive
Birmingham, AL 35242

Emergency Telephone Number: 205/991-5316

Chemical Name and Synonyms: N/A

Trade Name and Synonyms: GI #160 Cooling Water Treatment

Chemical Family: Blend

SECTION II - HAZARDOUS INGREDIENTS: Listed below: X
Not applicable: _____

Component	Percentage	CAS NO.
Potassium Hydroxide	>1.0	1310-58-3
Maleic Anhydride Hydrolyzed Copolymer	> 1.0	113221-69-5
2-Phosphonobutane-1,2,4-Tricarboxylic Acid	> 1.0	40372-66-5
Polycarboxylate	> 1.0	(Proprietary)

SECTION III - PHYSICAL DATA

Boiling Point (Fahrenheit): Not established
Specific Gravity: 1.11
Vapor Pressure (mm Hg): Not established
Percent Volatile by Volume: N/A
Vapor Density (Air=1): Not established
Solubility in Water: Complete
Appearance and Odor: Clear, amber liquid, slight odor

SECTION IV: - FIRE & EXPLOSION DATA: Listed below: _____
Not applicable: X

Flash Point (Method Used): N/A
Flammable Limits: Lel: N/A Uel: N/A
Extinguishing Media: Water, carbon dioxide, dry chemical
Special Fire Fighting Procedures & Unusual Fire and Explosion Hazards:
None

SECTION V: - HEALTH HAZARD DATA: Listed below: X
Not applicable: _____

Threshold Limit Value: Not established TXDS: Not established

Effects of Overexposure:

Eyes: May cause severe irritation.
Skin: Can cause irritation in sensitive individuals.
Ingestion: Can cause irritation to gastro-intestinal tract.

Emergency and First Aid Procedures:

Eyes: Flush with water 15 minutes. Seek medical attention.
Skin: Wash affected area with soap and water. Seek medical attention if irritation persists.
Ingestion: Seek medical attention immediately. Do not induce vomiting.

SECTION VI: - REACTIVITY DATA

Stability: Stable: X Unstable: _____
Incompatibility (Materials to avoid): Strong bases
Hazardous Decomposition Products: Carbon monoxide

SECTION VII: - SPILL OR LEAK PROCEDURES

Steps to be taken in Case Material is Released or Spilled: Contain and collect on absorbent material for disposal. Rinse spill area to sanitary drain with large amounts of water.

Waste Disposal Method: Follow all local, state, and federal regulations.

SECTION VIII: - SPECIAL PROTECTION INFORMATION

Respiratory Protection: None Required
Ventilation:
Local exhaust: recommended Special: N/A
Mechanical: N/A Other: N/A

Protective Gloves: Rubber Eye Protection: Goggles

Other Protective Equipment: Rubber apron and safety boots.

SECTION IX: - SPECIAL PRECAUTIONS: Store drums in a cool, dry area. Keep containers closed when not in use.

SECTION X: TOXICOLOGY:

48hr LC50 Pimephales Promelus	2,340 mg/l
48hr LC50 Ceriodaphnia Dubia	3,090 mg/l

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Prepared by Jay Mullis/Cindy Davidson, Chemist, May, 2012

Material Safety Data Sheet

SECTION I - MANUFACTURER'S INFORMATION

Manufacturer's Name: Guardian-IPCO, Inc.
44 Vann Drive
Birmingham, AL 35242

Emergency Telephone Number: 205/991-5316

Chemical Name and Synonyms: Blend

Trade Name and Synonyms: GI #510 Boiler Water Treatment

Chemical Family: N/A

SECTION II - HAZARDOUS INGREDIENTS: Listed below:

Not applicable: _X_

Component	Percentage	CAS NO.

SECTION III - PHYSICAL DATA

Boiling Point (Fahrenheit): Not established
Specific Gravity: 1.184
Vapor Pressure (mm Hg): Not established
Percent Volatile by Volume: N/A
Vapor Density (Air=1): Not established
Solubility in Water: Complete
Appearance and Odor: Clear light brown liquid; slight odor

SECTION IV: - FIRE & EXPLOSION DATA: Listed below: ___

Not applicable: ___X

Flash Point (Method Used): N/A
Flammable Limits: Lel: N/A Uel: N/A
Extinguishing Media: Water, Carbon dioxide, dry chemicals
Special Fire Fighting Procedures & Unusual Fire and Explosion Hazards:
None

SECTION V: - HEALTH HAZARD DATA: Listed below: X
Not applicable: ____

Threshold Limit Value: Not established TXDS: Not established

Effects of Overexposure:

Eyes: May cause severe irritation.
Skin: Can cause irritation in sensitive individuals.
Ingestion: Can cause irritation to gastro-intestinal tract.

Emergency and First Aid Procedures:

Eyes: Flush with water for 15 minutes. Seek medical attention immediately
Skin: Wash affected area with soap and water. Seek medical attention if irritation persists.
Ingestion: If conscious, give large quantities of water. Seek medical attention.

SECTION VI: - REACTIVITY DATA

Stability: Stable: X Unstable: ____
Incompatibility (Materials to avoid): Strong acids, oxidizers
Hazardous Decomposition Products: Oxides of Phosphorus

SECTION VII: - SPILL OR LEAK PROCEDURES

Steps to be taken in Case Material is Released or Spilled: **Large spill:** Contain and collect for disposal. **Small spill:** Flush to sanitary drain with large amounts of water.

Waste Disposal Method: Follow all local, state, and federal regulations.

SECTION VIII: - SPECIAL PROTECTION INFORMATION

Respiratory Protection: None Required
Ventilation:
Local exhaust: recommended Special: N/A
Mechanical: N/A Other: N/A
Protective Gloves: Rubber Eye Protection: Goggles

Other Protective Equipment: Rubber apron and safety boots.

SECTION IX: - SPECIAL PRECAUTIONS: Store drums in a cool, dry area. Keep containers closed when not in use.

SECTION X: TOXICOLOGY

48hr LC50 Pimephales Promelus 2,240 mg/l

48hr LC50 Ceriodaphnia Dubia 2,910 mg/l

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Prepared by Jay Mullis/Cindy Davidson, Chemist, May, 2012

Material Safety Data Sheet

SECTION I - MANUFACTURER'S INFORMATION

Manufacturer's Name: Guardian-IPCO, Inc.
44 Vann Drive
Birmingham, AL 35242

Emergency Telephone Number: 205/991-5316

Chemical Name and Synonyms: N/A

Trade Name and Synonyms: GI #570 Boiler Water Treatment

Chemical Family: Blend

SECTION II - HAZARDOUS INGREDIENTS: Listed below: X
Not applicable: _____

Component	Percentage	CAS NO.
Potassium Hydroxide, 45 %	> 1.0	1310-58-3
Amino Tri(Methylene Phosphonic Acid)	>1.0	6419-19-8
Poly (acrylic acid-co-hypophosphite), Sodium Salt	>1.0	71050-62-9
Polymaleic Acid	>1.0	26099-09-2

SECTION III - PHYSICAL DATA

Boiling Point (Fahrenheit): Not established
Specific Gravity: 1.13 - 1.14
Vapor Pressure (mm Hg): Not established
Percent Volatile by Volume: N/A
Vapor Density (Air=1): Not established
Solubility in Water: Complete
Appearance and Odor: Clear, amber liquid, slight odor.

SECTION IV: - FIRE & EXPLOSION DATA: Listed below: _____
Not applicable: X

Flash Point (Method Used): N/A
Flammable Limits: Lel: N/A Uel: N/A
Extinguishing Media: Water, carbon dioxide, dry chemicals
Special Fire Fighting Procedures & Unusual Fire and Explosion Hazards:
None

SECTION V: - HEALTH HAZARD DATA: Listed below: X
Not applicable: _____

Threshold Limit Value: Not established TXDS: Not established

Effects of Overexposure:

Eyes: Destructive to eye tissue on contact. Will cause severe burns that result in damage to the eyes and blindness.
Skin: Can cause severe burns. Destructive to tissue.
Ingestion: Can cause severe burns and complete tissue perforation of mucous membranes of the mouth, throat, esophagus, and stomach if swallowed.
Inhalation: Concentrated mist or spray may cause damage to the upper respiratory tract and even to the lung tissue proper, which could produce chemical pnuemonia, depending upon the severity of the exposure.

Emergency and First Aid Procedures:

Eyes: Flush with water 15 minutes even if minute quantities enter the eye. Seek medical attention.
Skin: Wash affected area with soap and water and remove contaminated clothing. Seek medical attention if irritation persists.
Ingestion: **Do not induce vomiting.** Give 2 fl. oz. vinegar diluted with 2 oz water. Seek medical attention.

SECTION VI: - REACTIVITY DATA

Stability: Stable: X Unstable: _____
Incompatibility (Materials to avoid): Strong acids. Avoid contact with aluminum, leather, wool, tin, zinc, and alloys containing these materials.

Hazardous Decomposition Products: None

SECTION VII: - SPILL OR LEAK PROCEDURES

Steps to be taken in Case Material is Released or Spilled: **Large spill :** Contain and dilute with dilute acid. Flush with large amounts of water followed by liberal covering of sodium bicarbonate for removing last traces.

Waste Disposal Method: Follow all local, state, and federal regulations.

SECTION VIII: - SPECIAL PROTECTION INFORMATION

Respiratory Protection: NIOSH-approved respirator for mist.
Ventilation:

Local exhaust: N/A	Special: N/A
Mechanical: N/A	Other: N/A
Protective Gloves: Rubber	Eye Protection: Goggles

Other Protective Equipment: Rubber apron and safety boots.

SECTION IX: - SPECIAL PRECAUTIONS: Store drums in a cool, dry area. Keep containers closed when not in use.

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Prepared by Jay Mullis/Cindy Davidson, Chemist, January 2003

Material Safety Data Sheet

SECTION I - MANUFACTURER'S INFORMATION

Manufacturer's Name: Guardian-IPCO, Inc.
44 Vann Drive
Birmingham, AL 35242

Emergency Telephone Number: 205/991-5316

Chemical Name and Synonyms: N/A

Trade Name and Synonyms: GI #590 Boiler Water Treatment

Chemical Family: Blend

SECTION II - HAZARDOUS INGREDIENTS: Listed below: X
Not applicable: ____

Component	Percentage	CAS NO.
Potassium Hydroxide, 45%	> 1.0%	1310-58-3

SECTION III - PHYSICAL DATA

Boiling Point (Fahrenheit): Not established Specific Gravity: 1.2
Vapor Pressure (mm Hg): Not established Percent Volatile by Volume: N/A
Vapor Density (Air=1): Not established Solubility in Water: Complete
Appearance and Odor: Clear, amber to brown liquid, slight odor

SECTION IV: - FIRE & EXPLOSION DATA: Listed below: ____
Not applicable: X

Flash Point (Method Used): N/A
Flammable Limits: Lel: N/A Uel: N/A
Extinguishing Media: Water, Carbon dioxide, dry chemicals
Special Fire Fighting Procedures & Unusual Fire and Explosion Hazards:
None

SECTION V: - HEALTH HAZARD DATA: Listed below: X
Not applicable: _____

Threshold Limit Value: Not established TXDS: Not established

Effects of Overexposure:

Eyes: Destructive to eye tissues on contact. Will cause severe burns that result in damage to the eyes and even blindness.
Skin: Can cause severe burns. Very destructive to tissue.
Ingestion: Can cause severe burns and complete tissue perforation of mucous membranes of the mouth, throat, esophagus, and stomach if swallowed.
Inhalation: Concentrated mist or spray may cause damage to the upper respiratory tract and even to the lung tissue proper which could produce chemical pneumonia, depending upon severity of exposure.

Emergency and First Aid Procedures:

Eyes: Flush with water 15 minutes with large quantities of water even if minute quantities enter the eyes. Seek medical attention.
Skin: Wash skin with large quantities of water for at least 15 minutes while removing contaminated clothing and shoes. Seek medical attention.
Ingestion: **Do not induce vomiting.** Give 2 fl oz vinegar diluted with 2 fl oz water. Seek medical attention.
Inhalation: Remove person from exposure area. If breathing has stopped, use mouth-to-mouth resuscitation and get prompt medical attention.

SECTION VI: - REACTIVITY DATA

Stability: Stable: X Unstable:_____
Incompatibility (Materials to avoid): Strong acids. Avoid contact with aluminum, leather, wool, tin, zinc, and alloys containing these metals.

Hazardous Decomposition Products: None

SECTION VII: - SPILL OR LEAK PROCEDURES

Steps to be taken in Case Material is Released or Spilled: Contain if possible. Then neutralize with dilute acid. Flush area with water followed by liberal covering of sodium bicarbonate for removing last traces.

Waste Disposal Method: Follow all local, state, and federal regulations.

SECTION VIII: - SPECIAL PROTECTION INFORMATION

Respiratory Protection: NIOSH-approved respirator for mist.
Ventilation: N/A
Local exhaust: N/A
Special: N/A
Mechanical: N/A
Other: N/A
Protective Gloves: Rubber
Eye Protection: Chemical splash goggles and face shield.

Other Protective Equipment: Rubber apron and safety boots. Eye bath and safety shower should be provided.

SECTION IX: - SPECIAL PRECAUTIONS: Store drums in a cool, dry area. Keep containers closed when not in use. -

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Prepared by Jay Mullis/Cindy Davidson, Chemist, September, 2009

Material Safety Data Sheet

SECTION I - MANUFACTURER'S INFORMATION

Manufacturer's Name: Guardian-IPCO, Inc.
44 Vann Drive
Birmingham, AL 35242

Emergency Telephone Number: 205/991-5316

Chemical Name and Synonyms: N/A

Trade Name and Synonyms: GI #628 Oxygen Scavenger

Chemical Family: Inorganic salt

SECTION II - HAZARDOUS INGREDIENTS: Listed below:_____
Not applicable: ___X

Component	Percentage	CAS NO.
Cobalt Sulfate, heptahydrate	< 1.0	10026-24-1

SECTION III - PHYSICAL DATA

Boiling Point (Fahrenheit): Not established
Specific Gravity: 1.25
Vapor Pressure (mm Hg): Not established
Percent Volatile by Volume: N/A
Vapor Density (Air=1): Not established
Solubility in Water: Complete
Appearance and Odor: Clear, colorless to light pink liquid; sulfur odor

SECTION IV: - FIRE & EXPLOSION DATA: Listed below: _____
Not applicable: ___X

Flash Point (Method Used): N/A
Flammable Limits: Lel: N/A Uel: N/A
Extinguishing Media: Water, Carbon dioxide, dry chemicals
Special Fire Fighting Procedures & Unusual Fire and Explosion Hazards:
None

SECTION V: - HEALTH HAZARD DATA: Listed below: ___X
Not applicable: _____

Threshold Limit Value: TDLO figure for human ingestion of 7 and 57 mg/kg are cited.

TXDS: Not established

Effects of Overexposure:

Eyes: May cause severe irritation.
Skin: May cause irritation in sensitive individuals.
Ingestion: May cause severe irritation.
Inhalation: May cause irritation.

Emergency and First Aid Procedures:

Eyes: Flush with water 15 minutes. Seek medical attention.
Skin: Wash affected area with soap and water. Seek medical attention if irritation persists.
Ingestion: Give large quantities of water. Seek medical attention.
Inhalation: Remove person from exposure.

SECTION VI: - REACTIVITY DATA

Stability: Stable: ___X Unstable:_____
Incompatibility (Materials to avoid): Acid or strong acid salts.
Hazardous Decomposition Products: Sulfur dioxide

SECTION VII: - SPILL OR LEAK PROCEDURES

Steps to be taken in Case Material is Released or Spilled: **Large spill:** Contain and collect. Treat remainder as small spill. **Small spill:** Flush to drain with large amounts of water.

Waste Disposal Method: Since this product has a high oxygen demand, disposal areas should be selected with care. Follow all local, state, and federal laws.

SECTION VIII: - SPECIAL PROTECTION INFORMATION

Respiratory Protection: N/A
Ventilation:
Local exhaust: N/A Special: N/A
Mechanical: N/A Other: N/A
Protective Gloves: Rubber Eye Protection: Goggles

Other Protective Equipment: Rubber apron and safety boots.

SECTION IX: - SPECIAL PRECAUTIONS: Store drums in a cool, dry area. Keep containers closed when not in use.

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Prepared by Jay Mullis/Cindy Davidson, Chemist, September, 2009

Material Safety Data Sheet

SECTION I - MANUFACTURER'S INFORMATION

Manufacturer's Name: Guardian-IPCO, Inc.
44 Vann Drive
Birmingham, AL 35242

Emergency Telephone Number: 205/991-5316

Chemical Name and Synonyms: N/A

Trade Name and Synonyms: GI #760 Steamline Treatment

Chemical Family: Blend

SECTION II - HAZARDOUS INGREDIENTS: Listed below: X
Not applicable: _____

Component	Percentage	CAS NO.
Morpholine	> 1.0%	110-91-8
Cyclohexlamine	> 1.0%	108-91-8
Diethylaminoethanol	> 1.0%	100-37-8

SECTION III - PHYSICAL DATA

Boiling Point (Fahrenheit): Not established Specific Gravity: .98
Vapor Pressure (mm Hg): Not established Percent Volatile by Volume: 100%
Vapor Density (Air=1): Not established Solubility in Water: Complete
Appearance and Odor: Clear colorless to amber liquid; amine odor

SECTION IV: - FIRE & EXPLOSION DATA: Listed below: X
Not applicable: _____

Flash Point (Method Used): Not established
Flammable Limits: Lel: Not established Uel: Not established
Extinguishing Media: Alcohol foam, carbon dioxide, dry chemicals
Special Fire Fighting Procedures & Unusual Fire and Explosion Hazards:
Water may be ineffective on flames but should be used to cool fire exposed containers. Use self-contained breathing apparatus while fighting fire.

SECTION V: - HEALTH HAZARD DATA: Listed below: X
Not applicable: ____

Threshold Limit Value: Not established TXDS: Not established

Effects of Overexposure:

Eyes: Destructive to eye tissues on contact. Will cause severe burns that result in damage to the eyes and even blindness.
Skin: Can cause severe burns. Can be absorbed in toxic quantities.
Ingestion: Can cause gastrointestinal irritation or distress.
Inhalation: May cause irritation of upper respiratory tract.

Emergency and First Aid Procedures:

Eyes: Flush with water 15 minutes with large quantities of water even if minute quantities enter the eyes. Seek medical attention.
Skin: Wash skin with large quantities of water for at least 15 minutes while removing contaminated clothing and shoes. Seek medical attention.
Ingestion: **Do not induce vomiting.** Give large quantities of water. Seek medical attention.
Inhalation: Remove person from exposure area. Seek medical attention.

SECTION VI: - REACTIVITY DATA

Stability: Stable: X Unstable:____
Incompatibility (Materials to avoid): Acids

Hazardous Decomposition Products: Ammonia, carbon monoxide, carbon dioxide

SECTION VII: - SPILL OR LEAK PROCEDURES

Steps to be taken in Case Material is Released or Spilled: Eliminate all ignition sources. Ventilate area. Contain spill. Remove with inert absorbent.

Waste Disposal Method: Follow all local, state, and federal regulations.

SECTION VIII: - SPECIAL PROTECTION INFORMATION

Respiratory Protection: May be necessary in closed areas.
Ventilation: Adequate
Local exhaust: Recommended Special: N/A
Mechanical: N/A Other: N/A
Protective Gloves: Rubber Eye Protection: Goggles

Other Protective Equipment: Rubber apron and safety boots. Eye bath and safety shower should be provided.

SECTION IX: - SPECIAL PRECAUTIONS: Store drums in a cool, dry area. Keep containers closed when not in use.

SECTION X: TOXICOLOGY

48hr LC50 Pimephales Promelus 1,170 mg/l

48hr LC50 Ceriodaphnia Dubia 145 mg/l

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Prepared by Jay Mullis/Cindy Davidson, Chemist, May, 2012

Material Safety Data Sheet: ANCOOL 3609

Supercedes Date 05/12/2008 **Issuing Date** 09/02/2011

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name ANCOOL 3609
Recommended use Water treatment chemical
Information on Manufacturer
CHEM-AQUA, INC
BOX 152170
IRVING, TEXAS 75015

Product Code 394C
Chemical nature Alkaline Aqueous solution
Emergency Telephone Number
CHEMTREC 1-800-424-9300

2. HAZARDS IDENTIFICATION

Emergency Overview
DANGER
Corrosive
Causes skin and eye burns
Harmful if inhaled and may cause delayed lung injury
Harmful or fatal if swallowed

Color Light yellow - Amber **Physical State** Liquid **Odor** Characteristic

Potential Health Effects	
Principle Route of Exposure	Skin contact, Eye contact, Inhalation. (mist).
Primary Routes of Entry	None known
Acute Effects	
Eyes	Corrosive to the eyes and may cause severe damage including blindness.
Skin	Causes skin burns.
Inhalation	Harmful by inhalation. Causes burns.
Ingestion	Ingestion causes burns of the upper digestive and respiratory tracts.
Chronic Toxicity	None known.
Target Organ Effects	Eyes, Skin, Respiratory system.
Aggravated Medical Conditions	Respiratory disorders, Skin disorders.
Potential Environmental Effects	See Section 12 for additional Ecological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS-No
Sodium tolyltriazole	64665-57-2
Sodium hydroxide	1310-73-2

4. FIRST AID MEASURES

General Advice	Do not get in eyes, on skin or on clothing. Do not breathe vapors or spray mist.
Eye Contact	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Get medical attention immediately.
Skin Contact	Remove immediately all contaminated clothing. Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately.
Inhalation	Move to fresh air. In case of shortness of breath, give oxygen. If breathing has stopped, apply artificial respiration. Get medical attention immediately.
Ingestion	Drink 1 or 2 glasses of water. Do NOT induce vomiting. Get medical attention immediately. Never give anything by mouth to an unconscious person.
Notes to physician	The product causes burns of eyes, skin and mucous membranes. Control of circulatory system, shock therapy if needed.

5. FIRE-FIGHTING MEASURES

Flash Point Does not flash **Method** Not applicable
Autoignition Temperature No information available.
Flammability Limits in Air % Hydrogen, by reaction with metals. **Upper** 75 **Lower** 4
Suitable Extinguishing Media
Foam. Dry chemical. Alcohol-resistant foam. Water spray. Carbon dioxide (CO2). Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Specific hazards arising from the chemical
Contact with metals may evolve flammable hydrogen gas. Material can create slippery conditions.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA	**Health** 3	**Flammability** 1	**Instability** 0
HMIS	**Health** 3	**Flammability** 1	**Instability** 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Wear protective gloves/clothing. Evacuate personnel to safe areas. Prevent further leakage or spillage if safe to do so.

Environmental Precautions Do not flush into surface water or sanitary sewer system.

Methods for Containment Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

Methods for Cleaning Up Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust)

Neutralizing Agent Use dilute acids such as Hydrochloric Acid or vinegar. Add cautiously while mixing. Wear appropriate protective clothing.

7. HANDLING AND STORAGE

Handling Do not get in eyes, on skin or on clothing. Do not breathe vapors or spray mist.

Storage Store in original container. Keep containers tightly closed in a cool, well-ventilated place. Metal containers must be lined. Freezing will affect the physical condition but will not damage the material. Thaw and mix before using.

Storage Temperature **Minimum** 35 °F / 2 °C **Maximum** 120 °F / 49 °C

Storage Conditions **Indoor** X **Outdoor** **Heated** **Refrigerated**

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH
Sodium tolyltriazole	No data available	No data available	No data available
Sodium hydroxide	Ceiling: 2 mg/m^3	TWA: 2 mg/m^3	IDLH: 10 mg/m^3 Ceiling: 2 mg/m^3

Engineering Measures Use with local exhaust ventilation. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/Face Protection Tightly fitting safety goggles. Face-shield.

Skin Protection Wear suitable protective clothing, Impervious gloves.

Respiratory Protection In case of inadequate ventilation wear respiratory protection. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

General Hygiene Considerations Wear protective gloves/clothing. Ensure that eyewash stations and safety showers are close to the workstation location.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid	**Viscosity**	Non viscous
Color	Light yellow - Amber	**Odor**	Characteristic
Appearance	Transparent	**pH**	13.5
Specific Gravity	1.19	**Evaporation Rate**	No information available
Percent Volatile (Volume)	50	**VOC Content (%)**	0
VOC Content (g/L)	0	**Vapor Pressure**	0.04 mmHg @ 70°F
Vapor Density	No information available	**Solubility**	Completely soluble
Boiling Point/Range	226 °F / 108 °C		

10. STABILITY AND REACTIVITY

Chemical Stability Stable. Hazardous polymerization does not occur.

Conditions to Avoid None known

Incompatible Products Strong oxidizing agents, Acids, Metals.

Hazardous Decomposition Products Carbon oxides, Nitrogen oxides (NOx), Hydrogen cyanide, Hydrogen, by reaction with metals.

Possibility of Hazardous Reactions None under normal processing

11. TOXICOLOGICAL INFORMATION

Product Information No information available.

Component Information

Acute Toxicity

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation	Draize Test	Other
Sodium tolyltriazole	no data available	no data available	no data available	no data available	no data available
Sodium hydroxide	no data available	= 1350 mg/kg (Rabbit)	no data available	no data available	no data available

Chronic Toxicity

Component	Mutagenicity	Sensitization	Developmental Toxicity	Reproductive Toxicity	Target Organ Effects
Sodium tolyltriazole	no data available	no data available	no data available	no data available	no data available
Sodium hydroxide	no data available	no data available	no data available	no data available	eyes, respiratory system, skin

Carcinogenicity There are no known carcinogenic chemicals in this product.

Component	ACGIH	IARC	NTP	OSHA	Other
Sodium tolyltriazole	not applicable	not applicable	not applicable	not applicable	not applicable
Sodium hydroxide	not applicable	not applicable	not applicable	not applicable	not applicable

12. ECOLOGICAL INFORMATION

Product Information No information available.

Component Information

Component	Toxicity to Algae	Toxicity to Fish	Microtox	Water Flea	log Pow
Sodium tolyltriazole	no data available	no data available	no data available	no data available	N/A
Sodium hydroxide	no data available	LC50 = 45.4 mg/L Oncorhynchus mykiss 96 h	no data available	no data available	N/A

Persistence and Degradability No information available.
Bioaccumulation No information available.
Mobility No information available.

13. DISPOSAL CONSIDERATIONS

Product Disposal Dispose of in accordance with local regulations.
Container Disposal Empty containers should be taken for local recycling, recovery, or waste disposal

14. TRANSPORT INFORMATION

DOT

Proper Shipping Name	Corrosive liquid, basic, organic, n.o.s.
Hazard Class	8
UN-No	UN3267
Packing Group	III
Description	Corrosive liquid, basic, organic, n.o.s.(Sodium Tolytriazole),8,UN3267,PG III

TDG

Proper shipping name	Corrosive liquid, basic, organic, n.o.s.
Hazard Class	8
UN-No	UN3267
Packing Group	III
Description	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.(Sodium Tolytriazole),8,UN3267,PG III

ICAD

UN-No	UN3267
Proper Shipping Name	Corrosive liquid, basic, organic, n.o.s.*
Hazard Class	8
Packing Group	III
Shipping Description	Corrosive liquid, basic, organic, n.o.s.*(Sodium Tolytriazole),8,UN3267,PG III

IATA

UN-No	UN3267
Proper Shipping Name	Corrosive liquid, basic, organic, n.o.s.*
Hazard Class	8
Packing Group	III
ERG Code	8L
Shipping Description	UN3267,Corrosive liquid, basic, organic, n.o.s.*(Sodium Tolytriazole),8,PG III

IMDG/IMO

Proper Shipping Name	Corrosive liquid, basic, organic, n.o.s.
Hazard Class	8
UN-No	UN3267
Packing Group	III
EmS No.	F-A, S-B
Shipping Description	UN3267, Corrosive liquid, basic, organic, n.o.s.(Sodium Tolytriazole),8,PG III

15. REGULATORY INFORMATION

Inventories
TSCA Complies
DSL Complies
U.S. Federal Regulations
SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and and Title 40n of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Chronic Health Hazard	Fire Hazard	Sudden Release of Pressure Hazard	Reactive Hazard
Yes	No	No	No	No

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs
Sodium tolyltriazole	Not applicable	Not applicable
Sodium hydroxide	1000 lb	Not applicable

U.S. State Regulations

California Proposition 65 This product contains the following Proposition 65 chemicals

Component	CAS-No	California Prop. 65
Toluene	108-88-3	developmental toxicity female reproductive toxicity
Diaminotoluene (mixed isomers)	25376-45-8	carcinogen
o-Nitrotoluene	88-72-2	carcinogen
o-Toluidine	95-53-4	carcinogen

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

E Corrosive material

16. OTHER INFORMATION

Prepared By	Dan Hollas
Supercedes Date	05/12/2008
Issuing Date	04/22/2011
Reason for Revision	No information available.
Glossary	No information available.
List of References.	No information available.

CHEM-AQUA, INC assumes no responsibility for personal injury or property damage caused by the use, storage, or disposal of the product in a manner not recommended on the product label. Users assume all risks associated with such unrecommended use, storage or disposal of the product. The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

Material Safety Data Sheet: ANCOSPERSE 3820

Supercedes Date 01/30/2007 **Issuing Date** 08/16/2010

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name ANCOSPERSE 3820
Recommended Use Water treatment chemical
Information on Manufacturer
CHEM-AQUA, INC
BOX 152170
IRVING, TEXAS 75015

Product Code 7T4Z
Chemical Nature mixture
Emergency Telephone Number
CHEMTREC ® 800-424-9300

2. HAZARDS IDENTIFICATION

Emergency Overview
WARNING
Causes eye irritation
Causes skin irritation
May cause respiratory tract irritation
May be harmful if swallowed

Color Tan **Physical State** Liquid **Odor** Mild Alcohol

Potential Health Effects

Principle Route of Exposure	Skin contact, Eye contact, Inhalation.
Primary Routes of Entry	None known.
Acute Effects	
Eyes	Causes eye irritation.
Skin	Causes skin irritation.
Inhalation	May cause irritation of respiratory tract.
Ingestion	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.
Chronic Toxicity	None known
Target Organ Effects	None known
Aggravated Medical Conditions	No information available.
Potential Environmental Effects	See Section 12 for additional Ecological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS-No
Polyethylene-polypropylene glycol	9003-11-6
Sodium Alkylnaphthalenesulfonate	Trade Secret

4. FIRST AID MEASURES

General Advice	Avoid contact with skin, eyes and clothing. Avoid breathing vapors or mists.
Eye Contact	Rinse thoroughly with plenty of water, also under the eyelids. Get medical attention if irritation develops and persists.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Get medical attention if irritation develops and persists. Wash contaminated clothing before re-use.
Inhalation	If inhaled, remove to fresh air. Get medical attention if symptoms occur.
Ingestion	Drink 1 or 2 glasses of water. Do NOT induce vomiting. Get medical attention if symptoms occur.
Notes to Physician	Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flash Point Not flammable **Method** Not applicable
Autoignition Temperature No information available.
Flammability Limits in Air % No information available. **Upper** No data available **Lower** No data available
Suitable Extinguishing Media
Dry chemical. Foam. Water spray. Carbon dioxide (CO2). Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Specific hazards arising from the chemical
Material can create slippery conditions.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA	**Health** 1	**Flammability** 1	**Instability** 0
HMIS	**Health** 1	**Flammability** 1	**Instability** 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Use personal protective equipment. Prevent further leakage or spillage if safe to do so. Material can create slippery conditions.

Environmental Precautions Do not flush into surface water or sanitary sewer system.
Methods for Containment Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).
Methods for Cleaning Up Pick up and transfer to properly labeled containers.
Neutralizing Agent Not applicable.

7. HANDLING AND STORAGE

Handling Avoid contact with skin, eyes and clothing. Avoid breathing vapors or mists.
Storage Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Freezing will affect the physical condition but will not damage the material. Thaw and mix before using.

Storage Temperature	**Minimum**	35°F/2°C		**Maximum**	120°F/49°C		
Storage Conditions	**Indoor**	X	**Outdoor**	**Heated**		**Refrigerated**	

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH
Polyethylene-polypropylene glycol	No data available	No data available	No data available
Sodium Alkylnaphthalenesulfonate	No data available	No data available	No data available

Engineering Measures Ensure adequate ventilation, especially in confined areas.
Personal Protective Equipment
Eye/Face Protection Safety glasses with side-shields.
Skin Protection Wear suitable protective clothing, Impervious gloves.
Respiratory Protection In case of insufficient ventilation wear suitable respiratory equipment.
General Hygiene Considerations Ensure that eyewash stations and safety showers are close to the workstation location. Remove and wash contaminated clothing before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid	**Viscosity**	Non viscous
Color	Tan	**Odor**	Mild Alcohol
Appearence	Transparent	**pH**	11
Specific Gravity	1.012	**Evaporation Rate**	0.54 (Butyl acetate=1)
Percent Volatile (Volume)	89.2	**VOC Content (%)**	0
VOC Content (g/L)	0	**Vapor Pressure**	17.26 mmHg @ 70 °F
Vapor Density	0.6 (Air = 1.0)	**Solubility**	Soluble
Boiling Point/Range	>212°F/100°C		

10. STABILITY AND REACTIVITY

Chemical Stability Stable. Hazardous polymerization does not occur.
Conditions to Avoid None known.
Incompatible Products Strong oxidizing agents, Strong acids.
Hazardous Decomposition Products Carbon oxides, Sulfur oxides.
Possibility of Hazardous Reactions None under normal processing.

11. TOXICOLOGICAL INFORMATION

Product Information No information available.

Component Information
Acute toxicity

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation	Draize Test	Other
Polyethylene-polypropylene glycol	5700 mg/kg (Rat)	no data available	no data available	no data available	no data available
Sodium Alkylnaphthalenesulfonate	no data available	no data available	no data available	no data available	no data available

Chronic Toxicity

Component	Mutagenicity	Sensitization	Developmental Toxicity	Reproductive Toxicity	Target Organ Effects
Polyethylene-polypropylene glycol	no data available	no data available	no data available	no data available	no data available
Sodium Alkylnaphthalenesulfonate	no data available	no data available	no data available	no data available	no data available

Carcinogenicity There are no known carcinogenic chemicals in this product.

Component	ACGIH	IARC	NTP	OSHA	Other
Polyethylene-polypropylene glycol	not applicable	not applicable	not applicable	not applicable	not applicable
Sodium Alkylnaphthalenesulfonate	not applicable	not applicable	not applicable	not applicable	not applicable

12. ECOLOGICAL INFORMATION

Product Information No information available.

Component Information

Component	Toxicity to Algae	Toxicity to Fish	Microtox	Water Flea	log Pow
Polyethylene-polypropylene glycol	no data available	no data available	no data available	no data available	N/A
Sodium Alkylnaphthalenesulfonate	no data available	no data available	no data available	no data available	N/A

Persistence and Degradability No information available.
Bioaccumulation No information available.
Mobility No information available.

13. DISPOSAL CONSIDERATIONS

Product Disposal Dispose of in accordance with local regulations.
Container Disposal Empty containers should be taken for local recycling, recovery, or waste disposal.

14. TRANSPORT INFORMATION

DOT Not regulated

TDG Not regulated

ICAO Not regulated

IATA Not regulated

IMDG/IMO Not regulated

15. REGULATORY INFORMATION

Inventories
TSCA Complies
DSL Does not Comply
U.S. Federal Regulations
SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and and Title 40n of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Chronic Health Hazard	Fire Hazard	Sudden Release of Pressure Hazard	Reactive Hazard
Yes	No	No	No	No

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs
Polyethylene-polypropylene glycol	Not applicable	Not applicable
Sodium Alkylnaphthalenesulfonate	Not applicable	Not applicable

U.S. State Regulations
California Proposition 65 This product contains the following Proposition 65 chemicals

Component	CAS-No	California Prop. 65
1,4-Dioxane	123-91-1	carcinogen, initial date 1/1/88
Ethylene oxide	75-21-8	carcinogen, initial date 7/1/87 developmental toxicity, initial date 8/7/09 male reproductive toxicity, initial date 8/7/09 female reproductive toxicity, initial date 2/27/87
Propylene oxide	75-56-9	carcinogen, initial date 10/1/88
Naphthalene	91-20-3	carcinogen, initial date 4/19/02

Canada
This product may not be commercially placed on the market in Canada
WHMIS Hazard Class
Not applicable

16. OTHER INFORMATION

Prepared By Anita Stelly
Supercedes Date 01/30/2007
Issuing Date 08/16/2010
Reason for Revision No information available.
Glossary No information available.

List of References. No information available.

CHEM-AQUA, INC assumes no responsibility for personal injury or property damage caused by the use, storage, or disposal of the product in a manner not recommended on the product label. Users assume all risks associated with such unrecommended use, storage or disposal of the product. The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

Material Safety Data Sheet: ANCOOL 3991

Supercedes Date 05/22/2007 **Issuing Date** 12/01/2010

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name ANCOOL 3991
Recommended use Water treatment chemical
Information on Manufacturer
CHEM-AQUA, INC
BOX 152170
IRVING, TEXAS 75015

Product Code 7T5Z
Chemical Nature Aqueous dispersion
Emergency Telephone Number
CHEMTREC ® 800-424-9300

2. HAZARDS IDENTIFICATION

Emergency Overview
DANGER
Corrosive
Causes skin and eye burns
May cause delayed lung injury and burns
Harmful or fatal if swallowed

Color Amber **Physical State** Liquid **Odor** Slight

Potential Health Effects

Principle Route of Exposure	Skin contact, Eye contact, Inhalation.
Primary Routes of Entry	None known.
Acute Effects	
Eyes	Corrosive to the eyes and may cause severe damage including blindness.
Skin	Causes skin burns.
Inhalation	Harmful by inhalation. Causes burns.
Ingestion	If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.
Chronic toxicity	Inhaled corrosive substances can lead to a toxic edema of the lungs.
Target Organ Effects	No information available.
Aggravated Medical Conditions	Skin disorders, Respiratory disorders.
Potential Environmental Effects	See Section 12 for additional Ecological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS-No
Sodium molybdate dihydrate	7631-95-0
Sodium polyacrylate	9003-04-7
Proprietary Anionic Surfactant	TRADE SECRET
Sodium hydroxide	1310-73-2
Butanedioic acid, octenyl-, sodium salt	TRADE SECRET
2-Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	40372-66-5
Polymaleic acid, sodium salt	70247-90-4
Sodium tolyltriazole	64665-57-2

4. FIRST AID MEASURES

General Advice	Do not get in eyes, on skin or on clothing. Do not breathe vapors or spray mist.
Eye Contact	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Get medical attention immediately.
Skin Contact	Remove immediately all contaminated clothing. Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately.
Inhalation	Move to fresh air. In case of shortness of breath, give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.
Ingestion	Drink 1 or 2 glasses of water. Do NOT induce vomiting. Get medical attention immediately. Never give anything by mouth to an unconscious person.
Notes to Physician	The product causes burns of eyes, skin and mucous membranes. Control of circulatory system, shock therapy if needed.

5. FIRE-FIGHTING MEASURES

Flash Point Not flammable **Method** Not applicable
Autoignition Temperature No information available.
Flammability Limits In Air % Hydrogen, by reaction with metals. **Upper** 75 **Lower** 4
Suitable Extinguishing Media
Water spray. Foam. Alcohol-resistant foam. Carbon dioxide (CO2). Dry chemical. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Specific hazards arising from the chemical

Material can create slippery conditions. Contact with metals may evolve flammable hydrogen gas.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA	**Health** 3	**Flammability** 1	**Instability** 0
HMIS	**Health** 3	**Flammability** 1	**Instability** 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Use personal protective equipment. Prevent further leakage or spillage if safe to do so. Material can create slippery conditions.

Environmental Precautions Do not flush into surface water or sanitary sewer system.

Methods for Containment Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

Methods for Cleaning Up Pick up and transfer to properly labeled containers.

Neutralizing Agent Acetic acid, diluted.

7. HANDLING AND STORAGE

Handling Wear personal protective equipment. Ensure adequate ventilation. Do not get in eyes, on skin or on clothing. Do not breathe vapors or spray mist.

Storage Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Metal containers must be lined. Freezing will affect the physical condition but will not damage the material. Thaw and mix before using.

Storage Temperature **Minimum** 40°F/4°C **Maximum** 115°F/46°C

Storage Conditions **Indoor** X **Outdoor** **Heated** **Refrigerated**

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH
Sodium molybdate dihydrate	TWA: 0.5 mg/m^3	TWA: 5 mg/m^3	IDLH: 1000 mg/m^3
Sodium polyacrylate	3 mg/m^3 PNOS	5 mg/m^3 PNOR	0.05 mg/m^3 8hr OEL - Vendor data
Proprietary Anionic Surfactant	No data available	No data available	No data available
Sodium hydroxide	: 2 mg/m^3 Ceiling	: 2 mg/m^3 TWA	: 10 mg/m^3 IDLH : 2 mg/m^3 Ceiling
Butanedioic acid, octenyl-, sodium salt	No data available	No data available	No data available
2-Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	No data available	No data available	No data available
Polymaleic acid, sodium salt	No data available	No data available	No data available
Sodium tolyltriazole	No data available	No data available	No data available

Engineering Measures Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/Face Protection Tightly fitting safety goggles. Face-shield.

Skin Protection Wear suitable protective clothing, Impervious gloves.

Respiratory Protection In case of inadequate ventilation wear respiratory protection. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

General Hygiene Considerations Wear protective gloves/clothing. Ensure that eyewash stations and safety showers are close to the workstation location.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid	**Viscosity**	Non viscous
Color	Amber	**Odor**	Slight
Appearance	Transparent	**pH**	13.0
Specific Gravity	1.156	**Evaporation Rate**	0.47 (Butyl acetate=1)
Percent Volatile (Volume)	83.5	**VOC Content (%)**	0
VOC Content (g/L)	0	**Vapor Pressure**	14.9 mmHg @ 70°F
Vapor Density	0.6 (Air = 1.0)	**Solubility**	Completely soluble
Boiling Point/Range	212°F/100°C		

10. STABILITY AND REACTIVITY

Chemical Stability Stable. Hazardous polymerization does not occur.

Conditions to Avoid None known.

Incompatible Products Strong oxidizing agents, Reducing agents, Acids, Contact with metals liberates hydrogen gas.

Hazardous Decomposition Products Carbon oxides, Nitrogen oxides (NOx), Oxides of phosphorus, Phosphorus compounds, Hydrogen, by reaction with metals.

Possibility of Hazardous Reactions None under normal processing.

11. TOXICOLOGICAL INFORMATION

Product Information No information available.

Component Information

Acute toxicity

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation	Draize Test	Other
Sodium molybdate dihydrate	= 4 g/kg (Rat)	no data available	> 2080 mg/m^3 (Rat) 4 h	no data available	no data available
Sodium polyacrylate	> 40 g/kg (Rat)	no data available	no data available	no data available	no data available
Proprietary Anionic Surfactant	no data available	no data available	no data available	no data available	no data available
Sodium hydroxide	no data available	= 1350 mg/kg (Rabbit)	no data available	no data available	no data available
Butanedioic acid, octenyl-, sodium salt	no data available	no data available	no data available	no data available	no data available
2-Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	no data available	no data available	no data available	no data available	no data available
Polymaleic acid, sodium salt	no data available	no data available	no data available	no data available	no data available
Sodium tolyltriazole	no data available	no data available	no data available	no data available	no data available

Chronic toxicity

Component	Mutagenicity	Sensitization	Developmental Toxicity	Reproductive Toxicity	Target Organ Effects
Sodium molybdate dihydrate	no data available	no data available	no data available	no data available	respiratory system, eyes, kidneys, liver, blood, bone
Sodium polyacrylate	no data available	no data available	no data available	no data available	no data available
Proprietary Anionic Surfactant	no data available	no data available	no data available	no data available	no data available
Sodium hydroxide	no data available	no data available	no data available	no data available	eyes, respiratory system, skin
Butanedioic acid, octenyl-, sodium salt	no data available	no data available	no data available	no data available	no data available
2-Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	no data available	no data available	no data available	no data available	no data available
Polymaleic acid, sodium salt	no data available	no data available	no data available	no data available	no data available
Sodium tolyltriazole	no data available	no data available	no data available	no data available	no data available

Carcinogenicity

Component	ACGIH	IARC	NTP	OSHA	Other
Sodium molybdate dihydrate	A3	not applicable	not applicable	not applicable	not applicable
Sodium polyacrylate	not applicable	not applicable	not applicable	not applicable	not applicable
Proprietary Anionic Surfactant	not applicable	not applicable	not applicable	not applicable	not applicable
Sodium hydroxide	not applicable	not applicable	not applicable	not applicable	not applicable
Butanedioic acid, octenyl-, sodium salt	not applicable	not applicable	not applicable	not applicable	not applicable
2-Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	not applicable	not applicable	not applicable	not applicable	not applicable
Polymaleic acid, sodium salt	not applicable	not applicable	not applicable	not applicable	not applicable
Sodium tolyltriazole	not applicable	not applicable	not applicable	not applicable	not applicable

12. ECOLOGICAL INFORMATION

Product Information

No information available.

Component Information

Component	Toxicity to Algae	Toxicity to Fish	Microtox	Water Flea	log Pow
Sodium molybdate dihydrate	no data available	no data available	no data available	no data available	N/A
Sodium polyacrylate	no data available	no data available	no data available	no data available	N/A
Proprietary Anionic Surfactant	no data available	no data available	no data available	no data available	N/A
Sodium hydroxide	no data available	= 45.4 mg/L Oncorhynchus mykiss 96 h	no data available	no data available	N/A
Butanedioic acid, octenyl-, sodium salt	no data available	no data available	no data available	no data available	N/A
2-Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	no data available	no data available	no data available	no data available	N/A
Polymaleic acid, sodium salt	no data available	no data available	no data available	no data available	N/A
Sodium tolyltriazole	no data available	no data available	no data available	no data available	N/A

Persistence and Degradability No information available.
Bioaccumulation No information available.
Mobility No information available.

13. DISPOSAL CONSIDERATIONS

Product Disposal Dispose of in accordance with local regulations.
Container Disposal Empty containers should be taken for local recycling, recovery, or waste disposal.

14. TRANSPORT INFORMATION

DOT

Proper Shipping Name Sodium hydroxide solution
Hazard Class 8
UN-No UN1824

Packing Group	II
Description	UN1824, Sodium hydroxide solution, 8, PG II

TDG

Proper shipping name	Sodium hydroxide solution
Hazard Class	8
UN-No	UN1824
Packing Group	II
Description	SODIUM HYDROXIDE SOLUTION,8,UN1824,PG II

ICAO

UN-No	UN1824
Proper Shipping Name	Sodium hydroxide solution
Hazard Class	8
Packing Group	II
Shipping Description	UN1824, Sodium hydroxide solution,8,PG II

IATA

UN-No	UN1824
Proper Shipping Name	Sodium hydroxide solution
Hazard Class	8
Packing Group	II
ERG Code	8L
Shipping Description	UN1824,Sodium hydroxide solution,8,PG II

IMDG/IMO

Proper Shipping Name	Sodium hydroxide solution
Hazard Class	8
UN-No	UN1824
Packing Group	II
EmS No.	F-A, S-B
Shipping Description	UN1824, Sodium hydroxide solution,8,PG II

15. REGULATORY INFORMATION

Inventories

TSCA	Complies
DSL	Does not Comply

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and and Title 40n of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Chronic Health Hazard	Fire Hazard	Sudden Release of Pressure Hazard	Reactive Hazard
Yes	No	No	No	No

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs
Sodium molybdate dihydrate	Not applicable	Not applicable
Sodium polyacrylate	Not applicable	Not applicable
Proprietary Anionic Surfactant	Not applicable	Not applicable
Sodium hydroxide	Not applicable	Not applicable
Butanedioic acid, octenyl-, sodium salt	Not applicable	Not applicable
2-Phosphonobutane-1,2,4-tricarboxylic acid, sodium salt	Not applicable	Not applicable
Polymaleic acid, sodium salt	Not applicable	Not applicable
Sodium tolyltriazole	Not applicable	Not applicable

U.S. State Regulations

California Proposition 65 This product contains the following Proposition 65 chemicals

Component	CAS-No	California Prop. 65
Lead	1317-36-8	carcinogen, initial date 10/1/92 developmental toxicity, initial date 2/27/87
Mercury	7439-97-6	developmental toxicity, initial date 7/1/90
Nickel	7440-02-0	carcinogen, initial date 5/7/04 carcinogen, initial date 10/1/89
Arsenic	7440-38-2	carcinogen, initial date 2/27/87
Cadmium	7440-43-9	carcinogen, initial date 10/1/87 developmental toxicity, initial date 5/1/97 male reproductive toxicity, initial date 5/1/97

Canada

This product may not be commercially placed on the market in Canada

WHMIS Hazard Class

Not applicable

16. OTHER INFORMATION

Prepared By	Dan Hollas
Supercedes Date	05/22/2007
Issuing Date	12/01/2010
Reason for Revision	No information available.
Glossary	No information available.
List of References.	No information available.

CHEM-AQUA, INC assumes no responsibility for personal injury or property damage caused by the use, storage, or disposal of the product in a manner not recommended on the product label. Users assume all risks associated with such unrecommended use, storage or disposal of the product. The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

Material Safety Data Sheet: ANCOCIDE 4010

Supercedes Date 01/13/2009 **Issuing Date** 12/28/2011

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name ANCOCIDE 4010
Recommended use Water treatment chemical
Information on Manufacturer
CHEM-AQUA, INC
BOX 152170
IRVING, TEXAS 75015

Product Code C544
Chemical nature Aqueous solution
Emergency Telephone Number
CHEMTREC® 800-424-9300

2. HAZARDS IDENTIFICATION

Emergency Overview
DANGER
POISON
Corrosive
Causes skin and eye burns
May cause allergic skin reaction
May cause delayed lung injury and burns
Harmful or fatal if swallowed

Color light green - brown **Physical State** Liquid **Odor** organic

Potential Health Effects	
Principle Route of Exposure	Inhalation, Skin contact, Eye contact.
Primary Routes of Entry	Skin Absorption
Acute Effects	
Eyes	Corrosive to the eyes and may cause severe damage including blindness.
Skin	Causes skin burns. May cause allergic skin reaction.
Inhalation	Risk of serious damage to the lungs (by inhalation). Causes burns.
Ingestion	Ingestion causes burns of the upper digestive and respiratory tracts. May be fatal if swallowed.
Chronic Toxicity	Inhaled corrosive substances can lead to a toxic edema of the lungs. May cause sensitization by skin contact. Liver and kidney injuries may occur.
Target Organ Effects	Respiratory system, Immune system, Liver, Kidney, Thymus, Thyroid.
Aggravated Medical Conditions	Respiratory disorders, Skin disorders, Liver disorders, Kidney disorders.
Potential Environmental Effects	See Section 12 for additional Ecological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS-No
Phenol, 4-chloro-2-(phenylmethyl)-, sodium salt	3184-65-4
Sodium hydroxide	1310-73-2

4. FIRST AID MEASURES

General Advice	Do not get in eyes, on skin or on clothing. Do not breathe vapors or spray mist.
Eye Contact	Hold the eye open and rinse slowly and gently for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes of treatment, then continue rinsing the eye. Call a Poison Control Center or a doctor for treatment advice .
Skin Contact	Take off all contaminated clothing immediately. Wash off immediately with plenty of water for at least 15 minutes. Remove immediately all contaminated clothing. Call a physician or poison control center immediately.
Inhalation	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a Poison Control Center or doctor for further treatment advice .
Ingestion	Call a physician or Poison Control Center immediately. Have person sip a glass of water if able to swallow. DO NOT induce vomiting unless directed to do so by a physician or poison control center. Never give anything by mouth to an unconscious person.
Notes to physician	The product causes burns of eyes, skin and mucous membranes. Control of circulatory system, shock therapy if needed. May cause sensitization of susceptible persons.

5. FIRE-FIGHTING MEASURES

Flash Point > 201 °F / > 94 °C **Method** Closed cup
Autoignition Temperature No information available.
Flammability Limits in Air % Hydrogen, by reaction with metals. **Upper** 75 **Lower** 4
Suitable Extinguishing Media
Foam. Alcohol-resistant foam. Dry chemical. Water spray. Carbon dioxide (CO2). Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Specific hazards arising from the chemical
Contact with metals may evolve flammable hydrogen gas. Material can create slippery conditions.
Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA	**Health** 3	**Flammability** 0	**Instability** 1
HMIS	**Health** 3	**Flammability** 0	**Instability** 1

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Use personal protective equipment. Prevent further leakage or spillage if safe to do so. Material can create slippery conditions.

Environmental Precautions Do not flush into surface water or sanitary sewer system.

Methods for Containment Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13).

Methods for Cleaning Up Pick up and transfer to properly labeled containers.

Neutralizing Agent Acetic acid, diluted.

7. HANDLING AND STORAGE

Handling Do not get in eyes, on skin or on clothing. Do not breathe vapors or spray mist.

Storage Store in original container. Keep containers tightly closed in a dry, cool and well-ventilated place. Do not freeze.

Storage Temperature **Minimum** 40 °F / 4 °C **Maximum** 110 °F / 43 °C

Storage Conditions **Indoor** X **Outdoor** **Heated** **Refrigerated**

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH
Phenol, 4-chloro-2-(phenylmethyl)-, sodium salt	No data available	No data available	No data available
Sodium hydroxide	Ceiling: 2 mg/m^3	TWA: 2 mg/m^3	IDLH: 10 mg/m^3 Ceiling: 2 mg/m^3

Engineering Measures Use with local exhaust ventilation. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/Face Protection Tightly fitting safety goggles. Face-shield.

Skin Protection Wear suitable protective clothing, Impervious gloves.

Respiratory Protection In case of inadequate ventilation wear respiratory protection. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

General Hygiene Considerations Wear protective gloves/clothing. Ensure that eyewash stations and safety showers are close to the workstation location.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid	**Viscosity**	Non viscous
Color	light green - brown	**Odor**	organic
Appearance	Transparent	**pH**	14
Specific Gravity	1.11	**Evaporation Rate**	0.47 (Butyl acetate=1)
Percent Volatile (Volume)	98.6	**VOC Content (%)**	19.9
VOC Content (g/L)	221	**Vapor Pressure**	15.23 mmHg @ 70°F
Vapor Density	0.6 (Air = 1.0)	**Solubility**	Completely soluble
Boiling Point/Range	212 °F / 100 °C		

10. STABILITY AND REACTIVITY

Chemical Stability Stable. Hazardous polymerization does not occur.

Conditions to Avoid None known

Incompatible Products Strong oxidizing agents, Light and/or alkaline metals.

Hazardous Decomposition Products Carbon oxides, Chlorine gas, Hydrogen, by reaction with metals.

Possibility of Hazardous Reactions None under normal processing

11. TOXICOLOGICAL INFORMATION

Product Information No information available.

Component Information

Acute Toxicity

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation	Draize Test	Other
Phenol, 4-chloro-2-(phenylmethyl)-, sodium salt	no data available	no data available	no data available	no data available	no data available
Sodium hydroxide	no data available	= 1350 mg/kg (Rabbit)	no data available	no data available	no data available

Chronic Toxicity

Component	Mutagenicity	Sensitization	Developmental Toxicity	Reproductive Toxicity	Target Organ Effects
Phenol, 4-chloro-2-(phenylmethyl)-, sodium salt	no data available	Skin sensitization	no data available	no data available	immune system, kidneys, liver, thymus, parathyroid

Sodium hydroxide	no data available	no data available	no data available	no data available	eyes, respiratory system, skin

Carcinogenicity There are no known carcinogenic chemicals in this product.

Component	ACGIH	IARC	NTP	OSHA	Other
Phenol, 4-chloro-2-(phenylmethyl)-, sodium salt	not applicable	not applicable	not applicable	not applicable	not applicable
Sodium hydroxide	not applicable	not applicable	not applicable	not applicable	not applicable

12. ECOLOGICAL INFORMATION

Product Information No information available.

Component Information

Component	Toxicity to Algae	Toxicity to Fish	Microtox	Water Flea	log Pow
Phenol, 4-chloro-2-(phenylmethyl)-, sodium salt	no data available	no data available	no data available	no data available	N/A
Sodium hydroxide	no data available	LC50 = 45.4 mg/L Oncorhynchus mykiss 96 h	no data available	no data available	N/A

Persistence and Degradability No information available.
Bioaccumulation No information available.
Mobility No information available.

13. DISPOSAL CONSIDERATIONS

Product Disposal Dispose of in accordance with local regulations.
Container Disposal Empty containers should be taken for local recycling, recovery, or waste disposal. Do not re-use empty containers.

14. TRANSPORT INFORMATION

DOT

Proper Shipping Name	Sodium hydroxide solution
Hazard Class	8
UN-No	UN1824
Packing Group	II
Description	Sodium hydroxide solution,8,UN1824,PG II

TDG

Proper shipping name	Sodium hydroxide solution
Hazard Class	8
UN-No	UN1824
Packing Group	II
Description	SODIUM HYDROXIDE SOLUTION,8,UN1824,PG II

ICAO

UN-No	UN1824
Proper Shipping Name	Sodium hydroxide solution
Hazard Class	8
Packing Group	II
Shipping Description	Sodium hydroxide solution,8,UN1824,PG II

IATA

UN-No	UN1824
Proper Shipping Name	Sodium hydroxide solution
Hazard Class	8
Packing Group	II
ERG Code	8L
Shipping Description	UN1824,Sodium hydroxide solution,8,PG II

IMDG/IMO

Proper Shipping Name	Sodium hydroxide solution
Hazard Class	8
UN-No	UN1824
Packing Group	II
EmS No.	F-A, S-B
Shipping Description	UN1824, Sodium hydroxide solution,8,PG II

15. REGULATORY INFORMATION

Inventories

TSCA Complies
DSL Does not Comply

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and and Title 40n of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Chronic Health Hazard	Fire Hazard	Sudden Release of Pressure Hazard	Reactive Hazard
Yes	Yes	No	No	No

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs
Phenol, 4-chloro-2-(phenylmethyl)-, sodium salt	Not applicable	Not applicable
Sodium hydroxide	1000 lb	Not applicable

U.S. State Regulations

California Proposition 65 This product contains the following Proposition 65 chemicals

Component	CAS-No	California Prop. 65
Lead	7439-92-1	carcinogen developmental toxicity male reproductive toxicity female reproductive toxicity
Nickel	7440-02-0	carcinogen
Cadmium and compounds (as Cd)	7440-43-9	carcinogen developmental toxicity male reproductive toxicity
Chromium	7440-47-3	carcinogen, initial date 2/27/87, developmental female, male 12/19/08

Canada

This product may not be commercially placed on the market in Canada.

WHMIS Hazard Class

Not applicable

16. OTHER INFORMATION

Prepared By Dan Hollas
Supercedes Date 01/13/2009
Issuing Date 12/28/2011
Reason for Revision No information available.
Glossary No information available.
List of References. No information available.

CHEM-AQUA, INC assumes no responsibility for personal injury or property damage caused by the use, storage, or disposal of the product in a manner not recommended on the product label. Users assume all risks associated with such unrecommended use, storage or disposal of the product. The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

Material Safety Data Sheet: CHEM-AQUA 42171

Supercedes Date 08/13/2012 **Issuing Date** 12/28/2012

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name CHEM-AQUA 42171
Recommended use Water treatment chemical Biocidal product
Information on Manufacturer
CHEM-AQUA, INC
BOX 152170
IRVING, TEXAS 75015

Product Code TV11
Chemical nature Aqueous solution Alkaline
Emergency Telephone Number
CHEMTREC® 800-424-9300

2. HAZARDS IDENTIFICATION

Emergency Overview
DANGER
Corrosive
Causes skin and eye burns
May cause delayed lung injury and burns
Harmful or fatal if swallowed

Color Yellow **Physical State** Liquid **Odor** Slight chlorine

Potential Health Effects

Principle Route of Exposure	Skin contact, Eye contact, Inhalation.
Primary Routes of Entry	None known
Acute Effects	
Eyes	Corrosive to the eyes and may cause severe damage including blindness.
Skin	Causes skin burns.
Inhalation	Harmful by inhalation. Causes burns.
Ingestion	Ingestion causes burns of the upper digestive and respiratory tracts. May be fatal if swallowed.
Chronic Toxicity	Inhaled corrosive substances can lead to a toxic edema of the lungs.
Target Organ Effects	Skin, Respiratory system.
Aggravated Medical Conditions	Skin disorders, Respiratory disorders.
Potential Environmental Effects	See Section 12 for additional Ecological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Component	CAS-No
Sulfamic acid, n-bromo, sodium salt	1004542-84-0
Sodium chloride	7647-14-5
Sodium hydroxide	1310-73-2

4. FIRST AID MEASURES

General advice	Do not get in eyes, on skin or on clothing. Do not breathe vapors or spray mist.
Eye Contact	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Call a physician or poison control center immediately.
Skin Contact	Remove immediately all contaminated clothing. Wash off immediately with plenty of water for at least 15 minutes. Call a physician or poison control center immediately.
Inhalation	Move to fresh air. If not breathing, give artificial respiration. Call a physician or poison control center immediately.
Ingestion	Call a physician or Poison Control Center immediately. Do NOT induce vomiting. Never give anything by mouth to an unconscious person.
Notes to physician	The product causes burns of eyes, skin and mucous membranes. Control of circulatory system, shock therapy if needed.

5. FIRE-FIGHTING MEASURES

Flash Point Does not flash **Method** Not applicable
Autoignition Temperature No information available.
Flammability Limits in Air % Hydrogen, by reaction with metals. **Upper** 75 **Lower** 4
Suitable Extinguishing Media
Water spray. Foam. Alcohol-resistant foam. Carbon dioxide (CO2). Dry chemical. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Specific hazards arising from the chemical
Contact with metals may evolve flammable hydrogen gas. Material can create slippery conditions.

Protective Equipment and Precautions for Firefighters
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA	**Health** 3	**Flammability** 1	**Instability** 1
HMIS	**Health** 3	**Flammability** 1	**Instability** 1

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Use personal protective equipment. Prevent further leakage or spillage if safe to do so. Material can create slippery conditions.

Environmental Precautions Do not flush into surface water or sanitary sewer system.

Methods for Containment Contain spillage, soak up with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and transfer to a container for disposal according to local / national regulations (see section 13)

Methods for Cleaning Up Pick up and transfer to properly labeled containers

Neutralizing Agent Acetic acid, diluted.

7. HANDLING AND STORAGE

Handling Do not get in eyes, on skin or on clothing. Do not breathe vapors or spray mist.

Storage Store in original container. Keep away from direct sunlight. Keep containers tightly closed in a dry, cool and well-ventilated place. Metal containers must be lined. Do not freeze.

Storage Temperature **Minimum** 45 °F / 7 °C **Maximum** 100 °F / 38 °C

Storage Conditions **Indoor** X **Outdoor** **Heated** **Refrigerated**

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH
Sulfamic acid, n-bromo, sodium salt	No data available	No data available	No data available
Sodium chloride	No data available	5 mg/m^3 PNOR (as solid)	No data available
Sodium hydroxide	Ceiling: 2 mg/m^3	TWA: 2 mg/m^3	IDLH: 10 mg/m^3 Ceiling: 2 mg/m^3

Engineering Measures Use with local exhaust ventilation. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment

Eye/Face Protection Tightly fitting safety goggles. Face-shield.

Skin Protection Wear suitable protective clothing, Impervious gloves.

Respiratory Protection In case of inadequate ventilation wear respiratory protection. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

General Hygiene Considerations Remove and wash contaminated clothing before re-use.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State	Liquid	**Viscosity**	Non viscous
Color	Yellow	**Odor**	Slight chlorine
Appearance	Transparent	**pH**	> 13
Specific Gravity	1.32	**Evaporation Rate**	0.38 (Butyl acetate=1)
Percent Volatile (Volume)	73.5	**VOC Content (%)**	0
VOC Content (g/L)	0	**Vapor Pressure**	11.8 mmHg @ 70°F
Vapor Density	0.6 (Air = 1.0)	**Solubility**	Completely soluble
Boiling Point/Range	No data available		

10. STABILITY AND REACTIVITY

Chemical Stability Stable. Hazardous polymerization does not occur.

Conditions to Avoid Extremes of temperature and direct sunlight

Incompatible Products Strong oxidizing agents, Acids, Metals.

Hazardous Decomposition Products Carbon oxides, Nitrogen oxides (NOx), Sulfur oxides, Sulfur compounds, Sodium oxides, Bromine, Fumes of bromine, Hydrogen bromide.

Possibility of Hazardous Reactions None under normal processing

11. TOXICOLOGICAL INFORMATION

Product Information No information available.

Component Information

Acute Toxicity

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation	Draize Test	Other
Sulfamic acid, n-bromo, sodium salt	no data available	no data available	no data available	no data available	no data available
Sodium chloride	= 3 g/kg (Rat)	> 10 g/kg (Rabbit)	> 42 g/m^3 (Rat) 1 h	no data available	no data available
Sodium hydroxide	no data available	= 1350 mg/kg (Rabbit)	no data available	no data available	no data available

Chronic Toxicity

Component	Mutagenicity	Sensitization	Developmental Toxicity	Reproductive Toxicity	Target Organ Effects
Sulfamic acid, n-bromo, sodium salt	no data available	no data available	no data available	no data available	no data available
Sodium chloride	no data available	no data available	no data available	no data available	kidney
Sodium hydroxide	no data available	no data available	no data available	no data available	eyes, respiratory system, skin

Carcinogenicity There are no known carcinogenic chemicals in this product.

Component	ACGIH	IARC	NTP	OSHA	Other
Sulfamic acid, n-bromo, sodium salt	not applicable	not applicable	not applicable	not applicable	not applicable
Sodium chloride	not applicable	not applicable	not applicable	not applicable	not applicable
Sodium hydroxide	not applicable	not applicable	not applicable	not applicable	not applicable

12. ECOLOGICAL INFORMATION

Product Information No information available.

Component Information

Component	Toxicity to Algae	Toxicity to Fish	Microtox	Water Flea	log Pow
Sulfamic acid, n-bromo, sodium salt	no data available	no data available	no data available	no data available	N/A
Sodium chloride	no data available	LC50 5560 - 6080 mg/L Lepomis macrochirus 96 h LC50 = 12946 mg/L Lepomis macrochirus 96 h LC50 6020 - 7070 mg/L Pimephales promelas 96 h LC50 = 7050 mg/L Pimephales promelas 96 h LC50 6420 - 6700 mg/L Pimephales promelas 96 h LC50 4747 - 7824 mg/L Oncorhynchus mykiss 96 h	no data available	EC50= 1000 mg/L 48 h EC50 340.7 - 469.2 mg/L 48 h	N/A
Sodium hydroxide	no data available	LC50 = 45.4 mg/L Oncorhynchus mykiss 96 h	no data available	no data available	N/A

Persistence and Degradability No information available.
Bioaccumulation No information available.
Mobility No information available.

13. DISPOSAL CONSIDERATIONS

Product Disposal Pesticide wastes are acutely hazardous. Improper disposal of excess pesticide or rinsate is a violation of federal law. If these wastes cannot be disposed of by use according to label instructions, contact your state pesticide or environmental control agency.

Container Disposal Empty containers should be taken for local recycling, recovery, or waste disposal.

14. TRANSPORT INFORMATION

DOT

Proper Shipping Name Corrosive liquid, n.o.s.
Hazard Class 8
UN-No UN1760
Packing Group III
Description UN1760, Corrosive liquid, n.o.s.,(Bromide Salts), 8, PG III

TDG

Proper shipping name UN1760, Corrosive liquid, n.o.s.(Bromide Salts), 8, PG III
Hazard Class 8
UN-No UN1760

Packing Group	III
Description	UN1760, Corrosive liquid, n.o.s.,(Bromide Salts), 8, PG III

ICAO

UN-No	UN1760
Proper Shipping Name	Corrosive liquid, n.o.s.
Hazard Class	8
Packing Group	III
Shipping Description	UN1760, Corrosive liquid, n.o.s.,(Bromide Salts), 8, PG III

IATA

UN-No	UN1760
Proper Shipping Name	Corrosive liquid, n.o.s.
Hazard Class	8
Packing Group	III
ERG Code	8L
Shipping Description	UN1760, Corrosive liquid, n.o.s.(Bromide Salts), 8, PG III

IMDG/IMO

Proper Shipping Name	Corrosive liquid, n.o.s.
Hazard Class	8
UN-No	UN1760
Packing Group	III
EmS No.	F-A, S-B
Shipping Description	UN1760, Corrosive liquid, n.o.s.(Bromide Salts), 8, PG III

15. REGULATORY INFORMATION

Inventories

TSCA	Complies
DSL	Does not Comply

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazardous Categorization

Acute Health Hazard	Chronic Health Hazard	Fire Hazard	Sudden Release of Pressure Hazard	Reactive Hazard
Yes	No	No	No	No

CERCLA

Component	Hazardous Substances RQs	CERCLA EHS RQs
Sulfamic acid, n-bromo, sodium salt	Not applicable	Not applicable
Sodium chloride	Not applicable	Not applicable
Sodium hydroxide	1000 lb	Not applicable

U.S. State Regulations

California Proposition 65 This product contains the following Proposition 65 chemicals

Component	CAS-No	California Prop. 65
Lead	1317-36-8	carcinogen developmental toxicity
Mercury	7439-97-6	developmental toxicity
Nickel	7440-02-0	carcinogen
Arsenic	7440-38-2	carcinogen
Cadmium	7440-43-9	carcinogen developmental toxicity male reproductive toxicity

Canada

This product may not be commercially placed on the market in Canada.

WHMIS Hazard Class

Not applicable

16. OTHER INFORMATION

Prepared By	Rachael Mohochi
Supercedes Date	08/13/2012
Issuing Date	12/28/2012
Reason for Revision	No information available.

Glossary No information available.
List of References. No information available.

CHEM-AQUA, INC assumes no responsibility for personal injury or property damage caused by the use, storage, or disposal of the product in a manner not recommended on the product label. Users assume all risks associated with such unrecommended use, storage or disposal of the product. The information provided on this MSDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

Material Safety Data Sheet

SECTION 1: IDENTIFICATION OF THE PRODUCT AND THE COMPANY

Product Name: BromMax® 7.1 (US Patent No 7,045,153 B2; and No. 7,455,859 B2)

Description: Water treatment antimicrobial solution.

Manufacturer: ENVIRO TECH CHEMICALS, Inc.
500 Winmoore Way
Modesto, CA 95358

Company's Informational Telephone: 209-581-9576
Company's Transportation Emergency: **CHEMTREC US Toll Free 800-424-9300 / International 703-527-3887**

SECTION 2: HAZARDS IDENTIFICATION

NFPA 704M / HMIS Rating: 2/2 Health 0/0 Flammability 0/0 Reactivity COR/Other

Emergency Overview:
WARNING: Causes irritation to skin and eyes. Do not get in eyes, on skin, or on clothing. Do not take internally. Keep container closed when not in use. Keep container away from heat and sunlight.

Potential Health Effects:

Primary Route (s) of Exposure: Eye, Skin
Eye Contact: Can cause acute burns and irritation.
Skin Contact: Can cause irritation of various degrees.
Ingestion: Severe intestinal tract irritant. Do not induce vomiting.
Inhalation: May cause irritation to the respiratory tract and lungs.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Our hazard evaluation has identified the following chemical ingredient(s). Hazardous components are marked with an asterisk* as listed under OSHA's Hazard Communication Rule, 29 CFR 1910.1200. Consult Section 15 for the nature/limits of the hazard.

Ingredients	CAS #	Approx. %
*Sodium hydroxide	1310-73-2	1-5%
Sulfamic acid, N-Bromo, sodium salt	1004542-84-0	11-21%
Sodium Chloride	7647-14-5	3-13%
Water	7732-18-5	Balance

SECTION 4: FIRST AID MEASURES

Eyes: Flush with water for 15 minutes holding eyelids open. Call a physician.
Skin: Immediately flush with water for at least 15 minutes. For a large splash, flood body under a shower. Call a physician.
Ingestion: Do not induce vomiting. Give water. Call a physician.
Inhalation: Remove to fresh air. Treat symptoms. Call a physician.
Note to Physicians: Based on the individual reactions of the patient, the physician's judgment should be used to control symptoms and clinical condition.
CAUTION: If unconscious, having trouble breathing or in convulsions, do not induce vomiting or give water.

SECTION 5: FIRE FIGHTING MEASURES

Flash Point: None (PMCC) ASTM D-93
Extinguishing Media: Water spray, carbon dioxide, foam, dry chemical
Unusual fire and Explosion Hazard: Material is a strong oxidizer. May combine with various metals (at decomposition) to form further flammable mixtures.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Small Liquid Spill: Contain with absorbent material such as clay or inert absorbent. Shovel reclaimed liquid and absorbent into recovery or salvage drums for disposal.
Large liquid Spill: Dike to prevent further movement and reclaim into recovery or salvage drums or tank truck for disposal. This product can be neutralized of its halogen (active ingredient) components by sprinkling sodium metabisulfite or sodium sulfite on the spilled material.
For large indoor spills, evacuate employees and ventilate area. Those responsible for control and recovery should wear the protective equipment specified in Section 8.

SECTION 7: HANDLING AND STORAGE

Storage: Keep container closed when not in use.
Handling: Avoid contact with skin, eyes, and clothing

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure limits of hazardous ingredient:

Ingredient	ACGIH-TLV	OSHA-PEL	NIOSH-REL
Sodium Hydroxide	2mg/m^3 (ceiling)	2mg/m^3 (ceiling)	2mg/m^3 (ceiling)

Respiratory Protections: If it is possible to generate hazardous decomposition products, or vapors, or mists, a NIOSH approved or equivalent respirator is recommended.
For large spills, entry into large tanks, vessels or enclosed small spaces with inadequate ventilations, a positive pressure, self contained breathing apparatus is recommended.
Ventilation: General ventilation is recommended. Local ventilation is recommended where misting can occur.
Protective Equipment: Use impermeable gloves, boots, apron, and a face shield with chemical splash goggles. Suitable impermeable gloves include neoprene, nitrile, PVC, natural rubber, viton and butyl. A full slicker suit is recommended if gross exposure is possible.
The availability of an eye wash fountain and safety shower is recommended.
If clothing is contaminated, remove and thoroughly wash the affected area. Launder contaminated clothing before reuse.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Form:	Liquid	
Color:	Golden colored liquid	
Water Solubility:	Complete	
Density:	10.7-11.0 lbs./gal. @ 68° F	
Specific Gravity:	1.28-1.32 @ 68° F	ASTM D-1298
Viscosity:	N/A	ASTM D-2983
pH (neat):	>13	ASTM E-70
Freeze Point:	<32 deg F	ASTM D-1177
Flash Point:	none (PMCC)	ASTM D-93
VOC Content %	none	EPA Method 24

Note: These physical properties are typical values for this product but are not absolute

SECTION 10: STABILITY AND REACTIVITY

Avoid contact with strong acids, (i.e. Sulfuric, phosphoric, nitric, hydrochloric, chromic, sulfamic) which can generate heat, splattering or boiling and the release of toxic fumes. Avoid contact with copper and iron.

Avoid contact with strong oxidizers (i.e. peroxides, chromates, nitric acid, perchlorates, concentrated oxygen, permanganates) which can generate heat, fires, explosions, and the release of toxic fumes.

Thermal Decomposition Products: In the event of combustion, nitrogen, bromine, hydrobromic acid vapors or gases may be formed. Do not breathe smoke or fumes. Wear suitable protective equipment.

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicity Studies: Toxicity studies have been completed on this product. The results are shown below:

Acute Oral Toxicity (Albino Rats):	> 5,000 mg/kg
Acute Dermal Toxicity (Albino Rats):	> 2,000 mg/kg
Acute Inhalation Toxicity (Rats) (LC_{50})	> 2.13 mg/L
Primary Skin Irritation Test (Albino Rabbits):	Irritant
Primary Eye Irritation Test (Albino Rabbits):	Acute irritant

SECTION 12: ECOLOGICAL CONSIDERATION

Results below are based on the active product (reported as Cl_2).

Avian Exposure:

Upland Game Birds:	
Acute oral LD_{50}	> 2,510 mg/kg
Subacute Dietary LC_{50}	> 5,000 mg/kg

Aquatic Data:

Cold Water Fish, acute toxicity, LC_{50}	1.35 ppm (max) (96 hr)
Pimephales Promelus, LC_{50}	.045 ppm (max) (48 hr)
Ceriodaphnia Dubia, LC_{50}	25 ppm (max) (48 hr)

SECTION 13: DISPOSAL CONSIDERATION

Disposal: If this product becomes a waste, it does not meet the criteria of a hazardous waste as defined under the Resource and Recovery Act (RCRA) 40 CFR 261. It does not have the characteristics of Subpart C, nor is it listed under Subpart D.

If neutralized in accordance with Section 6, this product becomes a non- hazardous liquid waste. It should be solidified with stabilizing agents (such as sand, clay or fly ash) so that no free liquid remains before disposal to a licensed industrial waste landfill. A non -hazardous liquid waste can also be deep well injected in accordance with local, state, and federal regulations.

SECTION 14: TRANSPORT INFORMATION

Proper shipping name/hazard class may vary by packaging, properties, and mode of transportation. Typical proper shipping names for this product are: (Note: sodium hydroxide may be used in addition to or in place of bromide salts if desired)

Road Transportation Modes:	Corrosive liquid, n.o.s. (bromide salts), UN 1760
Air Transportation:	Corrosive liquid, n.o.s. (bromide salts), UN 1760
Marine Transportation:	Corrosive liquid, n.o.s. (bromide salts), UN 1760
Hazard Class, Primary:	8 – Corrosive
Packaging Group:	III
IMDG Page No:	ND

IATA Packing Instruction:	808
IATA Cargo Aircraft Limit:	1.0 L
Flash Point:	None
Technical Name:	N/A
RQ LBS (Per Package):	N/A
RQ Components:	N/A

SECTION 15: REGULATORY INFORMATION

The following regulations apply to this product.

Federal Regulations:

OSHA's Hazard Communication Rule, 29 CFR 1910.1200: Based on our evaluation there are no applicable hazardous components.
CERLA/SUPERFUND, 40 CFR 117, 301: **N/A**
SARA/SUPERFUND AMENDMENTS ACT OF 1986 (TITLE III) – SECTIONS 302,311,312,AND 313:
Section 302 – Extremely hazardous substances (40 CFR 355): This product does not contain ingredients listed in Appendix A and B as an extremely hazardous substance.
Sections 311 and 312 – Material Safety Data Sheet Requirements (40 CFR 370): Our hazard evaluation has found this product to be mildly hazardous due to skin and eye corrosivity. The product should be reported under the following EPA hazard categories:

Yes	Immediate (acute) health hazard
no	Delayed (chronic) health hazard
no	Fire hazard

Section 313 - List of Toxic Chemicals (40CFR 372): This product does not contain ingredients on the list of Toxic Chemicals.
Toxic Substance Control act (TSCA): The chemical ingredients in this product are on the 8(b) Inventory List (40 CFR 710).
Food and Drug Administration: Federal Food, Drug, and Cosmetic Act: **N/A**
Resource Conservation and Recovery Act (RCRA), 40CFR 261 Subpart C and D: Consult Section 13 for RCRA classification.
Federal Water Pollution Control Act, Clean Water Act, 40 CFR 401.15: **N/A**

State Regulations:

California Proposition 65: None of the chemicals on the current Proposition 65 list are known to be present in this product.
Michigan Critical Materials: This product does not contain substance (s) identified on this list.
State Right to Know Laws: N/A

SECTION 16: OTHER INFORMATION

This product material safety data sheet provides health and safety information. The product is to be used in applications consistent with our product literature. Individuals handling this product should be informed of the recommended safety precautions and should have access to this information.

N/A = Not Applicable
ND = None Detected

Updated: February 2010, M.S. Harvey

All information appearing herein is based upon data obtained from the legislative and/or recognized technical sources. While the information is believed to be accurate, Enviro Tech makes no representation as to its accuracy or sufficiency. Conditions of use are beyond Enviro Tech's control and therefore users are responsible to verify this data under their own operating conditions to determine whether this product is suitable for their particular purposes and they assume all risks of their use, handling, and disposal of the product, or from the publication or use of , or reliance upon, information contained herein., This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process.

GL540 Boiler Water Treatment

APPLICATION: GL540 is a chelant/polymer/phosphate boiler water treatment with excellent scale inhibition and sludge conditioning properties. GL540 functions by crystal lattice distortion and anti-precipitation. It will remove existing carbonate and iron deposits, thus improving heat transfer and boiler efficiency.

BENEFITS: MULTIFUNCTIONAL FORMULATION
LOW DOSAGE RATE
NON-POLLUTING; ENVIRONMENTALLY ACCEPTABLE

PHYSICAL PROPERTIES: Physical State: clear liquid
Density: 9.4 lbs./gal.
pH: 10.5 Minimum
Solubility: complete in water

FEEDING: Feed product on a continuous basis to the feedwater line between the feedwater pump and boiler by means of a 316 SS injection quill. The position of the quill should be at least five feet upstream from the first elbow to allow adequate mixing. Stainless steel tubing, valves, fittings, etc are preferred. The dissolved oxygen content of the feedwater must be zero at all times when GL540 is being used. This product is compatible with other common boiler treatment products in use concentrations.

DOSAGES: Product dosage is dependent upon make-up water quantities. Average dosage of GL540 is 120 ppm.

TESTING & CONTROL: The product residual can be monitored by testing for phosphate. Maintain 10-15 ppm for maximum results.

HANDLING & STORAGE: Read label completely before use. See label for first aid instructions. Keep containers closed when not in use. Store containers in an area free of temperature extremes.

PACKAGING: Available in 5, 15, 30 and 55 gallon plastic containers.

SHIPPING: Product is shipped F.O.B. Birmingham, Al. unless otherwise specified.

1

MATERIAL SAFETY DATA SHEET

ISO-CIDE 1.5

Revision Date: 08/19/2008

Telephone number: 706-277-9505

** FOR CHEMICAL EMERGENCY CALL CHEMTREC: 800-424-9300 **

Manufacturer: **LENMAR CHEMICAL CORPORATION**
Address: 2474 Lakeland Road S.E., P.O. Box 571, Dalton, GA 30722-0571

HMIS RATINGS	**HEALTH: 3**	**FLAMMABILITY: 0**	**REACTIVITY: 0**	**PP: C**

SECTION I-PRODUCT INFORMATION

Chemical Name: Mixture*
Chemical Family: Microbiocide/Slimicide
Formula: Mixture **CAS Number:** None
DOT Hazard Class: Class 8 (Corrosive)
DOT Proper Shipping Name: Corrosive Liquid, Acidic, Organic, NOS, (Contains 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazolin-3-one), Class 8, UN3265, PG II.

SECTION II-PHYSICAL DATA

Boiling Point: 212 degrees F. **Specific Gravity (H_2O=1):** 1.03
Vapor Pressure (mmHg): 17 mm Hg **Vapor Density (air=1):** 0.62
Water Solubility: Soluble **pH (as is):** 3.0 (approx)
Evaporation Rate (n-butyl acetate=1): < 1
% Volatiles: 95-96% (water)
Appearance and Odor: Pale yellow liquid with a mild odor.

SECTION III-COMPOSITION/INFORMATION ON INGREDIENTS

Material	Percent	TLV (Units)
5-chloro-2-methyl-4-isothiazolin-3-one CASRN 26172-55-4	1.11	None established

2-methyl-4-isothiazolin-3-one CASRN 2682-20-4	0.37	MEL-0.05 mg/m3

SECTION III-HAZARDOUS INGREDIENTS (Continued)

Inert Ingredients	98.52	None

* Additional information will be provided in a medical emergency to qualified medical personnel.

SECTION IV-FIRE AND EXPLOSION HAZARD DATA

Flash Point: None
Flammable Limits: Not applicable Lower: N/A Upper: N/A

Extinguishing Media: Water, foam, CO2, or dry chemical.

Special Fire Fighting Procedures: Wear a MSHA/NIOSH-approved, pressure-demand, self-contained breathing apparatus and full protective clothing. Use water spray to cool fire-exposed containers.

Fire and Explosion Hazards: Avoid exposure to fumes & vapors from a fire as they can possibly include sulfur dioxide, hydrogen chloride and oxides of nitrogen.

SECTION V-HEALTH HAZARD DATA

Threshold Limit Value (TLV) for the Product: Not determined for mixture.

Does Product Contain OSHA, NTP or IARC Carcinogens above 0.1%? No.

FIRST AID

EYES: Immediately flush eyes with running water for at least 15 minutes, lifting the upper and lower eyelids occasionally. Get prompt medical attent-ion.
SKIN: Wash thoroughly with soap and water. Remove contaminated clothing. Get medical attention if irritation or rash develops.
INHALATION: Move to fresh air. See a doctor if breathing is difficult.
INGESTION: Since product is corrosive, **DO NOT INDUCE VOMITING!** If victim

is
conscious, give 2 glasses of water to drink and call a physician. NEVER give anything by mouth to an unconscious person.
NATURE OF HAZARD (PHYSICAL EFFECTS):

EYES: Severe eye irritant. Corrosive, can cause corneal injury.
SKIN: Can cause irritation or burns. Even at low concentrations, the material is a skin sensitizer (can cause allergic dermatitis reaction).
INHALATION: Irritating to the nose, throat and lungs. Inhalation of mists can cause severe irritation to the respiratory system.
INGESTION: Can be harmful or fatal if swallowed.

ACUTE OVEREXPOSURE: Irritating to the exposed areas.

CHRONIC OVEREXPOSURE: No data available for chronic effects.

TOXICITY DATA

EYE CONTACT: A PRIMARY ROUTE OF ENTRY.
Eye (rabbit): Corrosive to eyes.

SKIN CONTACT: A PRIMARY ROUTE OF ENTRY.

Acute Dermal Toxicity (rat): LD50 = 0.2000 mg/kg.

Primary Skin Irritation (rabbit): Persistent, well-defined to moderate dermal irritation.

Sensitization: Can cause allergic skin reaction.

INHALATION:
Acute Inhalation (rat): LC50 (mist) approximately 12.3 mg/l/(4 hr).

INGESTION:
Acute oral toxicity (rat): LD50 is approximately 5500 mg/kg.

Special Precautions: Individuals with diseases of the skin or respiratory system should not be exposed to this product unless fully protected.

TOXICITY DATA (Continued)

REFERENCES

ACGIH: THRESHOLD LIMIT VALUES (2005-06).

SAX'S DANGEROUS PROPERTIES OF INDUSTRIAL MATERIALS, Ninth Edition, Richard J. Lewis Sr., Van Nostrand Reinhold Co. (1996).

MATERIAL SAFETY DATA SHEETS from raw material suppliers.

SECTION VI-REACTIVITY DATA

Stability: Stable XX Unstable_____

Conditions to avoid: None known.

Incompatibility (Materials to Avoid): None known.

Hazardous Decomposition Products: Hydrogen chloride and oxides of sulfur.

Hazardous Polymerization: May occur_____ Will Not Occur XX

SECTION VII-SPILL OR LEAK PROCEDURES

ACTION TO TAKE FOR SPILLS: Personnel cleaning up spills should wear imper-
vious overshoes in addition to the usual protective clothing. The spilled material should be diked and absorbed with an inert solid such as clay or vermiculite. The absorbent (and surface soil to a depth sufficient to remove all microbiocide) is then shoveled into a pail or a drum and treated with enough decontaminant solution to wet the solids thoroughly. Let these containers stand open for 48 hours to avoid pressure build-up, then seal and dispose of by burying as landfill. The decontaminant area is washed with additional decontaminant solution and flushed into a chemical or municipal sewer. Do not discharge spills or cleaning run-offs into open bodies of water. Remove contaminated clothing promptly and

launder before re-use. Wash skin with soap and water.

SECTION VII-SPILL OR LEAK PROCEDURES (Continued)

DISPOSAL METHOD: Dispose of in accordance with all local, state and federal regulatory agencies. For discard, this is a hazardous waste: RCRA NUMBER D002; reportable quantity: 1 pound (CERCLA (Superfund) Section 103). In acc-
ordance with local, state and federal regulations, landfill contaminated solids in sealed drums. Puncture or otherwise damage empty plastic contain-ers to prevent re-use.

SECTION VIII-SPECIAL PROTECTION INFORMATION

AIR EXPOSURE RECOMMENDATIONS	NORMAL USE	GAS, FUMES, MISTS EXCEED TLV	SPECIAL THERMAL, SPRAY APPLICATIONS
General ventilation	OK	Not recommended	Not recommended
Local Exhaust	OK	Not recommended	Not recommended
Respiratory Protection (Code 1-4)	1	4	4

Codes for Respiratory Protection:
1. None Needed
2. Particle-removing, air purifying respirator (dust mask)
3. Gas and vapor-removing, air purifying respirator (Canister)
4. Full face, positive pressure-demand type (air supplied)

EYE PROTECTION: OSHA-approved chemical splash goggles and face shield.

PROTECTIVE GLOVES: Butyl rubber/nitrile.

OTHER PROTECTIVE EQUIPMENT: Impervious apron, eyewash, safety shower.

SECTION IX-SPECIAL PRECAUTIONS

Precautions to be taken in handling and storage: Wear eye and skin protect-ion. Use in a well-ventilated area. Do not freeze. Keep away from children and other unauthorized personnel. Material is corrosive and is a

skin sensitizer. Wash thoroughly after handling, and shower after the work period. Empty drums can still contain hazardous residues; dispose of drums properly when empty. Keep lids on containers when not in use.

SECTION IX-SPECIAL PRECAUTIONS (Continued)

Decontaminant Solution: Sodium bisulfite solutions (about 11% solids content) rapidly decomposes the product. Laboratory tests from the supplier indicate indicate that the microbiocide is almost completely deactivated within 30 minutes when treated with at least 4 equivalents of decontaminat-ing solution. A volume of 20/1 decontaminant/active microbiocide is recommended The following solutions are acceptable decontaminants:

INGREDIENTS	WEIGHT (pounds)
Sodium Metabisulfite ($Na_2S_2O_5$)	1.0
Water	8.0
Total	9.0

Solids Content: 11.1%
pH = 4.2

INGREDIENTS	WEIGHT (pounds)
Sodium Bisulfite ($NaHSO_3$)	1.0
Water	8.3
Total	9.3

Solids Content: 10.7%
pH = 4.2

INGREDIENTS	WEIGHT (pounds)
Sodium Sulfite (Na_2SO_3)	1.00
Water	7.00
Hydrochloric Acid (37%)	0.67
Total	8.67

Solids Content: 9.5%
pH = 5.0-5.5

SECTION X-MISCELLANEOUS

Is product RCRA regulated? Yes, Corrosive Hazardous Waste, D002.

Are all ingredients listed in the TSCA inventory? Yes.

ENVIRONMENTAL EFFECTS:
Ceriodaphnia Dubia, LC50 29 ppm (48 hr)
Pimephales Promelus, LC50 .036 ppm (48 hr)

SARA Classification for product: Acute Hazard, chronic hazard

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SECTION X-MISCELLANEOUS (Continued)

SARA TITLE III, SECTION 313 CHEMICALS:	
5-chloro-2-methyl-4-isothiazolin-3-one CASRN 26172-55-4	1.11%
2-methyl-4-isothiazolin-3-one CASRN 2682-20-4	0.37%

COMMENTS: This product is for industrial use only!

ISSUE DATE: 02/18/2008
REVISION:
SUPERCEDES:
REASON FOR REVISION:
PRODUCT NUMBER: 300005
MSDS #: 08-0018

COMPANY CONTACTS: Carroll Carter, Technical Director

****

The information given and the recommendations made herein apply to our product(s) alone and not in combination with any other products. Such information and recommendations are based on **LENMAR CHEMICAL CORPORATION** research and on data from other reliable sources and are believed to be accurate, but no guaranty of their accuracy is made. In every case we urge and recommend that purchasers, before using any product, make their own tests to verify this data under their own operating conditions and determine to their own satisfaction whether the product is suitable for their particular purposes. **THE PRODUCT IS DISCUSSED HEREIN AND SOLD**

WITHOUT ANY WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER WARRANTY, EXPRESSED OR IMPLIED.

****

This form meets the requirements of OSHA 29CFR 1910.1200

Nashville Chemical

Redefining Water Treatment Services

MATERIAL SAFETY DATA SHEET

I. GENERAL INFORMATION

PRODUCT NAME: MBC 215

MANUFACTURER'S ADDRESS: Nashville Chemical & Equipment Co., Inc.
7001 Westbelt Drive
Nashville, TN 37209

24 HOUR EMERGENCY PHONE: 1-800-424-9300

TRADE NAME: 5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE AND 2-METHYL-4- ISOTHIAZOLIN-3-ONE

CHEMICAL FORMULA: PRINTED ON LABEL

CHEMICAL FAMILY: MICROBIOCIDE

HEALTH	3
FLAMMABILITY	0
REACTIVITY	0
PERSONAL PROTECTION	H

II. HAZARDOUS INGREDIENTS

PRINCIPAL HAZARDOUS INGREDIENT(S):	% OF PRODUCT	PEL / TLV	CAS NO.
5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE	1.11	NONE ESTABLISHED	26172-55-4
2-METHYL-4-ISOTHIAZOLIN-3-ONE	0.39	NONE ESTABLISHED	2682-20-4
MAGNESIUM CHLORIDE	1.1	NONE ESTABLISHED	7786-30-3
MAGNESIUM NITRATE	1.8	NONE ESTABLISHED	10377-60-3
CUPRIC NITRATE TRIHYDRATE	0.20	NONE ESTABLISHED	10031-43-3

PRODUCT IS REGULATED UNDER FIFRA; COMPONENTS ARE NOT REQURIED TO BE ON THE TSCA INVENTORY.

III. PHYSICAL DATA

BOILING POINT (F): 212 °F
VAPOR PRESSURE: 17MM HG
VAPOR DENSITY: NE
SOLUBILITY IN WATER: COMPLETE
APPEARANCE AND ODOR: PALE YELLOW TO GREEN LIQUID; SLIGHT ODOR.

SPECIFIC GRAVITY (H20=1): 1.03
PERCENT VOLATILE BY WEIGHT (%) 95-96% (WATER)
MELTING / FREEZING POINT (F): FREEZES AT 27 °F
PH: APPROXIMATELY 3.0

IV. FIRE AND EXPLOSION DATA

FLASH POINT: N/A
AUTO IGNITION TEMPERATURE: NE
FLAMMABLE LIMITS IN AIR, VOLUME PERCENTAGE (%): UPPER: N/A LOWER: N/A
EXTINGUISHER MEDIA: NON-COMBUSTIBLE
SPECIAL FIRE FIGHTING PROCEDURES: WEAR BREATHING APPARATUS (MSHA/NIOSH-APPROVED, PRESSURE DEMAND, SELF-CONTAINED OR EQUIVALENT) AND FULL PROTECTIVE CLOTHING. USE WATER SPRAY TO COOL FIRE-EXPOSED CONTAINERS. CONTAIN RUN-OFF.

UNUSUAL FIRE/EXPLOSION HAZARDS: AVOID EXPOSURE TO FUMES AND VAPORS FROM A FIRE-- CAN POSSIBLY INCLUDE SULFUR DIOXIDE AND HYDROGEN CHLORIDE AND OXIDES OF NITROGEN.

V. PHYSICAL HAZARDS

STABILITY: STABLE **CONDITIONS TO AVOID:** NONE KNOWN
MATERIALS TO AVOID: OXIDIZING AGENTS, REDUCING AGENTS, AMINES, MERCAPTANS
HAZ. POLYMERIZATION: WILL NOT OCCUR **CONDITIONS TO AVOID:** NOT APPLICABLE
HAZARDOUS DECOMPOSITION PRODUCTS: HYDROGEN CHLORIDE AND OXIDES OF SULFUR

VI. HEALTH HAZARDS

ACUTE: CORROSIVE **CHRONIC:** NONE

SIGNS AND SYMPTOMS OF EXPOSURE: HARMFUL IF INHALED. CORROSIVE TO EYES. CAUSES IRREVERSIBLE EYE DAMAGE. CORROSIVE TO SKIN. CAUSES SKIN BURNS. THESE EFFECTS MAY BE DELAYED FOR HOURS. CAN CAUSE ALLERGIC DERMATITIS.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: EXPOSURE TO MBC 215 MAY CAUSE ALLERGIC CONTACT DERMATITIS.

LISTED AS CARCINOGEN OR POTENTIAL CARCINOGEN: **IARC:** NO **NATIONAL TOXICOLOGY PROGRAM:** NO

VII. EMERGENCY AND FIRST AID PROCEDURES

TREAT SYSTEMATICALLY AS OUTLINED BELOW:

INHALATION: MOVE SUBJECT TO FRESH AIR. APPLY ARTIFICIAL RESPIRATION IF NEEDED.

SKIN: WASH SKIN THOROUGHLY WITH SOAP AND WATER. REMOVE CONTAMINATED CLOTHING. SEEK MEDICAL ATTENTION IF IRRITATION OCCURS.

EYES: IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER, LIFTING UPPER AND LOWER EYE LIDS OCCASIONALLY, FOR AT LEAST 15 MINUTES. GET PROMPT MEDICAL ATTENTION.

INGESTION: IF SWALLOWED, DILUTE BY GIVING 2 GLASSES OF WATER TO DRINK AND CALL A PHYSICIAN. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

VIII. ENVIRONMENTAL DATA: SPILL AND DISPOSAL PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:

LARGE AND SMALL SPILL: WEAR PROTECTIVE CLOTHING, SPLASH PROOF GOGGLES AND IMPERVIOUS OVERSHOES. REMOVE CONTAMINATED CLOTHING. PROMPTLY LAUNDER BEFORE REUSE. WASH SKIN WITH SOAP AND WATER. KEEP SPILLS OUT OF MUNICIPAL SEWERS AND OPEN BODIES OF WATER. DIKE AND ABSORB SPILL WITH INERT MATERIAL (DRY EARTH, SAND). SHOVEL ALL CONTAMINATED SOLIDS-DIKING MATERIAL, ABSORBENT AND SOIL INTO CORROSION PROOF, DOT APPROVED CONTAINERS. SEAL

SEE SECTION X FOR MORE REGULATORY INFORMATION.

WASTE DISPOSAL METHODS: INCINERATE LIQUID AND CONTAMINATED SOLIDS IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REGULATIONS (SEE 40 CFR 268).

IX. CONTROL MEASURES

RESPIRATORY PROTECTION: WEAR MSHA/NIOSH-APPROVED RESPIRATOR SUITABLE FOR CONCENTRATIONS ENCOUNTERED WHERE EXPOSURE LIMITS ARE EXCEEDED.

VENTILATION: LOCAL EXHAUST: PREFERRED

PROTECTIVE GLOVES: BUTYL RUBBER/NITRILE

EYE PROTECTION: SPLASH PROOF GOGGLES AND FACE SHIELD (ANSI Z87.1 OR EQUIVALENT)

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: IMPERVIOUS APRON, EYE WASH FACILITY, EMERGENCY SHOWER.

WORK/HYGIENIC PRACTICES: WASH SKIN WITH SOAP AND WATER. LAUNDER CONTAMINATED CLOTHING BEFORE REUSE.

OTHER: EYE WASH FACILITY AND SAFETY SHOWER. DO NOT STORE BELOW 32 °F.

X. REGULATORY INFORMATION

DOT SHIPPING NAME: CORROSIVE LIQUIDS, ACIDIC, ORGANIC, N.O.S. (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE), 8, UN 3265, PG II

HAZARD CLASSIFICATION: CORROSIVE **UN / NA NUMBER:** UN 3265

DOT LABEL REQUIRED: CORROSIVE

SARA TITLE III REPORTING: **SECTION 311:** X **SECTION 312:** X **SECTION 313:** X

SARA 313 REPORTABLE PRODUCT: MAGNESIUM NITRATE

SARA TPQ: N/A

CERCLA REPORTABLE QUANTITY OF PRODUCT: N/A

HMIS RATING: **HEALTH** 3 **FLAMMABILITY** 0 **REACTIVITY** 0

DATE PREPARED: OCTOBER 2003 (REVIEWED SEPT. 2008)

PREPARED BY: CHRIS BUNCH

NE = Not Established **N/A = Not Applicable** **NR = Not Required** **< = Less Than** **> = Greater Than**

MATERIAL SAFETY DATA SHEET

PureCide® E

This MSDS is supplied by PureLine Treatment Systems as a service to clients.

SECTION 1 – CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PureLine Treatment Systems, LLC

707 S. Vermont St.
Palatine, IL 60067
Phone: (847) 963-8465
Fax: (847) 963-8466

PureCide® E

Product Name: PureCide® E
Major Update: 01/23/06
CAS#: 7758-19-2
Minor Revision: 02/02/2010
MSDS Code: PureLine PureCide® E

Chemical Name: Sodium chlorite, sodium chlorite solution

Product Use: Generation of chlorine dioxide for use as a disinfectant or for use as an oxidant. Bleaching of textiles, wood pulp bleaching, water treatment as biocide for control of microorganisms and algae, oxidation of sulfides in wastewater, bleaching and deodorising of fats and oils, and odor control. PureCide® E solution is also used in PureLine's proprietary electrochemical ClO_2 generation systems.

Emergency Contact:

CHEMTREC 800-424-9300 (US/N America) -
703-527-3887 (outside US-collect calls accepted)

SECTION 2 – COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	% Range	CAS NO.
Sodium Chlorite	15-34%	7758-19-2
Sodium Chloride	1 - 6%	7647-14-5
Sodium Chlorate	0 - 3%	7775-09-9
Sodium Sulfate	0 - 2%	7757-82-6
Water	59-74%	7732-18-5

* Denotes chemical subject to reporting requirements of Section 313 of Title III of the 1986 Superfund Amendments and Reauthorization Act (SARA) and 40 CFR Part 372

SECTION 3 – HAZARD IDENTIFICATION

EMERGENCY OVERVIEW

Clear, water white to slightly yellow liquid, slight chlorine odor
DANGER! Corrosive. Causes skin and eye irritation or burns.
Harmful if swallowed. Causes digestive tract burns.

POTENTIAL HEALTH EFFECTS

INHALATION

Breathing of vapor or mist is possible if this material is heated or sprayed. Breathing this material causes irritation of the throat and lungs with cough and difficult breathing.

SKIN

Causes severe skin irritation with redness, and itching or burning feeling, and/or swelling of the skin. May cause skin damage. Note: May cause skin burns and permanent skin damage.

EYE

Causes severe eye irritation with tearing, redness, or a stinging or burning feeling. May cause swelling of the eyes with blurred vision. Can injure eye tissue. Effects may become more serious with repeated or prolonged contact. Note: May cause burns and permanent injury to eye tissue.

INGESTION

Swallowing this material may be harmful or cause death. Harmful effects include burns and permanent damage to the digestive tract, including the mouth, throat, stomach and intestines. Symptoms may include sever abdominal pain and vomiting of blood. Blood loss through damaged tissue can lead to low blood pressure and shock.

SIGNS AND SYMPTOMS OF EXPOSURE

Depending upon level and duration of exposure, other possible signs and symptoms from breathing, swallowing, and/or entry of this material through the skin may include nosebleeds, hoarseness, sore throat, wheezing, cough with phlegm, bronchitis, tightness of the chest, pulmonary edema (high levels) irritation of the nose, throat, airways, and lungs with cough and difficult breathing, burns or ulceration of the gastrointestinal tract, including stridor, drooling, and vomiting.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Preexisting disorders of the following organs or systems, which may be aggravated by exposure to this material include : respiratory system (including asthma and other

breathing disorders), gastrointesintal system, skin and blood (anemia, G6PD deficiency)

EFFECTS FOLLOWING REPEATED EXPOSURE

This material may cause the following effects: respiratory tract damage (nose, throat, airways), lung damage, gastrointestinal damage, and skin damage. Observations in animal studies include: blood disorders and male reproductive effects. The relevance of these observations to humans is not clear at this time.

SECTION 4 – FIRST AID MEASURES

INHALATION

Remove individual to fresh air and get immediate attention. If breathing is difficult, give oxygen. If breathing stops, give artificial respiration.

SKIN

Wash exposed skin well with plenty of soap and water. Remove contaminated clothing and shoes. Wash clothing and thoroughly clean shoes before reuse. If symptoms develop, get medical attention.

EYES

Hold the eyelids apart and flush the eye gently with a large amount of water for at least 15 minutes. Get immediate medical attention.

INGESTION

Have person drink a glass of water immediately if able to swallow. Get immediate attention. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person.

NOTES TO PHYSICIAN

Chlorine dioxide vapors are emitted when this product contact acids or chlorine. If these vapors are inhaled, monitor patient closely for delayed development of pulmonary edema which may occur up to 48-72 hours post-inhalation.

Following ingestion, neutralization and use of activated charcoal is not indicated.

See Section 11 for Toxicological Information

SECTION 5 – FIRE FIGHTING MEASURES

FLAMABLE PROPERTIES

Flash Point	Not applicable
Flammable Limits (Lower)	Not applicable
Flammable Limits (Upper)	Not applicable
Auto Ignition Temperature	Not applicable
Extinguishing Media	Not applicable-Choose extinguishing media suitable for surrounding materials.

FIRE FIGHTING INSTRUCTIONS

Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Use flooding quantities of water as fog or spray. This product becomes a fire or explosion hazard if allowed to dry, so use water spray to keep fire-exposed containers cool. Extinguish fire using agent suitable for surrounding fire.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Isolated spill area and deny entry to unnecessary or unprotected personnel. Remove all sources of ignition, such as flames, hot glowing surfaces or electric arcs. Stop source of spill as soon as possible and notify appropriate personnel. Cleanup personnel must wear proper protective equipment (refer to Section 8). Notify all downstream water users of possible contamination.

Create a dike or trench to contain all liquid material. Spill materials may be absorbed using clay, soil or non-flammable commercial absorbents. Continue to keep damp. If allowed to dry, dried material can ignite in contact with combustible materials.

This product may represent an explosion hazard if it contacts acids or chlorine. If such contact is possible, evacuation procedures must be placed into effect. Evacuate all non-essential personnel. Hazardous concentrations in air may be found in local spill area and immediately downwind.

Do not place spill materials back in their original container. Containerize and label all spill material properly. Decontaminate all clothing and, if permitted, the spill area using strong detergent and flush with large amounts of water.

For all transportation accidents, call CHEMTREC at 800/424-9300.

SECTION 7 – HANDLING AND STORAGE

HANDLING

Do not get in eyes, or on skin, or clothing. Do not taste or swallow. Avoid breathing mists or fumes. Do not handle with bare hands. This product becomes a fire hazard if allowed to dry. Remove and wash contaminated clothing to avoid fire.

Carefully monitor handling, use and storage to avoid spills and leaks. Follow protective controls set forth in Section 8 when handling this product. Do not eat, drink, or smoke in work area. Wash hands prior to eating, drinking, or using restroom.

This solution contains sodium chlorite. Dry sodium chlorite is a strong oxidizing agent. Mix only into water. Contamination may start a chemical reaction with generation of heat, liberation of hazardous gases (chlorine dioxide a poisonous, explosive gas), and possible fire and explosion. Do not contaminate with garbage, dirt, organic matter, household products, chemicals, soap products, paint products, solvents, acids, vinegar, beverages, oils, pine oil, dirty rags, or any other foreign matter.

STORAGE

STORAGE CONDITIONS

Store in closed, properly labeled tanks or containers. Do not store at temperatures above 100°C (212°F). Do not remove or deface labels or tags. Do not expose to direct sunlight or ultraviolet light. Do not drop, roll or skid drums. Keep drums upright.

Avoid contact with combustible or readily oxidizable materials; sulfur-containing rubber.

INCOMPATIBLE MATERIALS FOR STORAGE OR TRANSPORT

Acids, reducing agents, combustible material, oxidizers (such as hypochlorites), paints, sulfur and solvents.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS

VENTILATION

Local exhaust ventilation is recommended if vapors, mists or aerosols are generated. Otherwise, use general exhaust ventilation.

PERSONAL PROTECTIVE EQUIPMENT

EYE AND FACE PROTECTION

Wear chemical goggles. A face shield should be worn in addition to goggles where splashing or spraying is possible.

SKIN PROTECTION

Wear Neoprene gloves, boots and apron.

RESPIRATORY PROTECTION

Wear NIOSH/MSHA approved acid gas respirator plus dust/mist pre-filters if any exposure to dust or mist is possible.

GENERAL

Safety shower and eye wash station must be provided in the immediate work area. Protective equipment and clothing should be selected, used, and maintained according to applicable standards and regulations. For further information, contact the clothing or equipment manufacturer.

EXPOSURE GUIDELINES

None established

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Chemical Formula	$NaClO_2$
Molecular Weight	90.45
Appearance and Odor	Clear, water white to slightly yellow liquid, slight chlorine odor
Specific Gravity	1.23-1.30 at 25/25°C
Vapor Pressure	No Available Data
Density	10.1-10.6 lbs./gal @ 25°C
PH @ 25°C	>12
Volatiles, Percent By Volume	59-74%
Crystallization Point	5°C
Solubility In Water	Complete

SECTION 10 – STABILITY AND REACTIVITY

CHEMICAL STABILITY

Stable

CONDITIONS TO AVOID

Temperature above 175°C (347°F) (dry material)
Evaporation to dryness; dried material can ignite upon contact with combustibles.
Exposure to sunlight or ultraviolet light can reduce product strength.

INCOMPATIBILITY WITH OTHER MATERIALS

Acids, reducing agents, combustible materials, oxidizers (such as hypochlorites), sulphur-containing rubber, dirt, soap, solvents, paints.
Contamination with acids, chlorine or organic materials. Avoid contact with heat or flame source.

HAZARDOUS DECOMPOSITION PRODUCTS

Explosive and toxic chlorine dioxide gas will be generated on contact with acids or chlorine.

HAZARDOUS POLYMERIZATION

Will not occur

SECTION 11 – TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION

ANIMAL TOXICOLOGY

Inhalation LC_{50}:	No available data
Dermal LD_{50}:	>2g/kg (rabbit)
Oral LD_{50}:	165 mg/kg (rat)
Oral LD_{50}:	350 mg/kg (mouse)

EFFECT FOLLOWING PROLONGED OR REPEATED EXPOSURE

The chronic ingestion of sodium chlorite in drinking water has been studied in laboratory animals and to a limited extent in humans. Concentrations of 100 ppm and higher have been shown to cause mild anemia and other blood red blood cell effects in laboratory animals, including G6PD deficiency. In a reproductions study, decreased serum levels of the thyroid hormones, T3 and T4, were observed on days 21 and 40 in both male and female pups exposed to 100 ppm of sodium chlorite. In a more recent study, methemoglobin levels were increased with high doses of sodium chlorite (70 ppm), as well as decreased liver weights. In general, clinical studies of communities using sodium chlorite as a disinfectant found no adverse effects in the human population studied.

CARCINOGENICITY

Sodium chlorite is not listed by NTP, IARC, OSHA, EPA, or any other authority as a carcinogen. Dermal and oral carcinogenicity studies conducted in mice and rats did not result in significant carcinogenic effect. According to the USEPA and IARC sodium chlorite is not classifiable because of inadequate animal and human data.

MUTAGENICITY

Sodium chlorite has been evaluated for possible mutagenic effects in several laboratory tests. It has tested positive in the Ames Salmonella reverse mutation assay without metabolic activators and caused chromosomal aberrations in an in vitro Chinese hamster firbroblast cell line without metabolic activators. Sodium chlorite also tested positive in the mouse micronucleus assay when administered intraperitoneally (directly into the body cavity), but was not mutagenic when administered orally. The significance of these test results for human health is unclear because the oxidizing effect of the chlorite or salting effect of sodium may significantly affect the ability of the test to accurately detect mutagens.

REPRODUCTIVE/DEVELOPMENTAL TOXICITY

Groups of male rates exposed to 100 or 500 ppm sodium chlorite in drinking water ad libitum showed a significant increase in the percentage of morphologically abnormal sperm as well as a significant decrease in sperm motility. No effects on reproduction were reported. Sodium chlorite has not been found to be teratogenic in studies in which animals have been exposed up to 100 ppm in the drinking water.

The CMA conducted a two-generation reproductive rat study with developmental neurotoxicity to evaluate the effects of sodium chlorite on reproduction and pre-and post-natal development when administered orally via drinking water for two successive generations. Sodium chlorite was administered at 0, 35, 70, and 300 ppm in drinking water to male and female rats for ten weeks prior to mating. Dosing continued during the mating period, pregnancy and lactation. The final report concluded that there were no meaningful treatment related effects at any dose level for systemic, reproductive/developmental, and developmental neurological end points. Hematological effects and reduced body weight gains were observed in some treatment groups.

SECTION 12 – ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION

This product is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to the discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority.

ENVIRONMENTAL FATE

Water:
Sodium chlorite in water will eventually degrade to sodium chloride.

Soil:
Sodium chlorite in contact with acidic soil could generate chlorine dioxide.

ECOTOXICITY

Acute TL_{50} for rainbow trout: 50.6 mg/l (as 80% $NaClO_2$)
Acute LC_{50} (96 hrs.) for rainbow trout: 290 mg/l (as 80% $NaClO_2$)

Acute TL_{50} for bluegill: 208 mg/l (as 80% $NaClO_2$)
Acute LC_{50} (96 hrs.) for bluegill: 265-310 mg/l (as 80% $NaClO_2$)

Acute TD_{50} mallard ducks: 0.49-1.00 g/kg (gavage) (as 80% NaClO2)
Acute LD_{50} bobwhite quail: 0.66 g/kg (gavage) (as 80% NaClO2)

Acute LC_{50} (48 Hours) for daphnia magna: 0.29 mg/l (as 80% NaClO2)

Sodium Chlorite in the diet of birds was not acutely toxic. Eight-day dietary LC_{50}'s in mallard ducks and bobwhite quail were both greater than 10,000 ppm in the diet.

SECTION 13 – DISPOSAL CONSIDERATIONS

All disposals of this material must be done in accordance with Federal, state and local regulations. Waste characterization and compliance with disposal regulations are the responsibilities of the waste generator.

SPILL RESIDUES

If this product becomes a waste, it meets the criteria of a hazardous waste as defined under 40 CFR 261 and would have the following EPA hazardous waste designation: D002. Also, it will be subject to the Land Disposal Restrictions under 40 CFR 268 and must be managed accordingly.

As a hazardous liquid waste, it must be disposed of in accordance with Federal, state, or local regulations in a permitted waste management facility. Do not dump into any sewers, on the ground, or into any body of water.

SECTION 14 –TRANSPORT INFORMATION

DOT IDENTIFICATION NO.

UN 1908

DOT SHIPPING DESCRIPTION (49 CFR 172.101)
Chlorite solution, 8, UN 1908, II

PLACARD REQUIRED
Corrosive, 1908, Class 8

LABEL REQUIRED
Corrosive, Class 8
Label as required by EPA and by OSHA Hazard Communication Standard, and any applicable state and local regulations.

IMO REQUIREMENTS
EmS No.: 806 MFAG Table No.: 741

SECTION 15 – REGULATORY INFORMATION

US FEDERAL REGULATIONS

REPORTABLE QUANTITY (RQ)
Not Applicable

TOXIC SUBSTANCES CONTROL ACT
Listed on TSCA Inventory

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) TITLE III
Components identified with an asterisk (*) in Section 2 are subject to the reporting requirements of Section 313 of Title III of the 1986 Superfund Amendments and Reauthorization Act (SARA) and 40 CFR Part 372.

SARA HAZARD CATEGORIES (40 CFR 370.2)
HEALTH: Immediate (Acute), Delayed (Chronic)
PHYSICAL: Fire

INTERNATIONAL REGULATIONS

CANADA

WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS) CLASSIFICATION
WHMIS Classifications applicable to this product:
E (Corrosive Material) based on assignment to TDG Class 8

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)

All components of this product are on the Domestic Substances List (DSL).

HAZARDOUS PRODUCTS ACT

This product has been classified in accordance with the hazard criteria of the Canadian Controlled Products Regulations (CPR).

EUROPE

EINECS No.: 231-836-6

STATE REGULATIONS

CALIFORNIA PROPOSITION 65

Sodium Chlorite does not appear on the California Proposition 65 list.

SECTION 16 – OTHER INFORMATION

National Fire Protection Association (NFPA) Rating

Health 3, Flammability 0, Instability 1

Date of Preparation: January 24, 2006

Sections Revised: Section 1 (Company Name, Logo, Product Name)

FOR FURTHER INFORMATION CONTACT:

Chenniah Nanjundiah, PureLine Treatment Systems,LLC
Phone :760-431-1200 or 949 285-1666

GUARDIAN-IPCO, INC.

September 19, 2012

Mr. David Hagan
Director, Environmental Management Programs
UAB Occupational Health and Safety
933 19th Street South Suite 445
Birmingham, AL 35294

Dear Mr. Hagan:

As you requested, here are the chemicals used for treating the cooling tower water at UAB Highlands.

(1)

GI#160-

Potassium Hydroxide
Maleic Anhydride Hydrolyzed Copolymer
2-Phosphonobutane-1,2,4-Tricarboxylic Acid

BromMax 7.1-

Sodium Hypochlorite
Sodium Bromide

ISO-CIDE 1.5

5-Chloro-2-methyl-4-isothiazoline-3-one
2-Methly-4-isothiazolin-3-one

(2)

GI#160 Toxicity Data- 48hr LC50 Ceriodaphnia Dubia 3,090 mg/l
48hr LC50 Pimephales Promelas 2,340 mg/l

BroMmax 7.1 Toxicity Data-48hr LC50 Ceriodaphnia Dubia 25 mg/l
48hr LC50 Pimephales Promelas .045 mg/l

ISO-CIDE 1.5 Toxicity Data- 48hr LC50 Ceriodaphnia Dubia 29 mg/l
48hr LC50 Pimephales Promelas .036 mg/l

44 VANN DRIVE 35242 • P.O. BOX 380128 • BIRMINGHAM, ALABAMA 35238-0128
TELEPHONE 205-991-5316 • FAX 205-991-8563
www.guardian-ipco.com

(3)

BromMax 7.1- EPA# 63838-5

ISO-CIDE 1.5- EPA# 67071-38-74922

Sincerely,

Jamie Jackson

Please print or type in the unshaded areas only.

Form Approved. OMB No. 2040-0086.

FORM 1 GENERAL

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

S		T/A	C
F	ALD063690705		D
1	2 — 13	14	15

LABEL ITEMS	
I. EPA I.D. NUMBER	PLEASE PLACE LABEL IN THIS SPACE
III. FACILITY NAME	
V. FACILITY MAILING ADDRESS	
VI. FACILITY LOCATION	

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of **bold-faced terms**.

SPECIFIC QUESTIONS	Mark "X" YES	NO	FORM ATTACHED	SPECIFIC QUESTIONS	Mark "X" YES	NO	FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge** to **waters of the U.S.**? (FORM 2A)		X		B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge** to **waters of the U.S.**? (FORM 2B)		X	
	16	17	18		19	20	21
C. Is this a facility which currently results in **discharges** to **waters of the U.S.** other than those described in A or B above? (FORM 2C)		X		D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge** to **waters of the U.S.**? (FORM 2D)		X	
	22	23	24		25	26	27
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3)		X		F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FQRM 4)		X	
	28	29	30		31	32	33
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X		H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
	34	35	36		37	38	39
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)		X		J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	
	40	41	42		43	44	45

III. NAME OF FACILITY

C		
1	SKIP	UNIVERSITY OF ALABAMA AT BIRMINGHAM
15	16 – 29	30 — 69

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*
C 2 HAGAN, J. DAVID DIR ENVIRONMENTAL MANAGMENT PROGRAM	(205) 934-8576
15 16 — 45	46 48 49 51 52- 55

V. FACILTY MAILING ADDRESS

A. STREET OR P.O. BOX

C	
3	933 19TH STREET SOUTH
15	16 — 45

B. CITY OR TOWN	C. STATE	D. ZIP CODE
C 4 BIRMINGHAM	AL	35294
15 16 — 40	41 42	47 51

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

C	
5	701 20TH STREET SOUTH
15	16 — 45

B. COUNTY NAME

JEFFERSON
46 — 70

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE *(if known)*
C 6 BIRMINGHAM	AL	25233	073
15 16 — 40	41 42	47 51	52 -54

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CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

VII. SIC CODES *(4-digit, in order of priority)*

A. FIRST	B. SECOND
8221 (specify) COLLEGES, UNIVERSITIES & PROFESSIONAL SCHOOLS	8062 (specify) GENERAL MEDICAL AND SURGICAL HOSPITALS
C. THIRD	**D. FOURTH**
8011 (specify) OFFICES AND CLINICS OF DOCTORS OF MEDICINE	(specify)

VIII. OPERATOR INFORMATION

A. NAME: J. DAVID HAGAN

B. Is the name listed in Item VIII-A also the owner? ☐ YES ☑ NO

C. STATUS OF OPERATOR *(Enter the appropriate letter into the answer box: if "Other," specify.)*

F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC *(other than federal or state)*
O = OTHER *(specify)*

S (specify)

D. PHONE *(area code & no.)*: (205) 934-8576

E. STREET OR P.O. BOX: 933 19TH STREET SOUTH

F. CITY OR TOWN: BIRMINGHAM

G. STATE: AL

H. ZIP CODE: 35294

IX. INDIAN LAND

Is the facility located on Indian lands? ☐ YES ☑ NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES *(Discharges to Surface Water)*	D. PSD *(Air Emissions from Proposed Sources)*
9 N AL0078948	9 P
B. UIC *(Underground Injection of Fluids)*	**E. OTHER** *(specify)*
9 U	9 4-07-1044-02 (specify) TITLE V AIR PERMIT ISSUED BY JEFFERSON CTY DEPT OF HEALTH
C. RCRA *(Hazardous Wastes)*	**E. OTHER** *(specify)*
9 R	9 (specify)

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers, and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS *(provide a brief description)*

THE FACILITY IS A STATE UNIVERSITY AND MEDICAL CENTER

XIII. CERTIFICATION *(see instructions)*

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE *(type or print)*	B. SIGNATURE	C. DATE SIGNED
J. DAVID HAGAN, DIR ENV MAN PROGRAM	J David Hagan	8/18/18

COMMENTS FOR OFFICIAL USE ONLY

C

Please print or type in the unshaded areas only.

EPA ID Number (copy from Item 1 of Form 1): ALD063690705

Form Approved. OMB No. 2040-0086. Approval expires 5-31-92.

FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number *(list)*	Latitude			Longitude			Receiving Water *(name)*
	Deg	Min	Sec	Deg	Min	Sec	
501 BUILDING	33.0(	30.0(	16.0(	86.0(	49.0(	2.00	VALLEY CREEK

II. DISCHARGE DATE *(If a new discharger, the date you expect to begin discharging)*

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☑ Noncontact Cooling Water ☐ Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

NO ADDITIVES

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority *(see instructions)*.

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		*(3)*	*(or)*	*(4)*
	Mass	Concentration	Mass	Concentration	Number of Measurements Taken *(last year)*		Source of Estimate *(if new discharger)*
Biochemical Oxygen Demand (BOD)	N/A						
Total Suspended Solids (TSS)	N/A						
Fecal Coliform *(if believed present or if sanitary waste is discharged)*	N/A						
Total Residual Chlorine *(if chlorine is used)*	N/A						
Oil and Grease	N/A						
*Chemical oxygen demand (COD)	N/A						
*Total organic carbon (TOC)	N/A						
Ammonia *(as N)*	N/A						
Discharge Flow	Value						
pH *(give range)*	Value						
Temperature *(Winter)*		°C		°C			
Temperature *(Summer)*		°C		°C			

*If noncontact cooling water is discharged

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V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? ☐ Yes ☐ No

If yes, briefly describe the frequency of flow and duration.

PROCESS WATER THAT IS CONNECTED TO STORM WATER DRAIN.

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

N/A

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

VIII. 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.

A. Name & Official Title	B. Phone No. *(area code & no.)*
J.DAVID HAGAN, DIRECTOR OF ENVIRONMENTAL MANAGEMENT PROGRAMS	(205) 934-8576
C. Signature J David Hagan	D. Date Signed 8/18/18

Please print or type in the unshaded areas only.	EPA ID Number (copy from Item 1 of Form 1) ALD063690705	Form Approved. OMB No. 2040-0086. Approval expires 5-31-92.

FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number *(list)*	Latitude			Longitude			Receiving Water *(name)*
	Deg	Min	Sec	Deg	Min	Sec	
Steam Plant	33.0(	30.0(	9.00	86.0(	48.0(	37.0(	VALLEY CREEK

II. DISCHARGE DATE *(If a new discharger, the date you expect to begin discharging)*

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☑ Noncontact Cooling Water ☐ Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

GL540,
GI #570(Potassium Hydroxide,Amino Tri(Methylene Phosphonic Acid),Poly (acrylic acid-co-hypophosphite), Sodium Salt,Polymaleic Acid).
GI #628(Cobalt Sulfate, heptahydrate),
GI #760(Morpholine,Cyclohexlamine ,Diethylaminoethanol).

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority *(see instructions)*.

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		*(3)* Number of Measurements Taken *(last year)*	*(or)* *(4)* Source of Estimate *(if new discharger)*
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)	N/A					
Total Suspended Solids (TSS)	N/A					
Fecal Coliform *(if believed present or if sanitary waste is discharged)*	N/A					
Total Residual Chlorine *(if chlorine is used)*	N/A					
Oil and Grease	N/A					
*Chemical oxygen demand (COD)	N/A					
*Total organic carbon (TOC)	N/A					
Ammonia *(as N)*	N/A					
Discharge Flow	Value		8200 GAL/DAY			
pH *(give range)*	Value 7.2-8.9					
Temperature *(Winter)*		°C		°C		
Temperature *(Summer)*		°C		°C		

*If noncontact cooling water is discharged

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? ☑ Yes ☐ No

If yes, briefly describe the frequency of flow and duration.

Discharge Estimation is Based on 80,000 pound per hour load and 70% condensate return.

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

THIS IS A NEW DISCHARGE LOCATION, CURRENTLY THE STEAM PLANT IS DISCHARGING TO THE SANITARY SEWER SYSTEM UNTIL RECEIVING APPROVAL FROM ADEM TO DISCHARGE TO THE STORM SEWER SYSTEM.

VIII. 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.

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C. Signature J David Hagan	D. Date Signed 8/18/18

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FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number *(list)*	Latitude			Longitude			Receiving Water *(name)*
	Deg	Min	Sec	Deg	Min	Sec	
UAB Highland	33.0(	29.0(	43.0(	86.0(	48.0(	26.0(	VALLEY CREEK

II. DISCHARGE DATE *(If a new discharger, the date you expect to begin discharging)*

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☑ Noncontact Cooling Water ☐ Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

GI #160 Cooling Water Treatment; Potassium Hydroxide,Maleic Anhydride Hydrolyzed,Copolymer, 2-Phosphonobutane-1,2,4-, Tricarboxylic Acid.
ISO-CIDE 1.5;5-Chloro-2-methyl-4-isothiazoline-3-one,2-Methly-4-isothiazolin-3-one
BromMax® 7.1;Sodium Hypochlorite, Sodium Bromide.

IV. EFFLUENT CHARACTERISTICS

A. **Existing Sources** — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority *(see instructions)*.

B. **New Dischargers** — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		(3) Number of Measurements Taken *(last year)*	(or) (4) Source of Estimate *(if new discharger)*
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)	N/A					
Total Suspended Solids (TSS)	N/A					
Fecal Coliform *(if believed present or if sanitary waste is discharged)*	N/A					
Total Residual Chlorine *(if chlorine is used)*	N/A					
Oil and Grease	N/A					
*Chemical oxygen demand (COD)	N/A					
*Total organic carbon (TOC)	N/A					
Ammonia *(as N)*	N/A					
Discharge Flow	Value		3800 GAL/DAY			
pH *(give range)*	Value N/A					
Temperature *(Winter)*		°C		°C		
Temperature *(Summer)*		°C		°C		

*If noncontact cooling water is discharged

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? ☑ Yes ☐ No

If yes, briefly describe the frequency of flow and duration.

DISCHARGE WILL VARY DEPENDING ON THE WEATHER OUTSIDE.
The Average Daily discharge was estimated based on metered make up to the cooling towers for the past 12 months and an average of five cycles of city water concentration, bleed off from Highlands chiller plant averages 3800 gallons per day.

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

THIS LOCATION IS CURRENTLY DISCHARGING TO THE SANITARY SEWER SYSTEM UNTIL RECEIVING THE APPROVAL FROM ADEM TO DISCHARGE TO THE STORM SEWER SYSTEM.

VIII. 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.

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J.DAVID HAGAN, DIRECTOR OF ENVIRONMENTAL MANAGEMENT PROGRAMS	(205) 934-8576
C. Signature J David Hagan	D. Date Signed 8/18/18

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FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number *(list)*	Latitude			Longitude			Receiving Water *(name)*
	Deg	Min	Sec	Deg	Min	Sec	
EDUCATION	33.0(	29.0(	55.0(	86.0(	48.0(	24.0(	VALLEY CREEK

II. DISCHARGE DATE *(If a new discharger, the date you expect to begin discharging)*

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☑ Noncontact Cooling Water ☐ Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

AC3991 (Sodium molybdate dihydrate, Sodium polyacrylate, Proprietary Anionic Surfactant ,Sodium hydroxide, Butanedioic acid, octenyl-, sodium salt, 2-Phosphonobutane-1,2,4-tricarboxylic acid, Sodium tolyltriazole).
AC4070 (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE,2-METHYL-4-ISOTHIAZOLIN-3-ONE, MAGNESIUM CHLORIDE MAGNESIUM NITRATE,CUPRIC NITRATE TRIHYDRATE).

AC4010 (Phenol, 4-chloro-2-(phenylmethyl)-, sodium SALT,Sodium hydroxide)

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority *(see instructions)*.

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		*(3)* *(or)* *(4)*	
	Mass	Concentration	Mass	Concentration	Number of Measurements Taken *(last year)*	Source of Estimate *(if new discharger)*
Biochemical Oxygen Demand (BOD)	N/A					
Total Suspended Solids (TSS)	N/A					
Fecal Coliform *(if believed present or if sanitary waste is discharged)*	N/A					
Total Residual Chlorine *(if chlorine is used)*	N/A					
Oil and Grease	N/A					
*Chemical oxygen demand (COD)	N/A					
*Total organic carbon (TOC)	N/A					
Ammonia *(as N)*	N/A					
Discharge Flow	Value 17,344 GAL/DAY		6846GAL/DAY			
pH *(give range)*	Value 7.3-8.9					
Temperature *(Winter)*	12.80 °C		7.20 °C			
Temperature *(Summer)*	35.00 °C		29.40 °C			

*If noncontact cooling water is discharged

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V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? ☐ Yes ☐ No

If yes, briefly describe the frequency of flow and duration.

INTERMITTENT DISCHARGE DEPENDING ON OUTSIDE TEMPERATURE. MAXIMUM 12 HOURS PER DAY IN SUMMER TIME AND 5 HOURS IN WINTER TIME.

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

N/A

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

VIII. CERTIFICATION

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C. Signature J David Hagan	D. Date Signed 8/18/18

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FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number (list)	Latitude			Longitude			Receiving Water (name)
	Deg	Min	Sec	Deg	Min	Sec	
Jefferson Towers	33.0(	30.0(	22.0(	86.0(	48.0(	7.00	VALLEY CREEK

II. DISCHARGE DATE *(If a new discharger, the date you expect to begin discharging)*

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☑ Noncontact Cooling Water ☐ Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

N/A

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority *(see instructions)*.

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		(3) Number of Measurements Taken *(last year)*	(or) (4) Source of Estimate *(if new discharger)*
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)	N/A					
Total Suspended Solids (TSS)	N/A					
Fecal Coliform *(if believed present or if sanitary waste is discharged)*	N/A					
Total Residual Chlorine *(if chlorine is used)*	N/A					
Oil and Grease	N/A					
*Chemical oxygen demand (COD)	N/A					
*Total organic carbon (TOC)	N/A					
Ammonia *(as N)*	N/A					
Discharge Flow	Value 400GAL/DAY		400GAL/DAY			
pH *(give range)*	Value 7.7-8.8					
Temperature *(Winter)*	12.70 °C		7.20 °C			
Temperature *(Summer)*	35.00 °C		29.40 °C			

*If noncontact cooling water is discharged

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V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? ☐ Yes ☐ No

If yes, briefly describe the frequency of flow and duration.

N/A

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

N/A

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

VIII. CERTIFICATION

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J.DAVID HAGAN , DIRECTOR OF ENVIRONMENTAL MANAGEMENT PROGRAMS	(205) 934-8576
C. Signature J David Hagan	D. Date Signed 8/18/18

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FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number *(list)*	Latitude			Longitude			Receiving Water *(name)*
	Deg	Min	Sec	Deg	Min	Sec	
CP#1	33.0(	29.0(	59.0(	86.0(	48.0(	26.0(	VALLEY CREEK

II. DISCHARGE DATE *(If a new discharger, the date you expect to begin discharging)*

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☑ Noncontact Cooling Water ☐ Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

AC3609(Sodium tolyltriazole ,Sodium hydroxide)
AC3991(Sodium molybdate dihydrate, Sodium polyacrylate, Proprietary Anionic Surfactant ,Sodium hydroxide, Butanedioic acid, octenyl-, sodium salt, 2-Phosphonobutane-1,2,4-tricarboxylic acid, Sodium tolyltriazole). CA117C (Sodium silicate).
AC4070 (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE,2-METHYL-4-ISOTHIAZOLIN-3-ONE, MAGNESIUM CHLORIDE, MAGNESIUM NITRATE,CUPRIC NITRATE TRIHYDRATE) PURECIDE-E (Sodium Chlorite,Sodium Chloride,Sodium Chlorate,Sodium Sulfate)

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority *(see instructions)*.

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		(3) Number of Measurements Taken *(last year)*	(or) (4) Source of Estimate *(if new discharger)*
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)	N/A					
Total Suspended Solids (TSS)	N/A					
Fecal Coliform *(if believed present or if sanitary waste is discharged)*	N/A					
Total Residual Chlorine *(if chlorine is used)*	N/A					
Oil and Grease	N/A					
*Chemical oxygen demand (COD)	N/A					
*Total organic carbon (TOC)	N/A					
Ammonia *(as N)*	N/A					
Discharge Flow	Value 173,189GAL/DAY		68,455GAL/DAY			
pH *(give range)*	Value 7.7-8.9					
Temperature *(Winter)*	12.80 °C		7.20 °C			
Temperature *(Summer)*	35.00 °C		29.40 °C			

*If noncontact cooling water is discharged

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V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? ☐ Yes ☐ No

If yes, briefly describe the frequency of flow and duration.

INTERMITTENT DISCHARGE DEPENDING ON OUTSIDE TEMPERATURE. MAXIMUM 12 HOURS PER DAY IN SUMMER TIME AND 5 HOURS IN WINTER TIME.

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

N/A

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

VIII. 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.

A. Name & Official Title	B. Phone No. *(area code & no.)*
J.DAVID HAGAN, DIRECTOR OF ENVIRONMENTAL MANAGEMENT PROGRAMS	(205) 934-8576
C. Signature J David Hagan	D. Date Signed 8/18/18

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FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number *(list)*	Latitude			Longitude			Receiving Water *(name)*
	Deg	Min	Sec	Deg	Min	Sec	
CU#3	33.0(	31.0(	10.0(	86.0(	45.0(	19.0(	VALLEY CREEK

II. DISCHARGE DATE *(If a new discharger, the date you expect to begin discharging)*

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☑ Noncontact Cooling Water ☐ Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

AC4070(5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE,2-METHYL-4-ISOTHIAZOLIN-3-ONE,MAGNESIUM CHLORIDE, MAGNESIUM NITRATE).
AC3991(Sodium molybdate dihydrate,Sodium polyacrylate, Proprietary Anionic Surfactant)

PURECIDE-E (Sodium Chlorite,Sodium Chloride,Sodium Chlorate , Sodium Sulfate).

IV. EFFLUENT CHARACTERISTICS

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B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		(3) Number of Measurements Taken *(last year)*	(or) (4) Source of Estimate *(if new discharger)*
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)	N/A					
Total Suspended Solids (TSS)	N/A					
Fecal Coliform *(if believed present or if sanitary waste is discharged)*	N/A					
Total Residual Chlorine *(if chlorine is used)*	N/A					
Oil and Grease	N/A					
*Chemical oxygen demand (COD)	N/A					
*Total organic carbon (TOC)	N/A					
Ammonia *(as N)*	N/A					
Discharge Flow	Value 198,213GAL/DAY		74,445 GAL/DAY			
pH *(give range)*	Value 7.7-8.9					
Temperature *(Winter)*	12.70 °C		7.20 °C			
Temperature *(Summer)*	35.00 °C		29.40 °C			

*If noncontact cooling water is discharged

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IND. MUN BRANCH

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? ☑ Yes ☐ No

If yes, briefly describe the frequency of flow and duration.

INTERMITTENT DISCHARGE DEPENDING ON OUTSIDE TEMPERATURE. 12 HOURS IN SUMMER AND 5 HOURS IN WINTER.

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

VIII. CERTIFICATION

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FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number *(list)*	Latitude			Longitude			Receiving Water *(name)*
	Deg	Min	Sec	Deg	Min	Sec	
DSN001-A	33.0(	30.0(	15.0(	86.0(	47.0(	0.80	VALLEY CREEK

II. DISCHARGE DATE *(If a new discharger, the date you expect to begin discharging)*

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☑ Noncontact Cooling Water ☐ Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

GI #160 Cooling Water Treatment (Potassium Hydroxide,Maleic Anhydride Hydrolyzed, Copolymer,2-Phosphonobutane-1,2,4-,Tricarboxylic Acid)

ISO-CIDE 1.5(5-Chloro-2-methyl-4-isothiazoline-3-one,2-Methly-4-isothiazolin-3-one)

BromMax® 7.1 (Sodium Hypochlorite ,Sodium Bromide)

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority *(see instructions)*.

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		*(3)* *(or)* *(4)*	
	Mass	Concentration	Mass	Concentration	Number of Measurements Taken *(last year)*	Source of Estimate *(if new discharger)*
Biochemical Oxygen Demand (BOD)	N/A					
Total Suspended Solids (TSS)	N/A					
Fecal Coliform *(if believed present or if sanitary waste is discharged)*	N/A					
Total Residual Chlorine *(if chlorine is used)*	N/A					
Oil and Grease	N/A					
*Chemical oxygen demand (COD)	N/A					
*Total organic carbon (TOC)	N/A					
Ammonia *(as N)*	N/A					
Discharge Flow	Value 1200 GPD		1000 GPD			
pH *(give range)*	Value 7.8-8.8					
Temperature *(Winter)*	29.40 °C		29.40 °C			
Temperature *(Summer)*	30.50 °C		29.40 °C			

*If noncontact cooling water is discharged

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V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? ☑ Yes ☐ No

If yes, briefly describe the frequency of flow and duration.

The cooling system only operates during warm weather and are normally idle and drained during the winter

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

N/A

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

VIII. 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.

A. Name & Official Title	B. Phone No. *(area code & no.)*
J.DAVID HAGAN, DIRECTOR OF ENVIRONMENTAL MANAGEMENT PROGRAMS	(205) 934-8576
C. Signature J David Hagan	D. Date Signed 8/18/15

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FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number *(list)*	Latitude			Longitude			Receiving Water *(name)*
	Deg	Min	Sec	Deg	Min	Sec	
DSN001-D	33.0(	29.0(	29.0(	86.0(	48.0(	43.0(	VALLEY CREEK

II. DISCHARGE DATE *(If a new discharger, the date you expect to begin discharging)*

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☑ Noncontact Cooling Water ☐ Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

GI #160 Cooling Water Treatment (Potassium Hydroxide,Maleic Anhydride Hydrolyzed, Copolymer,2-Phosphonobutane-1,2,4-,Tricarboxylic Acid)

ISO-CIDE 1.5(5-Chloro-2-methyl-4-isothiazoline-3-one,2-Methly-4-isothiazolin-3-one)

BromMax® 7.1 (Sodium Hypochlorite ,Sodium Bromide)

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority *(see instructions)*.

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		*(3)*	*(or)*	*(4)*
	Mass	Concentration	Mass	Concentration	Number of Measurements Taken *(last year)*		Source of Estimate *(if new discharger)*
Biochemical Oxygen Demand (BOD)	N/A						
Total Suspended Solids (TSS)	N/A						
Fecal Coliform *(if believed present or if sanitary waste is discharged)*	N/A						
Total Residual Chlorine *(if chlorine is used)*	N/A						
Oil and Grease	N/A						
*Chemical oxygen demand (COD)	N/A						
*Total organic carbon (TOC)	N/A						
Ammonia *(as N)*	N/A						
Discharge Flow	Value 1200		1000 GPD				
pH *(give range)*	Value 7.8-8.8						
Temperature *(Winter)*	29.40 °C		29.40 °C				
Temperature *(Summer)*	30.90 °C		29.40 °C				

*If noncontact cooling water is discharged

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V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? ☑ Yes ☐ No

If yes, briefly describe the frequency of flow and duration.

The cooling system only operates during warm weather and are normally idle and drained during the winter

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

N/A

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

VIII. CERTIFICATION

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J.DAVID HAGAN , DIRECTOR OF ENVIRONMENTAL MANAGEMENT PROGRAMS	(205) 934-8576
C. Signature J David Hagan	D. Date Signed 8/18/18

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FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number *(list)*	Latitude			Longitude			Receiving Water *(name)*
	Deg	Min	Sec	Deg	Min	Sec	
DSN001-E	33.0(	29.0(	53.0(	86.0(	48.0(	26.0(	VALLEY CREEK

II. DISCHARGE DATE *(If a new discharger, the date you expect to begin discharging)*

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☑ Noncontact Cooling Water ☐ Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

AC3991 (Sodium molybdate dihydrate, Sodium polyacrylate, Proprietary Anionic Surfactant ,Sodium hydroxide, Butanedioic acid, octenyl-, sodium salt, 2-Phosphonobutane-1,2,4-tricarboxylic acid, Sodium tolyltriazole)
AC4070 (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE,2-METHYL-4-ISOTHIAZOLIN-3-ONE, MAGNESIUM CHLORIDE, MAGNESIUM NITRATE,CUPRIC NITRATE TRIHYDRATE).

CA42171 (Sulfamic acid, n-bromo, sodium salt, Sodium chloride ,Sodium hydroxide)

IV. EFFLUENT CHARACTERISTICS

A. **Existing Sources** — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority *(see instructions)*.

B. **New Dischargers** — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		*(3)* *(or)* *(4)*	
	Mass	Concentration	Mass	Concentration	Number of Measurements Taken *(last year)*	Source of Estimate *(if new discharger)*
Biochemical Oxygen Demand (BOD)	N/A					
Total Suspended Solids (TSS)	N/A					
Fecal Coliform *(if believed present or if sanitary waste is discharged)*	N/A					
Total Residual Chlorine *(if chlorine is used)*	N/A					
Oil and Grease	N/A					
*Chemical oxygen demand (COD)	N/A					
*Total organic carbon (TOC)	N/A					
Ammonia *(as N)*	N/A					
Discharge Flow	Value 128,111 GPD		30,650 GPD			
pH *(give range)*	Value 7.3-8.8					
Temperature *(Winter)*	29.40 °C		25.00 °C			
Temperature *(Summer)*	32.70 °C		29.30 °C			

*If noncontact cooling water is discharged

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? ☑ Yes ☐ No

If yes, briefly describe the frequency of flow and duration.

DISCHARGE WILL VARY DEPENDING ON OUTSID TEMPERATURE.

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

N/A

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

VIII. CERTIFICATION

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C. Signature J David Hagan	D. Date Signed 8/18/18

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FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number *(list)*	Latitude			Longitude			Receiving Water *(name)*
	Deg	Min	Sec	Deg	Min	Sec	
DSN001-F	33.0(	29.0(	45.0(	86.0(	48.0(	34.0(	VALLEY CREEK

II. DISCHARGE DATE *(If a new discharger, the date you expect to begin discharging)*

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☑ Noncontact Cooling Water ☐ Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

AC3991 (Sodium molybdate dihydrate, Sodium polyacrylate, Proprietary Anionic Surfactant ,Sodium hydroxide, Butanedioic acid, octenyl-, sodium salt, 2-Phosphonobutane-1,2,4-tricarboxylic acid, Sodium tolyltriazole)
AC4070 (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE,2-METHYL-4-ISOTHIAZOLIN-3-ONE, MAGNESIUM CHLORIDE, MAGNESIUM NITRATE,CUPRIC NITRATE TRIHYDRATE).

CA42171 (Sulfamic acid, n-bromo, sodium salt, Sodium chloride ,Sodium hydroxide)

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority *(see instructions)*.

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		(3) Number of Measurements Taken *(last year)*	(or) (4) Source of Estimate *(if new discharger)*
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)	N/A					
Total Suspended Solids (TSS)	N/A					
Fecal Coliform *(if believed present or if sanitary waste is discharged)*	N/A					
Total Residual Chlorine *(if chlorine is used)*	N/A					
Oil and Grease	N/A					
*Chemical oxygen demand (COD)	N/A					
*Total organic carbon (TOC)	N/A					
Ammonia *(as N)*	N/A					
Discharge Flow	Value 6194GAL/DAY		2448GAL/DAY			
pH *(give range)*	Value 7.7-8.8					
Temperature *(Winter)*	12.70 °C		7.20 °C			
Temperature *(Summer)*	35.00 °C		29.40 °C			

*If noncontact cooling water is discharged

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V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? ☑ Yes ☐ No

If yes, briefly describe the frequency of flow and duration.

INTERMITTENT DISCHARGE DEPENDING ON OUTSIDE TEMPERATURE. MAXIMUM 12 HOURS PER DAY IN SUMMER TIME AND 5 HOURS IN WINTER TIME.

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

N/A

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

VIII. CERTIFICATION

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J.DAVID HAGAN , DIRECTOR OF ENVIRONMENTAL MANAGEMENT PROGRAMS	(205) 934-8576
C. Signature J David Hagan	D. Date Signed 8/18/18

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FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number *(list)*	Latitude			Longitude			Receiving Water *(name)*
	Deg	Min	Sec	Deg	Min	Sec	
DSN001-G	33.0(	29.0(	52.0(	86.0(	48.0(	29.0(	VALLEY CREEK

II. DISCHARGE DATE *(If a new discharger, the date you expect to begin discharging)*

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☑ Noncontact Cooling Water ☐ Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

AC3991 (Sodium molybdate dihydrate, Sodium polyacrylate, Proprietary Anionic Surfactant ,Sodium hydroxide, Butanedioic acid, octenyl-, sodium salt, 2-Phosphonobutane-1,2,4-tricarboxylic acid, Sodium tolyltriazole)

AC4070 (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE,2-METHYL-4-ISOTHIAZOLIN-3-ONE, MAGNESIUM CHLORIDE, MAGNESIUM NITRATE,CUPRIC NITRATE TRIHYDRATE).
CA42171 (Sulfamic acid, n-bromo, sodium salt, Sodium chloride ,Sodium hydroxide)

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority *(see instructions)*.

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		*(3)* *(or)* *(4)*	
	Mass	Concentration	Mass	Concentration	Number of Measurements Taken *(last year)*	Source of Estimate *(if new discharger)*
Biochemical Oxygen Demand (BOD)	N/A					
Total Suspended Solids (TSS)	N/A					
Fecal Coliform *(if believed present or if sanitary waste is discharged)*	N/A					
Total Residual Chlorine *(if chlorine is used)*	N/A					
Oil and Grease	N/A					
*Chemical oxygen demand (COD)	N/A					
*Total organic carbon (TOC)	N/A					
Ammonia *(as N)*	N/A					
Discharge Flow	Value 2,306 GPD		973 GPD			
pH *(give range)*	Value 8.1-8.6					
Temperature *(Winter)*	32.60 °C		26.20 °C			
Temperature *(Summer)*	32.60 °C		29.40 °C			

*If noncontact cooling water is discharged

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? ☑ Yes ☐ No

If yes, briefly describe the frequency of flow and duration.

INTERMITTENT DISCHARGE DEPENDING ON OUTSIDE TEMPERATURE. MAXIMUM 12 HOURS PER DAY IN SUMMER TIME AND 5 HOURS IN WINTER TIME.

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

N/A

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

VIII. CERTIFICATION

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J.DAVID HAGAN, DIRECTOR OF ENVIRONMENTAL MANAGEMENT PROGRAMS	(205) 934-8576
C. Signature J David Hagan	D. Date Signed 8/18/18

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EPA ID Number (copy from Item 1 of Form 1)

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FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number *(list)*	Latitude			Longitude			Receiving Water *(name)*
	Deg	Min	Sec	Deg	Min	Sec	
DSN001-I	33.0(	30.0(	2.00	86.0(	48.0(	10.0(	VALLEY CREEK

II. DISCHARGE DATE *(If a new discharger, the date you expect to begin discharging)*

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☑ Noncontact Cooling Water ☐ Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

GI510,
GI590(Potassium Hydroxide, 45%)

GI #628(Cobalt Sulfate, heptahydrate),
GI #760(Morpholine,Cyclohexlamine ,Diethylaminoethanol)

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority *(see instructions)*.

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		(3) Number of Measurements Taken *(last year)*	(or) (4) Source of Estimate *(if new discharger)*
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)	N/A					
Total Suspended Solids (TSS)	N/A					
Fecal Coliform *(if believed present or if sanitary waste is discharged)*	N/A					
Total Residual Chlorine *(if chlorine is used)*	N/A					
Oil and Grease	N/A					
*Chemical oxygen demand (COD)	N/A					
*Total organic carbon (TOC)	N/A					
Ammonia *(as N)*	N/A					
Discharge Flow	Value 300 GPD		300GAL/DAY			
pH *(give range)*	Value					
Temperature *(Winter)*		°C		°C		
Temperature *(Summer)*		°C		°C		

*If noncontact cooling water is discharged

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V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? ☑ Yes ☐ No

If yes, briefly describe the frequency of flow and duration.

WP is now on the new steam plant and will only run should a problem occur in the steam plant which requires the boilers to operate

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

N/A

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

WP is now on the new steam plant and will only run should a problem occur in the steam plant which requires the boilers to operate

VIII. CERTIFICATION

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J.DAVID HAGAN, DIRECTOR OF ENVIRONMENTAL MANAGEMENT PROGRAMS	(205) 934-8576
C. Signature J David Hagan	D. Date Signed 8/18/18

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FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number *(list)*	Latitude			Longitude			Receiving Water *(name)*
	Deg	Min	Sec	Deg	Min	Sec	
DSN001-L	33.0(	30.0(	7.00	86.0(	48.0(	12.0(	VALLEY CREEK

II. DISCHARGE DATE *(if a new discharger, the date you expect to begin discharging)*

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☑ Noncontact Cooling Water ☐ Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

GI510,
GI590(Potassium Hydroxide, 45%)

GI #628(Cobalt Sulfate, heptahydrate),
GI #760(Morpholine,Cyclohexlamine ,Diethylaminoethanol)

IV. EFFLUENT CHARACTERISTICS

A. **Existing Sources** — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority *(see instructions)*.

B. **New Dischargers** — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		(3) Number of Measurements Taken *(last year)*	(or) (4) Source of Estimate *(if new discharger)*
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)	N/A					
Total Suspended Solids (TSS)	N/A					
Fecal Coliform *(if believed present or if sanitary waste is discharged)*	N/A					
Total Residual Chlorine *(if chlorine is used)*	N/A					
Oil and Grease	N/A					
*Chemical oxygen demand (COD)	N/A					
*Total organic carbon (TOC)	N/A					
Ammonia *(as N)*	N/A					
Discharge Flow	Value 165 GPD		165 GPD			
pH *(give range)*	Value					
Temperature *(Winter)*	27.40 °C		24.30 °C			
Temperature *(Summer)*	29.10 °C		25.10 °C			

*If noncontact cooling water is discharged

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? ☐ Yes ☐ No

If yes, briefly describe the frequency of flow and duration.

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

N/A

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

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J.DAVID HAGAN, DIRECTOR OF ENVIRONMENTAL MANAGEMENT PROGRAMS	(205) 934-8576
C. Signature J David Hagan	D. Date Signed 8/18/18

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FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number *(list)*	Latitude			Longitude			Receiving Water *(name)*
	Deg	Min	Sec	Deg	Min	Sec	
DSN001-01	33.0(	30.0(	3.00	86.0(	48.0(	49.0(	VALLEY CREEK

II. DISCHARGE DATE *(If a new discharger, the date you expect to begin discharging)*

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☑ Noncontact Cooling Water ☐ Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

GI #160 Cooling Water Treatment; Potassium Hydroxide,Maleic Anhydride Hydrolyzed,Copolymer, 2-Phosphonobutane-1,2,4-, Tricarboxylic Acid.
ISO-CIDE 1.5;5-Chloro-2-methyl-4-isothiazoline-3-one,2-Methly-4-isothiazolin-3-one
BromMax® 7.1;Sodium Hypochlorite, Sodium Bromide.

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority *(see instructions)*.

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		(3) Number of Measurements Taken *(last year)*	(or) (4) Source of Estimate *(if new discharger)*
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)	N/A					
Total Suspended Solids (TSS)	N/A					
Fecal Coliform *(if believed present or if sanitary waste is discharged)*	N/A					
Total Residual Chlorine *(if chlorine is used)*	N/A					
Oil and Grease	N/A					
*Chemical oxygen demand (COD)	N/A					
*Total organic carbon (TOC)	N/A					
Ammonia *(as N)*	N/A					
Discharge Flow	Value 15,683 GPD		7919 GPD			
pH *(give range)*	Value 7.4-8.8					
Temperature *(Winter)*	32.60 °C		25.50 °C			
Temperature *(Summer)*	35.20 °C		29.10 °C			

*If noncontact cooling water is discharged

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? If yes, briefly describe the frequency of flow and duration.	☑ Yes ☐ No

DISCHARGE WILL VARY DEPENDING ON OUTSIDE TEMPERATURE.

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

N/A

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

VIII. 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.

A. Name & Official Title	B. Phone No. *(area code & no.)*
J.DAVID HAGAN, DIRECTOR OF ENVIRONMENTAL MANAGEMENT PROGRAMS	(205) 934-8576
C. Signature J David Hagan	D. Date Signed 8/18/18

Please print or type in the unshaded areas only.	EPA ID Number (copy from Item 1 of Form 1) ALD063690705	Form Approved. OMB No. 2040-0086. Approval expires 5-31-92.

FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number (list)	Latitude			Longitude			Receiving Water (name)
	Deg	Min	Sec	Deg	Min	Sec	
DSN001-2	33.0(	30.0(	8.00	86.0(	48.0(	35.0(	VALLEY CREEK

II. DISCHARGE DATE *(If a new discharger, the date you expect to begin discharging)*

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☑ Noncontact Cooling Water ☐ Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

AC3991 (Sodium molybdate dihydrate, Sodium polyacrylate, Proprietary Anionic Surfactant ,Sodium hydroxide, Butanedioic acid, octenyl-, sodium salt, 2-Phosphonobutane-1,2,4-tricarboxylic acid, Sodium tolyltriazole)
AC4070 (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE,2-METHYL-4-ISOTHIAZOLIN-3-ONE, MAGNESIUM CHLORIDE, MAGNESIUM NITRATE,CUPRIC NITRATE TRIHYDRATE).

AC4010 (Phenol, 4-chloro-2-(phenylmethyl)-, sodium SALT, Sodium hydroxide)

IV. EFFLUENT CHARACTERISTICS

A. **Existing Sources** — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority *(see instructions)*.

B. **New Dischargers** — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		(3) Number of Measurements Taken *(last year)*	(or) (4) Source of Estimate *(if new discharger)*
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)	N/A					
Total Suspended Solids (TSS)	N/A					
Fecal Coliform *(if believed present or if sanitary waste is discharged)*	N/A					
Total Residual Chlorine *(if chlorine is used)*	N/A					
Oil and Grease	N/A					
*Chemical oxygen demand (COD)	N/A					
*Total organic carbon (TOC)	N/A					
Ammonia *(as N)*	N/A					
Discharge Flow	Value 11,273 GPD		4,466 GPD			
pH *(give range)*	Value 7.7-8.9					
Temperature *(Winter)*	12.70 °C		7.20 °C			
Temperature *(Summer)*	35.00 °C		29.40 °C			

*If noncontact cooling water is discharged

RECEIVED
OCT 23 2018
IND. MUN BRANCH

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal?
If yes, briefly describe the frequency of flow and duration.

☑ Yes ☐ No

INTERMITTENT DISCHARGE DEPENDING ON OUTSIDE TEMPERATURE. MAXIMUM 12 HOURS PER DAY IN SUMMER TIME AND 5 HOURS IN WINTER TIME.

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

N/A

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

VIII. 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.

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J.DAVID HAGAN, DIRECTOR OF ENVIRONMENTAL MANAGEMENT PROGRAMS	(205) 934-8576
C. Signature J David Hagan	D. Date Signed 8/18/18

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FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number *(list)*	Latitude			Longitude			Receiving Water *(name)*
	Deg	Min	Sec	Deg	Min	Sec	
DSN001-3	33.0(	30.0(	2.00	86.0(	48.0(	30.0(	VALLEY CREEK

II. DISCHARGE DATE *(If a new discharger, the date you expect to begin discharging)*

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☑ Noncontact Cooling Water ☐ Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

AC3991 (Sodium molybdate dihydrate, Sodium polyacrylate, Proprietary Anionic Surfactant ,Sodium hydroxide, Butanedioic acid, octenyl-, sodium salt, 2-Phosphonobutane-1,2,4-tricarboxylic acid, Sodium tolyltriazole).
AC4070 (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE,2-METHYL-4-ISOTHIAZOLIN-3-ONE, MAGNESIUM CHLORIDE MAGNESIUM NITRATE,CUPRIC NITRATE TRIHYDRATE).

AC4010 (Phenol, 4-chloro-2-(phenylmethyl)-, sodium SALT,Sodium hydroxide)

IV. EFFLUENT CHARACTERISTICS

A. **Existing Sources** — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority *(see instructions)*.

B. **New Dischargers** — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		(3) Number of Measurements Taken *(last year)*	(or) (4) Source of Estimate *(if new discharger)*
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)	N/A					
Total Suspended Solids (TSS)	N/A					
Fecal Coliform *(if believed present or if sanitary waste is discharged)*	N/A					
Total Residual Chlorine *(if chlorine is used)*	N/A					
Oil and Grease	N/A					
*Chemical oxygen demand (COD)	N/A					
*Total organic carbon (TOC)	N/A					
Ammonia *(as N)*	N/A					
Discharge Flow	Value 9911GAL/DAY		3908GAL/DAY			
pH *(give range)*	Value 8.3-8.8					
Temperature *(Winter)*	12.70 °C		7.20 °C			
Temperature *(Summer)*	35.00 °C		29.40 °C			

*If noncontact cooling water is discharged

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IND. MUN BRANCH

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? ☑ Yes ☐ No

If yes, briefly describe the frequency of flow and duration.

INTERMITTENT DISCHARGE DEPENDING ON OUTSIDE TEMPERATURE. MAXIMUM 12 HOURS PER DAY IN SUMMER TIME AND 5 HOURS IN WINTER TIME.

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

N/A

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

VIII. CERTIFICATION

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FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number *(list)*	Latitude			Longitude			Receiving Water *(name)*
	Deg	Min	Sec	Deg	Min	Sec	
DSN001-4	33.0(	30.0(	5.00	86.0(	48.0(	26.0(	VALLEY CREEK

II. DISCHARGE DATE *(If a new discharger, the date you expect to begin discharging)*

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☑ Noncontact Cooling Water ☐ Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

AC3991 (Sodium molybdate dihydrate, Sodium polyacrylate, Proprietary Anionic Surfactant ,Sodium hydroxide, Butanedioic acid, octenyl-, sodium salt, 2-Phosphonobutane-1,2,4-tricarboxylic acid, Sodium tolyltriazole).
AC4070 (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE,2-METHYL-4-ISOTHIAZOLIN-3-ONE; MAGNESIUM CHLORIDE MAGNESIUM NITRATE,CUPRIC NITRATE TRIHYDRATE)
AC4010 (Phenol, 4-chloro-2-(phenylmethyl)-, sodium SALT,Sodium hydroxide)

IV. EFFLUENT CHARACTERISTICS

A. **Existing Sources** — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority *(see instructions)*.

B. **New Dischargers** — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		(3) Number of Measurements Taken *(last year)*	*(or)* (4) Source of Estimate *(if new discharger)*
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)	N/A					
Total Suspended Solids (TSS)	N/A					
Fecal Coliform *(if believed present or if sanitary waste is discharged)*	N/A					
Total Residual Chlorine *(if chlorine is used)*	N/A					
Oil and Grease	N/A					
*Chemical oxygen demand (COD)	N/A					
*Total organic carbon (TOC)	N/A					
Ammonia *(as N)*	N/A					
Discharge Flow	Value 4980 GPD		1968GAL/DAY			
pH *(give range)*	Value 7.3-8.9					
Temperature *(Winter)*	12.70 °C		7.20 °C			
Temperature *(Summer)*	35.00 °C		29.40 °C			

*If noncontact cooling water is discharged

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? ☑ Yes ☐ No

If yes, briefly describe the frequency of flow and duration.

INTERMITTENT DISCHARGE DEPENDING ON OUTSIDE TEMPERATURE. MAXIMUM 12 HOURS PER DAY IN SUMMER TIME AND 5 HOURS IN WINTER TIME.

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

N/A

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

VIII. CERTIFICATION

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C. Signature J David Hagan	D. Date Signed 8/18/18

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FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number *(list)*	Latitude			Longitude			Receiving Water *(name)*
	Deg	Min	Sec	Deg	Min	Sec	
DSN001-7	33.0(	30.0(	20.0(	86.0(	47.0(	58.0(	VALLEY CREEK

II. DISCHARGE DATE *(If a new discharger, the date you expect to begin discharging)*

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☑ Noncontact Cooling Water ☐ Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

AC3991 (Sodium molybdate dihydrate, Sodium polyacrylate, Proprietary Anionic Surfactant ,Sodium hydroxide, Butanedioic acid, octenyl-, sodium salt, 2-Phosphonobutane-1,2,4-tricarboxylic acid, Sodium tolyltriazole)
AC4070 (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE,2-METHYL-4-ISOTHIAZOLIN-3-ONE, MAGNESIUM CHLORIDE, MAGNESIUM NITRATE,CUPRIC NITRATE TRIHYDRATE).

CA42171 (Sulfamic acid, n-bromo, sodium salt, Sodium chloride ,Sodium hydroxide)

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority *(see instructions)*.

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		(3) Number of Measurements Taken *(last year)*	(or) (4) Source of Estimate *(if new discharger)*
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)	N/A					
Total Suspended Solids (TSS)	N/A					
Fecal Coliform *(if believed present or if sanitary waste is discharged)*	N/A					
Total Residual Chlorine *(if chlorine is used)*	N/A					
Oil and Grease	N/A					
*Chemical oxygen demand (COD)	N/A					
*Total organic carbon (TOC)	N/A					
Ammonia *(as N)*	N/A					
Discharge Flow	Value 7433 GPD		2938 GPD			
pH *(give range)*	Value 6.7-8.8					
Temperature *(Winter)*	12.70 °C		7.20 °C			
Temperature *(Summer)*	35.00 °C		29.40 °C			

*If noncontact cooling water is discharged

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? ☑ Yes ☐ No

If yes, briefly describe the frequency of flow and duration.

INTERMITTENT DISCHARGE DEPENDING ON OUTSIDE TEMPERATURE. MAXIMUM 12 HOURS PER DAY IN SUMMER TIME AND 5 HOURS IN WINTER TIME.

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

N/A

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

VIII. CERTIFICATION

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C. Signature J David Hagan	D. Date Signed 8/18/18

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FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number *(list)*	Latitude			Longitude			Receiving Water *(name)*
	Deg	Min	Sec	Deg	Min	Sec	
DSN001-8	33.0(	30.0(	9.00	86.0(	47.0(	52.0(	VALLEY CREEK

II. DISCHARGE DATE *(If a new discharger, the date you expect to begin discharging)*

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☑ Noncontact Cooling Water ☐ Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

GI #160 Cooling Water Treatment (Potassium Hydroxide,Maleic Anhydride Hydrolyzed, Copolymer,2-Phosphonobutane-1,2,4-,Tricarboxylic Acid)

ISO-CIDE 1.5(5-Chloro-2-methyl-4-isothiazoline-3-one,2-Methly-4-isothiazolin-3-one)

BromMax® 7.1 (Sodium Hypochlorite ,Sodium Bromide)

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority *(see instructions)*.

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		(3) Number of Measurements Taken *(last year)*	(or) (4) Source of Estimate *(if new discharger)*
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)	N/A					
Total Suspended Solids (TSS)	N/A					
Fecal Coliform *(if believed present or if sanitary waste is discharged)*	N/A					
Total Residual Chlorine *(if chlorine is used)*	N/A					
Oil and Grease	N/A					
*Chemical oxygen demand (COD)	N/A					
*Total organic carbon (TOC)	N/A					
Ammonia *(as N)*	N/A					
Discharge Flow	Value 1200 GPD		1000 GPD			
pH *(give range)*	Value 7.8-8.8					
Temperature *(Winter)*	29.40 °C		29.40 °C			
Temperature *(Summer)*	30.50 °C		29.40 °C			

*If noncontact cooling water is discharged

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? ☑ Yes ☐ No

If yes, briefly describe the frequency of flow and duration.

The cooling system only operates during warm weather and are normally idle and drained during the winter

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

N/A

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

VIII. CERTIFICATION

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FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number *(list)*	Latitude			Longitude			Receiving Water *(name)*
	Deg	Min	Sec	Deg	Min	Sec	
DSN001-9	33.0(	30.0(	6.00	86.0(	47.0(	56.0(	VALLEY CREEK

II. DISCHARGE DATE *(If a new discharger, the date you expect to begin discharging)*

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☑ Noncontact Cooling Water ☐ Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

AC3991 (Sodium molybdate dihydrate, Sodium polyacrylate, Proprietary Anionic Surfactant ,Sodium hydroxide, Butanedioic acid, octenyl-, sodium salt, 2-Phosphonobutane-1,2,4-tricarboxylic acid, Sodium tolyltriazole)
CA42171 (Sulfamic acid, n-bromo, sodium salt, Sodium chloride ,Sodium hydroxide)
AC4010 (Phenol, 4-chloro-2-(phenylmethyl)-, sodium SALT,Sodium hydroxide)
AS3820 (Polyethylene-polypropylene glycol,Sodium Alkylnaphthalenesulfonate)

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority *(see instructions)*.

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		*(3)* *(or)* *(4)*	
	Mass	Concentration	Mass	Concentration	Number of Measurements Taken *(last year)*	Source of Estimate *(if new discharger)*
Biochemical Oxygen Demand (BOD)	N/A					
Total Suspended Solids (TSS)	N/A					
Fecal Coliform *(if believed present or if sanitary waste is discharged)*	N/A					
Total Residual Chlorine *(if chlorine is used)*	N/A					
Oil and Grease	N/A					
*Chemical oxygen demand (COD)	N/A					
*Total organic carbon (TOC)	N/A					
Ammonia *(as N)*	N/A					
Discharge Flow	Value 2725GAL/DAY		1076GAL/DAY			
pH *(give range)*	Value 7.2-8.9					
Temperature *(Winter)*	12.70 °C		7.20 °C			
Temperature *(Summer)*	35.00 °C		29.40 °C			

*If noncontact cooling water is discharged

RECEIVED
OCT 23 2018
IND. MUN BRANCH

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? ☑ Yes ☐ No

If yes, briefly describe the frequency of flow and duration.

INTERMITTENT DISCHARGE DEPENDING ON OUTSIDE TEMPERATURE. MAXIMUM 12 HOURS PER DAY IN SUMMER TIME AND 5 HOURS IN WINTER TIME.

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

N/A

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

VIII. 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.

A. Name & Official Title	B. Phone No. *(area code & no.)*
J.DAVID HAGAN, DIRECTOR OF ENVIRONMENTAL MANAGEMENT PROGRAMS	(205) 934-8576
C. Signature J David Hagan	D. Date Signed 8/15/18

Please print or type in the unshaded areas only.	EPA ID Number (copy from Item 1 of Form 1) ALD063690705	Form Approved. OMB No. 2040-0086. Approval expires 5-31-92.

FORM 2E NPDES

EPA Facilities Which Do Not Discharge Process Wastewater

I. RECEIVING WATERS

For this outfall, list the latitude and longitude, and name of the receiving water(s).

Outfall Number *(list)*	Latitude			Longitude			Receiving Water *(name)*
	Deg	Min	Sec	Deg	Min	Sec	
DSN-012	33.0(	30.0(	3.00	86.0(	48.0(	5.00	VALLEY CREEK

II. DISCHARGE DATE *(If a new discharger, the date you expect to begin discharging)*

III. TYPE OF WASTE

A. Check the box(es) indicating the general type(s) of wastes discharged.

☐ Sanitary Wastes ☐ Restaurant or Cafeteria Wastes ☑ Noncontact Cooling Water ☐ Other Nonprocess Wastewater *(Identify)*

B. If any cooling water additives are used, list them here. Briefly describe their composition if this information is available.

AC4070(5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE,2-METHYL-4-ISOTHIAZOLIN-3-ONE,MAGNESIUM CHLORIDE, MAGNESIUM NITRATE).
AC3991(Sodium molybdate dihydrate,Sodium polyacrylate, Proprietary Anionic Surfactant)

PURECIDE-E (Sodium Chlorite,Sodium Chloride,Sodium Chlorate , Sodium Sulfate).
AC3609(Sodium tolyltriazole,Sodium hydroxide)
CA117C (Sodium silicate).

IV. EFFLUENT CHARACTERISTICS

A. Existing Sources — Provide measurements for the parameters listed in the left-hand column below, unless waived by the permitting authority *(see instructions)*.

B. New Dischargers — Provide estimates for the parameters listed in the left-hand column below, unless waived by the permitting authority. Instead of the number of measurements taken, provide the source of estimated values *(see instructions)*.

Pollutant or Parameter	(1) Maximum Daily Value *(include units)*		(2) Average Daily Value *(last year)* *(include units)*		*(3)* Number of Measurements Taken *(last year)*	*(or)* *(4)* Source of Estimate *(if new discharger)*
	Mass	Concentration	Mass	Concentration		
Biochemical Oxygen Demand (BOD)	N/A					
Total Suspended Solids (TSS)	N/A					
Fecal Coliform *(if believed present or if sanitary waste is discharged)*	N/A					
Total Residual Chlorine *(if chlorine is used)*	N/A					
Oil and Grease	N/A					
*Chemical oxygen demand (COD)	N/A					
*Total organic carbon (TOC)	N/A					
Ammonia *(as N)*	N/A					
Discharge Flow	Value 97,920GAL/DAY		39,173 GAL/DAY			
pH *(give range)*	Value 7.7-8.9					
Temperature *(Winter)*	12.70 °C		7.20 °C			
Temperature *(Summer)*	35.00 °C		29.40 °C			

*If noncontact cooling water is discharged

RECEIVED
OCT 23 2018
IND. MUN BRANCH

V. Except for leaks or spills, will the discharge described in this form be intermittent or seasonal? ☑ Yes ☐ No

If yes, briefly describe the frequency of flow and duration.

INTERMITTENT DISCHARGE DEPENDING ON OUTSIDE TEMPERATURE. 12 HOURS IN SUMMER AND 5 HOURS IN WINTER.

VI. TREATMENT SYSTEM *(Describe briefly any treatment system(s) used or to be used)*

VII. OTHER INFORMATION *(Optional)*

Use the space below to expand upon any of the above questions or to bring to the attention of the reviewer any other information you feel should be considered in establishing permit limitations. Attach additional sheets, if necessary.

VIII. 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.

A. Name & Official Title	B. Phone No. *(area code & no.)*
J.DAVID HAGAN, DIRECTOR OF ENVIRONMENTAL MANAGEMENT PROGRAMS	(205) 934-8576
C. Signature J David Hagan	D. Date Signed 5/18/18