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SEP 24 2026

MRS. JUNE MALONE
DIRECTOR, OFFICE OF CENTER OPERATIONS
NASA MARSHALL FLIGHT SPACE CENTER
MAIL CODE: AS01, MARSHALL FLIGHT CENTER
HUNTSVILLE, AL 35812

RE: REVISED DRAFT PERMIT
NPDES PERMIT NUMBER AL0000221

Dear Mrs. Malone:

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 time frame from EPA.

Our records indicate that you have utilized the Department's web-based electronic environmental (E2) reporting system for submittal of discharge monitoring reports (DMRs). The Department transitioned from the E2 Reporting System to the Alabama Environmental Permitting and Compliance System (AEPACS) for the submittal of DMRs on November 15, 2021. AEPACS is an electronic system that allows facilities to apply for and maintain permits as well as submit other required applications, registrations, and certifications. In addition, the system allows facilities to submit required compliance reports or other information to the Department. The Department has used the E2 User account information to set up a similar User Profile in AEPACS based on the following criteria:

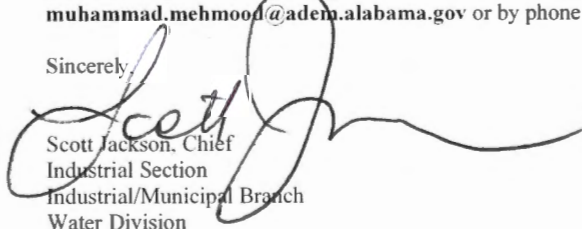
1. The user has logged in to E2 since October 1, 2019; and
2. The E2 user account is set up using a unique email address.

E2 users that met the above criteria will only need to establish an ADEM Web Portal account (<https://prd.adem.alabama.gov/awp>) under the same email address as their E2 account to have the same permissions in AEPACS as they did in E2. They will also automatically be linked to the same facilities they were in E2.

The Alabama Department of Environmental Management encourages you to voluntarily consider 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 Muhammad Mehmood by e-mail at muhammad.mehmood@adem.alabama.gov or by phone at (334) 279-3065.

Sincerely,


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

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

Coastal Office
1615 South Broad Street
Mobile, AL 36605
(251) 450-3400
(251) 479-2593 (FAX)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

PERMITTEE: NASA MARSHALL FLIGHT SPACE CENTER

FACILITY LOCATION: MARSHALL SPACE FLIGHT CENTER
REDSTONE ARSENAL, MARSHALL FLIGHT CENTER
HUNTSVILLE, ALABAMA 35812
MADISON COUNTY

PERMIT NUMBER: AL0000221

RECEIVING WATERS: DSN021, DSN022, & DSN0034: INDIAN CREEK

DSN016, DSN017, DSN018, DSN019, DSN020, DSN023, DSN025, DSN035, &
DSN037: UNNAMED TRIBUTARY TO INDIAN CREEK

DSN008, DSN010, DSN012, DSN013, DSN015, DSN031, DSN032, & DSN033:
UNNAMED TRIBUTARY TO HUNTSVILLE SPRING BRANCH

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
Water Division Chief

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PART I: DISCHARGE LIMITATIONS, CONDITIONS, AND REQUIREMENTS**A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS**

DSN008S, DSN017S, DSN020S and DSN021S: Stormwater from above ground storage tank (AST) dike drainage and industrial activities 3/ 4/ 5/

DSN016S: Stormwater from above ground storage tanks (AST) drainage dike, industrial activities, and test stand area 3/ 4/ 5/

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 outfall(s) listed above and described more fully in the Permittee's application. Such discharges shall be limited and monitored by the Permittee as specified below:

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Frequency ²	Sample Type ¹	Seasonal
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi-Annually	Grab	All Months
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi-Annually	Grab	All Months
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months

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/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.
- 4/ See Part IV.B for Stormwater Measurement and Sampling Requirements.
- 5/ Outfall DSN008 has been deemed representative of outfalls DSN016, DSN017, DSN020, and DSN021. Monitoring is only required at DSN008.

DSN010S and DSN035S: Stormwater runoff associated with industrial activities and test stand area 3/ 4/ 5/

DSN013S, DSN015S, DSN023S, DSN025S, DSN031S, DSN032S, DSN033S and DSN034S: Stormwater runoff associated with industrial activities 3/ 4/ 5/

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 outfall(s) listed above and described more fully in the Permittee's application. Such discharges shall be limited and monitored by the Permittee as specified below:

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Frequency ²	Sample Type ¹	Seasonal
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi- Annually	Grab	All Months
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi- Annually	Grab	All Months
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi- Annually	Grab	All Months
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi- Annually	Estimate	All Months

**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/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.
- 4/ See Part IV.B for Stormwater Measurement and Sampling Requirements.
- 5/ Outfall DSN033 has been deemed representative of outfalls DSN010, DSN013, DSN015, DSN023, DSN025, DSN031, DSN032, DSN034, and DSN035. Monitoring is only required at DSN033.

DSN0121: Test stand overflow, hydraulic motor non-contact cooling water, and stormwater from industrial activities and test stand area 3/ 4/

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 outfall(s) listed above and described more fully in the Permittee's application. Such discharges shall be limited and monitored by the Permittee as specified below:

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Frequency ²	Sample Type ¹	Seasonal
pH (00400) Effluent Gross Value	*****	*****	*****	6.0 Minimum Daily	*****	8.5 Maximum Daily	S.U.	Monthly	Grab	All Months
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Monthly	Grab	All Months
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	(Report) Monthly Average	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Monthly	Estimate	All Months

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/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.
- 4/ This outfall is to be sampled during a non-storm event.

DSN012S: Test stand overflow, hydraulic motor non-contact cooling water, and stormwater from industrial activities and test stand area 3/ 4/ 5/

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 outfall(s) listed above and described more fully in the Permittee's application. Such discharges shall be limited and monitored by the Permittee as specified below:

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Frequency ²	Sample Type ¹	Seasonal
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi-Annually	Grab	All Months
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi-Annually	Grab	All Months
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months
Chemical Oxygen Demand (COD) (81017) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months

**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/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.
- 4/ See Part IV.B for Stormwater Measurement and Sampling Requirements.
- 5/ This outfall is to be sampled during a storm event.

DSN018S: Stormwater from above ground storage tanks (AST) drainage dike, underground storage tank (UST) loading/unloading areas, and industrial activities 3/ 4/

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 outfall(s) listed above and described more fully in the Permittee's application. Such discharges shall be limited and monitored by the Permittee as specified below:

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Frequency ²	Sample Type ¹	Seasonal
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi-Annually	Grab	All Months
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi-Annually	Grab	All Months
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months

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/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.
- 4/ See Part IV.B for Stormwater Measurement and Sampling Requirements.

DSN0191: Process water from test stand overflow and treated TCE contaminated groundwater from basement dewatering activities, and stormwater from above ground storage tank (AST) dike drainage, industrial activities, and test stand area 3/ 4/

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 outfall(s) listed above and described more fully in the Permittee's application. Such discharges shall be limited and monitored by the Permittee as specified below:

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Frequency ²	Sample Type ¹	Seasonal
pH (00400) Effluent Gross Value	*****	*****	*****	6.0 Minimum Daily	*****	8.5 Maximum Daily	S.U.	Monthly	Grab	All Months
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Monthly	Grab	All Months
Trichloroethylene (39180) Effluent Gross Value	*****	*****	*****	*****	17.5 Monthly Average	(Report) Maximum Daily	ug/l	Monthly	Grab	All Months
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	(Report) Monthly Average	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Monthly	Estimate	All Months

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/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.
- 4/ This outfall is to be sampled during a non-storm event at the treatment system discharge point.

DSN019S: Process water from test stand overflow and treated TCE contaminated groundwater from basement dewatering activities, and stormwater from above ground storage tank (AST) dike drainage, industrial activities, and test stand area 3/ 4/ 5/

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 outfall(s) listed above and described more fully in the Permittee's application. Such discharges shall be limited and monitored by the Permittee as specified below:

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Frequency ²	Sample Type ¹	Seasonal
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi-Annually	Grab	All Months
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi-Annually	Grab	All Months
Trichloroethylene (39180) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	ug/l	Semi-Annually	Grab	All Months
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months
Chemical Oxygen Demand (COD) (81017) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months

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/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.
- 4/ See Part IV.B for Stormwater Measurement and Sampling Requirements. Stormwater sampling should occur as soon as possible when water is released from the pond.
- 5 This outfall is to be sampled during a storm event at the deluge pond discharge point.

DSN022S: Stormwater from above ground storage (AST) drainage dike and industrial activities 3/ 4/

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 outfall(s) listed above and described more fully in the Permittee's application. Such discharges shall be limited and monitored by the Permittee as specified below:

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Frequency ²	Sample Type ¹	Seasonal
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi-Annually	Grab	All Months
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi-Annually	Grab	All Months
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months

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/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.
- 4/ See Part IV.B for Stormwater Measurement and Sampling Requirements.

DSN037S: Stormwater runoff associated with pistol range 3/ 4/

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 outfall(s) listed above and described more fully in the Permittee's application. Such discharges shall be limited and monitored by the Permittee as specified below:

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Frequency ²	Sample Type ¹	Seasonal
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi-Annually	Grab	All Months
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi-Annually	Grab	All Months
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months

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- 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/ See Part IV.A for Best Management Practices (BMP) Plan Requirements.
- 4/ See Part IV.B for Stormwater Measurement and Sampling Requirements.

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.

REPORTS OF QUARTERLY TESTING shall be submitted on a **quarterly** 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.

REPORTS OF SEMIANNUAL TESTING shall be submitted on a semiannual basis. The reports are due on the 28th day of JANUARY and the 28th day of JULY. 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.

REPORTS OF ANNUAL TESTING shall be submitted on an annual basis. The first report is due on the 28th day of JANUARY. 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 electronically.

- (1) If the permittee is unable to complete the electronic submittal of DMR data due to technical problems originating with the Department's electronic 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 Department's electronic 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 Department's electronic system resuming operation, the permittee shall enter the data into the Department's electronic system, unless an alternate timeframe is approved by the Department. A comment should be included on the electronic 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
Water Division
Office of Water Services
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
Water Division
Office of Water Services
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;
 - (3) quantities to be used;
 - (4) frequencies of use;
 - (5) 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 in 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:
 - (i) one hundred micrograms per liter;
 - (ii) 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;
 - (iii) 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:

- (i) five hundred micrograms per liter;
- (ii) one milligram per liter for antimony;
- (iii) 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 301(c), 301(g), 301(h), 301(k), or 316(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.

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PART IV: ADDITIONAL REQUIREMENTS, CONDITIONS, AND LIMITATIONS**A. BEST MANAGEMENT PRACTICES (BMP) PLAN REQUIREMENTS****1. BMP Plan**

The permittee shall develop and implement a Best Management Practices (BMP) Plan which prevents, or minimizes the potential for, the release of pollutants from ancillary activities, including material storage areas; plant site runoff; in-plant transfer, process and material handling areas; loading and unloading operations, and sludge and waste disposal areas, to the waters of the State through plant site runoff; spillage or leaks; sludge or waste disposal; or drainage from raw material storage.

2. Plan Content

The permittee shall prepare and implement a best management practices (BMP) plan, which shall:

- a. Establish specific objectives for the control of pollutants:
 - (1) Each facility component or system shall be examined for its potential for causing a release of significant amounts of pollutants to waters of the State due to equipment failure, improper operation, natural phenomena such as rain or snowfall, etc.
 - (2) Where experience indicates a reasonable potential for equipment failure (e.g., a tank overflow or leakage), natural condition (e.g. precipitation), or circumstances to result in significant amounts of pollutants reaching surface waters, the plan should include a prediction of the direction, rate of flow, and total quantity of pollutants which could be discharged from the facility as a result of each condition or circumstance.
- b. Establish specific best management practices to meet the objectives identified under paragraph a. of this section, addressing each component or system capable of causing a release of significant amounts of pollutants to the waters of the State, and identifying specific preventative or remedial measures to be implemented;
- c. Establish a program to identify and repair leaking equipment items and damaged containment structures, which may contribute to contaminated stormwater runoff. This program must include regular visual inspections of equipment, containment structures and of the facility in general to ensure that the BMP is continually implemented and effective;
- d. Prevent the spillage or loss of fluids, oil, grease, gasoline, etc. from vehicle and equipment maintenance activities and thereby prevent the contamination of stormwater from these substances;
- e. Prevent or minimize stormwater contact with material stored on site;
- f. Designate by position or name the person or persons responsible for the day to day implementation of the BMP;
- g. Provide for routine inspections, on days during which the facility is manned, of any structures that function to prevent stormwater pollution or to remove pollutants from stormwater and of the facility in general. Routine inspections should be done at a frequency to ensure that the BMP is continually implemented and effective and in no case less frequent than once per year;
- h. Provide for the use and disposal of any material used to absorb spilled fluids that could contaminate stormwater;
- i. Develop a solvent management plan, if solvents are used on site. The solvent management plan shall include as a minimum lists of the solvents on site; the disposal method of solvents used instead of dumping, such as reclamation, contract hauling; and the procedures for assuring that solvents do not routinely spill or leak into the stormwater;
- j. Provide for the disposal of all used oils, hydraulic fluids, firefighting foams, solvent degreasing material, etc. in accordance with good management practices and any applicable state or federal regulations;
- k. Include a diagram of the facility showing the locations where stormwater exits the facility, the locations of any structure or other mechanisms intended to prevent pollution of stormwater or to remove pollutants from stormwater, the locations of any collection and handling systems;
- l. Provide control sufficient to prevent or control pollution of stormwater by soil particles to the degree required to maintain compliance with the water quality standard for turbidity applicable to the waterbody(s) receiving discharge(s) under this permit;
- m. Provide spill prevention, control, and/or management sufficient to prevent or minimize contaminated stormwater runoff. Any containment system used to implement this requirement shall be constructed of materials compatible with the

substance(s) contained and shall prevent the contamination of groundwater. The containment system shall also be capable of retaining a volume equal to 110 percent of the capacity of the largest tank for which containment is provided;

- n. Provide and maintain curbing, diking or other means of isolating process areas to the extent necessary to allow segregation and collection for treatment of contaminated stormwater from process areas;
- o. Be reviewed by plant engineering staff and the plant manager; and
- p. Bear the signature of the plant manager.

3. Compliance Schedule

The permittee shall have reviewed (and revised if necessary) and fully implemented the BMP plan as soon as practicable but no later than six months after the effective date of this permit.

4. Department Review

- a. When requested by the Director or his designee, the permittee shall make the BMP available for Department review.
- b. The Director or his designee may notify the permittee at any time that the BMP is deficient and require correction of the deficiency.
- c. The permittee shall correct any BMP deficiency identified by the Director or his designee within 30 days of receipt of notification and shall certify to the Department that the correction has been made and implemented.

5. Administrative Procedures

- a. A copy of the BMP shall be maintained at the facility and shall be available for inspection by representatives of the Department.
- b. A log of the routine inspection required above shall be maintained at the facility and shall be available for inspection by representatives of the Department. The log shall contain records of all inspections performed for the last three years and each entry shall be signed by the person performing the inspection.
- c. The permittee shall provide training for any personnel required to implement the BMP and shall retain documentation of such training at the facility. This documentation shall be available for inspection by representatives of the Department. Training shall be performed prior to the date that implementation of the BMP is required.
- d. BMP Plan Modification. The permittee shall amend the BMP plan whenever there is a change in the facility or change in operation of the facility which materially increases the potential for the ancillary activities to result in a discharge of significant amounts of pollutants.
- e. BMP Plan Review. The permittee shall complete a review and evaluation of the BMP plan at least once every three years from the date of preparation of the BMP plan. Documentation of the BMP Plan review and evaluation shall be signed and dated by the Plant Manager.

B. STORMWATER FLOW MEASUREMENT AND SAMPLING REQUIREMENTS

1. Stormwater Flow Measurement

- a. All stormwater samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches.
- b. The total volume of stormwater discharged for the event must be monitored, including the date and duration (in hours) and rainfall (in inches) for storm event(s) sampled. The duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event must be a minimum of 72 hours. This information must be recorded as part of the sampling procedure and records retained according to Part I.B. of this permit.
- c. The volume may be measured using flow measuring devices, or estimated based on a modification of the Rational Method using total depth of rainfall, the size of the drainage area serving a stormwater outfall, and an estimate of the runoff coefficient of the drainage area. This information must be recorded as part of the sampling procedure and records retained according to Part I.B. of this permit.

2. Stormwater Sampling

- a. A grab sample, if required by this permit, shall be taken during the first thirty minutes of the discharge (or as soon thereafter as practicable); and a flow-weighted composite sample, if required by this permit, shall be taken for the entire event or for the first three hours of the event.
- b. All test procedures will be in accordance with part I.B. of this permit.

C. COOLING WATER INTAKE STRUCTURE (CWIS) REQUIREMENTS

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: May 4, 2026
PREPARED BY: Muhammad Mehmood
REVISED DATE: September 16, 2026
REVISED BY: Muhammad Mehmood

Permittee Name: NASA Marshall Flight Space Center

Facility Name: Marshall Space Flight Center

Permit Number: AL0000221

PERMIT IS REISSUANCE DUE TO EXPIRATION

DISCHARGE SERIAL NUMBERS (DSN) & DESCRIPTIONS:

DSN	Description
008	Stormwater from above ground storage tank (AST) dike drainage and industrial activities
010	Stormwater runoff associated with industrial activities and test stand area
012	Test stand overflow, hydraulic motor non-contact cooling water, and stormwater from industrial activities and test stand area
013	Stormwater runoff associated with industrial activities
015	Stormwater runoff associated with industrial activities
016	Stormwater from above ground storage tanks (AST) drainage dike, industrial activities, and test stand area
017	Stormwater from above ground storage tanks (AST) drainage dike, and industrial activities
018	Stormwater from above ground storage tanks (AST) drainage dike, underground storage tank (UST) loading/unloading areas, and industrial activities
019	Process water from test stand overflow and treated TCE contaminated groundwater from basement dewatering activities, and stormwater from above ground storage tank (AST) dike drainage, industrial activities, and test stand area
020	Stormwater from above ground storage (AST) drainage dike and industrial activities
021	Stormwater from above ground storage (AST) drainage dike and industrial activities
022	Stormwater from above ground storage (AST) drainage dike and industrial activities
023	Stormwater runoff associated with industrial activities
025	Stormwater runoff associated with industrial activities
031	Stormwater runoff associated with industrial activities
032	Stormwater runoff associated with industrial activities
033	Stormwater runoff associated with industrial activities
034	Stormwater runoff associated with industrial activities
035	Stormwater runoff associated with industrial activities and test stand area
037	Stormwater runoff associated with pistol range

INDUSTRIAL CATEGORY: NON-CATEGORICAL

MAJOR: No

STREAM INFORMATION (DSN021, DSN022 and DSN034)

Receiving Stream: Indian Creek
Classification: Fish and Wildlife
River Basin: Tennessee River Basin
7Q10: 0.31 cfs
7Q2: 0.70 cfs
1Q10: 0.27 cfs
Annual Average Flow: 11.60 cfs
303(d) List: NO
Impairment: Pathogens, Siltation
TMDL: YES

STREAM INFORMATION (DSN016, DSN017, DSN018, DSN019, DSN020, DSN023, DSN025, DSN035 and DSN037)

Receiving Stream: Unnamed Tributary to Indian Creek
Classification: Fish and Wildlife
River Basin: Tennessee River Basin
7Q10: 0 cfs
7Q2: 0 cfs
1Q10: 0 cfs
Annual Average Flow: 3.13 cfs
303(d) List: NO
Impairment: Indian Creek is impaired for Pathogens and Siltation
TMDL: YES

STREAM INFORMATION (DSN008, DSN010, DSN012, DSN013, DSN015, DSN031, DSN032 and DSN033)

Receiving Stream: Unnamed Tributary to Huntsville Spring Branch
Classification: Fish and Wildlife
River Basin: Tennessee River Basin
7Q10: 0 cfs
7Q2: 0 cfs
1Q10: 0 cfs
Annual Average Flow: 0.09 cfs
303(d) List: YES
Impairment: Huntsville Spring Branch is impaired for Metals (Arsenic)
TMDL: NO

DISCUSSION:

George C. Marshall Space Flight Center (MSFC) is a NASA operated research and development facility, located on land granted to NASA by the Department of the Army for irrevocable use and occupancy. The facility is used to design, manufacture, and test rocket vehicles, engines, and space craft components. In addition, support operations in propellant handling, process development, and basic research are conducted in the related aerospace activities of communications, environment, and energy development.

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.

DSN008S: Stormwater from above ground storage tank (AST) dike drainage and industrial activities

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Freq	Sample Type	Seasonal	Basis
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi-Annually	Grab	All Months	BPJ
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months	BPJ

DSN010S: Stormwater from industrial activities and test stand area

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Freq	Sample Type	Seasonal	Basis
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi-Annually	Grab	All Months	BPJ
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months	BPJ

DSN0121: Test stand overflow, hydraulic motor non-contact cooling water, and stormwater from industrial activities and test stand area

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Freq	Sample Type	Seasonal	Basis
pH (00400) Effluent Gross Value	*****	*****	*****	6.0 Minimum Daily	*****	8.5 Maximum Daily	S.U.	Monthly	Grab	All Months	BPJ
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Monthly	Grab	All Months	BPJ
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	(Report) Monthly Average	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Monthly	Estimate	All Months	BPJ

DSN012S: Test stand overflow, hydraulic motor non-contact cooling water, and stormwater from industrial activities and test stand area

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Freq	Sample Type	Seasonal	Basis
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi-Annually	Grab	All Months	BPJ
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months	BPJ
Chemical Oxygen Demand (COD) (81017) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ

DSN013S: Stormwater runoff associated with industrial activities

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Freq	Sample Type	Seasonal	Basis
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi-Annually	Grab	All Months	BPJ
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months	BPJ

DSN015S: Stormwater runoff associated with industrial activities

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Freq	Sample Type	Seasonal	Basis
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi-Annually	Grab	All Months	BPJ
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months	BPJ

DSN016S: Stormwater from above ground storage tanks (AST) drainage dike, industrial activities, and test stand area

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Freq	Sample Type	Seasonal	Basis
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi-Annually	Grab	All Months	BPJ
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months	BPJ

DSN017S: Stormwater from above ground storage tanks (AST) drainage dike, and industrial activities

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Freq	Sample Type	Seasonal	Basis
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi-Annually	Grab	All Months	BPJ
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months	BPJ

DSN018S: Stormwater from above ground storage tanks (AST) drainage dike, underground storage tank (UST) loading/unloading areas, and industrial activities

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Freq	Sample Type	Seasonal	Basis
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi-Annually	Grab	All Months	BPJ
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months	BPJ

DSN0191: Process water from test stand overflow and treated TCE contaminated groundwater from basement dewatering activities, and stormwater from above ground storage tank (AST) dike drainage, industrial activities, and test stand area

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Freq	Sample Type	Seasonal	Basis
pH (00400) Effluent Gross Value	*****	*****	*****	6.0 Minimum Daily	*****	8.5 Maximum Daily	S.U.	Monthly	Grab	All Months	BPJ
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Monthly	Grab	All Months	BPJ
Trichloroethylene (39180) Effluent Gross Value	*****	*****	*****	*****	17.5 Monthly Average	(Report) Maximum Daily	ug/l	Monthly	Grab	All Months	BPJ
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	(Report) Monthly Average	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Monthly	Estimate	All Months	BPJ

DSN019S: Process water from test stand overflow and treated TCE contaminated groundwater from basement dewatering activities, and stormwater from above ground storage tank (AST) dike drainage, industrial activities, and test stand area

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Freq	Sample Type	Seasonal	Basis
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi- Annually	Grab	All Months	BPJ
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi- Annually	Grab	All Months	BPJ
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi- Annually	Grab	All Months	BPJ
Trichloroethylene (39180) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	ug/l	Semi- Annually	Grab	All Months	BPJ
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi- Annually	Estimate	All Months	BPJ
Chemical Oxygen Demand (COD) (81017) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi- Annually	Grab	All Months	BPJ

DSN020S: Stormwater from above ground storage (AST) drainage dike and industrial activities

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Freq	Sample Type	Seasonal	Basis
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi- Annually	Grab	All Months	BPJ
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi- Annually	Grab	All Months	BPJ
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi- Annually	Grab	All Months	BPJ

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Freq	Sample Type	Seasonal	Basis
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months	BPJ

DSN021S: Stormwater from above ground storage (AST) drainage dike and industrial activities

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Freq	Sample Type	Seasonal	Basis
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi-Annually	Grab	All Months	BPJ
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months	BPJ

DSN022S: Stormwater from above ground storage (AST) drainage dike and industrial activities

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Freq	Sample Type	Seasonal	Basis
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi-Annually	Grab	All Months	BPJ
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months	BPJ

DSN023S: Stormwater runoff associated with industrial activities

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Freq	Sample Type	Seasonal	Basis
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi-Annually	Grab	All Months	BPJ
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months	BPJ

DSN025S: Stormwater runoff associated with industrial activities

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Freq	Sample Type	Seasonal	Basis
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi-Annually	Grab	All Months	BPJ
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months	BPJ

DSN031S: Stormwater runoff associated with industrial activities

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Freq	Sample Type	Seasonal	Basis
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi-Annually	Grab	All Months	BPJ
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months	BPJ

DSN032S: Stormwater runoff associated with industrial activities

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Freq	Sample Type	Seasonal	Basis
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi-Annually	Grab	All Months	BPJ
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months	BPJ

DSN033S: Stormwater runoff associated with industrial activities

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Freq	Sample Type	Seasonal	Basis
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi-Annually	Grab	All Months	BPJ
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months	BPJ

DSN034S: Stormwater runoff associated with industrial activities

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Freq	Sample Type	Seasonal	Basis
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi-Annually	Grab	All Months	BPJ
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months	BPJ

DSN035S: Stormwater runoff associated with industrial activities and test stand area

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Freq	Sample Type	Seasonal	Basis
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi-Annually	Grab	All Months	BPJ
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months	BPJ

DSN037S: Stormwater runoff associated with pistol range

Parameter	Quantity or Loading		Units	Quality or Concentration			Units	Sample Freq	Sample Type	Seasonal	Basis
pH (00400) Effluent Gross Value	*****	*****	*****	(Report) Minimum Daily	*****	(Report) Maximum Daily	S.U.	Semi-Annually	Grab	All Months	BPJ
Solids, Total Suspended (00530) Effluent Gross Value	*****	*****	*****	*****	*****	(Report) Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Oil & Grease (00556) Effluent Gross Value	*****	*****	*****	*****	*****	15.0 Maximum Daily	mg/l	Semi-Annually	Grab	All Months	BPJ
Flow, In Conduit or Thru Treatment Plant (50050) Effluent Gross Value	*****	(Report) Maximum Daily	MGD	*****	*****	*****	*****	Semi-Annually	Estimate	All Months	BPJ

***Basis for Permit Limitation**

- BPJ – Best Professional Judgment
- WQBEL – Water Quality Based Effluent Limits
- EGL – Federal Effluent Guideline Limitations
- 303(d) – 303(d) List of Impaired Waters
- TMDL – Total Maximum Daily Load Requirements

Discussion

Requested Modification

MSFC has requested a new outfall DSN037 be added to the permit to account for the stormwater runoff from onsite pistol ranges.

Stormwater Outfalls: DSN008, DSM010, DSN013, DSN015, DSN016, DSN017, DSN018, DSN020, DSN021, DSN022, DSN023, DSN025, DSN031, DSN032, DSN033, DSN034, DSN035 and DSN037

Best Professional Judgment (BPJ)

The parameters of concern for this facility are based on the parameters of concern listed in EPA form 2F and from the current permit. These parameters are consistent with similar facilities in the state and have been proven to be reflective of the operations at this facility. The parameters with specific limits are discussed below:

pH

Based on BPJ, the pH as the result of the storm water discharge is not expected to affect the receiving stream; therefore, the pH will continue to be monitored with no limits stipulated.

Flow

A stormwater sample shall continue to be monitored to quantify the volume of storm water runoff leaving the facility through the permitted outfall.

Oil & Grease

The daily maximum limit of 15.0 mg/l for Oil and Grease should prevent the occurrence of a visible sheen in the stream and has been shown to be achievable through the use of proper BMPs.

Total Suspended Solids (TSS)

Given that monitoring for TSS is an indicator of Best Management Practices and a measure of the BMPs effectiveness, TSS will continue to be monitored with no limits stipulated.

Process Water Outfalls: DSN012 and DSN019

DSN012: Test stand overflow, hydraulic motor non-contact cooling water, and stormwater from industrial activities and test stand area

(DSN0121-non storm event samples and DSN012S-storm event samples)

DSN0121

pH

ADEM Administrative Code, Division 6 Regulations, specifically 335-6-10-.09(5)(e)2. – Specific Water Quality for Fish & Wildlife classified streams states: “Sewage, industrial waste or other 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.”

Flow

A sample shall continue to be monitored to quantify the volume of wastewater leaving the facility through the permitted outfall.

Oil & Grease

Based on BPJ, the daily maximum limit of 15.0 mg/l for Oil and Grease should prevent the occurrence of a visible sheen in the stream and has been shown to be achievable through the use of proper BMPs.

This outfall discharges to a pond and therefore temperature and TRC are not parameters of concern.

DSN012S

Flow

A stormwater sample shall continue to be monitored to quantify the volume of storm water runoff leaving the facility through the permitted outfall.

pH

Based on BPJ, the pH as the result of the storm water discharge is not expected to affect the receiving stream; therefore, the pH will continue to be monitored with no limits stipulated.

Oil & Grease

Based on BPJ, the daily maximum limit of 15.0 mg/l for Oil and Grease should prevent the occurrence of a visible sheen in the stream and has been shown to be achievable through the use of proper BMPs.

Total Suspended Solids (TSS)

Given that monitoring for TSS is an indicator of Best Management Practices and a measure of the BMPs effectiveness, TSS will continue to be monitored with no limits stipulated.

Chemical Oxygen Demand (COD)

Due to the nature of the processes in contact with the stormwater runoff, COD is a pollutant of concern. Therefore, based on BPJ, it will continue to be monitored with no limits stipulated.

DSN019: Process water from test stand overflow and treated TCE contaminated groundwater from basement dewatering activities, and stormwater from above ground storage tank(AST) dike drainage, industrial activities, and test stand area

(DSN0191-non storm event samples and DSN019S-storm event samples)

DSN0191

pH

ADEM Administrative Code, Division 6 Regulations, specifically 335-6-10-.09(5)(e)2. – Specific Water Quality for Fish & Wildlife classified streams states: “Sewage, industrial waste or other 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.”

Flow

A sample shall continue to be monitored to quantify the volume of wastewater leaving the facility through the permitted outfall.

Oil & Grease

Based on BPJ, the daily maximum limit of 15.0 mg/l for Oil and Grease should prevent the occurrence of a visible sheen in the stream and has been shown to be achievable through the use of proper BMPs.

Numeric Reasonable Potential Analysis (RPA)

The Department completed a numeric RPA of the discharge based on laboratory data provided in the Permittee’s application. The RPA indicates whether pollutants in treated effluent have the potential to contribute to excursions of Alabama’s in-stream water quality standards. Based on the analytical data available to the Department, no pollutants show a reasonable potential to cause an in-stream water quality exceedance.

Trichloroethylene (TCE)

In the last permit cycle, Trichloroethylene (TCE) showed a reasonable potential to be discharged above the water quality criteria. Since TCE is a carcinogen, a limit of 17.5 mg/l was added in the permit based on human health criteria for fish consumption only. Based on the current analytical data available to the

Department, TCE does not show a reasonable potential to cause the in-stream water quality exceedance. Based on the historical DMR data, the current monthly average limit of 17.5 ug/l is proposed to be continued.

This outfall discharges to a pond and therefore temperature and TRC are not parameters of concern.

DSN019S

Flow

A stormwater sample shall continue to be monitored to quantify the volume of storm water runoff leaving the facility through the permitted outfall.

pH

Based on BPJ, the pH as the result of the storm water discharge is not expected to affect the receiving stream; therefore, the pH will continue to be monitored with no limits stipulated.

Oil & Grease

Based on BPJ, the daily maximum limit of 15.0 mg/l for Oil and Grease should prevent the occurrence of a visible sheen in the stream and has been shown to be achievable through the use of proper BMPs.

Total Suspended Solids (TSS)

Given that monitoring for TSS is an indicator of Best Management Practices and a measure of the BMPs effectiveness, TSS will continue to be monitored with no limits stipulated.

Chemical Oxygen Demand (COD)

Due to the nature of the processes in contact with the stormwater runoff, COD is a pollutant of concern. Therefore, based on BPJ, it will continue to be monitored with no limits stipulated.

Trichloroethylene

Due to the nature of the processes in contact with the stormwater runoff, and per noted reportable quantities from the application; TCE is a pollutant of concern. Therefore, based on BPJ, monitor only requirements are proposed.

Stream Impairment 303(d) List of Impaired Waters/TMDL

Huntsville Spring Branch is on the 303(d) List of Impaired Waters for Metals (Arsenic). The facility's discharges are not expected to contribute to the impairment; therefore, specific permit requirements have not been proposed based on the 303(d) listing.

Indian Creek has an EPA approved TMDL for Pathogens and Siltation. The pathogen TMDL indicated that the discharges from this facility are not expected to be a source of pathogens due to the nature of the processes conducted. Additionally, the siltation TMDL indicated that point source discharges are negligible in relation to the non-point sources for sediment loads to receiving streams. Therefore, specific permit requirements have not been proposed based on the TMDLs.

Cooling Water Intake Structure (CWIS) Requirements

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.

Best Management Practices (BMP) Plan

BMPs are believed to be the most effective way to control the contamination of stormwater from areas of industrial activities. This facility is required to maintain a BMP plan. The requirements of the BMP plan call for minimization of stormwater contact with waste materials, products and by-products, and for prevention of spills or loss of fluids from equipment maintenance activities. In addition, the BMP plan requires objectives for controls of pollutants and that all components and/or systems at the facility be examined for their potential to cause a release of significant amounts of pollutants due to equipment failures and improper operation. The effectiveness of the BMPs will be measured through the monitoring of the pollutants of concern.

The Department has updated the BMP language located in Part IV.A.2.g of the Permit. The Permit Condition now states, "Provide for routine inspections, or days during which the facility is manned, of any structures that function to prevent stormwater pollution or to remove pollutants from stormwater and of the facility in general. Routine inspections should be done at a frequency to ensure that the BMP is continually implemented and effective and in no case less frequent than once per year." This clarification was added to be consistent with 40 CFR Part 122.43(c).

Representative Sampling

Stormwater sampling for DSN010, DSN103, DSN015, DSN023, DSN025, DSN031, DSN032, DSN034, and DSN035 will continue to be represented by DSN033. DSN033 is deemed representative due to the magnitude and variety of industrial activity occurring in its drainage basin. Similar industrial activities and sources can be found in the drainage areas of the represented outfalls mentioned before.

Stormwater sampling for DSN016, DSN017, DSN020, and DSN021 will continue to be represented by DSN008. DSN008 is deemed representative since it captures stormwater from one of the large drainage basins and includes a variety of industrial activities and sources. Similar industrial activities are conducted in the drainage areas of the represented outfalls mentioned before.

Revision 09/16/2026

Upon receiving a comment on the draft permit from the facility, the footnotes in the outfalls DSN0191 and DSN019S have been updated for clarification. Footnote #4 in DSN0191 was updated to "This outfall is to be sampled during a non-storm event at the treatment system discharge point." Footnote #4 in DSN019S was updated to "See Part IV.B for Stormwater Measurement and Sampling Requirements. Stormwater sampling should occur as soon as possible when water is released from the pond." Footnote #5 in DSN019S has been updated to "This outfall is to be sampled during a storm event at the deluge pond discharge point."

Facility Name: **MSFC (DSN019)**NPDES No.: **AL0000221**

9/19/2017

$Q_d * C_d + Q_{d2} * C_{d2} + Q_s * C_s = Q_r * C_r$						Enter Max Daily Discharge as reported by Applicant (C _d) Max	Enter Avg Daily Discharge as reported by Applicant (C _d) Ave	Partition Coefficient (Stream / Lake)
ID	Pollutant	Carcinogen Yes*	Type	Background from upstream source (C _d) Daily Max	Background from upstream source (C _d) Monthly Ave	Background Instream (C _d) Daily Max	Background Instream (C _d) Monthly Ave	
1	Antimony		Metals	0	0	0	0	-
2	Arsenic**	YES	Metals	0	0	0	0	0.574
3	Beryllium		Metals	0	0	0	0	-
4	Cadmium**		Metals	0	0	0	0	0.236
5	Chromium / Chromium III**		Metals	0	0	0	0	0.210
6	Chromium / Chromium VI**		Metals	0	0	0	0	-
7	Copper**		Metals	0	0	0	0	0.368
8	Lead**		Metals	0	0	0	0	0.205
9	Mercury**		Metals	0	0	0	0	0.302
10	Nickel**		Metals	0	0	0	0	0.505
11	Selenium		Metals	0	0	0	0	-
12	Silver		Metals	0	0	0	0	-
13	Thallium		Metals	0	0	0	0	-
14	Zinc**		Metals	0	0	0	0	0.330
15	Cyanide		Metals	0	0	0	0	-
16	Total Phenolic Compounds		Metals	0	0	0	0	-
17	Hardness (As CaCO3)		Metals	0	0	0	0	-
18	Acrolein		VOC	0	0	0	0	-
19	Acrylonitrile*	YES	VOC	0	0	0	0	-
20	Aldrin	YES	VOC	0	0	0	0	-
21	Benzene*	YES	VOC	0	0	0	0	-
22	Bromofluor*	YES	VOC	0	0	0	0	-
23	Carbon Tetrachloride*	YES	VOC	0	0	0	0	-
24	Chlordane	YES	VOC	0	0	0	0	-
25	Chlorobenzene		VOC	0	0	0	0	-
26	Chlorodibromo-Methane*	YES	VOC	0	0	0	0	-
27	Chloroethane		VOC	0	0	0	0	-
28	2-Chloro-Ethylvinyl Ether		VOC	0	0	0	0	-
29	Chloroform*	YES	VOC	0	0	0	0	-
30	4,4'-DDD	YES	VOC	0	0	0	0	-
31	4,4'-DDE	YES	VOC	0	0	0	0	-
32	4,4'-DDT	YES	VOC	0	0	0	0	-
33	Dichlorobromo-Methane*	YES	VOC	0	0	0	0	-
34	1,1-Dichloroethane		VOC	0	0	0	0	-
35	1,2-Dichloroethane*	YES	VOC	0	0	0	0	-
36	Trans-1,2-Dichloro-Ethylene		VOC	0	0	0	0	-
37	1,1-Dichloroethylene*	YES	VOC	0	0	0	0	-
38	1,2-Dichloropropane		VOC	0	0	0	0	-
39	1,3-Dichloro-Propylene		VOC	0	0	0	0	-
40	Dieldrin	YES	VOC	0	0	0	0	-
41	Ethylbenzene		VOC	0	0	0	0	-
42	Methyl Bromide		VOC	0	0	0	0	-
43	Methyl Chloride		VOC	0	0	0	0	-
44	Methylene Chloride*	YES	VOC	0	0	0	0	-
45	1,1,2,2-Tetrachloro-Ethane*	YES	VOC	0	0	0	0	-
46	Tetrachloro-Ethylene*	YES	VOC	0	0	0	0	-
47	Toluene		VOC	0	0	0	0	-
48	Toxaphene	YES	VOC	0	0	0	0	-
49	Tributyltin (TBT)	YES	VOC	0	0	0	0	-
50	1,1,1-Trichloroethane		VOC	0	0	0	0	-
51	1,1,2-Trichloroethane*	YES	VOC	0	0	0	0	-
52	Trichloroethylene*	YES	VOC	0	0	0	49	5.42
53	Vinyl Chloride	YES	VOC	0	0	0	0	-
54	p-Chloro-m-Cresol		Acids	0	0	0	0	-
55	2-Chlorophenol		Acids	0	0	0	0	-
56	2,4-Dichlorophenol		Acids	0	0	0	0	-
57	4-Dimethylphenol		Acids	0	0	0	0	-
58	4,6-Dinitro-O-Cresol		Acids	0	0	0	0	-
59	2,4-Dinitrophenol		Acids	0	0	0	0	-
60	4,6-Dinitro-2-methylphenol	YES	Acids	0	0	0	0	-
61	Dioxin (2,3,7,8-TCDD)	YES	Acids	0	0	0	0	-
62	2-Nitrophenol		Acids	0	0	0	0	-
63	4-Nitrophenol		Acids	0	0	0	0	-
64	Pentachlorophenol*	YES	Acids	0	0	0	0	-
65	Phenol		Acids	0	0	0	0	-
66	2,4,6-Trichlorophenol*	YES	Acids	0	0	0	0	-
67	Acenaphthene		Bases	0	0	0	0	-
68	Acenaphthylene		Bases	0	0	0	0	-
69	Anthracene		Bases	0	0	0	0	-
70	Benzidine		Bases	0	0	0	0	-
71	Benzo(A)Anthracene*	YES	Bases	0	0	0	0	-
72	Benzo(A)Pyrene*	YES	Bases	0	0	0	0	-
73	1,4-Benzofluoranthene		Bases	0	0	0	0	-
74	Benzo(GH)Perylene		Bases	0	0	0	0	-
75	Benzo(K)Fluoranthene		Bases	0	0	0	0	-
76	Bis (2-Chloroethoxy) Methane		Bases	0	0	0	0	-
77	Bis (2-Chloroethyl)-Ether*	YES	Bases	0	0	0	0	-
78	Bis (2-Chloroisopropyl) Ether		Bases	0	0	0	0	-
79	Bis (2-Ethylhexoxy) Phthalate*	YES	Bases	0	0	0	0	-
80	4-Bromophenyl Phenyl Ether		Bases	0	0	0	0	-
81	Butyl Benzyl Phthalate		Bases	0	0	0	0	-
82	2-Chloronaphthalene		Bases	0	0	0	0	-
83	4-Chlorophenyl Phenyl Ether		Bases	0	0	0	0	-
84	Chrysene*	YES	Bases	0	0	0	0	-
85	D-N-Butyl Phthalate		Bases	0	0	0	0	-
86	D-N-Octyl Phthalate		Bases	0	0	0	0	-
87	Dibenz(A,H)Anthracene*	YES	Bases	0	0	0	0	-
88	1,2-Dichlorobenzene		Bases	0	0	0	0	-
89	1,3-Dichlorobenzene		Bases	0	0	0	0	-
90	1,4-Dichlorobenzene		Bases	0	0	0	0	-
91	1,3-Dichlorobenzidine*	YES	Bases	0	0	0	0	-
92	Diethyl Phthalate		Bases	0	0	0	0	-
93	Dimethyl Phthalate		Bases	0	0	0	0	-
94	2,4-Dinitrotoluene*	YES	Bases	0	0	0	0	-
95	2,6-Dinitrotoluene		Bases	0	0	0	0	-
96	1,2-Diphenylhydrazine		Bases	0	0	0	0	-
97	Endosulfan (alpha)	YES	Bases	0	0	0	0	-
98	Endosulfan (beta)	YES	Bases	0	0	0	0	-
99	Endosulfan sulfate	YES	Bases	0	0	0	0	-
100	Endrin	YES	Bases	0	0	0	0	-
101	Endrin Aldehyde	YES	Bases	0	0	0	0	-
102	Fluoranthene		Bases	0	0	0	0	-
103	Fluorene		Bases	0	0	0	0	-
104	Heptachlor	YES	Bases	0	0	0	0	-
105	Heptachlor Epoxide	YES	Bases	0	0	0	0	-
106	Hexachlorobenzene*	YES	Bases	0	0	0	0	-
107	Hexachlorobutadiene*	YES	Bases	0	0	0	0	-
108	Hexachlorocyclohexane (alpha)	YES	Bases	0	0	0	0	-
109	Hexachlorocyclohexane (beta)	YES	Bases	0	0	0	0	-
110	Hexachlorocyclohexane (gamma)	YES	Bases	0	0	0	0	-
111	Hexachlorocyclopentadiene		Bases	0	0	0	0	-
112	Hexachloroethane		Bases	0	0	0	0	-
113	Indeno(1,2,3-CK)Pyrene*	YES	Bases	0	0	0	0	-
114	Isophorone		Bases	0	0	0	0	-
115	Naphthalene		Bases	0	0	0	0	-
116	Nitrobenzene		Bases	0	0	0	0	-
117	N-Nitrosodi-N-Propylamine*	YES	Bases	0	0	0	0	-
118	N-Nitrosodi-N-Methylamine*	YES	Bases	0	0	0	0	-
119	N-Nitrosodi-N-Phenylamine*	YES	Bases	0	0	0	0	-
120	PCB-1016	YES	Bases	0	0	0	0	-
121	PCB-1221	YES	Bases	0	0	0	0	-
122	PCB-1232	YES	Bases	0	0	0	0	-
123	PCB-1242	YES	Bases	0	0	0	0	-
124	PCB-1248	YES	Bases	0	0	0	0	-
125	PCB-1254	YES	Bases	0	0	0	0	-
126	PCB-1260	YES	Bases	0	0	0	0	-
127	Phenanthrene		Bases	0	0	0	0	-
128	Pyrene		Bases	0	0	0	0	-
129	1,2,4-Trichlorobenzene		Bases	0	0	0	0	-

1.92	Enter Q _d = wastewater discharge flow from facility (MGD)
2.97067966	Q _d = wastewater discharge flow (cfs) (this value is calculated from the MGD)
0	Enter flow from upstream discharge Q _{d2} = background stream flow in MGD above point of discharge
0	Q _{d2} = background stream flow from upstream source (cfs)
0	Enter 7Q10, Q _s = background stream flow in cfs above point of discharge
0	Enter or estimated, 1Q10, Q _s = background stream flow in cfs above point of discharge (1Q10 estimated at 75% of 7Q10)
3.13	Enter Mean Annual Flow, Q _s = background stream flow in cfs above point of discharge
0	Enter 7Q2, Q _s = background stream flow in cfs above point of discharge (For LWF class streams)
Enter to Left	Enter C _s = background in-stream pollutant concentration in µg/l (assuming this is zero "0" unless there is data)
Q _d + Q _{d2} + Q _s	Q _s = resultant in-stream flow, after discharge
Calculated on other	C _r = resultant in-stream pollutant concentration in µg/l in the stream (after complete mixing occurs)
100	Enter, Background Hardness above point of discharge (assumed 50 South of Birmingham and 100 North of Birmingham)
7.00 s.u.	Enter, Background pH above point of discharge
YES	Enter, Is discharge to a stream? "YES" Other option would be to a Lake. (This changes the partition coefficients for the metals)

** Using Partition Coefficients

September 17, 2009

Facility Name: MSFC (DSND19)										Human Health Consumption Fish only (µg/l)											
NPOES No: AL000221										Carcinogen Q ₁ = Annual Average Non-Carcinogen Q ₁ = 7Q10											
Freshwater F&W classification.					Max Daily Discharge as reported by Applicant (C _{max})	Freshwater Acute (µg/l) Q ₁ = 1Q10					Avg Daily Discharge as reported by Applicant (C _{avg})	Freshwater Chronic (µg/l) Q ₁ = 7Q10									
ID	Pollutant	RP?	Carcinogen yes	Background from upstream source (C ₂) Daily Max		Water Quality Criteria (C ₁)	Draft Permit Limit (C _{max})	20% of Draft Permit Limit	RP?	Background from upstream source (C ₂) Monthly Ave		Water Quality Criteria (C ₁)	Draft Permit Limit (C _{max})	20% of Draft Permit Limit	RP?	Water Quality Criteria (C ₁)	Draft Permit Limit (C _{max})	20% of Draft Permit Limit	RP?		
1	Antimony			0	0	-	-	-	0	0	-	-	-	-	3.73E+02	3.73E+02	7.47E+01	No			
2	Arsenic		YES	0	0	592.334	592.334	118.467	No	0	0	261.324	261.324	52.265	No	3.03E-01	6.22E-01	1.24E-01	No		
3	Beryllium			0	0	-	-	-	0	0	-	-	-	-	-	-	-	-	-		
4	Cadmium			0	0	8.533	8.533	1.707	No	0	0	1.042	1.042	0.208	No	-	-	-	-		
5	Chromium/ Chromium III			0	0	2713.159	2713.159	542.632	No	0	0	352.926	352.926	70.585	No	-	-	-	-		
6	Chromium/ Chromium VI			0	0	18.000	18.000	3.600	No	0	0	11.600	11.600	2.320	No	-	-	-	-		
7	Copper			0	0	34.837	34.837	6.967	No	0	0	39.189	39.189	7.838	No	-	-	-	-		
8	Lead			0	0	313.502	313.502	62.700	No	0	0	12.217	12.217	2.443	No	-	-	-	-		
9	Mercury			0	0	2.400	2.400	0.480	No	0	0	0.012	0.012	0.002	No	4.24E-02	4.24E-02	8.48E-03	No		
10	Nickel			0	0	927.200	927.200	185.440	No	0	0	102.983	102.983	20.597	No	9.93E-02	9.93E-02	1.99E+02	No		
11	Selenium			0	0	20.000	20.000	4.000	No	0	0	5.000	5.000	1.000	No	2.43E+03	2.43E+03	4.86E+02	No		
12	Silver			0	0	3.217	3.217	0.643	No	0	0	-	-	-	-	-	-	-	-		
13	Thallium			0	0	-	-	-	-	0	0	-	-	-	-	2.74E-01	2.74E-01	5.47E-02	No		
14	Zinc			0	0	305.002	305.002	61.001	No	0	0	357.997	357.997	71.599	No	1.49E+04	1.49E+04	2.98E+03	No		
15	Cyanide			0	0	22.000	22.000	4.400	No	0	0	5.200	5.200	1.040	No	9.33E+03	9.33E+03	1.87E+03	No		
16	Total Phenolic Compounds			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-		
17	Hardness (As CaCO3)			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-		
18	Acetone			0	0	-	-	-	-	0	0	-	-	-	-	5.43E+00	5.43E+00	1.09E+00	No		
19	Acrylonitrile		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.44E-01	2.96E-01	5.92E-02	No		
20	Aldrin		YES	0	0	3.000	3.000	0.600	No	0	0	-	-	-	-	2.94E-05	6.04E-05	1.21E-05	No		
21	Benzene		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.50E+01	3.18E+01	6.36E+00	No		
22	Bromoforn		YES	0	0	-	-	-	-	0	0	-	-	-	-	7.88E+01	1.02E+02	3.23E+01	No		
23	Carbon Tetrachloride		YES	0	0	-	-	-	-	0	0	-	-	-	-	8.57E-01	1.97E+00	3.93E-01	No		
24	Chlordane		YES	0	0	2.400	2.400	0.480	No	0	0	0.004	0.004	0.001	No	4.73E-04	9.71E-04	1.94E-04	No		
25	Chlorobenzene			0	0	-	-	-	-	0	0	-	-	-	-	9.08E+02	9.08E+02	1.81E+02	No		
26	Chlorobromo-Methane		YES	0	0	-	-	-	-	0	0	-	-	-	-	7.41E+00	1.52E+01	3.04E+00	No		
27	Chloroethane			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-		
28	2-Chloro-Ethylvinyl Ether			0	0	-	-	-	-	0	0	-	-	-	-	1.02E+02	2.06E+02	4.19E+01	No		
29	Chloroform		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.81E-04	3.72E-04	7.45E-05	No		
30	4,4'- DDD		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.29E-04	2.63E-04	5.26E-05	No		
31	4,4'- DDE		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.08E-04	2.63E-04	5.26E-05	No		
32	4,4'- DDT		YES	0	0	1.100	1.100	0.220	No	0	0	0.001	0.001	0.000	No	1.05E+01	2.09E+01	4.12E+00	No		
33	1,1-Dichloroethane			0	0	-	-	-	-	0	0	-	-	-	-	2.14E+01	4.38E+01	8.79E+00	No		
34	1,1-Dichloroethane			0	0	-	-	-	-	0	0	-	-	-	-	5.91E+03	5.91E+03	1.18E+03	No		
35	1,2-Dichloroethane		YES	0	0	-	-	-	-	0	0	-	-	-	-	4.17E+03	8.56E+03	1.71E+03	No		
36	Trans-1, 2-Dichloro-Ethylene			0	0	-	-	-	-	0	0	-	-	-	-	9.40E+00	8.40E+00	1.70E+00	No		
37	1,1-Dichloroethylene		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.23E+01	1.23E+01	2.46E+00	No		
38	1,2-Dichloropropane			0	0	-	-	-	-	0	0	-	-	-	-	3.19E-04	6.41E-05	1.28E-05	No		
39	1,3-Dichloro-Propylene			0	0	-	-	-	-	0	0	-	-	-	-	8.71E+02	8.71E+02	1.74E+02	No		
40	Dieldrin		YES	0	0	0.240	0.240	0.048	No	0	0	0.056	0.056	0.011	No	3.19E-04	6.41E-05	1.28E-05	No		
41	Ethylbenzene			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-		
42	Methyl Bromide			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-		
43	Methyl Chloride			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-		
44	Methylene Chloride		YES	0	0	-	-	-	-	0	0	-	-	-	-	3.40E+02	7.10E+02	1.42E+02	No		
45	1,1, 2, 2-Tetrachloro-Ethane		YES	0	0	-	-	-	-	0	0	-	-	-	-	2.33E+00	4.79E+00	9.58E-01	No		
46	Tetrachloro-Ethylene		YES	0	0	-	-	-	-	0	0	-	-	-	-	1.92E+00	3.84E+00	7.67E-01	No		
47	Toluene			0	0	0.730	0.730	0.146	No	0	0	0.002	0.002	0.000	No	8.72E+01	8.72E+01	1.74E+01	No		
48	Toxaphene		YES	0	0	0.480	0.480	0.096	No	0	0	0.072	0.072	0.014	No	1.82E-04	3.35E-04	6.85E-05	No		
49	Tributyltin (TBT)		YES	0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-		
50	1,1,1-Trichloroethane			0	0	-	-	-	-	0	0	-	-	-	-	9.10E+00	1.87E+01	3.74E+00	No		
51	1,1,2-Trichloroethane		YES	0	0	-	-	-	-	5.42	5.42	-	-	-	-	1.75E+01	3.50E+01	7.10E+00	No		
52	Trichloroethylene		YES	0	40	-	-	-	-	0	0	-	-	-	-	1.43E+00	2.83E+00	5.65E-01	No		
53	Vinyl Chloride		YES	0	0	-	-	-	-	0	0	-	-	-	-	8.71E+01	8.71E+01	1.74E+01	No		
54	p-Chloro-M-Cresol			0	0	-	-	-	-	0	0	-	-	-	-	1.72E+02	3.44E+01	6.88E-01	No		
55	2-Chlorophenol			0	0	-	-	-	-	0	0	-	-	-	-	4.98E+02	9.96E+02	1.99E+02	No		
56	2,4-Dichlorophenol			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-		
57	2,4-Dimethylphenol			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-		
58	4,6-Dinitro-O-Cresol			0	0	-	-	-	-	0	0	-	-	-	-	3.11E+03	3.11E+03	6.22E+02	No		
59	2,4-Dinitrophenol			0	0	-	-	-	-	0	0	-	-	-	-	1.85E+02	3.40E+02	6.80E+01	No		
60	4,6-Dinitro-2-methylphenol		YES	0	0	-	-	-	-	0	0	-	-	-	-	2.87E-08	5.48E-08	1.10E-08	No		
61	Dioxin (2,3,7,8-TCDD)		YES	0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-		
62	2-Nitrophenol			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-		
63	4-Nitrophenol			0	0	-	-	-	-	0	0	-	-	-	-	1.77E+00	3.53E+00	7.06E-01	No		
64	Pentachlorophenol		YES	0	0	8.723	8.723	1.748	No	0	0	8.693	8.693	1.739	No	3.26E+02	5.00E+02	1.00E+02	No		
65	Phenol			0	0	-	-	-	-	0	0	-	-	-	-	1.41E+00	2.80E+00	5.61E-01	No		
66	2,4,6-Trichlorophenol		YES	0	0	-	-	-	-	0	0	-	-	-	-	5.79E+02	5.79E+02	1.18E+02	No		
67	Acenaphthene			0	0	-	-	-	-	0	0	-	-	-	-	2.33E+04	2.33E+04	4.67E+03	No		
68	Acenaphthylene			0	0	-	-	-	-	0	0	-	-	-	-	1.18E-04	1.18E-04	2.32E-05	No		
69	Anthracene			0	0	-	-	-	-	0	0	-	-	-	-	1.07E-02	2.19E-02	4.38E-03	No		
70	Benazidine			0	0	-	-	-	-	0	0	-	-	-	-	-	-	-	-		
71	Benzo(a)Anthracene		YES																		

National Aeronautics and Space Administration

George C. Marshall Space Flight Center
Marshall Space Flight Center, AL 35812



August 28, 2026

Reply to Attn of: AS10

TO: Mr. Scott Jackson
Alabama Department of Environmental Management
Industrial Section Chief, Water Division
P.O. Box 301463
Montgomery, AL 36130

FROM: Ms. Malene A. McElroy, P.E.
NASA Marshall Space Flight Center
Environmental Engineering & Occupational Health Office
Mail Stop AS10
Huntsville, AL 35812

SUBJECT: NASA Marshall Space Flight Center, NPDES Permit AL0000221 Draft Review
Comments

NASA Marshall Space Flight Center (MSFC) in Huntsville, Alabama is submitting the following comment on the Draft National Pollutant Discharge Elimination System (NPDES) Permit AL0000221. MSFC appreciates the opportunity to review the draft permit and rationale.

Regarding DSN019S: Footnote #4 dictates flow measurement and sampling requirements while footnote #5 dictates that the outfall must be sampled during a storm event. The gate valve at the west test area deluge pond is closed and any stormwater that enters the pond is retained. Therefore, sampling could be conducted within a reasonable time frame after a qualifying storm event and the flow could be measured based on water released during a sampling event. Based on this comment, MSFC is requesting that footnotes 4 and 5 of DSN019S be removed.

If you have any questions or comments, please contact Marla K. Smith at marla.k.smith@nasa.gov. We would appreciate the opportunity to review the revised draft based on the above comment or other changes ADEM may make before the permit is issued for public notice.

Digitally signed by Malene
Mcelroy
Date: 2026.08.28 09:49:37 -05'00'

Malene A. McElroy, P.E.
Environmental Manager
Environmental Engineering & Occupational Health
Office
NASA Marshall Space Flight Center

RE: [EXTERNAL] Re: Draft Permit - MSFC AL0000221

From Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Date Wed 9/16/2026 9:26 AM

To Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Cc Mcelroy, Malene A. (MSFC-AS10) <malene.a.mcelroy@nasa.gov>; Roberson, Brian C. (MSFC-AS10) <brian.roberson@nasa.gov>

Muhammad,

NASA accepts these changes. Thank you for working with us on this. I will be out of office through September 24th, so if you have any additional questions/comments regarding the permit or the public comment period, please contact Brian Roberson.

Thanks,



Marla K. Smith

Environmental Compliance Team, Air Program Manager

Environmental Engineering & Occupational Health (EEOH)

George C. Marshall Space Flight Center

Mail Stop AS10

4249 Morris Road, Huntsville, AL 35812

M: 256.431.0293

O: 256.961.9087

marla.k.smith@nasa.gov

From: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Sent: Monday, September 14, 2026 10:00 AM

To: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Subject: Re: [EXTERNAL] Re: Draft Permit - MSFC AL0000221

Good morning, Marla,

The following changes have been made to the footnotes:

- Footnote# 4 in DSN0191 has been updated to "This outfall is to be sampled during a non-storm event at the treatment system discharge point."
- Footnote# 4 in DSN019S has been updated to " See Part IV.B for Stormwater Measurement and Sampling Requirements. Stormwater sampling should occur as soon as possible when water is released from the pond."
- Footnote# 5 in DSN019S has been updated to "This outfall is to be sampled during a storm event at the deluge pond discharge point."

A copy of the pages in the permit is also attached. Please let me know if MSFC agrees to these changes. Once confirmed we will send out a revised draft.

Let me know if you have any questions.

Thank you.

Muhammad Uzair Mehmood
Industrial Section
Industrial/ Municipal Branch
Water Division
Alabama Department of Environmental Management
P.O Box # 301463
Montgomery, Alabama 36110
334-279-3065



Mission: Assure for all citizens of the state a safe, healthful and productive environment

From: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>
Sent: Friday, September 11, 2026 11:29 AM
To: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>
Subject: RE: [EXTERNAL] Re: Draft Permit - MSFC AL0000221

Muhammad,

See responses to your questions below.

Marla K. Smith

Environmental Compliance Team, Air Program Manager

Environmental Engineering & Occupational Health (EEOH)

George C. Marshall Space Flight Center

Mail Stop AS10

4249 Morris Road, Huntsville, AL 35812

M: 256.431.0293

O: 256.961.9087

marla.k.smith@nasa.gov



From: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>
Sent: Tuesday, September 1, 2026 9:59 AM
To: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>
Subject: Re: [EXTERNAL] Re: Draft Permit - MSFC AL0000221

Good morning, Marla,

Please find the response to NASA's comment on the draft below:

Please elaborate more in detail about the deluge pond and the retention mechanism, and how it may exclude DSN019S from the requirements set forth by footnotes 4 and 5? How often is water released from the pond? Is water only released after a storm event or are there instances when the water released is made up of non-stormwater sources? Yes, the pond contains industrial water. The pond is kept at a certain level and it is released when needed to maintain that level. Therefore, there is always a combination of industrial and stormwater. Industrial water in this context is essentially river water – it is not drinkable, but filtered river water. Fire suppression water. We are just wanting to make it clear that this sample will never be just storm water. We will continue to sample, but we wanted to clarify that fact for you.

Footnote 4 dictates the sampling requirements applicable to all stormwater outfalls. It is understood that the stormwater may be sampled as soon thereafter upon release of water from the pond and not as soon as the rain event occurs in this situation. We can add to this footnote for this outfall that "stormwater sampling should occur as soon as possible when water is released from the pond" or something to that effect to add clarification. We're good with this addition.

Footnote 5 is put under DSN019S to distinguish it from the sampling requirements of DSN0191 which is to be sampled during non-storm events only. That's fine as long as ADEM understands that this will be a mixture of industrial and stormwater, as stated.

Thank you.

Muhammad Uzair Mehmood

Industrial Section

Industrial/ Municipal Branch

Water Division

Alabama Department of Environmental Management

P.O Box # 301463

Montgomery, Alabama 36110

334-279-3065



Mission: Assure for all citizens of the state a safe, healthful and productive environment

From: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Sent: Friday, August 28, 2026 10:05 AM

To: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Subject: RE: [EXTERNAL] Re: Draft Permit - MSFC AL0000221

Muhammad,

Attached is a comment letter from MSFC regarding Draft Permit No. AL0000221. Hard copy to follow.

Thanks,



Marla K. Smith

Environmental Compliance Team, Air Program Manager

Environmental Engineering & Occupational Health (EEOH)

George C. Marshall Space Flight Center

Mail Stop AS10

4600 Rideout Road, Huntsville, AL 35812

M: 256.431.0293

O: 256.961.9087

marla.k.smith@nasa.gov

/

From: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Sent: Wednesday, August 26, 2026 6:46 AM

To: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Subject: Re: [EXTERNAL] Re: Draft Permit - MSFC AL0000221

CAUTION: This email originated from outside of NASA. Please take care when clicking links or opening attachments. Use the "Report Message" button to report suspicious messages to the NASA SOC.

Marla,

Yes, you have until the end of the week. You can have more time as well if needed. We generally start preparing the public notices at the end of a month and if both the facility and the ADEM are in agreement, it is put on the next month's public notice.

Let me know if there is anything I can do to help.

Thanks.

Muhammad Uzair Mehmood

Industrial Section

Industrial/ Municipal Branch

Water Division

Alabama Department of Environmental Management

P.O Box # 301463

Montgomery, Alabama 36110

334-279-3065



Mission: Assure for all citizens of the state a safe, healthful and productive environment

From: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Sent: Tuesday, August 25, 2026 3:59 PM

To: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Subject: RE: [EXTERNAL] Re: Draft Permit - MSFC AL0000221

Muhammad,

MSFC may have one comment. We have until the end of the week, yes?

Thanks,

Marla K. Smith

Environmental Compliance Team, Air Program Manager

Environmental Engineering & Occupational Health (EEOH)

George C. Marshall Space Flight Center

Mail Stop AS10

4600 Rideout Road, Huntsville, AL 35812

M: 256.431.0293

O: 256.961.9087

marla.k.smith@nasa.gov



From: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Sent: Tuesday, August 25, 2026 3:45 PM

To: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Subject: Re: [EXTERNAL] Re: Draft Permit - MSFC AL0000221

Good afternoon,

I am following up on the draft permit. If there are no comments from NASA, we can start preparing the draft for public notice.

Please let me know.

Thank you.

Muhammad Uzair Mehmood

Industrial Section

Industrial/ Municipal Branch

Water Division

Alabama Department of Environmental Management

P.O Box # 301463

Montgomery, Alabama 36110

334-279-3065



Mission: Assure for all citizens of the state a safe, healthful and productive environment

From: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>
Sent: Tuesday, July 28, 2026 12:18 PM
To: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>
Subject: RE: [EXTERNAL] Re: Draft Permit - MSFC AL0000221

Received.



Marla K. Smith

Environmental Compliance Team, Air Program Manager

Environmental Engineering & Occupational Health (EEOH)

George C. Marshall Space Flight Center

Mail Stop AS10

4600 Rideout Road, Huntsville, AL 35812

M: 256.431.0293

O: 256.961.9087

marla.k.smith@nasa.gov

From: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>
Sent: Tuesday, July 28, 2026 12:10 PM
To: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>
Subject: [EXTERNAL] Re: Draft Permit - MSFC AL0000221

Good afternoon

Please find the draft permit for NASA MSFC in the attachment. The department would appreciate any comments within 30 days of receipt. A copy of the draft has also been mailed.

Please confirm the receipt of the draft. I had trouble attaching the permit due to large file size.

Let me know if you have any questions or concerns.

Thank you.

Muhammad Uzair Mehmood

Industrial Section

Industrial/ Municipal Branch

Water Division

Alabama Department of Environmental Management

P.O Box # 301463

Montgomery, Alabama 36110

334-279-3065



Mission: Assure for all citizens of the state a safe, healthful and productive environment

From: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Sent: Tuesday, July 28, 2026 12:02 PM

To: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Subject: Draft Permit - MSFC AL0000221

Good afternoon

Please find the draft permit for NASA MSFC in the attachment. The department would appreciate any comments within 30 days of receipt. A copy of the draft has also been mailed.

Let me know if you have any questions or concerns.

Thank you.

Muhammad Uzair Mehmood

Industrial Section

Industrial/ Municipal Branch

Water Division

Alabama Department of Environmental Management

P.O Box # 301463

Montgomery, Alabama 36110

334-279-3065



Mission: Assure for all citizens of the state a safe, healthful and productive environment

From: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Sent: Tuesday, July 28, 2026 11:55 AM

To: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Subject: Draft Permit - MSFC AL0000221

Good morning,

Please find the draft permit for NASA MSFC in the attachment. The department would appreciate any comments within 30 days of receipt. A copy of the draft has also been mailed.

Let me know if you have any questions or concerns.

Thank you.

Muhammad Uzair Mehmood

Industrial Section

Industrial/ Municipal Branch

Water Division

Alabama Department of Environmental Management

P.O Box # 301463

Montgomery, Alabama 36110

334-279-3065



Mission: Assure for all citizens of the state a safe, healthful and productive environment

From: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Sent: Monday, July 20, 2026 11:07 AM

To: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Subject: RE: [EXTERNAL] Outfall Locations

See our comments below. Regarding Malene's certifier access, we sent a letter designating her as a responsible official last September when our previous manager retired. See attached. Malene has had editor access in AEPACS for quite some time we just need her to be able to certify. Since we designated her as a signatory authority last year, do I need to fill out this form? If so, please advise on who should be listed in the responsible official section of your form since we already designated her as an RO.

Thanks,

MSFC Comments RE representative outfalls:

1. As indicated in NPDES permit No. AL0000221, outfall DSN008 is representative of stormwater outfalls DSN016, DSN017, DSN020, and DSN021. DSN008 is considered representative of these outfalls because it captures storm water from one of the larger drainage basins (66 acres) at MSFC and encompasses a variety of sources. Industrial activities in the DSN008 drainage basin include petroleum aboveground storage tank (AST) loading and unloading, AST dike drainage, vehicle fueling, and storage yard runoff. Similar industrial activities are conducted in the drainage basins for outfalls DSN016,

DSN017, DSN020, and DSN021. Therefore, DSN008 is designated as representative of those outfalls based on current operations.

As indicated in NPDES permit No. AL0000221, outfall DSN033 is representative of stormwater outfalls DSN010, DSN013, DSN015, DSN023, DSN025, DSN031, DSN032, DSN034, and DSN035. DSN033 is considered representative of these outfalls because it encompasses a variety of sources. Industrial activities in the DSN033 drainage basin include petroleum AST loading and unloading, AST dike drainage, hazardous waste or material storage/drum storage, storage yard runoff, and runoff from scrap metal storage areas. Similar industrial activities are conducted in the drainage basins for outfalls DSN010, DSN013, DSN015, DSN023, DSN025, DSN031, DSN032, DSN034, and DSN035. Therefore, DSN033 is designated as representative of those outfalls based on current operations.

2. As allowed under NPDES permit No. AL0000221, representative sampling was used to demonstrate compliance with the discharge limitations for outfalls DSN010, DSN013, DSN015, DSN016, DSN017, DSN020, DSN021, DSN023, DSN025, DSN031, DSN032, DSN034, and DSN035. Therefore, monitoring data from the current permit cycle is not available for these outfalls and NASA is electing not to collect additional samples at this time.

Marla K. Smith

Environmental Compliance Team, Air Program Manager

Environmental Engineering & Occupational Health (EEOH)

George C. Marshall Space Flight Center

Mail Stop AS10

4600 Rideout Road, Huntsville, AL 35812

M: 256.431.0293

O: 256.961.9087

marla.k.smith@nasa.gov



From: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Sent: Tuesday, July 14, 2026 3:08 PM

To: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Subject: Re: [EXTERNAL] Outfall Locations

Good afternoon, Marla,

You can submit a letter or send the rationale through email, either will work.

Please fill out the attached DAR form and I will give Malene Certifier Access in AEPACS. She will be able to sign and submit the documents once she has the Certifier Access.

Let me know if there are any issues.

Thank you.

Muhammad Uzair Mehmood

Industrial Section

Industrial/ Municipal Branch

Water Division

Alabama Department of Environmental Management

P.O Box # 301463

Montgomery, Alabama 36110

334-279-3065



Mission: Assure for all citizens of the state a safe, healthful and productive environment

From: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Sent: Tuesday, July 14, 2026 1:38 PM

To: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Subject: RE: [EXTERNAL] Outfall Locations

Hey, Muhammad

Our contractors are working on it and I'll get it to you as soon as I have a letter. We have some basic bullet point comments, but not in letter form. Would the basic comments work or does it have to be a letter?

On another note, can you add Malene McElroy to AEPACS (malene.a.mcelroy@nasa.gov) as the primary approver? She is now the permanent environmental manager here. David Thaxton can remain as the back up approver.

Thanks,

Marla K. Smith

Environmental Compliance Team, Air Program Manager

Environmental Engineering & Occupational Health (EEOH)

George C. Marshall Space Flight Center

Mail Stop AS10

4600 Rideout Road, Huntsville, AL 35812

M: 256.431.0293

O: 256.961.9087

marla.k.smith@nasa.gov



From: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Sent: Wednesday, July 8, 2026 4:06 PM

To: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Subject: Re: [EXTERNAL] Outfall Locations

Good afternoon,

I am following up on our conversation. Is there any update on the representative outfall's justification letter? Please let me know.

The permit draft is ready to be sent out. Attaching the letter with the draft permit will decrease the possibility of getting any comments from the EPA during the public notice period.

Thank you.

Muhammad Uzair Mehmood

Industrial Section

Industrial/ Municipal Branch

Water Division

Alabama Department of Environmental Management

P.O Box # 301463

Montgomery, Alabama 36110

334-279-3065



Mission: Assure for all citizens of the state a safe, healthful and productive environment

From: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Sent: Monday, June 8, 2026 10:55 AM

To: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Subject: RE: [EXTERNAL] Outfall Locations

Received.

Marla K. Smith

Environmental Compliance Team, Air Program Manager

Environmental Engineering & Occupational Health (EEOH)

George C. Marshall Space Flight Center

Mail Stop AS10

4600 Rideout Road, Huntsville, AL 35812

M: 256.431.0293

O: 256.961.9087

marla.k.smith@nasa.gov



From: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Sent: Monday, June 8, 2026 10:46 AM

To: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Subject: Re: [EXTERNAL] Outfall Locations

Good morning,

The Department has a couple of comments on the permit reissuance:

1. Please submit a justification for all the outfalls that are selected as representative this permit reissuance.
2. The stormwater sampling data has been submitted only for the representative outfalls but its missing for the outfalls being represented. The data for all the outfalls being represented should be submitted at least once every 10 years or 2 permit cycles. It was submitted during the last permit cycle so it's not a requirement for the current reissuance. However, if MSFC has collected the data for these outfalls or are willing to do so, it can still be submitted to be included in the application package and permitting records.

Please let me know if you have any questions for me.

Thank you.

Muhammad Uzair Mehmood

Industrial Section

Industrial/ Municipal Branch

Water Division

Alabama Department of Environmental Management

P.O Box # 301463

Montgomery, Alabama 36110

334-279-3065



Mission: Assure for all citizens of the state a safe, healthful and productive environment

From: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Sent: Thursday, December 18, 2025 9:13 AM

To: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Subject: RE: [EXTERNAL] Outfall Locations

Hey, Muhammad –

Heard back from our contractor. From what he found, the locations listed in form 2F are correct. They also match what was listed in the form 2F in the previous location. Not sure why AEPACs has something different listed. But the locations in the application should be the correct ones.

Thanks and Happy Holidays,



Marla K. Smith

Environmental Compliance Team, Air Program Manager

Environmental Engineering & Occupational Health (EEOH)

George C. Marshall Space Flight Center

Mail Stop AS10

4600 Rideout Road, Huntsville, AL 35812

M: 256.431.0293

O: 256.961.9087

marla.k.smith@nasa.gov

From: Smith, Marla K. (MSFC-AS10)

Sent: Wednesday, December 10, 2025 2:13 PM

To: 'Mehmood, Muhammad Uzair' <muhammad.mehmood@adem.alabama.gov>

Subject: RE: [EXTERNAL] Outfall Locations

Hi, Muhammad -

I promise I have not forgotten. I've reached out to our contract support to see where the changes came from and have not heard back yet. As soon as I do, I will pass the relevant information along to you.

Thanks,

Marla K. Smith

Environmental Compliance Team, Air Program Manager

Environmental Engineering & Occupational Health (EEOH)

George C. Marshall Space Flight Center

Mail Stop AS10

4600 Rideout Road, Huntsville, AL 35812

M: 256.431.0293

O: 256.961.9087

marla.k.smith@nasa.gov

-
-
From: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Sent: Monday, December 8, 2025 11:08 AM

To: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Subject: Re: [EXTERNAL] Outfall Locations

-
Good Morning,

I am following up on our conversation. Please let me know if there are any updates.
Thank you.

-
-
Muhammad Uzair Mehmood

Industrial Section

Industrial/ Municipal Branch

Water Division

Alabama Department of Environmental Management

P.O Box # 301463

Montgomery, Alabama 36110

334-279-3065

-

ADEM

Mission: Assure for all citizens of the state a safe, healthful and productive environment

From: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Sent: Tuesday, November 25, 2025 3:23 PM

To: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Subject: RE: [EXTERNAL] Outfall Locations

-

Hey, Muhammad –

-

Just wanted to let you know I've seen your email. I'm still figuring out all things water here and will need to ask someone just to confirm. But with the holiday, I might not get back to you until early next week.

-

Thanks,

-

Marla K. Smith

Environmental Compliance Team, Air Program Manager

Environmental Engineering & Occupational Health (EEOH)

George C. Marshall Space Flight Center

Mail Stop AS10

4600 Rideout Road, Huntsville, AL 35812

M: 256.431.0293

O: 256.961.9087

marla.k.smith@nasa.gov

-

-

From: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Sent: Tuesday, November 25, 2025 3:22 PM

To: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Subject: [EXTERNAL] Outfall Locations

-

Good Afternoon,

Can you please confirm the outfall locations for the following outfalls?

-

	<u>In Application (Form 2F)</u>		<u>In AEPACS</u>	
<u>Outfall</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Latitude</u>	<u>Longitude</u>
<u>DSN010</u>	<u>34.624167</u>	<u>86.666389</u>	<u>34.37707</u>	<u>86.88782</u>
<u>DSN016</u>	<u>34.634722</u>	<u>86.668056</u>	<u>34.625</u>	<u>86.656944</u>
<u>DSN020</u>	<u>34.633333</u>	<u>86.670833</u>	<u>34.6375</u>	<u>86.670833</u>
<u>DSN021</u>	<u>34.645833</u>	<u>86.683333</u>	<u>34.6985</u>	<u>86.628</u>

The locations listed in the application are different from what is already in AEPACS. I wanted to confirm before I change them in the system.

Let me know if you have any questions for me.

Thank you.

Muhammad Uzair Mehmood

Industrial Section

Industrial/ Municipal Branch

Water Division

Alabama Department of Environmental Management

P.O Box # 301463

Montgomery, Alabama 36110

334-279-3065

Mission: Assure for all citizens of the state a safe, healthful and productive environment

NPDES Individual Permit Mod/Reissue (Form 187) - Supplementary Information for Industrial Facilities

version 2.10

(Submission #: HQA-QBVR-5A9MV, version 1)

Digitally signed by:
AEPACS
Date: 2025.03.04 12:12:59 -06:00
Reason: Submission Data
Location: State of Alabama

Details

Submission ID HQA-QBVR-5A9MV

Form Input

General Instructions

This form should be used to submit the following permit requests for permitted Industrial Individual NPDES facilities

- Permit Transfers
- Permittee/Facility Name Changes
- Minor Modifications, for example:
 - > Frequency of monitoring or reporting modifications
 - > Changes to interim compliance dates in a schedule of compliance, not including the final compliance date.
 - > Removal of a point source outfall, provided the discharge is terminated and does not result in discharge of pollutants from other outfalls, except in accordance with permit limits.
- Major Modifications, (Any modifications not covered by minor mod's, whether Effluent Limit changes occur or not)
- Reissuances
- Reissuance of a permit due to approaching expiration
- Revocation and Reissuance of permit prior to its scheduled expiration

Applicable Base Fees:

- Permit Transfers and/or Permittee/Facility Name Changes
 - > \$800
- Minor Modifications (see examples above)
 - > \$3,940 (Major Sources)
 - > \$3,120 (Minor Sources)
- Major Modifications
 - > \$17,990 (Major Sources)
 - > \$5,615 (Minor Sources)
- Reissuances
 - > \$17,990 (Major Sources)
 - > \$5,615 (Minor Sources)

For assistance, please click here to determine the permit staff responsible for the site or call (334) 271-7799

Processing Information

Purpose of Application

Reissuance of Permit Due to Approaching Expiration

Please indicate if the Permittee is applying for a permit transfer and/or name change in addition to permit modification or reissuance:

None

Action Type

Reissuance

If applicable, briefly describe any planned changes at the facility that are included in this reissuance application:

Addition of a new stormwater outfall, DNS037.

General Information

SID Permit Number (if your facility currently holds an SID permit, please provide that number below):

NONE PROVIDED

NPDES or General Permit Numbers (if applicable, please list all permit numbers):

AL0000221

Is this facility/site only applying for permit coverage for discharges from stormwater?

No

Is a new stormwater outfall being added?

Yes

Permit Information

Permit Number

AL0000221

Current Permittee Name

NASA Marshall Flight Space Center

Permittee

Permittee Name

NASA Marshall Flight Space Center

Mailing Address

Mail Code: AD01, Marshall Space Flight Center

Huntsville, AL 35812

Per ADEM Admin. Code r. 335-6-6-.09 (1), a Responsible Official is defined as CEO, President, any position at a level of Vice President or higher, Owner, Partner, Managing Member (LLC), or ranking elected official. Please provide the contact information for the person meeting this definition.

Do NOT enter information for a person that is/will be a Duly Authorized Representative (DAR) (i.e. a person that has been delegated signatory permissions by a Responsible Official). A person that is a Duly Authorized Representative is NOT considered a RESPONSIBLE OFFICIAL.

Responsible Official

Prefix

Mrs.

First Name Last Name

June Malone

Title

Director, Office of Center Operations

Organization Name

NASA Marshall Flight Space Center

Phone Type Number Extension

Business 2565447061

Email

june.e.malone@nasa.gov

Mailing Address

Mail Code: AS01, Marshall Flight Center

Huntsville, AL 35812

Does the Responsible Official intend to delegate signatory authority for DMRs or other compliance reports to an individual as a duly authorized representative (DAR) for this site?

Yes

Pursuant to ADEM Admin. Code r. 335-6-6-.09(2), a person may ONLY be delegated signatory authority for reports if that person has responsibility for the overall operation of the regulated facility or regulated activity. Once such delegation is made, that person is considered a duly authorized representative (DAR).

Existing Permit Contacts

Affiliation Type	Contact Information	Remove?
Environmental Contact	E. Farley Davis	Keep
DMR Contact	Lyndsey Winslette, NASA	Remove
Permittee	NASA Marshall Flight Space Center	Keep
Notification Recipient, Responsible Official	Robert Champion, NASA Marshall Flight Space Center	Remove

Duly Authorized Representative (DAR)

Duly Authorized Representative - Delegation of Signatory Authority by Responsible Official

If the permittee has not already prepared a signed and dated delegation form/letter, an optional form can be downloaded from the link below. All information should be completed along with the responsible official's signature and date signed. That signed form can be uploaded in the attachment section below titled "DAR Documentation".

[Optional Delegation of Signatory Authority Form](#)

Delegation Document for Duly Authorized Representation (DAR)

[DelegationofSignatoryAuthority.pdf - 03/03/2025 12:52 PM](#)

Comment

NONE PROVIDED

Pursuant to ADEM Admin. Code r. 335-6-6-.09(2), a person may ONLY be delegated signatory authority for reports if that person has responsibility for the overall operation of the regulated facility or activity. Once such delegation is made, that person is considered a duly authorized representative (DAR).

Authorized Rep

Prefix

Mr.

First Name

Farley

Last Name

Davis

Title

Manager, Environmental Engineering and Occupational

Organization Name

NASA

Phone Type

Business

Number

2565446935

Extension

Email

farley.davis@nasa.gov

Mailing Address

Mail Code: AS10, Marshall Flight Space Center

Huntsville, AL 35812

United States

Facility/Site Information

Facility/Site Name

Marshall Space Flight Center

Organization/Ownership Type

Federal

Facility/Site Address or Location Description

Redstone Arsenal, Marshall Flight Center

Huntsville, AL 35812

Facility/Site County

Madison

Detailed Directions to the Facility/Site

NONE PROVIDED

Facility Map

[MSFC NPDES Area and Topo Map.pdf - 02/27/2025 04:51 PM](#)

Comment

NONE PROVIDED

Please refer to the link below for Lat/Long map instruction help:

[Map Instruction Help](#)

Facility/Site Front Gate Latitude and Longitude

34.70055600000000,-86.67138900000002

Redstone Arsenal, Marshall Flight Center, Huntsville, AL

SIC Code(s) [Please enter Primary SIC Code first followed by any additional applicable SIC Codes]

9661-Space Research and Technology

NAICS Code(s) [Please enter Primary NAICS Code first followed by any additional applicable NAICS Codes]

927110-Space Research and Technology

Facility/Site Contact**Prefix**

Mr.

First Name

Farley

Last Name

Davis

Title

Manager, Environmental Engineering and Occupational

Organization Name

NASA

Phone Type

Business

Number

2565446935

Extension**Email**

farley.davis@nasa.gov

Address

Mail Code: AD01, Marshall Flight Space Center

Huntsville, AL 35812

DMR Contact(s) (1 of 1)

DMR Contact

Prefix

Mr.

First Name Last Name

Brian Roberson

Title

Clean Water Act Lead Engineer

Phone Type Number Extension

Business 2565440858

Email

brian.roberson@nasa.gov

Address

Mail Code: AS10 Marshall Space Center

Huntsville, AL 35812

Enforcement History

Has the applicant been issued any Notices of Violation, Orders (Consent or Administrative/Unilateral), or Judicial Actions (Complaint, Settlement Agreement, Consent Decree, or Court Order) concerning water pollution or other permit violations within the State of Alabama in the past five years?

No

Business Activity

A facility with processes inclusive in the business areas shown below may be covered by Environmental Protection Agency's (EPA) categorical effluent guideline standards. These facilities are termed **categorical users**. If unsure, please call the Industrial Section at (334) 271-7943 to discuss or use the link below to contact the Permit Engineer for the county the facility is/will be located in.

[Industrial Section Assignment Map](#)

If your facility conducts or will be conducting any of the processes listed below (regardless of whether they generate wastewater, waste sludge, or hazardous wastes), please check the category of business activity:

Other: N/A

Give a brief description of all operations at this facility including primary products or services:

MSFC is a NASA-operated research and development facility located on land granted to NASA by the Department of Army, for irrevocable use and occupancy, for a term of 99 years renewable at NASA option. The facility is used to design, manufacture, and test rocket vehicles, engines, and space craft components. Support operations in propellant handling, process development, and basic research are conducted in the related aerospace activities of communications, environment, and energy development.

Water Supply

Water Sources (check all that apply):

Municipal Water Utility

Please specify the City of the Municipal Water Utility:

Redstone Arsenal

Name of Utility	Million Gallons per Day (MGD)
Redstone Arsenal	0.76

Cooling Water Intake Structure Information

Does the provider of your source water operate a surface water intake?

Yes

Name of Provider	Location of Provider	Latitude	Longitude
U.S. Army Redstone Arsenal	WTP #1 Redstone Arsenal, AL	34.586770	86.682095

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

Outfalls (1 of 2)

012

Please click below if this discharge no longer exists or is no longer required:

NONE PROVIDED

Outfall Identifier

012

Receiving Water

Huntsville Spring Branch

Does the discharge enter the named receiving water via an unnamed tributary?

Unnamed Tributary

Indicate if either of the following characteristics apply to this discharge:

Process Water commingled with Stormwater

Estimated Average Daily Flow (MGD)

0.54

Monitoring/Sampling Point Location

34.62500000000000, -86.65694400000000

Outfalls (2 of 2)

019

Please click below if this discharge no longer exists or is no longer required:

NONE PROVIDED

Outfall Identifier

019

Receiving Water

Indian Creek

Does the discharge enter the named receiving water via an unnamed tributary?

Unnamed Tributary

Indicate if either of the following characteristics apply to this discharge:

Process Water commingled with Stormwater

Estimated Average Daily Flow (MGD)

1.92

Monitoring/Sampling Point Location

34.6311, -86.6745

Stormwater Outfalls (1 of 18)

008

Please click below if this discharge no longer exists or is no longer required:

NONE PROVIDED

Outfall Identifier

008

Receiving Water

Huntsville Spring Branch

Does the discharge enter the named receiving water via an unnamed tributary?

Unnamed Tributary

Indicate if either of the following characteristics apply to this discharge:

Stormwater only (no comingled process waste water excluding air conditioner condensate and fire testing waters)

Monitoring/Sampling Point Location

34.62638900000000, -86.66805600000001

Stormwater Outfalls (2 of 18)

010

Please click below if this discharge no longer exists or is no longer required:

NONE PROVIDED

Outfall Identifier

010

Receiving Water

Huntsville Spring Branch

Does the discharge enter the named receiving water via an unnamed tributary?

Unnamed Tributary

Indicate if either of the following characteristics apply to this discharge:

Stormwater only (no comingled process waste water excluding air conditioner condensate and fire testing waters)

Monitoring/Sampling Point Location

34.37707000000000, -86.88782000000001

Stormwater Outfalls (3 of 18)

013

Please click below if this discharge no longer exists or is no longer required:

NONE PROVIDED

Outfall Identifier

013

Receiving Water

Huntsville Spring Branch

Does the discharge enter the named receiving water via an unnamed tributary?

Unnamed Tributary

Indicate if either of the following characteristics apply to this discharge:

Stormwater only (no comingled process waste water excluding air conditioner condensate and fire testing waters)

Monitoring/Sampling Point Location

34.63305600000000, -86.65444400000000

Stormwater Outfalls (4 of 18)

015

Please click below if this discharge no longer exists or is no longer required:

NONE PROVIDED

Outfall Identifier

015

Receiving Water

Huntsville Spring Branch

Does the discharge enter the named receiving water via an unnamed tributary?

Unnamed Tributary

Indicate if either of the following characteristics apply to this discharge:

Stormwater only (no comingled process waste water excluding air conditioner condensate and fire testing waters)

Monitoring/Sampling Point Location

34.63583300000000, -86.65805600000000

Stormwater Outfalls (5 of 18)

016

Please click below if this discharge no longer exists or is no longer required:

NONE PROVIDED

Outfall Identifier

016

Receiving Water

Indian Creek

Does the discharge enter the named receiving water via an unnamed tributary?

Unnamed Tributary

Indicate if either of the following characteristics apply to this discharge:

Stormwater only (no comingled process waste water excluding air conditioner condensate and fire testing waters)

Monitoring/Sampling Point Location

34.62500000000000, -86.65694400000000

Stormwater Outfalls (6 of 18)

017

Please click below if this discharge no longer exists or is no longer required:

NONE PROVIDED

Outfall Identifier

017

Receiving Water

Huntsville Spring Branch

Does the discharge enter the named receiving water via an unnamed tributary?

Unnamed Tributary

Indicate if either of the following characteristics apply to this discharge:

Stormwater only (no comingled process waste water excluding air conditioner condensate and fire testing waters)

Monitoring/Sampling Point Location

34.63750000000000, -86.66805600000001

Stormwater Outfalls (7 of 18)

018

Please click below if this discharge no longer exists or is no longer required:

NONE PROVIDED

Outfall Identifier

018

Receiving Water

Indian Creek

Does the discharge enter the named receiving water via an unnamed tributary?

Unnamed Tributary

Indicate if either of the following characteristics apply to this discharge:

Stormwater only (no comingled process waste water excluding air conditioner condensate and fire testing waters)

Monitoring/Sampling Point Location

34.63750000000000, -86.67500000000000

Stormwater Outfalls (8 of 18)

020

Please click below if this discharge no longer exists or is no longer required:

NONE PROVIDED

Outfall Identifier

020

Receiving Water

Indian Creek

Does the discharge enter the named receiving water via an unnamed tributary?

Unnamed Tributary

Indicate if either of the following characteristics apply to this discharge:

Stormwater only (no comingled process waste water excluding air conditioner condensate and fire testing waters)

Monitoring/Sampling Point Location

34.63750000000000, -86.67083300000000

Stormwater Outfalls (9 of 18)

021

Please click below if this discharge no longer exists or is no longer required:

NONE PROVIDED

Outfall Identifier

021

Receiving Water

Indian Creek

Does the discharge enter the named receiving water via an unnamed tributary?

NONE PROVIDED

Indicate if either of the following characteristics apply to this discharge:

Stormwater only (no comingled process waste water excluding air conditioner condensate and fire testing waters)

Monitoring/Sampling Point Location

34.69850000000000, -86.62800000000000

Stormwater Outfalls (10 of 18)

022

Please click below if this discharge no longer exists or is no longer required:

NONE PROVIDED

Outfall Identifier

022

Receiving Water

Indian Creek

Does the discharge enter the named receiving water via an unnamed tributary?

NONE PROVIDED

Indicate if either of the following characteristics apply to this discharge:

Stormwater only (no comingled process waste water excluding air conditioner condensate and fire testing waters)

Monitoring/Sampling Point Location

34.64583300000000, -86.68611100000000

Stormwater Outfalls (11 of 18)

023

Please click below if this discharge no longer exists or is no longer required:

NONE PROVIDED

Outfall Identifier

023

Receiving Water

Indian Creek

Does the discharge enter the named receiving water via an unnamed tributary?

Unnamed Tributary

Indicate if either of the following characteristics apply to this discharge:

Stormwater only (no comingled process waste water excluding air conditioner condensate and fire testing waters)

Monitoring/Sampling Point Location

34.64166700000000, -86.67777800000000

Stormwater Outfalls (12 of 18)

025

Please click below if this discharge no longer exists or is no longer required:

NONE PROVIDED

Outfall Identifier

025

Receiving Water

Tennessee River (Wheeler Lake)

Does the discharge enter the named receiving water via an unnamed tributary?

Unnamed Tributary

Indicate if either of the following characteristics apply to this discharge:

Stormwater only (no comingled process waste water excluding air conditioner condensate and fire testing waters)

Monitoring/Sampling Point Location

34.69850000000000, -86.62800000000000

Stormwater Outfalls (13 of 18)

031

Please click below if this discharge no longer exists or is no longer required:

NONE PROVIDED

Outfall Identifier

031

Receiving Water

Huntsville Spring Branch

Does the discharge enter the named receiving water via an unnamed tributary?

Unnamed Tributary

Indicate if either of the following characteristics apply to this discharge:

Stormwater only (no comingled process waste water excluding air conditioner condensate and fire testing waters)

Monitoring/Sampling Point Location

34.65500000000000, -86.66222000000000

Stormwater Outfalls (14 of 18)

032

Please click below if this discharge no longer exists or is no longer required:

NONE PROVIDED

Outfall Identifier

032

Receiving Water

Huntsville Spring Branch

Does the discharge enter the named receiving water via an unnamed tributary?

Unnamed Tributary

Indicate if either of the following characteristics apply to this discharge:

Stormwater only (no comingled process waste water excluding air conditioner condensate and fire testing waters)

Monitoring/Sampling Point Location
34.6541670000000, -86.6616669999999

Stormwater Outfalls (15 of 18)

033

Please click below if this discharge no longer exists or is no longer required:

NONE PROVIDED

Outfall Identifier

033

Receiving Water

Huntsville Spring Branch

Does the discharge enter the named receiving water via an unnamed tributary?

Unnamed Tributary

Indicate if either of the following characteristics apply to this discharge:

Stormwater only (no comingled process waste water excluding air conditioner condensate and fire testing waters)

Monitoring/Sampling Point Location

34.6586110000000, -86.6624999999999

Stormwater Outfalls (16 of 18)

034

Please click below if this discharge no longer exists or is no longer required:

NONE PROVIDED

Outfall Identifier

034

Receiving Water

Indian Creek

Does the discharge enter the named receiving water via an unnamed tributary?

NONE PROVIDED

Indicate if either of the following characteristics apply to this discharge:

Stormwater only (no comingled process waste water excluding air conditioner condensate and fire testing waters)

Monitoring/Sampling Point Location

34.6452780000000, -86.6855560000001

Stormwater Outfalls (17 of 18)

035

Please click below if this discharge no longer exists or is no longer required:

NONE PROVIDED

Outfall Identifier

035

Receiving Water

Indian Creek

Does the discharge enter the named receiving water via an unnamed tributary?

Unnamed Tributary

Indicate if either of the following characteristics apply to this discharge:

Stormwater only (no comingled process waste water excluding air conditioner condensate and fire testing waters)

Monitoring/Sampling Point Location

34.628056000000000, -86.674167000000000

Stormwater Outfalls (18 of 18)

SW01

Please click below if this discharge no longer exists or is no longer required:

NONE PROVIDED

Outfall Identifier

SW01

Receiving Water

Indian Creek

Does the discharge enter the named receiving water via an unnamed tributary?

Unnamed Tributary

Indicate if either of the following characteristics apply to this discharge:

Stormwater only (no comingled process waste water excluding air conditioner condensate and fire testing waters)

Monitoring/Sampling Point Location

34.6408,-86.6767

Process Flow Schematic with Wastewater Treatment(s), If Applicable

For an example of a process flow diagram, please use the link below.

[Figure 1: Example of Process Flow Schematic](#)**Process Flow Schematic**[Process Flow Diagram.pdf - 02/27/2025 02:39 PM](#)**Comment**

NONE PROVIDED

Anti-Degradation Evaluation**Is this a new or increased discharge that began after April 3, 1991?**

No

Additional Information**Do you share an outfall with another facility?**

No

Indicate if automatic sampling equipment or continuous wastewater flow metering equipment is being operated at this facility:

Current	Yes/No
Continuous Wastewater Flow Metering Equipment	No

Current	Yes/No
Automatic Sampling Equipment	No

Indicate if installation automatic sampling equipment or continuous wastewater flow metering equipment planned at this facility:

Planned	Yes/No
Continuous Wastewater Flow Metering Equipment	No
Automatic Sampling Equipment	No

Please attach the process schematic with sampling equipment locations.

[Process Flow Diagram.pdf - 02/27/2025 03:12 PM](#)

Comment

N/A

Are any process changes or expansions planned during the next three years that could alter wastewater volumes or characteristics (Consider production processes as well as air or water pollution treatment processes that may affect the discharge.)?

No

Do you use biocides, corrosion inhibitors, or chemical additives in your cooling or blowdown water?

Yes

The applicant must provide a list of the following information for each biocide or chemical:

- (1) Name and general composition of biocide or chemical (if composition is not provided on MSDS sheet)
- (2) 48-hour or 96-hour LC50 data for organisms representative of the biota of the waterway into which the discharge will ultimately reach. For freshwater, the fathead minnow (*Pimephales promelas*) and cladoceran (*Ceriodaphnia dubia*) are the test organisms. For salt water, the mysid shrimp and the sheepshead minnow or inland silverside are the test organisms. Other acceptable aquatic organisms may be allowed by the Department if sufficient information is provided. If the MSDS sheet does not provide data for the organisms specified above, the facility must provide the data unless the Department grants approval for an alternate organism.
- (3) Quantities to be used
- (4) Frequencies of use
- (5) Maximum proposed discharge concentrations
- (6) EPA registration of number, if applicable and is not provided on the MSDS sheet.

List of Biocides

Please list biocides below:
CHEM-E BWT-101
Keystone 3015
Keystone 3020
Keystone 3124
Keystone 3723

Biocide/Corrosion Inhibitor Summary Sheet

[Biocide and Corrosion Inhibitor Summary.pdf - 02/27/2025 02:07 PM](#)

Comment

NONE PROVIDED

Safety Data Sheets (SDS)

[Biocide and Corrosion Inhibitor SDS.pdf - 02/27/2025 04:37 PM](#)

Comment

NONE PROVIDED

Treatment

Is any form of wastewater treatment (see list below) practiced at this facility?

Yes

Treatment devices or processes used or proposed for treating wastewater or sludge (check as many as appropriate).

Sedimentation

Other: Air Stripper

Is any form of wastewater treatment (or changes to an existing wastewater treatment) planned for this facility within the next three years?

No

Facility Operational Characteristics

Indicate whether the facility discharge is:

Continuous through the year

Comments:

NONE PROVIDED

Non-Discharged Wastes

Are any waste liquids or sludges generated and not disposed of in the sanitary sewer system?

No

Does any outside firm remove any of the above checked wastes?

No

EPA Application Forms

All Applicants must submit certain EPA permit application forms. More than one application form may be required.

Form 1 - General Information Form required for all applications

Form 2C - Should be submitted for facilities with existing discharge(s) of process wastewater.

Form 2D - Should be submitted for facilities that have not yet commenced discharge(s) of process wastewater.

Form 2E - Should be submitted for facilities who discharge non-process wastewater, such as non-contact cooling water or boiler blowdown.

Form 2F - Should be submitted for all discharges of storm water associated with an industrial activity.

The EPA application forms are found on the Department's website [here](#).

EPA Form 1

[Complete Form 1\[1\].pdf - 03/03/2025 05:00 PM](#)

Comment

NONE PROVIDED

Additional EPA Forms (EPA Form 2C, 2D, 2E and/or 2F)

[Complete Form 2C.pdf - 03/03/2025 05:00 PM](#)

[Complete Form 2F\[2\].pdf - 03/03/2025 05:01 PM](#)

Comment

NONE PROVIDED

Other attachments (as needed)

NONE PROVIDED

Comment

NONE PROVIDED

Additional Attachments

Please attach any additional information as needed.

[NPDES_Permit Basis.pdf - 02/27/2025 04:02 PM](#)

Comment

NONE PROVIDED

Application Preparer

Application Preparer

Prefix

Mr.

First Name

Tyler

Last Name

Phillips

Title

NONE PROVIDED

Organization Name

Jacobs

Phone Type

Mobile

Number

3347145361

Extension

Email

tyler.phillips@jacobs.com

Address

[NO STREET ADDRESS SPECIFIED]

[NO CITY SPECIFIED], AL [NO ZIP CODE SPECIFIED]

Agreements and Signature(s)

SUBMISSION AGREEMENTS

- ☒ I am the owner of the account used to perform the electronic submission and signature.
- ☒ I have the authority to submit the data on behalf of the facility I am representing.
- ☒ I agree that providing the account credentials to sign the submission document constitutes an electronic signature equivalent to my written signature.
- ☒ I have reviewed the electronic form being submitted in its entirety, and agree to the validity and accuracy of the information contained within it to the best of my knowledge.

"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."

"I further certify under penalty of law that all analyses reported as less than detectable in this application or attachments thereto were performed using the EPA approved test method having the lowest detection limit for the substance tested."

NOTE: 335-6-5-.14 SIGNATORIES TO PERMIT APPLICATIONS AND REPORTS.

The application shall be signed by a responsible official, a request for variance from categorical pretreatment standards, and a category determination request shall be signed by a responsible official, as indicated below:

- In the case of a corporation, by a principal executive officer of at least the level of vice president;
- In the case of a partnership, by a general partner;
- In the case of a sole proprietorship, by the proprietor; or
- In the case of a municipal, state, federal, or other public entity, by either a principal executive officer, or ranking elected official

Signed June Malone on 03/04/2025 at 12:07 PM
By

EPA Identification Number AL 1800013863	NPDES Permit Number AL0000221	Facility Name Marshall Space Flight Center	OMB No. 2040-0004 Expires 07/31/2026
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Form 1 NPDES		U.S. Environmental Protection Agency Application for NPDES Permit to Discharge Wastewater GENERAL INFORMATION
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SECTION 1. ACTIVITIES REQUIRING AN NPDES PERMIT (40 CFR 122.21(F) AND (F)(1))

Activities Requiring an NPDES Permit	1.1 Applicants Not Required to Submit Form 1	
	1.1.1	Is the facility a new or existing publicly owned treatment works or has your permitting authority directed you to submit Form 2A? If yes, STOP. Do NOT complete Form 1. Complete Form 2A. If the facility is also a treatment works treating domestic sewage , you must also complete Form 2S. ☒ Yes ☐ No
	1.1.2	Is the facility a sludge-only facility (i.e., a facility that does not discharge wastewater to surface waters)? If yes, STOP. Do NOT complete Form 1. Complete Form 2S. ☒ Yes ☐ No
	1.2 Applicants Required to Submit Form 1	
	1.2.1	Is the facility a concentrated animal feeding operation or a concentrated aquatic animal production facility ? ☐ Yes → Complete Form 1 and Form 2B. ☒ No
	1.2.3	Is the facility a new manufacturing, commercial, mining, or silvicultural facility that has not yet commenced to discharge ? ☐ Yes → Complete Form 1 and Form 2D. ☒ No
	1.2.5	Is the facility a new or existing facility whose discharge is composed entirely of stormwater associated with industrial activity or whose discharge is composed of both stormwater and non-stormwater ? ☒ Yes → Complete Form 1 and Form 2F unless exempted by 40 CFR 122.26(b)(14)(x) or (b)(15). ☐ No
	1.2.6	Is the facility a new or existing treatment works treating domestic sewage that discharges wastewater to surface waters? ☐ Yes → Complete Form 1, Form 2S, and any other applicable forms, as directed by your permitting authority. ☒ No

SECTION 2. NAME, MAILING ADDRESS, AND LOCATION (40 CFR 122.21(F)(2))

Name, Mailing Address, and Location	2.1 Facility Name		
	George C Marshall Space Flight Center		
	2.2 EPA Identification Number		
	AL 180003863		
	2.3 Facility Contact		
	Name (first and last) June Malone	Title Director, Office of Center Operations	Phone number (256) 544-7061
Email address june.e.malone@nasa.gov			

EPA Identification Number AL 1800013863	NPDES Permit Number AL0000221	Facility Name Marshall Space Flight Center	OMB No. 2040-0004 Expires 07/31/2026
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Name, Mailing Address, and Location Continued	<u>2.4</u>	Facility Mailing Address		
		Street or P.O. box		
		NASA/AS10		
		City or town	State	ZIP code
		Marshall Space Flight Center	AL	35812
	<u>2.5</u>	Facility Location		
		Street, route number, or other specific identifier		
		Redstone Arsenal		
		County name	County code (if known)	
		Madison	47	
	City or town	State	ZIP code	
	Huntsville	AL	35812	

SECTION 3. SIC AND NAICS CODES (40 CFR 122.21(F)(3))			
SIC and NAICS Codes	<u>3.1</u>	SIC Code(s)	Description (optional)
		3764	
		3769	
		9661	
		3761	
	<u>3.2</u>	NAICS Code(s)	Description (optional)

SECTION 4. OPERATOR INFORMATION (40 CFR 122.21(F)(4))		
Operator Information	<u>4.1</u>	Name of Operator
		NASA/George C. Marshall Space Flight Center
	<u>4.2</u>	Is the name you listed in Item 4.1 also the owner?
		☒ Yes ☐ No
	<u>4.3</u>	Operator Status
	☒ Public—federal ☐ Public—state ☐ Other public (specify) _____ ☐ Private ☐ Other (specify) _____	
<u>4.4</u>	Phone Number of Operator	
	(256) 544-7061	

EPA Identification Number AL 1800013863	NPDES Permit Number AL0000221	Facility Name Marshall Space Flight Center	OMB No. 2040-0004 Expires 07/31/2026
--	----------------------------------	---	---

Operator Information Continued	4.5	Operator Address Street or P.O. Box Redstone Arsenal <table style="width: 100%; border: none;"> <tr> <td style="width: 35%; border: none;">City or town</td> <td style="width: 35%; border: none;">State</td> <td style="width: 30%; border: none;">ZIP code</td> </tr> <tr> <td style="border: none;">Marshall Space Flight Center</td> <td style="border: none;">AL</td> <td style="border: none;">35812</td> </tr> </table> Email address of operator june.e.malone@nasa.gov	City or town	State	ZIP code	Marshall Space Flight Center	AL	35812
City or town	State	ZIP code						
Marshall Space Flight Center	AL	35812						

SECTION 5. INDIAN LAND (40 CFR 122.21(F)(5))	
Indian Land	5.1 Is the facility located on Indian Land? ☐ Yes ☒ No

SECTION 6. EXISTING ENVIRONMENTAL PERMITS (40 CFR 122.21(F)(6))										
Existing Environmental Permits	6.1 Existing Environmental Permits (check all that apply and print or type the corresponding permit number for each) <table style="width: 100%; border: none;"> <tr> <td style="width: 33%; border: none;">☒ NPDES (discharges to surface water) AL0000221</td> <td style="width: 33%; border: none;">☐ RCRA (hazardous wastes)</td> <td style="width: 34%; border: none;">☐ UIC (underground injection of fluids)</td> </tr> <tr> <td style="border: none;">☒ PSD (air emissions) 709-0014</td> <td style="border: none;">☐ Nonattainment program (CAA)</td> <td style="border: none;">☐ NESHAPs (CAA)</td> </tr> <tr> <td style="border: none;">☐ Ocean dumping (MPRSA)</td> <td style="border: none;">☐ Dredge or fill (CWA Section 404)</td> <td style="border: none;">☐ Other (specify)</td> </tr> </table>	☒ NPDES (discharges to surface water) AL0000221	☐ RCRA (hazardous wastes)	☐ UIC (underground injection of fluids)	☒ PSD (air emissions) 709-0014	☐ Nonattainment program (CAA)	☐ NESHAPs (CAA)	☐ Ocean dumping (MPRSA)	☐ Dredge or fill (CWA Section 404)	☐ Other (specify)
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☐ Ocean dumping (MPRSA)	☐ Dredge or fill (CWA Section 404)	☐ Other (specify)								

SECTION 7. MAP (40 CFR 122.21(F)(7))	
Map	7.1 Have you attached a topographic map containing all required information to this application? (See instructions for specific requirements.) ☒ Yes ☐ CAFO—Not Applicable (See requirements in Form 2B.)

SECTION 8. NATURE OF BUSINESS (40 CFR 122.21(F)(8))	
Nature of Business	8.1 Describe the nature of your business. MSFC is a NASA operated research and development facility located on land granted to NASA by the Department of the Army for irrevocable use and occupancy for a term of 99 years, renewable at NASA's option. The facility is used to design, manufacture and test rocket vehicles, engines, and space craft components. MSFC is NASA's principal propulsion development center. Its scientists, engineers, and support personnel play a major role in the development of the new Space Launch System; advanced technologies necessary for the human journey to Mars; and the next generation of missions to observe the outer edge of the universe, the surface of the sun, and our own planet, Earth.

SECTION 9. COOLING WATER INTAKE STRUCTURES (40 CFR 122.21(F)(9))	
Cooling Water Intake Structures	9.1 Does your facility use cooling water? ☒ Yes ☐ No → SKIP to Item 10.1. 9.2 Identify the source of cooling water. (Note that facilities that use a cooling water intake structure as described at 40 CFR 125, Subparts I and J may have additional application requirements at 40 CFR 122.21(r). Consult with your NPDES permitting authority to determine what specific information needs to be submitted and when.) Industrial Water from Redstone. Potable water backup for chiller plant.

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SECTION 10. VARIANCE REQUESTS (40 CFR 122.21(F)(10))

Variance Requests	10.1	Do you intend to request or renew one or more of the variances authorized at 40 CFR 122.21(m)? (Check all that apply. Consult with your NPDES permitting authority to determine what information needs to be submitted and when.) ☐ Fundamentally different factors (CWA Section 301(n)) ☐ Water quality related effluent limitations (CWA Section 302(b)(2)) ☐ Non-conventional pollutants (CWA Section 301(c) and (g)) ☐ Thermal discharges (CWA Section 316(a)) ☒ Not applicable
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SECTION 11. CHECKLIST AND CERTIFICATION STATEMENT (40 CFR 122.22(A) AND (D))

Checklist and Certification Statement	11.1	In Column 1 below, mark the sections of Form 1 that you have completed and are submitting with your application. For each section, specify in Column 2 any attachments that you are enclosing to alert the permitting authority. Note that not all applicants are required to provide attachments. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%; text-align: center;">Column 1</th> <th style="width: 40%; text-align: center;">Column 2</th> </tr> </thead> <tbody> <tr> <td>☒ Section 1: Activities Requiring an NPDES Permit</td> <td>☐ w/ attachments</td> </tr> <tr> <td>☒ Section 2: Name, Mailing Address, and Location</td> <td>☐ w/ attachments</td> </tr> <tr> <td>☒ Section 3: SIC Codes</td> <td>☐ w/ attachments</td> </tr> <tr> <td>☒ Section 4: Operator Information</td> <td>☐ w/ attachments</td> </tr> <tr> <td>☒ Section 5: Indian Land</td> <td>☐ w/ attachments</td> </tr> <tr> <td>☒ Section 6: Existing Environmental Permits</td> <td>☐ w/ attachments</td> </tr> <tr> <td>☒ Section 7: Map</td> <td> ☒ w/ topographic map ☐ w/ additional attachments </td> </tr> <tr> <td>☒ Section 8: Nature of Business</td> <td>☐ w/ attachments</td> </tr> <tr> <td>☒ Section 9: Cooling Water Intake Structures</td> <td>☐ w/ attachments</td> </tr> <tr> <td>☒ Section 10.: Variance Requests</td> <td>☐ w/ attachments</td> </tr> <tr> <td>☒ Section 11: Checklist and Certification Statement</td> <td>☐ w/ attachments</td> </tr> </tbody> </table>	Column 1	Column 2	☒ Section 1: Activities Requiring an NPDES Permit	☐ w/ attachments	☒ Section 2: Name, Mailing Address, and Location	☐ w/ attachments	☒ Section 3: SIC Codes	☐ w/ attachments	☒ Section 4: Operator Information	☐ w/ attachments	☒ Section 5: Indian Land	☐ w/ attachments	☒ Section 6: Existing Environmental Permits	☐ w/ attachments	☒ Section 7: Map	☒ w/ topographic map ☐ w/ additional attachments	☒ Section 8: Nature of Business	☐ w/ attachments	☒ Section 9: Cooling Water Intake Structures	☐ w/ attachments	☒ Section 10.: Variance Requests	☐ w/ attachments	☒ Section 11: Checklist and Certification Statement	☐ w/ attachments
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	11.2	Provide the following certification. (See instructions to determine the appropriate person to sign the application.) Certification Statement <i>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.</i> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> Name (print or type first and last name) June Malone </td> <td style="width: 50%; padding: 5px;"> Official title Director, Office of Center Operations </td> </tr> <tr> <td style="padding: 5px;"> Signature June Malone Digitally signed by June Malone Date: 2025.03.03 16:56:43 -06'00' </td> <td style="padding: 5px;"> Date signed 03/03/2025 </td> </tr> </table>	Name (print or type first and last name) June Malone	Official title Director, Office of Center Operations	Signature June Malone Digitally signed by June Malone Date: 2025.03.03 16:56:43 -06'00'	Date signed 03/03/2025																				
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EPA Identification Number AL 180003863	NPDES Permit Number AL0000221	Facility Name Marshall Space Flight Center	OMB No. 2040-0004 Expires 07/31/2026
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Form 2C NPDES		U.S. Environmental Protection Agency Application for NPDES Permit to Discharge Wastewater EXISTING MANUFACTURING, COMMERCIAL, MINING, AND SILVICULTURE OPERATIONS
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SECTION 1. OUTFALL LOCATION (40 CFR 122.21(G)(1))

Outfall Location	<u>1.1</u>	Provide information on each of the facility's outfalls in the table below.			
		Outfall Number	Receiving Water Name	Latitude	Longitude
		DSN012	trib to Huntsville Spring Brc	34.0 37.0 30.0	89.0 39.0 25.0
		DSN019	trib to Indian Creek	34.0 37.0 52.0	86.0 40.0 28.0

SECTION 2. LINE DRAWING (40 CFR 122.21(G)(2))

Line Drawing	<u>2.1</u>	Have you attached a line drawing to this application that shows the water flow through your facility with a water balance? (See instructions for drawing requirements. See Exhibit 2C-1 at end of instructions for example.) ☒ Yes
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SECTION 3. AVERAGE FLOWS AND TREATMENT (40 CFR 122.21(G)(3))

Average Flows and Treatment	<u>3.1</u>	For each outfall identified under Item 1.1, provide average flow and treatment information. Add additional sheets if necessary.		
		Outfall Number 012		
		Operations Contributing to Flow		
		Operation	Average Flow	
		Test Stand Overflow	0.54 mgd	
		Stormwater	mgd	
		Hydraulic Motor Non-contact Cooling Water	mgd	
			mgd	
		Treatment Units		
		Description (include size, flow rate through each treatment unit, retention time, etc.)	Code from Exhibit 2C-2	Final Disposal of Solid or Liquid Wastes Other Than by Discharge
		Sedimentation	1U	N/A

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SECTION 4. INTERMITTENT FLOWS (40 CFR 122.21(G)(4))

Intermittent Flows	<u>4.1</u>	Except for storm runoff, leaks, or spills, are any discharges described in Sections 1 and 3 intermittent or seasonal? ☒ Yes ☐ No → SKIP to Section 5.								
	<u>4.2</u>	Provide information on intermittent or seasonal flows for each applicable outfall. Attach additional pages, if necessary.								
		Outfall Number	Operation (list)	Frequency		Flow Rate		Duration		
				Average Days/Week	Average Months/Year	Long-Term Average	Maximum Daily			
	012	Test Stand Overflow	varies	days/week	varies	months/year	varies	mgd	varies	days
				days/week		months/year		mgd		days
				days/week		months/year		mgd		days
	019	Test Stand Overflow	varies	days/week	varies	months/year	varies	mgd	varies	days
				days/week		months/year		mgd		days
				days/week		months/year		mgd		days
			days/week		months/year		mgd		days	
			days/week		months/year		mgd		days	
			days/week		months/year		mgd		days	

SECTION 5. PRODUCTION (40 CFR 122.21(G)(5))

Applicable ELGs	<u>5.1</u>	Do any effluent limitation guidelines (ELGs) promulgated by EPA under Section 304 of the CWA apply to your facility? ☐ Yes ☒ No → SKIP to Section 6.		
	<u>5.2</u>	Provide the following information on applicable ELGs.		
		ELG Category	ELG Subcategory	Regulatory Citation

Production-Based Limitations	<u>5.3</u>	Are any of the applicable ELGs expressed in terms of production (or other measure of operation)? ☐ Yes ☒ No → SKIP to Section 6.		
	<u>5.4</u>	Provide an actual measure of daily production expressed in terms and units of applicable ELGs.		
	Outfall Number	Operation, Product, or Material	Quantity per Day	Unit of Measure

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<u>5.5</u>		Are you requesting alternative limits based on an anticipated increase in the actual production during the next permit term? (Consult with your NPDES permitting authority to determine what information needs to be submitted and when.)
		☐ Yes ☐ No

SECTION 6. IMPROVEMENTS (40 CFR 122.21(G)(6))

Upgrades and Improvements	<u>6.1</u>	Are you presently required by any federal, state, or local authority to meet an implementation schedule for constructing, upgrading, or operating wastewater treatment equipment or practices or any other environmental programs that could affect the discharges described in this application?																						
		☐ Yes ☒ No → SKIP to Item 6.3.																						
	<u>6.2</u>	Briefly identify each applicable project in the table below.																						
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th rowspan="2" style="width: 45%;">Brief Identification and Description of Project</th> <th rowspan="2" style="width: 15%;">Affected Outfalls (list outfall number)</th> <th rowspan="2" style="width: 20%;">Source(s) of Discharge</th> <th colspan="2" style="width: 20%;">Final Compliance Dates</th> </tr> <tr> <th style="width: 10%;">Required</th> <th style="width: 10%;">Projected</th> </tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> <tr><td> </td><td> </td><td> </td><td> </td><td> </td></tr> </table>	Brief Identification and Description of Project	Affected Outfalls (list outfall number)	Source(s) of Discharge	Final Compliance Dates		Required	Projected															
	Brief Identification and Description of Project	Affected Outfalls (list outfall number)				Source(s) of Discharge	Final Compliance Dates																	
Required			Projected																					
<u>6.3</u>	Have you attached sheets describing any additional water pollution control programs (or other environmental projects that may affect your discharges) that you now have underway or planned? (optional item)																							
	☐ Yes ☐ No ☒ Not applicable																							

SECTION 7. EFFLUENT AND INTAKE CHARACTERISTICS (40 CFR 122.21(G)(7))

Effluent and Intake Characteristics	See the instructions to determine the pollutants and parameters you are required to monitor and, in turn, the tables you must complete. Not all applicants need to complete each table.	
	Table A. Conventional and Non-Conventional Pollutants	
	<u>7.1</u>	Are you requesting a waiver from your NPDES permitting authority for any Table A pollutants for any of your outfalls?
		☐ Yes ☒ No → SKIP to Item 7.3.
	<u>7.2</u>	If yes, indicate the applicable outfalls below or check the appropriate box to indicate that you are requesting a waiver for all outfalls. Attach waiver request and other required information to the application.
		Outfall number _____ Outfall number _____ Outfall number _____
		☐ I am requesting a waiver for some pollutants at all outfalls. ☐ I am requesting a waiver for all pollutants at all outfalls → SKIP to Item 7.4.
	<u>7.3</u>	Have you completed monitoring for all Table A pollutants at each of your outfalls for which a waiver has not been requested and attached the results to this application package?
	☒ Yes	
Table B. Toxic Metals, Cyanide, Total Phenols, and Organic Toxic Pollutants		
<u>7.4</u>	Do any of the facility's processes that contribute wastewater fall into one or more of the primary industry categories listed in Exhibit 2C-3? (See end of instructions for exhibit.)	
	☐ Yes ☒ No → SKIP to Item 7.8.	
<u>7.5</u>	Have you checked "Testing Required" for all toxic metals, cyanide, and total phenols in Section 1 of Table B?	
	☐ Yes	

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Effluent and Intake Characteristics Continued	<u>7.6</u>	List the applicable primary industry categories and check the boxes indicating the required GC/MS fraction(s) identified in Exhibit 2C-3.								
		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%;">Primary Industry Category</th> <th style="width: 50%;">Required GC/MS Fraction(s) (check applicable boxes)</th> </tr> <tr> <td></td> <td> ☐ Volatile ☐ Acid ☐ Base/neutral ☐ Pesticide </td> </tr> <tr> <td></td> <td> ☐ Volatile ☐ Acid ☐ Base/neutral ☐ Pesticide </td> </tr> <tr> <td></td> <td> ☐ Volatile ☐ Acid ☐ Base/neutral ☐ Pesticide </td> </tr> </table>	Primary Industry Category	Required GC/MS Fraction(s) (check applicable boxes)		☐ Volatile ☐ Acid ☐ Base/neutral ☐ Pesticide		☐ Volatile ☐ Acid ☐ Base/neutral ☐ Pesticide		☐ Volatile ☐ Acid ☐ Base/neutral ☐ Pesticide
	Primary Industry Category	Required GC/MS Fraction(s) (check applicable boxes)								
		☐ Volatile ☐ Acid ☐ Base/neutral ☐ Pesticide								
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		☐ Volatile ☐ Acid ☐ Base/neutral ☐ Pesticide								
	<u>7.7</u>	Have you checked "Testing Required" for all required pollutants in Sections 2 through 5 of Table B for each of the GC/MS fractions checked in Item 7.6? ☐ Yes								
	<u>7.8</u>	Have you checked "Believed Present" or "Believed Absent" for all pollutants listed in Sections 1 through 5 of Table B where testing is not required? ☒ Yes								
	<u>7.9</u>	Have you provided (1) quantitative data for those Section 1, Table B, pollutants for which you have indicated testing is required or (2) quantitative data or other required information for those Section 1, Table B, pollutants that you have indicated are "Believed Present" in your discharge? ☒ Yes								
	<u>7.10</u>	Does the applicant qualify for a small business exemption under the criteria specified in the instructions? ☐ Yes → Note that you qualify at the top of Table B, then SKIP to Item 7.12. ☒ No								
<u>7.11</u>	Have you provided (1) quantitative data for those Sections 2 through 5, Table B, pollutants for which you have determined testing is required or (2) quantitative data or an explanation for those Sections 2 through 5, Table B, pollutants you have indicated are "Believed Present" in your discharge? ☒ Yes									
Table C. Certain Conventional and Non-Conventional Pollutants										
<u>7.12</u>	Have you indicated whether pollutants are "Believed Present" or "Believed Absent" for all pollutants listed in Table C for all outfalls? ☒ Yes									
<u>7.13</u>	Have you completed Table C by providing quantitative data for those pollutants that are limited either directly or indirectly in an ELG? You must provide quantitative data even if the pollutant is "Believed Absent." ☐ Yes ☒ Not applicable									
<u>7.14</u>	Have you completed Table C by providing quantitative data or an explanation for those pollutants for which you have indicated "Believed Present"? ☒ Yes									
Table D. Certain Hazardous Substances and Asbestos										
<u>7.15</u>	Have you indicated whether pollutants are "Believed Present" or "Believed Absent" for all pollutants listed in Table D for all outfalls? ☒ Yes									
<u>7.16</u>	Have you completed Table D by (1) describing the reasons the applicable pollutants are expected to be discharged and (2) providing quantitative data, if available? ☒ Yes ☐ No									
Table E. 2,3,7,8-Tetrachlorodibenzo-p-Dioxin (2,3,7,8-TCDD)										
<u>7.17</u>	Does the facility use or manufacture one or more of the 2,3,7,8-TCDD congeners listed in the instructions, or do you know or have reason to believe that TCDD is or may be present in the effluent? ☐ Yes → Complete Table E. ☒ No → SKIP to Section 8.									
<u>7.18</u>	Have you completed Table E by reporting <i>qualitative</i> data for TCDD? ☐ Yes									

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SECTION 8. USED OR MANUFACTURED TOXICS (40 CFR 122.21(G)(9))

Used or Manufactured Toxics	<u>8.1</u>	Is any pollutant listed in Table B a substance or a component of a substance used or manufactured at your facility as an intermediate or final product or byproduct? ☐ Yes ☒ No → SKIP to Section 9.		
	<u>8.2</u>	List the pollutants below. Attach additional sheets, if necessary.		
	1.	4.	7.	
	2.	5.	8.	
	3.	6.	9.	

SECTION 9. BIOLOGICAL TOXICITY TESTS (40 CFR 122.21(G)(11))

Biological Toxicity Tests	<u>9.1</u>	Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made within the last three years on (1) any of your discharges or (2) a receiving water in relation to your discharge? ☐ Yes ☒ No → SKIP to Section 10.			
	<u>9.2</u>	Identify the tests and their purposes below.			
		Test(s)	Purpose of Test(s)	Submitted to NPDES Permitting Authority?	Date Submitted
				☐ Yes ☐ No	
				☐ Yes ☐ No	
			☐ Yes ☐ No		

SECTION 10. CONTRACT ANALYSES (40 CFR 122.21(G)(12))

Contract Analyses	<u>10.1</u>	Were any of the analyses reported in Section 7 performed by a contract laboratory or consulting firm? ☒ Yes ☐ No → SKIP to Section 11.		
	<u>10.2</u>	Provide information for each contract laboratory or consulting firm below.		
		Laboratory Number 1	Laboratory Number 2	Laboratory Number 3
	Name of laboratory/firm	Enersolv		
	Laboratory address	2220 Beltline Rd. SW Decatur, AL 35601		
	Phone number	256-350-0846		
	Pollutant(s) analyzed	All		

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SECTION 11. ADDITIONAL INFORMATION (40 CFR 122.21(G)(13))

Additional Information	<u>11.1</u>	Has the NPDES permitting authority requested additional information? ☐ Yes ☒ No → SKIP to Section 12.
	<u>11.2</u>	List the information requested and attach it to this application.
	1.	4.
	2.	5.
	3.	6.

SECTION 12. CHECKLIST AND CERTIFICATION STATEMENT (40 CFR 122.22(A) AND (D))

Checklist and Certification Statement	<u>12.1</u>	In Column 1 below, mark the sections of Form 2C that you have completed and are submitting with your application. For each section, specify in Column 2 any attachments that you are enclosing to alert the permitting authority. Note that not all applicants are required to complete all sections or provide attachments.	
		Column 1	Column 2
		☒ Section 1: Outfall Location	☐ w/ attachments
		☒ Section 2: Line Drawing	☒ w/ line drawing ☐ w/ additional attachments
		☒ Section 3: Average Flows and Treatment	☐ w/ attachments ☐ w/ list of each user of privately owned treatment works
		☒ Section 4: Intermittent Flows	☐ w/ attachments
		☒ Section 5: Production	☐ w/ attachments
		☒ Section 6: Improvements	☐ w/ attachments ☐ w/ optional additional sheets describing any additional pollution control plans
		☒ Section 7: Effluent and Intake Characteristics	☐ w/ request for a waiver and supporting information ☐ w/ small business exemption request ☒ w/ Table A ☒ w/ Table C ☒ w/ Table E ☐ w/ explanation for identical outfalls ☐ w/ other attachments ☒ w/ Table B ☒ w/ Table D ☐ w/ analytical results as an attachment
		☒ Section 8: Used or Manufactured Toxics	☐ w/ attachments
		☒ Section 9: Biological Toxicity Tests	☐ w/ attachments
		☒ Section 10: Contract Analyses	☐ w/ attachments
		☒ Section 11: Additional Information	☐ w/ attachments
		☒ Section 12: Checklist and Certification Statement	☐ w/ attachments

EPA Identification Number AL 180003863	NPDES Permit Number AL0000221	Facility Name Marshall Space Flight Center
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SECTION 12. CHECKLIST AND CERTIFICATION STATEMENT (40 CFR 122.22(a) and (d)) (Continued)

Checklist and Certification Statement	<u>12.2</u>	Provide the following certification. (See instructions to determine the appropriate person to sign the application.)	
		Certification Statement <i>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.</i>	
		Name (print or type first and last name)	Director, Office of Center Operations
		June Malone Signature June Malone	Digitally signed by June Malone Date: 2025.03.03 16:55:43 -06'00' Date signed 3/3/2025

EPA Identification Number AL 180003863	NPDES Permit Number AL0000221	Facility Name Marshall Space Flight Center	Outfall Number DSN012
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Expires 07/31/2026

TABLE A. CONVENTIONAL AND NON CONVENTIONAL POLLUTANTS (40 CFR 122.21(g)(7)(iii))¹

Pollutant	Waiver Requested (if applicable)	Units (specify)	Effluent				Intake (optional)		
			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses	
☐ Check here if you have applied to your NPDES permitting authority for a waiver for <i>all</i> of the pollutants listed on this table for the noted outfall.									
1. Biochemical oxygen demand (BOD ₅)	☐	Concentration	mg/L	< 2.00			1		
		Mass	lb/d	0.134			1		
2. Chemical oxygen demand (COD)	☐	Concentration	mg/L	< 10.0			1		
		Mass	lb/d	0.668			1		
3. Total organic carbon (TOC)	☐	Concentration	mg/L	1.62			1		
		Mass	lb/d	0.108			1		
4. Total suspended solids (TSS)	☐	Concentration	mg/L	12.0			1		
		Mass	lb/d	0.801			1		
5. Ammonia (as N)	☐	Concentration	mg/L	< 0.100			1		
		Mass	lb/d	0.007			1		
6. Flow	☐	Rate	mgd	0.079		0.029	16		
7. Temperature	☐	winter	°C	°C	8.2		1		
		summer	°C	°C	8.2		1		
8. pH	☐	minimum	Standard units	s.u.	6.0	6.85	16		
		maximum	Standard units	s.u.	7.73				

¹ Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR Chapter I, Subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

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TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))¹

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)		
			Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses	
☐	Check here if you qualify as a small business per the instructions to Form 2C and, therefore, do not need to submit quantitative data for any of the organic toxic pollutants in Sections 2 through 5 of this table. Note, however, that you must still indicate in the appropriate column of this table if you believe any of the pollutants listed are present in your discharge.											
Section 1. Toxic Metals, Cyanide, and Total Phenols												
1.1	Antimony, total (7440-36-0)	☐	☐	☒	Concentration							
					Mass							
1.2	Arsenic, total (7440-38-2)	☐	☐	☒	Concentration							
					Mass							
1.3	Beryllium, total (7440-41-7)	☐	☐	☒	Concentration							
					Mass							
1.4	Cadmium, total (7440-43-9)	☐	☐	☒	Concentration							
					Mass							
1.5	Chromium, total (7440-47-3)	☐	☐	☒	Concentration							
					Mass							
1.6	Copper, total (7440-50-8)	☐	☐	☒	Concentration							
					Mass							
1.7	Lead, total (7439-92-1)	☐	☐	☒	Concentration							
					Mass							
1.8	Mercury, total (7439-97-6)	☐	☐	☒	Concentration							
					Mass							
1.9	Nickel, total (7440-02-0)	☐	☐	☒	Concentration							
					Mass							
1.10	Selenium, total (7782-49-2)	☐	☐	☒	Concentration							
					Mass							
1.11	Silver, total (7440-22-4)	☐	☐	☒	Concentration							
					Mass							

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TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))¹

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
			Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
1.12	Thallium, total (7440-28-0)	☐	☐	☒	Concentration						
					Mass						
1.13	Zinc, total (7440-66-6)	☐	☐	☒	Concentration						
					Mass						
1.14	Cyanide, total (57-12-5)	☐	☐	☒	Concentration						
					Mass						
1.15	Phenols, total	☐	☐	☒	Concentration						
					Mass						
Section 2. Organic Toxic Pollutants (GC/MS Fraction—Volatile Compounds)											
2.1	Acrolein (107-02-8)	☐	☐	☒	Concentration						
					Mass						
2.2	Acrylonitrile (107-13-1)	☐	☐	☒	Concentration						
					Mass						
2.3	Benzene (71-43-2)	☐	☐	☒	Concentration						
					Mass						
2.4	Bromoform (75-25-2)	☐	☐	☒	Concentration						
					Mass						
2.5	Carbon tetrachloride (56-23-5)	☐	☐	☒	Concentration						
					Mass						
2.6	Chlorobenzene (108-90-7)	☐	☐	☒	Concentration						
					Mass						
2.7	Chlorodibromomethane (124-48-1)	☐	☐	☒	Concentration						
					Mass						
2.8	Chloroethane (75-00-3)	☐	☐	☒	Concentration						
					Mass						

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TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))¹

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
			Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
2.9	2-chloroethylvinyl ether (110-75-8)	☐	☐	☒	Concentration						
					Mass						
2.10	Chloroform (67-66-3)	☐	☐	☒	Concentration						
					Mass						
2.11	Dichlorobromomethane (75-27-4)	☐	☐	☒	Concentration						
					Mass						
2.12	1,1-dichloroethane (75-34-3)	☐	☐	☒	Concentration						
					Mass						
2.13	1,2-dichloroethane (107-06-2)	☐	☐	☒	Concentration						
					Mass						
2.14	1,1-dichloroethylene (75-35-4)	☐	☐	☒	Concentration						
					Mass						
2.15	1,2-dichloropropane (78-87-5)	☐	☐	☒	Concentration						
					Mass						
2.16	1,3-dichloropropylene (542-75-6)	☐	☐	☒	Concentration						
					Mass						
2.17	Ethylbenzene (100-41-4)	☐	☐	☒	Concentration						
					Mass						
2.18	Methyl bromide (74-83-9)	☐	☐	☒	Concentration						
					Mass						
2.19	Methyl chloride (74-87-3)	☐	☐	☒	Concentration						
					Mass						
2.20	Methylene chloride (75-09-2)	☐	☐	☒	Concentration						
					Mass						
2.21	1,1,2,2- tetrachloroethane (79-34-5)	☐	☐	☒	Concentration						
					Mass						

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TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))¹

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
			Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
2.22	Tetrachloroethylene (127-18-4)	☐	☐	☒	Concentration						
					Mass						
2.23	Toluene (108-88-3)	☐	☐	☒	Concentration						
					Mass						
2.24	1,2-trans-dichloroethylene (156-60-5)	☐	☐	☒	Concentration						
					Mass						
2.25	1,1,1-trichloroethane (71-55-6)	☐	☐	☒	Concentration						
					Mass						
2.26	1,1,2-trichloroethane (79-00-5)	☐	☐	☒	Concentration						
					Mass						
2.27	Trichloroethylene (79-01-6)	☐	☐	☒	Concentration						
					Mass						
2.28	Vinyl chloride (75-01-4)	☐	☐	☒	Concentration						
					Mass						
Section 3. Organic Toxic Pollutants (GC/MS Fraction—Acid Compounds)											
3.1	2-chlorophenol (95-57-8)	☐	☐	☒	Concentration						
					Mass						
3.2	2,4-dichlorophenol (120-83-2)	☐	☐	☒	Concentration						
					Mass						
3.3	2,4-dimethylphenol (105-67-9)	☐	☐	☒	Concentration						
					Mass						
3.4	4,6-dinitro-o-cresol (534-52-1)	☐	☐	☒	Concentration						
					Mass						
3.5	2,4-dinitrophenol (51-28-5)	☐	☐	☒	Concentration						
					Mass						

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TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))¹

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
			Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
3.6	2-nitrophenol (88-75-5)	☐	☐	☒	Concentration						
					Mass						
3.7	4-nitrophenol (100-02-7)	☐	☐	☒	Concentration						
					Mass						
3.8	p-chloro-m-cresol (59-50-7)	☐	☐	☒	Concentration						
					Mass						
3.9	Pentachlorophenol (87-86-5)	☐	☐	☒	Concentration						
					Mass						
3.10	Phenol (108-95-2)	☐	☐	☒	Concentration						
					Mass						
3.11	2,4,6-trichlorophenol (88-05-2)	☐	☐	☒	Concentration						
					Mass						
Section 4. Organic Toxic Pollutants (GC/MS Fraction—Base /Neutral Compounds)											
4.1	Acenaphthene (83-32-9)	☐	☐	☒	Concentration						
					Mass						
4.2	Acenaphthylene (208-96-8)	☐	☐	☒	Concentration						
					Mass						
4.3	Anthracene (120-12-7)	☐	☐	☒	Concentration						
					Mass						
4.4	Benzidine (92-87-5)	☐	☐	☒	Concentration						
					Mass						
4.5	Benzo (a) anthracene (56-55-3)	☐	☐	☒	Concentration						
					Mass						
4.6	Benzo (a) pyrene (50-32-8)	☐	☐	☒	Concentration						
					Mass						

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TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))¹

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
			Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
4.7	3,4-benzofluoranthene (205-99-2)	☐	☐	☒	Concentration						
					Mass						
4.8	Benzo (ghi) perylene (191-24-2)	☐	☐	☒	Concentration						
					Mass						
4.9	Benzo (k) fluoranthene (207-08-9)	☐	☐	☒	Concentration						
					Mass						
4.10	Bis (2-chloroethoxy) methane (111-91-1)	☐	☐	☒	Concentration						
					Mass						
4.11	Bis (2-chloroethyl) ether (111-44-4)	☐	☐	☒	Concentration						
					Mass						
4.12	Bis (2-chloroisopropyl) ether (102-80-1)	☐	☐	☒	Concentration						
					Mass						
4.13	Bis (2-ethylhexyl) phthalate (117-81-7)	☐	☐	☒	Concentration						
					Mass						
4.14	4-bromophenyl phenyl ether (101-55-3)	☐	☐	☒	Concentration						
					Mass						
4.15	Butyl benzyl phthalate (85-68-7)	☐	☐	☒	Concentration						
					Mass						
4.16	2-chloronaphthalene (91-58-7)	☐	☐	☒	Concentration						
					Mass						
4.17	4-chlorophenyl phenyl ether (7005-72-3)	☐	☐	☒	Concentration						
					Mass						
4.18	Chrysene (218-01-9)	☐	☐	☒	Concentration						
					Mass						
4.19	Dibenzo (a,h) anthracene (53-70-3)	☐	☐	☒	Concentration						
					Mass						

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TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))¹

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
			Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
4.20	1,2-dichlorobenzene (95-50-1)	☐	☐	☒	Concentration						
					Mass						
4.21	1,3-dichlorobenzene (541-73-1)	☐	☐	☒	Concentration						
					Mass						
4.22	1,4-dichlorobenzene (106-46-7)	☐	☐	☒	Concentration						
					Mass						
4.23	3,3-dichlorobenzidine (91-94-1)	☐	☐	☒	Concentration						
					Mass						
4.24	Diethyl phthalate (84-66-2)	☐	☐	☒	Concentration						
					Mass						
4.25	Dimethyl phthalate (131-11-3)	☐	☐	☒	Concentration						
					Mass						
4.26	Di-n-butyl phthalate (84-74-2)	☐	☐	☒	Concentration						
					Mass						
4.27	2,4-dinitrotoluene (121-14-2)	☐	☐	☒	Concentration						
					Mass						
4.28	2,6-dinitrotoluene (606-20-2)	☐	☐	☒	Concentration						
					Mass						
4.29	Di-n-octyl phthalate (117-84-0)	☐	☐	☒	Concentration						
					Mass						
4.30	1,2-Diphenylhydrazine (as azobenzene) (122-66-7)	☐	☐	☒	Concentration						
					Mass						
4.31	Fluoranthene (206-44-0)	☐	☐	☒	Concentration						
					Mass						
4.32	Fluorene (86-73-7)	☐	☐	☒	Concentration						
					Mass						

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TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))¹

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
			Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
4.33	Hexachlorobenzene (118-74-1)	☐	☐	☒	Concentration						
					Mass						
4.34	Hexachlorobutadiene (87-68-3)	☐	☐	☒	Concentration						
					Mass						
4.35	Hexachlorocyclopentadiene (77-47-4)	☐	☐	☒	Concentration						
					Mass						
4.36	Hexachloroethane (67-72-1)	☐	☐	☒	Concentration						
					Mass						
4.37	Indeno (1,2,3-cd) pyrene (193-39-5)	☐	☐	☒	Concentration						
					Mass						
4.38	Isophorone (78-59-1)	☐	☐	☒	Concentration						
					Mass						
4.39	Naphthalene (91-20-3)	☐	☐	☒	Concentration						
					Mass						
4.40	Nitrobenzene (98-95-3)	☐	☐	☒	Concentration						
					Mass						
4.41	N-nitrosodimethylamine (62-75-9)	☐	☐	☒	Concentration						
					Mass						
4.42	N-nitrosodi-n-propylamine (621-64-7)	☐	☐	☒	Concentration						
					Mass						
4.43	N-nitrosodiphenylamine (86-30-6)	☐	☐	☒	Concentration						
					Mass						
4.44	Phenanthrene (85-01-8)	☐	☐	☒	Concentration						
					Mass						
4.45	Pyrene (129-00-0)	☐	☐	☒	Concentration						
					Mass						

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TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))¹

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
			Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
4.46	1,2,4-trichlorobenzene (120-82-1)	☐	☐	☒	Concentration Mass						
Section 5. Organic Toxic Pollutants (GC/MS Fraction—Pesticides)											
5.1	Aldrin (309-00-2)	☐	☐	☒	Concentration Mass						
5.2	α-BHC (319-84-6)	☐	☐	☒	Concentration Mass						
5.3	β-BHC (319-85-7)	☐	☐	☒	Concentration Mass						
5.4	γ-BHC (58-89-9)	☐	☐	☒	Concentration Mass						
5.5	δ-BHC (319-86-8)	☐	☐	☒	Concentration Mass						
5.6	Chlordane (57-74-9)	☐	☐	☒	Concentration Mass						
5.7	4,4'-DDT (50-29-3)	☐	☐	☒	Concentration Mass						
5.8	4,4'-DDE (72-55-9)	☐	☐	☒	Concentration Mass						
5.9	4,4'-DDD (72-54-8)	☐	☐	☒	Concentration Mass						
5.10	Dieldrin (60-57-1)	☐	☐	☒	Concentration Mass						
5.11	α-endosulfan (115-29-7)	☐	☐	☒	Concentration Mass						

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TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))¹

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
			Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
5.12	β-endosulfan (115-29-7)	☐	☐	☒	Concentration						
					Mass						
5.13	Endosulfan sulfate (1031-07-8)	☐	☐	☒	Concentration						
					Mass						
5.14	Endrin (72-20-8)	☐	☐	☒	Concentration						
					Mass						
5.15	Endrin aldehyde (7421-93-4)	☐	☐	☒	Concentration						
					Mass						
5.16	Heptachlor (76-44-8)	☐	☐	☒	Concentration						
					Mass						
5.17	Heptachlor epoxide (1024-57-3)	☐	☐	☒	Concentration						
					Mass						
5.18	PCB-1242 (53469-21-9)	☐	☐	☒	Concentration						
					Mass						
5.19	PCB-1254 (11097-69-1)	☐	☐	☒	Concentration						
					Mass						
5.20	PCB-1221 (11104-28-2)	☐	☐	☒	Concentration						
					Mass						
5.21	PCB-1232 (11141-16-5)	☐	☐	☒	Concentration						
					Mass						
5.22	PCB-1248 (12672-29-6)	☐	☐	☒	Concentration						
					Mass						
5.23	PCB-1260 (11096-82-5)	☐	☐	☒	Concentration						
					Mass						
5.24	PCB-1016 (12674-11-2)	☐	☐	☒	Concentration						
					Mass						

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TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))¹

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
			Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
5.25	Toxaphene (8001-35-2)	☐	☐	☒	Concentration						
					Mass						

¹ Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR Chapter I, Subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

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TABLE C. CERTAIN CONVENTIONAL AND NON CONVENTIONAL POLLUTANTS (40 CFR 122.21(g)(7)(vi))¹

Pollutant	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
	Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
☐ Check here if you believe all pollutants in Table C to be present in your discharge from the noted outfall. You need <i>not</i> complete the "Presence or Absence" column of Table C for each pollutant.									
☐ Check here if you believe all pollutants in Table C to be absent in your discharge from the noted outfall. You need <i>not</i> complete the "Presence or Absence" column of Table C for each pollutant.									
1. Bromide (24959-67-9)	☐	☒	Concentration						
			Mass						
2. Chlorine, total residual	☐	☒	Concentration						
			Mass						
3. Color	☐	☒	Concentration						
			Mass						
4. Fecal coliform	☒	☐	Concentration	mpn/100 ml	< 1			1	
			Mass						
5. Fluoride (16984-48-8)	☐	☒	Concentration						
			Mass						
6. Nitrate-nitrite	☐	☒	Concentration						
			Mass						
7. Nitrogen, total organic (as N)	☐	☒	Concentration						
			Mass						
8. Oil and grease	☒	☐	Concentration	mg/L	< 5.0		< 5.0	16	
			Mass	lb/d	3.3		1.2	16	
9. Phosphorus (as P), total (7723-14-0)	☒	☐	Concentration	mg/L	< 0.0500			1	
			Mass	lb/d	0.003			1	
10. Sulfate (as SO ₄) (14808-79-8)	☐	☒	Concentration						
			Mass						
11. Sulfide (as S)	☐	☒	Concentration						
			Mass						

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TABLE C. CERTAIN CONVENTIONAL AND NON CONVENTIONAL POLLUTANTS (40 CFR 122.21(g)(7)(vi))¹

	Pollutant	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
		Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
12.	Sulfite (as SO ₃) (14265-45-3)	☐	☒	Concentration						
				Mass						
13.	Surfactants	☐	☒	Concentration						
				Mass						
14.	Aluminum, total (7429-90-5)	☐	☒	Concentration						
				Mass						
15.	Barium, total (7440-39-3)	☐	☒	Concentration						
				Mass						
16.	Boron, total (7440-42-8)	☐	☒	Concentration						
				Mass						
17.	Cobalt, total (7440-48-4)	☐	☒	Concentration						
				Mass						
18.	Iron, total (7439-89-6)	☒	☐	Concentration	mg/L	1.36		1		
				Mass	lb/d	0.091		1		
19.	Magnesium, total (7439-95-4)	☐	☒	Concentration						
				Mass						
20.	Molybdenum, total (7439-98-7)	☐	☒	Concentration						
				Mass						
21.	Manganese, total (7439-96-5)	☐	☒	Concentration						
				Mass						
22.	Tin, total (7440-31-5)	☐	☒	Concentration						
				Mass						
23.	Titanium, total (7440-32-6)	☐	☒	Concentration						
				Mass						

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TABLE C. CERTAIN CONVENTIONAL AND NON CONVENTIONAL POLLUTANTS (40 CFR 122.21(g)(7)(vi))¹

Pollutant	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
	Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
24. Radioactivity									
Alpha, total	☐	☒	Concentration						
			Mass						
Beta, total	☐	☒	Concentration						
			Mass						
Radium, total	☐	☒	Concentration						
			Mass						
Radium 226, total	☐	☒	Concentration						
			Mass						

¹ Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR Chapter I, Subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

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TABLE D. CERTAIN HAZARDOUS SUBSTANCES AND ASBESTOS (40 CFR 122.21(g)(7)(vii))¹

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
1.	Asbestos	☐	☒		
2.	Acetaldehyde	☐	☒		
3.	Allyl alcohol	☐	☒		
4.	Allyl chloride	☐	☒		
5.	Amyl acetate	☐	☒		
6.	Aniline	☐	☒		
7.	Benzonitrile	☐	☒		
8.	Benzyl chloride	☐	☒		
9.	Butyl acetate	☐	☒		
10.	Butylamine	☐	☒		
11.	Captan	☐	☒		
12.	Carbaryl	☐	☒		
13.	Carbofuran	☐	☒		
14.	Carbon disulfide	☐	☒		
15.	Chlorpyrifos	☐	☒		
16.	Coumaphos	☐	☒		
17.	Cresol	☐	☒		
18.	Crotonaldehyde	☐	☒		
19.	Cyclohexane	☐	☒		

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TABLE D. CERTAIN HAZARDOUS SUBSTANCES AND ASBESTOS (40 CFR 122.21(g)(7)(vii))¹

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
20.	2,4-D (2,4-dichlorophenoxyacetic acid)	☐	☒		
21.	Diazinon	☐	☒		
22.	Dicamba	☐	☒		
23.	Dichlobenil	☐	☒		
24.	Dichlone	☐	☒		
25.	2,2-dichloropropionic acid	☐	☒		
26.	Dichlorvos	☐	☒		
27.	Diethyl amine	☐	☒		
28.	Dimethyl amine	☐	☒		
29.	Dinitrobenzene	☐	☒		
30.	Diquat	☐	☒		
31.	Disulfoton	☐	☒		
32.	Diuron	☐	☒		
33.	Epichlorohydrin	☐	☒		
34.	Ethion	☐	☒		
35.	Ethylene diamine	☐	☒		
36.	Ethylene dibromide	☐	☒		
37.	Formaldehyde	☐	☒		
38.	Furfural	☐	☒		

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TABLE D. CERTAIN HAZARDOUS SUBSTANCES AND ASBESTOS (40 CFR 122.21(g)(7)(vii))¹

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
39.	Guthion	☐	☒		
40.	Isoprene	☐	☒		
41.	Isopropanolamine	☐	☒		
42.	Kelthane	☐	☒		
43.	Kepone	☐	☒		
44.	Malathion	☐	☒		
45.	Mercaptodimethur	☐	☒		
46.	Methoxychlor	☐	☒		
47.	Methyl mercaptan	☐	☒		
48.	Methyl methacrylate	☐	☒		
49.	Methyl parathion	☐	☒		
50.	Mevinphos	☐	☒		
51.	Mexacarbate	☐	☒		
52.	Monoethyl amine	☐	☒		
53.	Monomethyl amine	☐	☒		
54.	Naled	☐	☒		
55.	Naphthenic acid	☐	☒		
56.	Nitrotoluene	☐	☒		
57.	Parathion	☐	☒		

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TABLE D. CERTAIN HAZARDOUS SUBSTANCES AND ASBESTOS (40 CFR 122.21(g)(7)(vii))¹

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
58.	Phenolsulfonate	☐	☒		
59.	Phosgene	☐	☒		
60.	Propargite	☐	☒		
61.	Propylene oxide	☐	☒		
62.	Pyrethrins	☐	☒		
63.	Quinoline	☐	☒		
64.	Resorcinol	☐	☒		
65.	Strontium	☐	☒		
66.	Strychnine	☐	☒		
67.	Styrene	☐	☒		
68.	2,4,5-T (2,4,5-trichlorophenoxyacetic acid)	☐	☒		
69.	TDE (tetrachlorodiphenyl ethane)	☐	☒		
70.	2,4,5-TP [2-(2,4,5-trichlorophenoxy) propanoic acid]	☐	☒		
71.	Trichlorofon	☐	☒		
72.	Triethanolamine	☐	☒		
73.	Triethylamine	☐	☒		
74.	Trimethylamine	☐	☒		
75.	Uranium	☐	☒		
76.	Vanadium	☐	☒		

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TABLE D. CERTAIN HAZARDOUS SUBSTANCES AND ASBESTOS (40 CFR 122.21(g)(7)(vii))¹

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
77.	Vinyl acetate	☐	☒		
78.	Xylene	☐	☒		
79.	Xylenol	☐	☒		
80.	Zirconium	☐	☒		

¹ Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR Chapter I, Subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

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TABLE A. CONVENTIONAL AND NON CONVENTIONAL POLLUTANTS (40 CFR 122.21(g)(7)(iii))¹

	Pollutant	Waiver Requested (if applicable)	Units (specify)	Effluent				Intake (optional)		
				Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses	
☐	Check here if you have applied to your NPDES permitting authority for a waiver for <i>all</i> of the pollutants listed on this table for the noted outfall.									
1.	Biochemical oxygen demand (BOD ₅)	☐	Concentration	mg/l	< 2.0			1		
			Mass	lb/d	25.3			1		
2.	Chemical oxygen demand (COD)	☐	Concentration	mg/l	< 10.0			1		
			Mass	lb/d	126.5			1		
3.	Total organic carbon (TOC)	☐	Concentration	mg/l	1.03			1		
			Mass	lb/d	13.03			1		
4.	Total suspended solids (TSS)	☐	Concentration	mg/l	< 2.5			1		
			Mass	lb/d	31.63			1		
5.	Ammonia (as N)	☐	Concentration	mg/l	< 0.100			1		
			Mass	lb/d	1.27			1		
6.	Flow	☐	Rate	mgd	9.141		1.908	47		
7.	Temperature (winter)	☐	°C	°C	14			1		
	Temperature (summer)	☐	°C	°C	14			1		
8.	pH (minimum)	☐	Standard units	s.u.	6.5		7.6	47		
	pH (maximum)	☐	Standard units	s.u.	9.1					

¹ Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR Chapter I, Subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

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TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))¹

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)			
			Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses		
☐	Check here if you qualify as a small business per the instructions to Form 2C and, therefore, do not need to submit quantitative data for any of the organic toxic pollutants in Sections 2 through 5 of this table. Note, however, that you must still indicate in the appropriate column of this table if you believe any of the pollutants listed are present in your discharge.												
Section 1. Toxic Metals, Cyanide, and Total Phenols													
1.1	Antimony, total (7440-36-0)	☐	☐	☒	Concentration								
					Mass								
1.2	Arsenic, total (7440-38-2)	☐	☐	☒	Concentration								
					Mass								
1.3	Beryllium, total (7440-41-7)	☐	☐	☒	Concentration								
					Mass								
1.4	Cadmium, total (7440-43-9)	☐	☐	☒	Concentration								
					Mass								
1.5	Chromium, total (7440-47-3)	☐	☐	☒	Concentration								
					Mass								
1.6	Copper, total (7440-50-8)	☒	☒	☐	Concentration	mg/l	< 0.0025		1				
					Mass	lb/d	0.032		1				
1.7	Lead, total (7439-92-1)	☐	☐	☒	Concentration								
					Mass								
1.8	Mercury, total (7439-97-6)	☐	☐	☒	Concentration								
					Mass								
1.9	Nickel, total (7440-02-0)	☐	☐	☒	Concentration								
					Mass								
1.10	Selenium, total (7782-49-2)	☐	☐	☒	Concentration								
					Mass								
1.11	Silver, total (7440-22-4)	☐	☐	☒	Concentration								
					Mass								

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TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))¹

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
			Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
1.12	Thallium, total (7440-28-0)	☐	☐	☒	Concentration						
					Mass						
1.13	Zinc, total (7440-66-6)	☒	☒	☐	Concentration	mg/l	< 0.010		1		
					Mass	lb/d	0.127		1		
1.14	Cyanide, total (57-12-5)	☐	☐	☒	Concentration						
					Mass						
1.15	Phenols, total	☐	☐	☒	Concentration						
					Mass						
Section 2. Organic Toxic Pollutants (GC/MS Fraction—Volatile Compounds)											
2.1	Acrolein (107-02-8)	☐	☐	☒	Concentration						
					Mass						
2.2	Acrylonitrile (107-13-1)	☐	☐	☒	Concentration						
					Mass						
2.3	Benzene (71-43-2)	☐	☐	☒	Concentration						
					Mass						
2.4	Bromoform (75-25-2)	☐	☐	☒	Concentration						
					Mass						
2.5	Carbon tetrachloride (56-23-5)	☐	☐	☒	Concentration						
					Mass						
2.6	Chlorobenzene (108-90-7)	☐	☐	☒	Concentration						
					Mass						
2.7	Chlorodibromomethane (124-48-1)	☐	☐	☒	Concentration						
					Mass						
2.8	Chloroethane (75-00-3)	☐	☐	☒	Concentration						
					Mass						

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TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))¹

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
			Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
2.9	2-chloroethylvinyl ether (110-75-8)	☐	☐	☒	Concentration						
					Mass						
2.10	Chloroform (67-66-3)	☐	☐	☒	Concentration						
					Mass						
2.11	Dichlorobromomethane (75-27-4)	☐	☐	☒	Concentration						
					Mass						
2.12	1,1-dichloroethane (75-34-3)	☐	☐	☒	Concentration						
					Mass						
2.13	1,2-dichloroethane (107-06-2)	☐	☐	☒	Concentration						
					Mass						
2.14	1,1-dichloroethylene (75-35-4)	☐	☐	☒	Concentration						
					Mass						
2.15	1,2-dichloropropane (78-87-5)	☐	☐	☒	Concentration						
					Mass						
2.16	1,3-dichloropropylene (542-75-6)	☐	☐	☒	Concentration						
					Mass						
2.17	Ethylbenzene (100-41-4)	☐	☐	☒	Concentration						
					Mass						
2.18	Methyl bromide (74-83-9)	☐	☐	☒	Concentration						
					Mass						
2.19	Methyl chloride (74-87-3)	☐	☐	☒	Concentration						
					Mass						
2.20	Methylene chloride (75-09-2)	☐	☐	☒	Concentration						
					Mass						
2.21	1,1,2,2- tetrachloroethane (79-34-5)	☐	☐	☒	Concentration						
					Mass						

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TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))¹

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
			Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
2.22	Tetrachloroethylene (127-18-4)	☐	☐	☒	Concentration						
					Mass						
2.23	Toluene (108-88-3)	☐	☐	☒	Concentration						
					Mass						
2.24	1,2-trans-dichloroethylene (156-60-5)	☐	☐	☒	Concentration						
					Mass						
2.25	1,1,1-trichloroethane (71-55-6)	☐	☐	☒	Concentration						
					Mass						
2.26	1,1,2-trichloroethane (79-00-5)	☐	☐	☒	Concentration						
					Mass						
2.27	Trichloroethylene (79-01-6)	☒	☒	☐	Concentration	ug/l	4.66	2.35	47		
					Mass	lb/d	0.185	0.045	47		
2.28	Vinyl chloride (75-01-4)	☐	☐	☒	Concentration						
					Mass						
Section 3. Organic Toxic Pollutants (GC/MS Fraction—Acid Compounds)											
3.1	2-chlorophenol (95-57-8)	☐	☐	☒	Concentration						
					Mass						
3.2	2,4-dichlorophenol (120-83-2)	☐	☐	☒	Concentration						
					Mass						
3.3	2,4-dimethylphenol (105-67-9)	☐	☐	☒	Concentration						
					Mass						
3.4	4,6-dinitro-o-cresol (534-52-1)	☐	☐	☒	Concentration						
					Mass						
3.5	2,4-dinitrophenol (51-28-5)	☐	☐	☒	Concentration						
					Mass						

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TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))¹

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
			Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
3.6	2-nitrophenol (88-75-5)	☐	☐	☒	Concentration						
					Mass						
3.7	4-nitrophenol (100-02-7)	☐	☐	☒	Concentration						
					Mass						
3.8	p-chloro-m-cresol (59-50-7)	☐	☐	☒	Concentration						
					Mass						
3.9	Pentachlorophenol (87-86-5)	☐	☐	☒	Concentration						
					Mass						
3.10	Phenol (108-95-2)	☐	☐	☒	Concentration						
					Mass						
3.11	2,4,6-trichlorophenol (88-05-2)	☐	☐	☒	Concentration						
					Mass						
Section 4. Organic Toxic Pollutants (GC/MS Fraction—Base /Neutral Compounds)											
4.1	Acenaphthene (83-32-9)	☐	☐	☒	Concentration						
					Mass						
4.2	Acenaphthylene (208-96-8)	☐	☐	☒	Concentration						
					Mass						
4.3	Anthracene (120-12-7)	☐	☐	☒	Concentration						
					Mass						
4.4	Benzidine (92-87-5)	☐	☐	☒	Concentration						
					Mass						
4.5	Benzo (a) anthracene (56-55-3)	☐	☐	☒	Concentration						
					Mass						
4.6	Benzo (a) pyrene (50-32-8)	☐	☐	☒	Concentration						
					Mass						

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TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))¹

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
			Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
4.7	3,4-benzofluoranthene (205-99-2)	☐	☐	☒	Concentration						
					Mass						
4.8	Benzo (ghi) perylene (191-24-2)	☐	☐	☒	Concentration						
					Mass						
4.9	Benzo (k) fluoranthene (207-08-9)	☐	☐	☒	Concentration						
					Mass						
4.10	Bis (2-chloroethoxy) methane (111-91-1)	☐	☐	☒	Concentration						
					Mass						
4.11	Bis (2-chloroethyl) ether (111-44-4)	☐	☐	☒	Concentration						
					Mass						
4.12	Bis (2-chloroisopropyl) ether (102-80-1)	☐	☐	☒	Concentration						
					Mass						
4.13	Bis (2-ethylhexyl) phthalate (117-81-7)	☐	☐	☒	Concentration						
					Mass						
4.14	4-bromophenyl phenyl ether (101-55-3)	☐	☐	☒	Concentration						
					Mass						
4.15	Butyl benzyl phthalate (85-68-7)	☐	☐	☒	Concentration						
					Mass						
4.16	2-chloronaphthalene (91-58-7)	☐	☐	☒	Concentration						
					Mass						
4.17	4-chlorophenyl phenyl ether (7005-72-3)	☐	☐	☒	Concentration						
					Mass						
4.18	Chrysene (218-01-9)	☐	☐	☒	Concentration						
					Mass						
4.19	Dibenzo (a,h) anthracene (53-70-3)	☐	☐	☒	Concentration						
					Mass						

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TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))¹

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
			Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
4.20	1,2-dichlorobenzene (95-50-1)	☐	☐	☒	Concentration						
					Mass						
4.21	1,3-dichlorobenzene (541-73-1)	☐	☐	☒	Concentration						
					Mass						
4.22	1,4-dichlorobenzene (106-46-7)	☐	☐	☒	Concentration						
					Mass						
4.23	3,3-dichlorobenzidine (91-94-1)	☐	☐	☒	Concentration						
					Mass						
4.24	Diethyl phthalate (84-66-2)	☐	☐	☒	Concentration						
					Mass						
4.25	Dimethyl phthalate (131-11-3)	☐	☐	☒	Concentration						
					Mass						
4.26	Di-n-butyl phthalate (84-74-2)	☐	☐	☒	Concentration						
					Mass						
4.27	2,4-dinitrotoluene (121-14-2)	☐	☐	☒	Concentration						
					Mass						
4.28	2,6-dinitrotoluene (606-20-2)	☐	☐	☒	Concentration						
					Mass						
4.29	Di-n-octyl phthalate (117-84-0)	☐	☐	☒	Concentration						
					Mass						
4.30	1,2-Diphenylhydrazine (as azobenzene) (122-66-7)	☐	☐	☒	Concentration						
					Mass						
4.31	Fluoranthene (206-44-0)	☐	☐	☒	Concentration						
					Mass						
4.32	Fluorene (86-73-7)	☐	☐	☒	Concentration						
					Mass						

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TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))¹

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
			Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
4.33	Hexachlorobenzene (118-74-1)	☐	☐	☒	Concentration						
					Mass						
4.34	Hexachlorobutadiene (87-68-3)	☐	☐	☒	Concentration						
					Mass						
4.35	Hexachlorocyclopentadiene (77-47-4)	☐	☐	☒	Concentration						
					Mass						
4.36	Hexachloroethane (67-72-1)	☐	☐	☒	Concentration						
					Mass						
4.37	Indeno (1,2,3-cd) pyrene (193-39-5)	☐	☐	☒	Concentration						
					Mass						
4.38	Isophorone (78-59-1)	☐	☐	☒	Concentration						
					Mass						
4.39	Naphthalene (91-20-3)	☐	☐	☒	Concentration						
					Mass						
4.40	Nitrobenzene (98-95-3)	☐	☐	☒	Concentration						
					Mass						
4.41	N-nitrosodimethylamine (62-75-9)	☐	☐	☒	Concentration						
					Mass						
4.42	N-nitrosodi-n-propylamine (621-64-7)	☐	☐	☒	Concentration						
					Mass						
4.43	N-nitrosodiphenylamine (86-30-6)	☐	☐	☒	Concentration						
					Mass						
4.44	Phenanthrene (85-01-8)	☐	☐	☒	Concentration						
					Mass						
4.45	Pyrene (129-00-0)	☐	☐	☒	Concentration						
					Mass						

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TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))¹

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
			Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
4.46	1,2,4-trichlorobenzene (120-82-1)	☐	☐	☒	Concentration Mass						
Section 5. Organic Toxic Pollutants (GC/MS Fraction—Pesticides)											
5.1	Aldrin (309-00-2)	☐	☐	☒	Concentration Mass						
5.2	α -BHC (319-84-6)	☐	☐	☒	Concentration Mass						
5.3	β -BHC (319-85-7)	☐	☐	☒	Concentration Mass						
5.4	γ -BHC (58-89-9)	☐	☐	☒	Concentration Mass						
5.5	δ -BHC (319-86-8)	☐	☐	☒	Concentration Mass						
5.6	Chlordane (57-74-9)	☐	☐	☒	Concentration Mass						
5.7	4,4'-DDT (50-29-3)	☐	☐	☒	Concentration Mass						
5.8	4,4'-DDE (72-55-9)	☐	☐	☒	Concentration Mass						
5.9	4,4'-DDD (72-54-8)	☐	☐	☒	Concentration Mass						
5.10	Dieldrin (60-57-1)	☐	☐	☒	Concentration Mass						
5.11	α -endosulfan (115-29-7)	☐	☐	☒	Concentration Mass						

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TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))¹

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
			Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
5.12	β-endosulfan (115-29-7)	☐	☐	☒	Concentration						
					Mass						
5.13	Endosulfan sulfate (1031-07-8)	☐	☐	☒	Concentration						
					Mass						
5.14	Endrin (72-20-8)	☐	☐	☒	Concentration						
					Mass						
5.15	Endrin aldehyde (7421-93-4)	☐	☐	☒	Concentration						
					Mass						
5.16	Heptachlor (76-44-8)	☐	☐	☒	Concentration						
					Mass						
5.17	Heptachlor epoxide (1024-57-3)	☐	☐	☒	Concentration						
					Mass						
5.18	PCB-1242 (53469-21-9)	☐	☐	☒	Concentration						
					Mass						
5.19	PCB-1254 (11097-69-1)	☐	☐	☒	Concentration						
					Mass						
5.20	PCB-1221 (11104-28-2)	☐	☐	☒	Concentration						
					Mass						
5.21	PCB-1232 (11141-16-5)	☐	☐	☒	Concentration						
					Mass						
5.22	PCB-1248 (12672-29-6)	☐	☐	☒	Concentration						
					Mass						
5.23	PCB-1260 (11096-82-5)	☐	☐	☒	Concentration						
					Mass						
5.24	PCB-1016 (12674-11-2)	☐	☐	☒	Concentration						
					Mass						

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TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))¹

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long- Term Average Value	Number of Analyses
5.25	Toxaphene (8001-35-2)	☐	☐	☒	Concentration							
					Mass							

¹ Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR Chapter I, Subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

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TABLE C. CERTAIN CONVENTIONAL AND NON CONVENTIONAL POLLUTANTS (40 CFR 122.21(g)(7)(vi))¹

Pollutant	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
	Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
☐ Check here if you believe all pollutants in Table C to be present in your discharge from the noted outfall. You need <i>not</i> complete the "Presence or Absence" column of Table C for each pollutant.									
☐ Check here if you believe all pollutants in Table C to be absent in your discharge from the noted outfall. You need <i>not</i> complete the "Presence or Absence" column of Table C for each pollutant.									
1. Bromide (24959-67-9)	☐	☒	Concentration						
			Mass						
2. Chlorine, total residual	☐	☒	Concentration						
			Mass						
3. Color	☐	☒	Concentration						
			Mass						
4. Fecal coliform	☒	☐	Concentration	mpn/100	< 10			1	
			Mass						
5. Fluoride (16984-48-8)	☐	☒	Concentration						
			Mass						
6. Nitrate-nitrite	☐	☒	Concentration						
			Mass						
7. Nitrogen, total organic (as N)	☐	☒	Concentration						
			Mass						
8. Oil and grease	☒	☐	Concentration	mg/l	< 5.0		< 5.0	47	
			Mass	lb/d	< 381.4		< 85.6	47	
9. Phosphorus (as P), total (7723-14-0)	☒	☐	Concentration	mg/l	< 0.050			1	
			Mass	lb/d	0.633			1	
10. Sulfate (as SO ₄) (14808-79-8)	☒	☐	Concentration	mg/l	15.6			1	
			Mass	lb/d	197.4			1	
11. Sulfide (as S)	☐	☒	Concentration						
			Mass						

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TABLE C. CERTAIN CONVENTIONAL AND NON CONVENTIONAL POLLUTANTS (40 CFR 122.21(g)(7)(vi))¹

	Pollutant	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
		Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
12.	Sulfite (as SO ₃) (14265-45-3)	☐	☒	Concentration						
				Mass						
13.	Surfactants	☐	☒	Concentration						
				Mass						
14.	Aluminum, total (7429-90-5)	☐	☒	Concentration						
				Mass						
15.	Barium, total (7440-39-3)	☐	☒	Concentration						
				Mass						
16.	Boron, total (7440-42-8)	☐	☒	Concentration						
				Mass						
17.	Cobalt, total (7440-48-4)	☐	☒	Concentration						
				Mass						
18.	Iron, total (7439-89-6)	☒	☐	Concentration	mg/l	0.053		1		
				Mass	lb/d	0.673		1		
19.	Magnesium, total (7439-95-4)	☐	☒	Concentration						
				Mass						
20.	Molybdenum, total (7439-98-7)	☐	☒	Concentration						
				Mass						
21.	Manganese, total (7439-96-5)	☐	☒	Concentration						
				Mass						
22.	Tin, total (7440-31-5)	☐	☒	Concentration						
				Mass						
23.	Titanium, total (7440-32-6)	☐	☒	Concentration						
				Mass						

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TABLE C. CERTAIN CONVENTIONAL AND NON CONVENTIONAL POLLUTANTS (40 CFR 122.21(g)(7)(vi))¹

Pollutant	Presence or Absence (check one)		Units (specify)	Effluent				Intake (optional)	
	Believed Present	Believed Absent		Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
24. Radioactivity									
Alpha, total	☐	☒	Concentration						
			Mass						
Beta, total	☐	☒	Concentration						
			Mass						
Radium, total	☐	☒	Concentration						
			Mass						
Radium 226, total	☐	☒	Concentration						
			Mass						

¹ Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR Chapter I, Subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

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TABLE D. CERTAIN HAZARDOUS SUBSTANCES AND ASBESTOS (40 CFR 122.21(g)(7)(vii))¹

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
1.	Asbestos	☐	☒		
2.	Acetaldehyde	☐	☒		
3.	Allyl alcohol	☐	☒		
4.	Allyl chloride	☐	☒		
5.	Amyl acetate	☐	☒		
6.	Aniline	☐	☒		
7.	Benzonitrile	☐	☒		
8.	Benzyl chloride	☐	☒		
9.	Butyl acetate	☐	☒		
10.	Butylamine	☐	☒		
11.	Captan	☐	☒		
12.	Carbaryl	☐	☒		
13.	Carbofuran	☐	☒		
14.	Carbon disulfide	☐	☒		
15.	Chlorpyrifos	☐	☒		
16.	Coumaphos	☐	☒		
17.	Cresol	☐	☒		
18.	Crotonaldehyde	☐	☒		
19.	Cyclohexane	☐	☒		

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TABLE D. CERTAIN HAZARDOUS SUBSTANCES AND ASBESTOS (40 CFR 122.21(g)(7)(vii))¹

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
20.	2,4-D (2,4-dichlorophenoxyacetic acid)	☐	☒		
21.	Diazinon	☐	☒		
22.	Dicamba	☐	☒		
23.	Dichlobenil	☐	☒		
24.	Dichlone	☐	☒		
25.	2,2-dichloropropionic acid	☐	☒		
26.	Dichlorvos	☐	☒		
27.	Diethyl amine	☐	☒		
28.	Dimethyl amine	☐	☒		
29.	Dinitrobenzene	☐	☒		
30.	Diquat	☐	☒		
31.	Disulfoton	☐	☒		
32.	Diuron	☐	☒		
33.	Epichlorohydrin	☐	☒		
34.	Ethion	☐	☒		
35.	Ethylene diamine	☐	☒		
36.	Ethylene dibromide	☐	☒		
37.	Formaldehyde	☐	☒		
38.	Furfural	☐	☒		

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TABLE D. CERTAIN HAZARDOUS SUBSTANCES AND ASBESTOS (40 CFR 122.21(g)(7)(vii))¹

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
39.	Guthion	☐	☒		
40.	Isoprene	☐	☒		
41.	Isopropanolamine	☐	☒		
42.	Kelthane	☐	☒		
43.	Kepone	☐	☒		
44.	Malathion	☐	☒		
45.	Mercaptodimethur	☐	☒		
46.	Methoxychlor	☐	☒		
47.	Methyl mercaptan	☐	☒		
48.	Methyl methacrylate	☐	☒		
49.	Methyl parathion	☐	☒		
50.	Mevinphos	☐	☒		
51.	Mexacarbate	☐	☒		
52.	Monoethyl amine	☐	☒		
53.	Monomethyl amine	☐	☒		
54.	Naled	☐	☒		
55.	Naphthenic acid	☐	☒		
56.	Nitrotoluene	☐	☒		
57.	Parathion	☐	☒		

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TABLE D. CERTAIN HAZARDOUS SUBSTANCES AND ASBESTOS (40 CFR 122.21(g)(7)(vii))¹

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
58.	Phenolsulfonate	☐	☒		
59.	Phosgene	☐	☒		
60.	Propargite	☐	☒		
61.	Propylene oxide	☐	☒		
62.	Pyrethrins	☐	☒		
63.	Quinoline	☐	☒		
64.	Resorcinol	☐	☒		
65.	Strontium	☐	☒		
66.	Strychnine	☐	☒		
67.	Styrene	☐	☒		
68.	2,4,5-T (2,4,5-trichlorophenoxyacetic acid)	☐	☒		
69.	TDE (tetrachlorodiphenyl ethane)	☐	☒		
70.	2,4,5-TP [2-(2,4,5-trichlorophenoxy) propanoic acid]	☐	☒		
71.	Trichlorofon	☐	☒		
72.	Triethanolamine	☐	☒		
73.	Triethylamine	☐	☒		
74.	Trimethylamine	☐	☒		
75.	Uranium	☐	☒		
76.	Vanadium	☐	☒		

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TABLE D. CERTAIN HAZARDOUS SUBSTANCES AND ASBESTOS (40 CFR 122.21(g)(7)(vii))¹

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
77.	Vinyl acetate	☐	☒		
78.	Xylene	☐	☒		
79.	Xylenol	☐	☒		
80.	Zirconium	☐	☒		

¹ Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR Chapter I, Subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

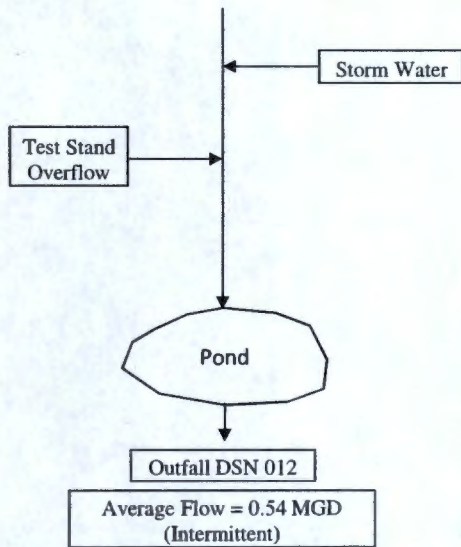
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Attachment to EPA Form 2C

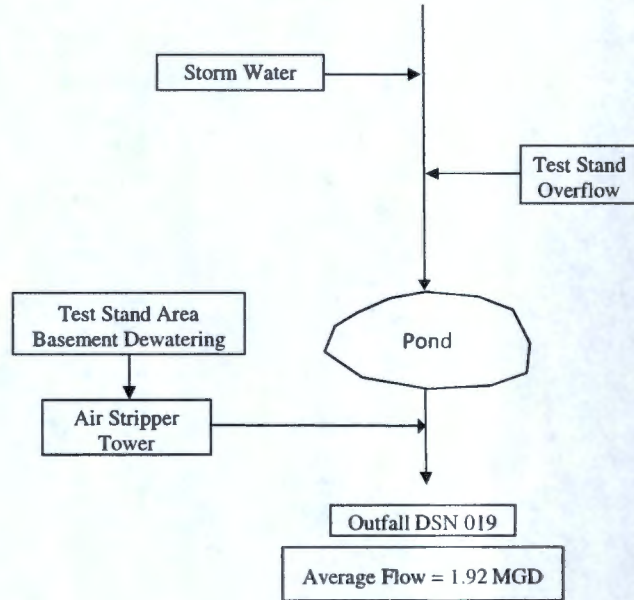
Section 2

Flows, Sources of Pollution, and Treatment Technologies - Line Drawing
NASA-MSFC

Outfall DSN 012



Outfall DSN 019



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Form 2F NPDES		U.S Environmental Protection Agency Application for NPDES Permit to Discharge Wastewater STORMWATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITY
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SECTION 1. OUTFALL LOCATION (40 CFR 122.21(G)(1))

Outfall Location	<u>1.1</u>	Provide information on each of the facility's outfalls in the table below			
	Outfall Number	Receiving Water Name	Latitude	Longitude	
		See Attachment 1:			
		Section 1. Outfall Location			

SECTION 2. IMPROVEMENTS (40 CFR 122.21(G)(6))

Improvements	<u>2.1</u>	Are you presently required by any federal, state, or local authority to meet an implementation schedule for constructing, upgrading, or operating wastewater treatment equipment or practices or any other environmental programs that could affect the discharges described in this application? ☐ Yes ☒ No → SKIP to Section 3.				
	<u>2.2</u>	Briefly identify each applicable project in the table below.				
	Brief Identification and Description of Project	Affected Outfalls (list outfall numbers)	Source(s) of Discharge	Final Compliance Dates		
				Required	Projected	
<u>2.3</u>	Have you attached sheets describing any additional water pollution control programs (or other environmental projects that may affect your discharges) that you now have underway or planned? <i>(optional item)</i> ☐ Yes ☐ No					

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SECTION 3. SITE DRAINAGE MAP (40 CFR 122.26(C)(1)(I)(A))

Site Drainage Map	<u>3.1</u>	Have you attached a site drainage map containing all required information to this application? (See instructions for specific guidance.)
	☒	Yes

SECTION 4. POLLUTANT SOURCES (40 CFR 122.26(C)(1)(I)(B))

Pollutant Sources	<u>4.1</u>	Provide information on the facility's pollutant sources in the table below.			
		Outfall Number	Impervious Surface Area (within a mile radius of the facility)	Total Surface Area Drained (within a mile radius of the facility)	
			See Attachment 2:	<i>specify units</i>	<i>specify units</i>
			Section 4.1 Estimates of	<i>specify units</i>	<i>specify units</i>
			Outfall Areas	<i>specify units</i>	<i>specify units</i>
				<i>specify units</i>	<i>specify units</i>
				<i>specify units</i>	<i>specify units</i>
				<i>specify units</i>	<i>specify units</i>
	<u>4.2</u>	Provide a narrative description of the facility's significant material in the space below. (See instructions for content requirements.)			
		A list of significant materials that may have been allowed exposure to stormwater is listed in Attachment 4. In addition, the hazardous waste storage yard is outdoors. Measures to minimize the contact of these materials with stormwater include: above ground storage tanks on MSFC are within secondary containment and the hazardous waste storage yard has all of the storage areas covered and within secondary containment. Fertilizers and pesticides are applied as needed on the MSFC facility.			
<u>4.3</u>	Provide the location and a description of existing structural and non-structural control measures to reduce pollutants in stormwater runoff. (See instructions for specific guidance.)				
	Stormwater Treatment				
	Outfall Number	Control Measures and Treatment	Codes from Exhibit 2F-1 (list)		
	012	Sedimentation	1U		
	019	Sedimentation	1U		

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SECTION 5. NON STORMWATER DISCHARGES (40 CFR 122.26(C)(1)(I)(C))

Non-Stormwater Discharges	5.1	Provide the following certification. (See instructions to determine the appropriate person to sign the application.) <i>I certify under penalty of law that the outfall(s) covered by this application have been tested or evaluated for the presence of non-stormwater discharges. Moreover, I certify that the outfalls identified as having non-stormwater discharges are described in either an accompanying NPDES Form 2C, 2D, or 2E application.</i>			
		June Malone		Director, Office of Center Operations	
		Signature June Malone		Date signed 3/3/2025	
		Digitally signed by June Malone Date: 2025.03.03 16:57:53 -06'00'			
	5.2	Provide the testing information requested in the table below.			
		Outfall Number	Description of Testing Method Used	Date(s) of Testing	Onsite Drainage Points Directly Observed During Test
			See Attachment 4: Section 5.2 Non-Stormwater		
			Discharge		

SECTION 6. SIGNIFICANT LEAKS OR SPILLS (40 CFR 122.26(C)(1)(I)(D))

Significant Leaks or Spills	6.1	Describe any significant leaks or spills of toxic or hazardous pollutants in the last three years. None.
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SECTION 7. DISCHARGE INFORMATION (40 CFR 122.26(C)(1)(I)(E))

Discharge Information	See the instructions to determine the pollutants and parameters you are required to monitor and, in turn, the tables you must complete. Not all applicants need to complete each table.	
	7.1	Is this a new source or new discharge? ☐ Yes → See instructions regarding submission of estimated data. ☒ No → See instructions regarding submission of actual data.
	Tables A, B, C, and D	
	7.2	Have you completed Table A for each outfall? ☒ Yes

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Discharge Information Continued	<u>7.3</u>	Is the facility subject to an effluent limitation guideline (ELG) or effluent limitations in an NPDES permit for its process wastewater? ☐ Yes ☒ No → SKIP to Item 7.5.
	<u>7.4</u>	Have you completed Table B by providing quantitative data for those pollutants that are (1) limited either directly or indirectly in an ELG and/or (2) subject to effluent limitations in an NPDES permit for the facility's process wastewater? ☐ Yes
	<u>7.5</u>	Do you know or have reason to believe any pollutants in Exhibit 2F-2 are present in the discharge? ☒ Yes ☐ No → SKIP to Item 7.7.
	<u>7.6</u>	Have you listed all pollutants in Exhibit 2F-2 that you know or have reason to believe are present in the discharge and provided quantitative data or an explanation for those pollutants in Table C? ☒ Yes
	<u>7.7</u>	Do you qualify for a small business exemption under the criteria specified in the Instructions? ☐ Yes → SKIP to Item 7.18. ☒ No
	<u>7.8</u>	Do you know or have reason to believe any pollutants in Exhibit 2F-3 are present in the discharge? ☒ Yes ☐ No → SKIP to Item 7.10.
	<u>7.9</u>	Have you listed all pollutants in Exhibit 2F-3 that you know or have reason to believe are present in the discharge in Table C? ☒ Yes
	<u>7.10</u>	Do you expect any of the pollutants in Exhibit 2F-3 to be discharged in concentrations of 10 ppb or greater? ☒ Yes ☐ No → SKIP to Item 7.12.
	<u>7.11</u>	Have you provided quantitative data in Table C for those pollutants in Exhibit 2F-3 that you expect to be discharged in concentrations of 10 ppb or greater? ☒ Yes
	<u>7.12</u>	Do you expect acrolein, acrylonitrile, 2,4-dinitrophenol, or 2-methyl-4,6-dinitrophenol to be discharged in concentrations of 100 ppb or greater? ☐ Yes ☒ No → SKIP to Item 7.14.
	<u>7.13</u>	Have you provided quantitative data in Table C for the pollutants identified in Item 7.12 that you expect to be discharged in concentrations of 100 ppb or greater? ☐ Yes
	<u>7.14</u>	Have you provided quantitative data or an explanation in Table C for pollutants you expect to be present in the discharge at concentrations less than 10 ppb (or less than 100 ppb for the pollutants identified in Item 7.12)? ☒ Yes
	<u>7.15</u>	Do you know or have reason to believe any pollutants in Exhibit 2F-4 are present in the discharge? ☐ Yes ☒ No → SKIP to Item 7.17.

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Discharge Information Continued	<u>7.16</u>	Have you listed pollutants in Exhibit 2F-4 that you know or believe to be present in the discharge and provided an explanation in Table C? ☐ Yes								
	<u>7.17</u>	Have you provided information for the storm event(s) sampled in Table D? ☒ Yes								
	Used or Manufactured Toxics									
	<u>7.18</u>	Is any pollutant listed on Exhibits 2F-2 through 2F-4 a substance or a component of a substance used or manufactured as an intermediate or final product or byproduct? ☒ Yes ☐ No → SKIP to Section 8.								
	<u>7.19</u>	List the pollutants below, including TCDD if applicable. Attach additional sheets, if necessary. <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">1. See Attachment 5: Section 7.19</td> <td style="width: 33%;">4.</td> <td style="width: 33%;">7.</td> </tr> <tr> <td>2. Used or Manufactured Toxins</td> <td>5.</td> <td>8.</td> </tr> <tr> <td>3.</td> <td>6.</td> <td>9.</td> </tr> </table>	1. See Attachment 5: Section 7.19	4.	7.	2. Used or Manufactured Toxins	5.	8.	3.	6.
1. See Attachment 5: Section 7.19	4.	7.								
2. Used or Manufactured Toxins	5.	8.								
3.	6.	9.								

SECTION 8. BIOLOGICAL TOXICITY TESTING DATA (40 CFR 122.21(G)(11))					
Biological Toxicity Testing Data	<u>8.1</u>	Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last three years? ☐ Yes ☒ No → SKIP to Section 9.			
	<u>8.2</u>	Identify the tests and their purposes below.			
		Test(s)	Purpose of Test(s)	Submitted to NPDES Permitting Authority?	Date Submitted
				☐ Yes ☐ No	
				☐ Yes ☐ No	
			☐ Yes ☐ No		

SECTION 9. CONTRACT ANALYSIS INFORMATION (40 CFR 122.21(G)(12))				
Contract Analysis Information	<u>9.1</u>	Were any of the analyses reported in Section 7 (in Tables A through C) performed by a contract laboratory or consulting firm? ☒ Yes ☐ No → SKIP to Section 10.		
	<u>9.2</u>	Provide information for each contract laboratory or consulting firm below.		
		Laboratory Number 1	Laboratory Number 2	Laboratory Number 3
	Name of laboratory/firm	Enersolv		
	Laboratory address	2220 Beltline Rd. SW Decatur, AL 35602		
	Phone number	(256) 350-0846		
	Pollutant(s) analyzed	All		

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SECTION 10. CHECKLIST AND CERTIFICATION STATEMENT (40 CFR 122.22(A) AND (D))

Checklist and Certification Statement	10.1	In Column 1 below, mark the sections of Form 2F that you have completed and are submitting with your application. For each section, specify in Column 2 any attachments that you are enclosing to alert the permitting authority. Note that not all applicants are required to complete all sections or provide attachments.	
		Column 1	Column 2
		☒ Section 1	☒ w/ attachments (e.g., responses for additional outfalls)
		☒ Section 2	☐ w/ attachments
		☒ Section 3	☒ w/ site drainage map
		☒ Section 4	☒ w/ attachments
		☒ Section 5	☒ w/ attachments
		☒ Section 6	☐ w/ attachments
		☒ Section 7	☒ Table A ☐ w/ small business exemption request ☒ Table B ☐ w/ analytical results as an attachment ☒ Table C ☒ Table D
		☒ Section 8	☐ w/ attachments
		☒ Section 9	☐ w/ attachments (e.g., responses for additional contact laboratories or firms)
		☒ Section 10	
	10.2	Provide the following certification. (See instructions to determine the appropriate person to sign the application.)	
		Certification Statement <i>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.</i>	
	Name (print or type first and last name)	Official title	
	June Malone	Director, Office of Center Operations	
	Signature	Date signed	
	June Malone Digitally signed by June Malone Date: 2025.03.03 16:58:30 -06'00'	3/3/2025	

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TABLE A. CONVENTIONAL AND NON CONVENTIONAL PARAMETERS (40 CFR 122.26(C)(1)(I)(E)(3))¹

You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details and requirements.

Pollutant or Parameter	Maximum Daily Discharge (specify units)		Average Daily Discharge (specify units)		Number of Storm Events Sampled	Source of Information (new source/new dischargers only; use codes in instructions)
	Grab Sample Taken During First 30 Minutes	Flow-Weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-Weighted Composite		
1. Oil and grease	< 5.00 mg/L		< 5.00 mg/L		8	5 - SW Sampling
2. Biochemical oxygen demand (BOD ₅)	2.80 mg/L	2.90 mg/L			1	5 - SW Sampling
3. Chemical oxygen demand (COD)	28.0 mg/L	21.0 mg/L			1	5 - SW Sampling
4. Total suspended solids (TSS)	26.0 mg/L	7.00 mg/L	9.31 mg/L		8	5 - SW Sampling
5. Total phosphorus	0.100 mg/L	0.110 mg/L			1	5 - SW Sampling
6. Total Kjeldahl nitrogen (TKN)	1.91 mg/L	3.04 mg/L			1	5 - SW Sampling
7. Total nitrogen (as N)	3.04 mg/L	4.15 mg/L			1	5 - SW Sampling
8.	pH (minimum)	6.9	7.6		8	5 - SW Sampling
	pH (maximum)	8.1	7.6		8	5 - SW Sampling

¹ Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR Chapter I, Subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

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TABLE C. TOXIC POLLUTANTS, CERTAIN HAZARDOUS SUBSTANCES, AND ASBESTOS (40 CFR 122.26(C)(1)(I)(E)(4) AND 40 CFR 122.21(G)(7)(VI)(B) AND (VII))¹

List each pollutant shown in Exhibits 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. Complete one table for each outfall. See the instructions for additional details and requirements.

[illegible]

¹ Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR Chapter I, Subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

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EPA Identification Number AL 180003863	NPDES Permit Number AL0000221	Facility name Marshall Space Flight Center	Outfall Number DSN008
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TABLE D. STORM EVENT INFORMATION (40 CFR 122.26(C)(1)(I)(E)(6))

Provide data for the storm event(s) that resulted in the maximum daily discharges for the flow-weighted composite sample.

Date of Storm Event	Duration of Storm Event (in hours)	Total Rainfall During Storm Event (in inches)	Number of Hours Between Beginning of Storm Measured and End of Previous Measurable Rain Event	Maximum Flow Rate During Rain Event (in gpm or specify units)	Total Flow from Rain Event (in gallons or specify units)
9/27/2024	8	0.68	34. See note below	3.281 gpm	95280.2 gallons

Provide a description of the method of flow measurement or estimate.

Rational Method Equation

Note: The duration between measured storm beginning and end of previous rain event was less than 72 hours. However, the preceding rainfall event did not produce sufficient flow for sampling. Prior to the initial rainfall event, greater than 72 hour elapsed between rainfall events.

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EPA Identification Number AL 180003863	NPDES Permit Number AL0000221	Facility Name Marshall Space Flight Center	Outfall Number DSN012
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TABLE A. CONVENTIONAL AND NON CONVENTIONAL PARAMETERS (40 CFR 122.26(C)(1)(I)(E)(3))¹

You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details and requirements.

Pollutant or Parameter		Maximum Daily Discharge (specify units)		Average Daily Discharge (specify units)		Number of Storm Events Sampled	Source of Information (new source/new dischargers only; use codes in instructions)
		Grab Sample Taken During First 30 Minutes	Flow-Weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-Weighted Composite		
1.	Oil and grease	< 5.00 mg/L		5.27 mg/L		8	5 - SW Sampling
2.	Biochemical oxygen demand (BOD ₅)	4.56 mg/L	< 2.00 mg/L			1	5 - SW Sampling
3.	Chemical oxygen demand (COD)	52.0 mg/L	56.0 mg/L	28.2 mg/L		8	5 - SW Sampling
4.	Total suspended solids (TSS)	14.5 mg/L	11.0 mg/L	6.83 mg/L		8	5 - SW Sampling
5.	Total phosphorus	< 0.0500 mg/L	0.0500 mg/L			1	5 - SW Sampling
6.	Total Kjeldahl nitrogen (TKN)	1.50 mg/L	1.61 mg/L			1	5 - SW Sampling
7.	Total nitrogen (as N)	1.50 mg/L	1.61 mg/L			1	5 - SW Sampling
8.	pH (minimum)	6.9		7.25		8	5 - SW Sampling
	pH (maximum)	7.8					

¹ Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR Chapter I, Subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

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TABLE B. CERTAIN CONVENTIONAL AND NON CONVENTIONAL POLLUTANTS (40 CFR 122.26(C)(1)(I)(E)(4) AND 40 CFR 122.21(G)(7)(VI)(A))¹

List each pollutant that is limited in an effluent limitation guideline (ELG) that the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

[illegible]

¹ Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR Chapter I, Subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

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TABLE C. TOXIC POLLUTANTS, CERTAIN HAZARDOUS SUBSTANCES, AND ASBESTOS (40 CFR 122.26(C)(1)(I)(E)(4) AND 40 CFR 122.21(G)(7)(VI)(B) AND (VII))¹

List each pollutant shown in Exhibits 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. Complete one table for each outfall. See the instructions for additional details and requirements.

[illegible]

¹ Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR Chapter I, Subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

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EPA Identification Number AL 180003863	NPDES Permit Number AL0000221	Facility name Marshall Space Flight Center	Outfall Number DSN012
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TABLE D. STORM EVENT INFORMATION (40 CFR 122.26(C)(1)(I)(E)(6))

Provide data for the storm event(s) that resulted in the maximum daily discharges for the flow-weighted composite sample.

Date of Storm Event	Duration of Storm Event (in hours)	Total Rainfall During Storm Event (in inches)	Number of Hours Between Beginning of Storm Measured and End of Previous Measurable Rain Event	Maximum Flow Rate During Rain Event (in gpm or specify units)	Total Flow from Rain Event (in gallons or specify units)
1/31/2025	7	0.44	> 72 hours	1.873 gpm	47596.6 gallons

Provide a description of the method of flow measurement or estimate.

Rational Method Equation

[Click to go back to the beginning of Form](#)

EPA Identification Number AL 180003863	NPDES Permit Number AL0000221	Facility Name Marshall Space Flight Center	Outfall Number DSN018
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OMB No. 2040-0004
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TABLE A. CONVENTIONAL AND NON CONVENTIONAL PARAMETERS (40 CFR 122.26(C)(1)(i)(E)(3))¹

You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details and requirements.

Pollutant or Parameter		Maximum Daily Discharge (specify units)		Average Daily Discharge (specify units)		Number of Storm Events Sampled	Source of Information (new source/new dischargers only; use codes in instructions)
		Grab Sample Taken During First 30 Minutes	Flow-Weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-Weighted Composite		
1.	Oil and grease	< 5.00 mg/L		< 5.00 mg/L		8	5 - SW Sampling
2.	Biochemical oxygen demand (BOD ₅)	5.84 mg/L	4.18 mg/L			1	5 - SW Sampling
3.	Chemical oxygen demand (COD)	31.0 mg/L	26.0 mg/L			1	5 - SW Sampling
4.	Total suspended solids (TSS)	136 mg/L	26.0 mg/L	34.7 mg/L		8	5 - SW Sampling
5.	Total phosphorus	0.210 mg/L	0.210 mg/L			1	5 - SW Sampling
6.	Total Kjeldahl nitrogen (TKN)	1.52 mg/L	0.734 mg/L			1	5 - SW Sampling
7.	Total nitrogen (as N)	2.43 mg/L	1.66 mg/L			1	5 - SW Sampling
8.	pH (minimum)	7.0		7.36		8	5 - SW Sampling
	pH (maximum)	7.7		7.36		8	

¹ Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR Chapter I, Subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

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TABLE C. TOXIC POLLUTANTS, CERTAIN HAZARDOUS SUBSTANCES, AND ASBESTOS (40 CFR 122.26(C)(1)(I)(E)(4) AND 40 CFR 122.21(G)(7)(VI)(B) AND (VII))¹

List each pollutant shown in Exhibits 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. Complete one table for each outfall. See the instructions for additional details and requirements.

[illegible]

¹ Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR Chapter I, Subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

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EPA Identification Number AL 180003863	NPDES Permit Number AL0000221	Facility name Marshall Space Flight Center	Outfall Number DSN018
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TABLE D. STORM EVENT INFORMATION (40 CFR 122.26(C)(1)(I)(E)(6))

Provide data for the storm event(s) that resulted in the maximum daily discharges for the flow-weighted composite sample.

Date of Storm Event	Duration of Storm Event (in hours)	Total Rainfall During Storm Event (in inches)	Number of Hours Between Beginning of Storm Measured and End of Previous Measurable Rain Event	Maximum Flow Rate During Rain Event (in gpm or specify units)	Total Flow from Rain Event (in gallons or specify units)
7/19/2024	1.25	0.8	> 72 hours	267.1 gpm	1,211,839 gallons

Provide a description of the method of flow measurement or estimate.

Rational Method Equation

[Click to go back to the beginning of Form](#)

EPA Identification Number AL 180003863	NPDES Permit Number AL0000221	Facility Name Marshall Space Flight Center	Outfall Number DSN022
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TABLE A. CONVENTIONAL AND NON CONVENTIONAL PARAMETERS (40 CFR 122.26(C)(1)(I)(E)(3))¹

You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details and requirements.

Pollutant or Parameter		Maximum Daily Discharge (specify units)		Average Daily Discharge (specify units)		Number of Storm Events Sampled	Source of Information (new source/new dischargers only; use codes in instructions)
		Grab Sample Taken During First 30 Minutes	Flow-Weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-Weighted Composite		
1.	Oil and grease	16.2 mg/L		6.4 mg/L		8	5 - SW Sampling
2.	Biochemical oxygen demand (BOD ₅)	3.07 mg/L	2.53 mg/L			1	5 - SW Sampling
3.	Chemical oxygen demand (COD)	72.0 mg/L	22.0 mg/L			1	5 - SW Sampling
4.	Total suspended solids (TSS)	106 mg/L	49.0 mg/L	30.9 mg/L		8	5 - SW Sampling
5.	Total phosphorus	0.240 mg/L	0.160 mg/L			1	5 - SW Sampling
6.	Total Kjeldahl nitrogen (TKN)	0.905 mg/L	0.776 mg/L			1	5 - SW Sampling
7.	Total nitrogen (as N)	1.72 mg/L	1.62 mg/L			1	5 - SW Sampling
8.	pH (minimum)	6.9		7.49		8	5 - SW Sampling
	pH (maximum)	8.0		7.49		8	5 - SW Sampling

¹ Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR Chapter I, Subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

List each pollutant that is limited in an effluent limitation guideline (ELG) that the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

[illegible]

¹ Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR Chapter I, Subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

EPA Identification Number AL 180003863	NPDES Permit Number AL0000221	Facility Name Marshall Space Flight Center	Outfall Number DSN022
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TABLE C. TOXIC POLLUTANTS, CERTAIN HAZARDOUS SUBSTANCES, AND ASBESTOS (40 CFR 122.26(C)(1)(I)(E)(4) AND 40 CFR 122.21(G)(7)(VI)(B) AND (VII))¹

List each pollutant shown in Exhibits 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant and CAS Number (if available)	Maximum Daily Discharge (specify units)		Average Daily Discharge (specify units)		Number of Storm Events Sampled	Source of Information (new source/new dischargers only; use codes in instructions)
	Grab Sample Taken During First 30 Minutes	Flow-Weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-Weighted Composite		
Fecal Coliform	13,000 MPN/100 mL	NA	--	--	1	5 - SW Sampling
Nitrate-Nitrite	0.911 mg/L	0.945 mg/L	--	--	1	5 - SW Sampling
Sulfate (SO4) (14808-79-8)	1.58 mg/L	1.55 mg/L	--	--	1	5 - SW Sampling
Iron (7439-89-6)	1.98 mg/L	0.772 mg/L	--	--	1	5 - SW Sampling
Copper (7440-50-8)	0.00341 mg/L	0.00623 mg/L	--	--	1	5 - SW Sampling
Zinc (7740-66-6)	0.031 mg/L	0.0211 mg/L	--	--	1	5 - SW Sampling
Cadmium (7440-43-9)	< 0.00100 mg/L	< 0.00100 mg/L	--	--	1	5 - SW Sampling
Chromium (7440-47-3)	0.00341 mg/L	0.00161 mg/L	--	--	1	5 - SW Sampling
Nickel (7440-02-0)	0.00162 mg/L	< 0.00100 mg/L	--	--	1	5 - SW Sampling
Cyanide (57-12-5)	< 0.00500 mg/L		--	--	1	5 - SW Sampling

¹ Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR Chapter I, Subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

EPA Identification Number AL 180003863	NPDES Permit Number AL0000221	Facility name Marshall Space Flight Center	Outfall Number DSN022
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OMB No. 2040-0004
Expires 07/31/2026

TABLE D. STORM EVENT INFORMATION (40 CFR 122.26(C)(1)(I)(E)(6))

Provide data for the storm event(s) that resulted in the maximum daily discharges for the flow-weighted composite sample.

Date of Storm Event	Duration of Storm Event (in hours)	Total Rainfall During Storm Event (in inches)	Number of Hours Between Beginning of Storm Measured and End of Previous Measurable Rain Event	Maximum Flow Rate During Rain Event (in gpm or specify units)	Total Flow from Rain Event (in gallons or specify units)
7/19/2024	1.25	0.8	> 72	116.99 gpm	530,851 gallons

Provide a description of the method of flow measurement or estimate.

Rational Method Equation

[Click to go back to the beginning of Form](#)

EPA Identification Number AL 180003863	NPDES Permit Number AL0000221	Facility Name Marshall Space Flight Center	Outfall Number DSN033
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OMB No. 2040-0004
Expires 07/31/2026

TABLE B. CERTAIN CONVENTIONAL AND NON CONVENTIONAL POLLUTANTS (40 CFR 122.26(C)(1)(I)(E)(4) AND 40 CFR 122.21(G)(7)(VI)(A))¹

List each pollutant that is limited in an effluent limitation guideline (ELG) that the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant and CAS Number (if available)	Maximum Daily Discharge (specify units)		Average Daily Discharge (specify units)		Number of Storm Events Sampled	Source of Information (new source/new dischargers only; use codes in instructions)
	Grab Sample Taken During First 30 Minutes	Flow-Weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-Weighted Composite		
TCE (79-01-6)	< 1.00 ug/L	< 1.00 ug/L	--	--	1	5 - SW Sampling

¹ Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR Chapter I, Subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

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EPA Identification Number AL 180003863	NPDES Permit Number AL0000221	Facility Name Marshall Space Flight Center	Outfall Number DSN033
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OMB No. 2040-0004
Expires 07/31/2026

TABLE C. TOXIC POLLUTANTS, CERTAIN HAZARDOUS SUBSTANCES, AND ASBESTOS (40 CFR 122.26(C)(1)(I)(E)(4) AND 40 CFR 122.21(G)(7)(VI)(B) AND (VII))¹

List each pollutant shown in Exhibits 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant and CAS Number (if available)	Maximum Daily Discharge (specify units)		Average Daily Discharge (specify units)		Number of Storm Events Sampled	Source of Information (new source/new dischargers only; use codes in instructions)
	Grab Sample Taken During First 30 Minutes	Flow-Weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-Weighted Composite		
Fecal Coliform	24,200 MPN/100 mL	NA	--	--	1	5 - SW Sampling
Nitrate-Nitrite	0.698 mg/L	0.720 mg/L	--	--	1	5 - SW Sampling
Sulfate (SO4) (14808-79-8)	1.92 mg/L	2.25 mg/L	--	--	1	5 - SW Sampling
Iron (7439-89-6)	0.0546 mg/L	0.0747 mg/L	--	--	1	5 - SW Sampling
Copper (7440-50-8)	0.00460 mg/L	0.00425 mg/L	--	--	1	5 - SW Sampling
Zinc (7740-66-6)	0.0189 mg/L	0.0249 mg/L	--	--	1	5 - SW Sampling

¹ Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR Chapter I, Subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

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EPA Identification Number AL 180003863	NPDES Permit Number AL0000221	Facility name Marshall Space Flight Center	Outfall Number DSN033
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OMB No. 2040-0004
Expires 07/31/2026

TABLE D. STORM EVENT INFORMATION (40 CFR 122.26(C)(1)(I)(E)(6))

Provide data for the storm event(s) that resulted in the maximum daily discharges for the flow-weighted composite sample.

Date of Storm Event	Duration of Storm Event (in hours)	Total Rainfall During Storm Event (in inches)	Number of Hours Between Beginning of Storm Measured and End of Previous Measurable Rain Event	Maximum Flow Rate During Rain Event (in gpm or specify units)	Total Flow from Rain Event (in gallons or specify units)
9/27/2024	8	0.68	34. See Note Below.	1.258 gpm	36,532 gallons

Provide a description of the method of flow measurement or estimate.

Rational Method Equation

Note: The duration between measured storm beginning and end of previous rain event was less than 72 hours. However, the preceding rainfall event did not produce sufficient flow for sampling. Prior to the initial rainfall event, greater than 72 hour elapsed between rainfall events.

[Click to go back to the beginning of Form](#)

EPA Identification Number AL 180003863	NPDES Permit Number AL0000221	Facility Name Marshall Space Flight Center	Outfall Number DSN037
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OMB No. 2040-0004
Expires 07/31/2026

TABLE A. CONVENTIONAL AND NON CONVENTIONAL PARAMETERS (40 CFR 122.26(C)(1)(I)(E)(3))¹

You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details and requirements.

Pollutant or Parameter	Maximum Daily Discharge (specify units)		Average Daily Discharge (specify units)		Number of Storm Events Sampled	Source of Information (new source/new dischargers only; use codes in instructions)
	Grab Sample Taken During First 30 Minutes	Flow-Weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-Weighted Composite		
1. Oil and grease	< 5.00 mg/L				1	5 - SW Sampling
2. Biochemical oxygen demand (BOD ₅)	2.30 mg/L	2.22 mg/L			1	5 - SW Sampling
3. Chemical oxygen demand (COD)	43.0 mg/L	17.0 mg/L			1	5 - SW Sampling
4. Total suspended solids (TSS)	5.50 mg/L	10.0 mg/L			1	5 - SW Sampling
5. Total phosphorus	< 0.0500 mg/L	0.210 mg/L			1	5 - SW Sampling
6. Total Kjeldahl nitrogen (TKN)	2.35 mg/L	2.16 mg/L			1	5 - SW Sampling
7. Total nitrogen (as N)	3.00 mg/L	2.81 mg/L			1	5 - SW Sampling
8. pH (minimum)	8.6				1	5 - SW Sampling
pH (maximum)	8.6				1	5 - SW Sampling

¹ Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR Chapter I, Subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

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List each pollutant that is limited in an effluent limitation guideline (ELG) that the facility is subject to or any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit). Complete one table for each outfall. See the instructions for additional details and requirements.

[illegible]

¹ Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR Chapter I, Subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

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EPA Identification Number AL 180003863	NPDES Permit Number AL0000221	Facility Name Marshall Space Flight Center	Outfall Number DSN037
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OMB No. 2040-0004
Expires 07/31/2026

TABLE C. TOXIC POLLUTANTS, CERTAIN HAZARDOUS SUBSTANCES, AND ASBESTOS (40 CFR 122.26(C)(1)(I)(E)(4) AND 40 CFR 122.21(G)(7)(VI)(B) AND (VII))¹

List each pollutant shown in Exhibits 2F-2, 2F-3, and 2F-4 that you know or have reason to believe is present. Complete one table for each outfall. See the instructions for additional details and requirements.

Pollutant and CAS Number (if available)	Maximum Daily Discharge (specify units)		Average Daily Discharge (specify units)		Number of Storm Events Sampled	Source of Information (new source/new dischargers only; use codes in instructions)
	Grab Sample Taken During First 30 Minutes	Flow-Weighted Composite	Grab Sample Taken During First 30 Minutes	Flow-Weighted Composite		
Nitrate-Nitrite	0.648 mg/L	0.651 mg/L	--	--	1	5 - SW Sampling
Sulfate (SO4) (14808-79-8)	1.07 mg/L	1.07 mg/L	--	--	1	5 - SW sampling
Iron (7439-89-6)	0.128 mg/L	0.135 mg/L	--	--	1	5 - SW sampling
Copper (7440-50-8)	< 0.0200 mg/L	< 0.0200 mg/L	--	--	1	5 - SW Sampling
Zinc (7740-66-6)	< 0.0200 mg/L	< 0.0200 mg/L	--	--	1	5 - SW sampling
Aluminum (7429-90-5)	0.128 mg/L	0.124 mg/L	--	--	1	5 - SW sampling
Barium (7440-39-3)	< 0.0200 mg/L	< 0.0200 mg/L	--	--	1	5 - SW sampling
Boron (7440-42-8)	< 0.0200 mg/L	< 0.0200 mg/L	--	--	1	5 - SW sampling
Magnesium (7439-98-7)	1.29 mg/L	1.34 mg/L	--	--	1	5 - SW sampling
Manganese (7439-96-5)	< 0.0200 mg/L	< 0.0200 mg/L	--	--	1	5 - SW sampling
Titanium (7440-32-6)	< 0.01500 mg/L	< 0.0150 mg/L	--	--	1	5 - SW sampling
Cadmium (7440-43-9)	< 0.0200 mg/L	< 0.0200 mg/L	--	--	1	5 - SW sampling
Chromium (7440-47-3)	< 0.0200 mg/L	< 0.0200 mg/L	--	--	1	5 - SW sampling
Lead (7439-92-1)	< 0.0200 mg/L	< 0.0200 mg/L	--	--	1	5 - SW sampling
Nickel (7440-02-0)	< 0.0200 mg/L	< 0.0200 mg/L	--	--	1	5 - SW sampling

¹ Sampling shall be conducted according to sufficiently sensitive test procedures (i.e., methods) approved under 40 CFR 136 for the analysis of pollutants or pollutant parameters or required under 40 CFR Chapter I, Subchapter N or O. See instructions and 40 CFR 122.21(e)(3).

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EPA Identification Number AL 180003863	NPDES Permit Number AL0000221	Facility name Marshall Space Flight Center	Outfall Number DSN037
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OMB No. 2040-0004
Expires 07/31/2026

TABLE D. STORM EVENT INFORMATION (40 CFR 122.26(C)(1)(I)(E)(6))

Provide data for the storm event(s) that resulted in the maximum daily discharges for the flow-weighted composite sample.

Date of Storm Event	Duration of Storm Event (in hours)	Total Rainfall During Storm Event (in inches)	Number of Hours Between Beginning of Storm Measured and End of Previous Measurable Rain Event	Maximum Flow Rate During Rain Event (in gpm or specify units)	Total Flow from Rain Event (in gallons or specify units)
09/27/2024	8	0.68	34. See Note Below.	0.060 gpm	1728 gallons

Provide a description of the method of flow measurement or estimate.

Rational Method Equation

Note: The duration between measured storm beginning and end of previous rain event was less than 72 hours. However, the preceding rainfall event did not produce sufficient flow for sampling. Prior to the initial rainfall event, greater than 72 hour elapsed between rainfall events.

[Click to go back to the beginning of Form](#)

Attachment 1 to EPA Form 2F

**Section 1.1
Outfall Location
NASA-MSFC**

Outfall	Latitude	Longitude	Receiving Water
DSN008	34° 37' 35"	86° 40' 05"	Tributary to Huntsville Spring Branch
DSN010	34° 37' 27"	86° 39' 59"	Tributary to Huntsville Spring Branch
DSN012	34° 37' 30"	86° 39' 25"	Tributary to Huntsville Spring Branch
DSN013	34° 37' 59"	86° 39' 16"	Tributary to Huntsville Spring Branch
DSN015	34° 38' 9"	86° 39' 29"	Tributary to Huntsville Spring Branch
DSN016	34° 38' 05"	86° 40' 05"	Tributary to Indian Creek
DSN017	34° 38' 15"	86° 40' 05"	Tributary to Indian Creek
DSN018	34° 38' 15"	86° 40' 30"	Tributary to Indian Creek
DSN019	34° 37' 52"	86° 40' 28"	Tributary to Indian Creek
DSN020	34° 38' 00"	86° 40' 15"	Tributary to Indian Creek
DSN021	34° 38' 45"	86° 41' 00"	Indian Creek
DSN022	34° 38' 45"	86° 41' 10"	Indian Creek
DSN023	34° 38' 30"	86° 40' 40"	Tributary to Indian Creek
DSN025	34° 38' 15"	86° 40' 50"	Tributary to Wheeler Lake
DSN031	34° 39' 18"	86° 39' 44"	Tributary to Huntsville Spring Branch
DSN032	34° 39' 15"	86° 39' 42"	Tributary to Huntsville Spring Branch
DSN033	34° 39' 31"	86° 39' 45"	Tributary to Huntsville Spring Branch
DSN034	34° 38' 43"	86° 41' 8"	Indian Creek
DSN035	34° 37' 41"	86° 40' 27"	Tributary to Indian Creek
DSN037	34° 38' 27"	86° 40' 36"	Tributary to Indian Creek

Note:

Bold type indicates a process water discharge that includes stormwater (Form 2C and 2F)

Attachment 2 to EPA Form 2F

Section 4.1

Estimates of Outfall Areas

NASA-MSFC

Outfall	Total	
	Impervious Area (acres)	Area Drained (acres)
DSN 008	14	66
DSN 010	7	82
DSN 012	2	58
DSN013	1	25
DSN015	0.5	4
DSN 016	5	191
DSN 017	5	17
DSN 018	172	697
DSN 019	8	41
DSN 020	3	57
DSN 021	3	12
DSN 022	67	312
DSN 023	2	11
DSN 025	1	9
DSN 031*	0.35	0.35*
DSN 032*	0.35	0.35*
DSN 033	7	24
DSN 034	9	55
DSN 035	2	7
DSN 037	1	2

* Outfall is from NASA owned tanks on RSA property, MSFC leases the property from RSA

Attachment 3 to EPA Form 2F
Section 4.2
Hazardous Materials Storage
NASA-MSFC

Drainage Area	Building Number	Material
DSN 008	4667	Diesel
DSN 012	4541	Insecticide
DSN 013	4583-A	Gases
DSN 016	4522	Gases
	4524	Alcohol, Lubricant, Sealant, Insecticide, Resin
	4530	Lubricant, Sealant, Gases
	4539	Lubricant
	4540	Gases
	4549	Lubricant, Gases
	4561	Insecticide
	4561A	Insecticide
	4583	Gases
	4657	Gases
	4659	Gases
	4660	Gases, Diesel
	4561A	Insecticide
DSN 017	4656	Lubricant, Alcohol, Oil, Gases
DSN 018	4200	Diesel
	4201	Diesel
	4203	Diesel
	4249	Diesel
	4250	Diesel
	4348	Diesel, Gasoline
	4464	Diesel
	4478	hydraulic fluid
	4487	Lubricant, Gases
	4493	Diesel
	4605	Gases, Gasoline
	4607	Oil
	4611	Diesel, Gasoline
	4612	Gases
	4618	Gases
	4619	Lubricant, Gases
	4620	Acetone, Alcohol, Enamel, Insecticide, Lubricant
	4629	Diesel
	4638	Alcohol, Lubricant, Adhesive, Degreaser
	4649	Diesel
	4650	Diesel
	4663	Diesel
	4682	Paint, Resin, Sealant
DSN 019	4635-1	Oil
	4635-2	Paint, Insecticide, Toluene, Lubricant
	4635-3	Lubricant, Paint
	4670	Gases
	4672	Gases
	4676	Gases

**Attachment 3 to EPA Form
2F Section 4.2
Hazardous Waste Storage
NASA-MSFC**

Drainage Area	Building Number	Hazardous Waste Type
DSN010	4563	Hazardous Waste
DSN016	4554	Used Oil
	4524	Used Oil
	4530	Used Oil
	4539	Used Oil
	4561	Hazardous Waste
	4660	Used oil and water mixture
	4596	Hazardous Waste
DSN017	4655	Hazardous Waste
	4656	Hazardous Waste
DSN018	4479	Hazardous Waste
DSN022	4619	Waste Rags, Waste Aerosol Cans
	4678	Hazardous Waste
	4702	Waste Film Processing Solution
	4723	Used Oil
	4731	Hazardous Waste
DSN032	M2 Yard	Waste Rags with Solvents, Waste Aerosol Cans

Note: This table includes only hazardous waste that may come into contact with stormwater, such as items stored outside or in outside clamshells.

Attachment 3 to EPA Form 2F

Section 4.2 CERCLA Sites NASA-MSFC

OUTFALL	Site I.D.	Site NAME
	RSA-141	4.2-inch Mortar Disposal Site, Building 4656
	MSFC-C	Containment Area for Tank 4636
	MSFC-D	between NASA and DA)
	MSFC-E	Buildings 4241 and 4244 Product Storage Area
	MSFC-F	Storage Area West of Building 4650
DSN019	MSFC-004	Deluge Pond-West Test Area
	MSFC-056	Fuel Oil Loading Area for Tanks at Pump Station 4673
	MSFC-082	Inactive Chemical Munitions Demilitarization / Disposal Trenches
	MSFC-B	Containment Area for Old Storable Propellant Building 4688
DSN020	MSFC-003	Inactive Old Bone Yard Disposal Site
	MSFC-082	Inactive Chemical Munitions Demilitarization / Disposal Trenches
DSN021	MSFC-052	Industrial Wastewater Sewer Pipeline (excluding MSFC-052a, MSFC-052c, MSFC-052d, and MSFC-052e)
	MSFC-052b	Portion of Industrial Sewer within MSFC-034
DSN022	MSFC-002	Inactive Abandoned Drum Disposal Site
	MSFC-014	Satellite Waste Accumulation Area for Buildings 4760
	MSFC-015	Satellite Waste Accumulation Area for Building 4707-A
	MSFC-016	Satellite Waste Accumulation Area for Building 4707-B
	MSFC-019	Former Satellite Waste Accumulation Area for Building 4755
	MSFC-020	Satellite Waste Accumulation Area for Building 4755
	MSFC-021	Satellite Waste Accumulation Area for Building 4744
	MSFC-031	Hazardous Waste Container Storage Area
	MSFC-036	Sump in South Addition of Building 4708
	MSFC-037	Building 4767 Holding Tanks
	MSFC-041	Waste Anderol Storage Tank for Building 4744
	MSFC-044	Industrial Waste Treatment Basin
	MSFC-045	Concentrate Receiving Tank
	MSFC-046	Transfer Tank
	MSFC-047	Hydrostatic Dump Lagoon
	MSFC-048	Mix Tank
	MSFC-049	East Ultimate Lagoon
	MSFC-050	West Ultimate Lagoon
	MSFC-052	Industrial Wastewater Sewer Pipeline (excluding MSFC-052a, MSFC-052c, MSFC-052d, and MSFC-052e)
	52c	Portion of industrial sewer west of Building 4705
	MSFC-052d	MH-1158 and Gemini Road)
	MSFC-053	Former Propellant Storage Area and Test Stand Site
	MSFC-054	Site of Former Beryllium Metal Machining Facility
	MSFC-058	Waste Anderol UST and Unloading Area for Building 4747
	MSFC-076	Product Storage/Waste Accumulation Area at Building 4707
	MSFC-077	Inactive Open Burning/Disposal Pits
	MSFC-087	Cyanide Waste Site at 4768 (pending updated MOA between NASA/DA)
	MSFC-088	Building 4760 Ventilation Trench
	MSFC-089	Cyanide Waste Tank at Building 4760
	MSFC-092	Building 4435 Former Taxi and Bus Refueling Area
	MSFC-094/	Building 4705 West Clean Room and North Satellite Waste Accumulation
	MSFC-052c	Area (including the Industrial Sewer west of Building 4705 and north of MH-105N)
	MSFC-A	Caustic Storage Tank
DSN031/032	MSFC-027	Inactive Waste Accumulation Area
	MSFC-081	Paint Spray Booth at the M-1 Storage Area

Attachment 4 to EPA Form 2F
Section 5.2
Non-Storm Water Discharges
NASA-MSFC

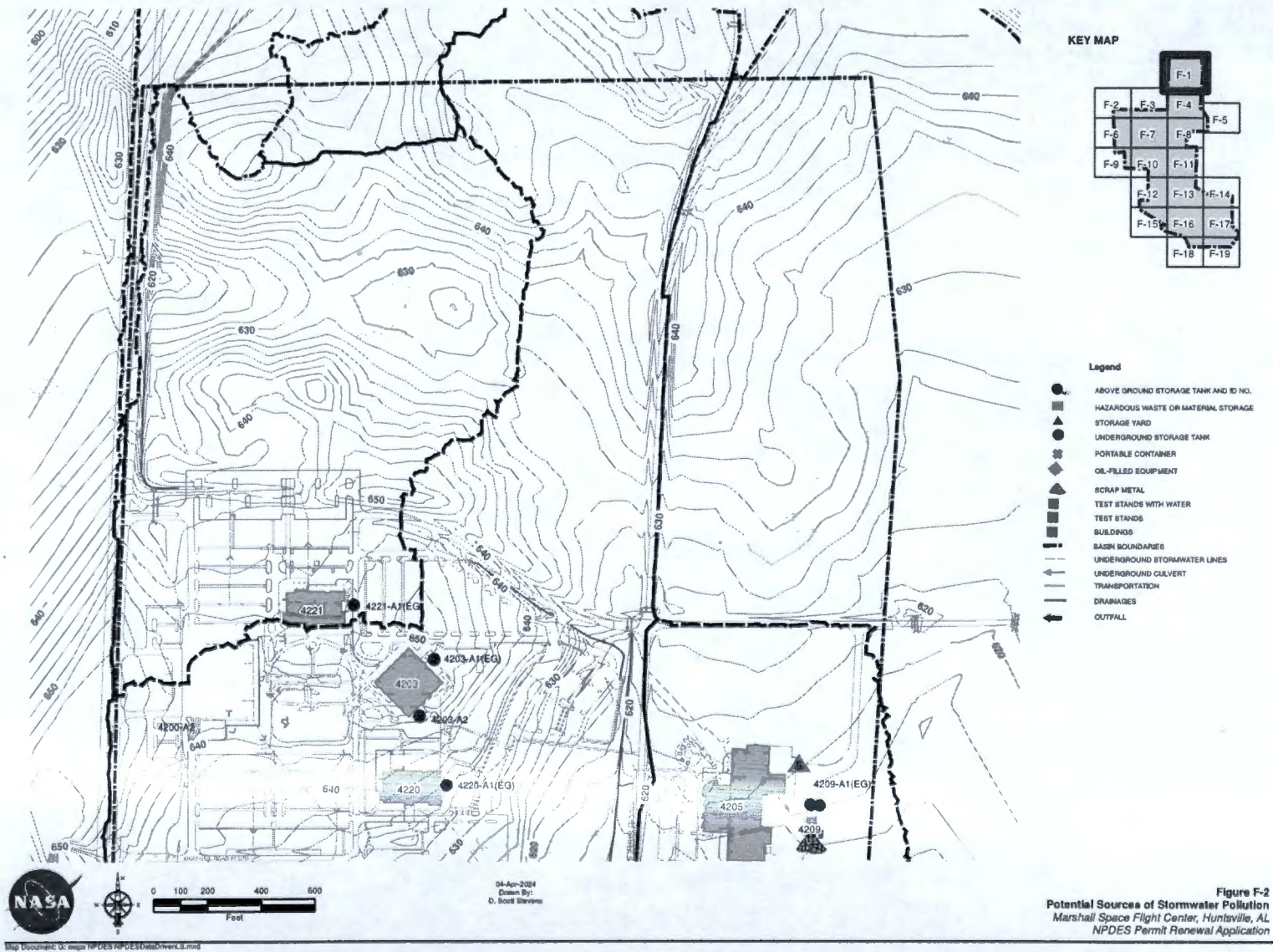
A visual examination was conducted to identify non-storm water discharges to the outfalls. All outfalls were identified as not receiving non-storm water discharge. Non-storm water sources are possible due to test stand operations in DSN 012 and 019, and applicable Form 2C is included for these discharges.

MSFC has completed implementation of their plan to eliminate the majority of non-storm water discharges. This includes rerouting the non-storm discharges to the sanitary sewer or by eliminating the source completely, such as plugging floor drains.

Attachment 5 to EPA Form 2F
Section 7.19
Used or Manufactured Toxins
NASA-MSFC

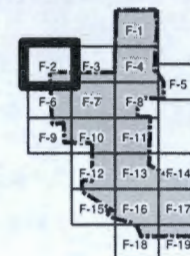
The following chemicals were identified as being used on MSFC:

Antimony	Aldrin
Arsenic	4,4'-DDT
Beryllium	Dieldrin
Cadmium	Endrin
Chromium	Heptachlor
Copper	
Lead	Acetaldehyde
Mercury	Allyl chloride
Nickel	Amyl acetate
Selenium	Aniline
Silver	Butyl Acetate
Thallium	Carbaryl
Zinc	Carbon disulfide
Cyanide	Cyclohexane
Phenols	Diethyl amine
	Epichlorohydrin
Acrolein	Ethylene diamine
Acronitrile	Formaldehyde
Benzene	Isopropanolamine
Carbon Tetrachloride	Malathion
Chlorodibromomethane	Methyl methacrylate
Chlorobenzene	Monoethylamine
Chloroform	Pyrethrins
Dichlorobromomethane	Propylene oxide
1,1-Dichloroethane	Resorcinol
1,2-Dichloroethane	Styrene
1,2-Dichloropropane	Triethylamine
Ethylbenzene	Trimethylamine
Methylene Chloride	Vinyl Acetate
Toluene	Xylene
1,1,1-Trichloroethane	
1,1,2-Trichloroethane	
Trichloroethylene	
Vinyl Chloride	
2,4-Dinitrophenol	
Pentachlorophenol	
Phenol	
Benzidine	
Benzo(a)anthracene	
Bis(2-ethylhexyl)phthalate	
Butylbenzyl Phthalate	
1,2-Dichlorobenzene	
1,3-Dichlorobenzene	
1,4-Dichlorobenzene	
Dibutyl Phthalate	
Diethyl Phthalate	
Dimethyl Phthalate	
Napthalene	
Nitrobenzene	
1,2-Trans-Dichloroethylene	





KEY MAP



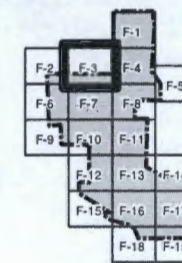
Legend

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- HAZARDOUS WASTE OR MATERIAL STORAGE
- ▲ STORAGE YARD
- UNDERGROUND STORAGE TANK
- PORTABLE CONTAINER
- ◆ OIL-FILLED EQUIPMENT
- ▲ SCRAP METAL
- TEST STANDS WITH WATER
- TEST STANDS
- BUILDINGS
- BASIN BOUNDARIES
- UNDERGROUND STORMWATER LINES
- UNDERGROUND CULVERT
- TRANSPORTATION
- DRAINAGES
- OUTFALL

Figure F-3
Potential Sources of Stormwater Pollution
Marshall Space Flight Center, Huntsville, AL
NPDES Permit Renewal Application



KEY MAP



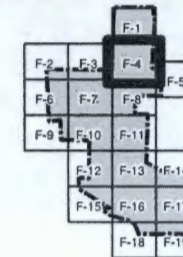
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- ABOVE GROUND STORAGE TANK AND ID NO.
- HAZARDOUS WASTE OR MATERIAL STORAGE
- ▲ STORAGE YARD
- UNDERGROUND STORAGE TANK
- PORTABLE CONTAINER
- ◆ OIL-FILLED EQUIPMENT
- ▲ SCRAP METAL
- TEST STANDS WITH WATER
- TEST STANDS
- BUILDINGS
- BASIN BOUNDARIES
- UNDERGROUND STORMWATER LINES
- UNDERGROUND CULVERT
- TRANSPORTATION
- DRAINAGES
- OUTFALL

Figure F-4
Potential Sources of Stormwater Pollution
Marshall Space Flight Center, Huntsville, AL
NPDES Permit Renewal Application



KEY MAP



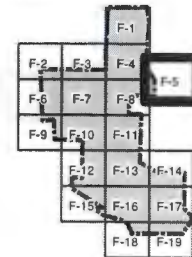
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- HAZARDOUS WASTE OR MATERIAL STORAGE
- ▲ STORAGE YARD
- UNDERGROUND STORAGE TANK
- PORTABLE CONTAINER
- ◆ OIL-FILLED EQUIPMENT
- ▲ SCRAP METAL
- TEST STANDS WITH WATER
- TEST STANDS
- BUILDINGS
- BASIN BOUNDARIES
- UNDERGROUND STORMWATER LINES
- UNDERGROUND CULVERT
- TRANSPORTATION
- DRAINAGES
- OUTFALL

Figure F-5
Potential Sources of Stormwater Pollution
Marshall Space Flight Center, Huntsville, AL
NPDES Permit Renewal Application



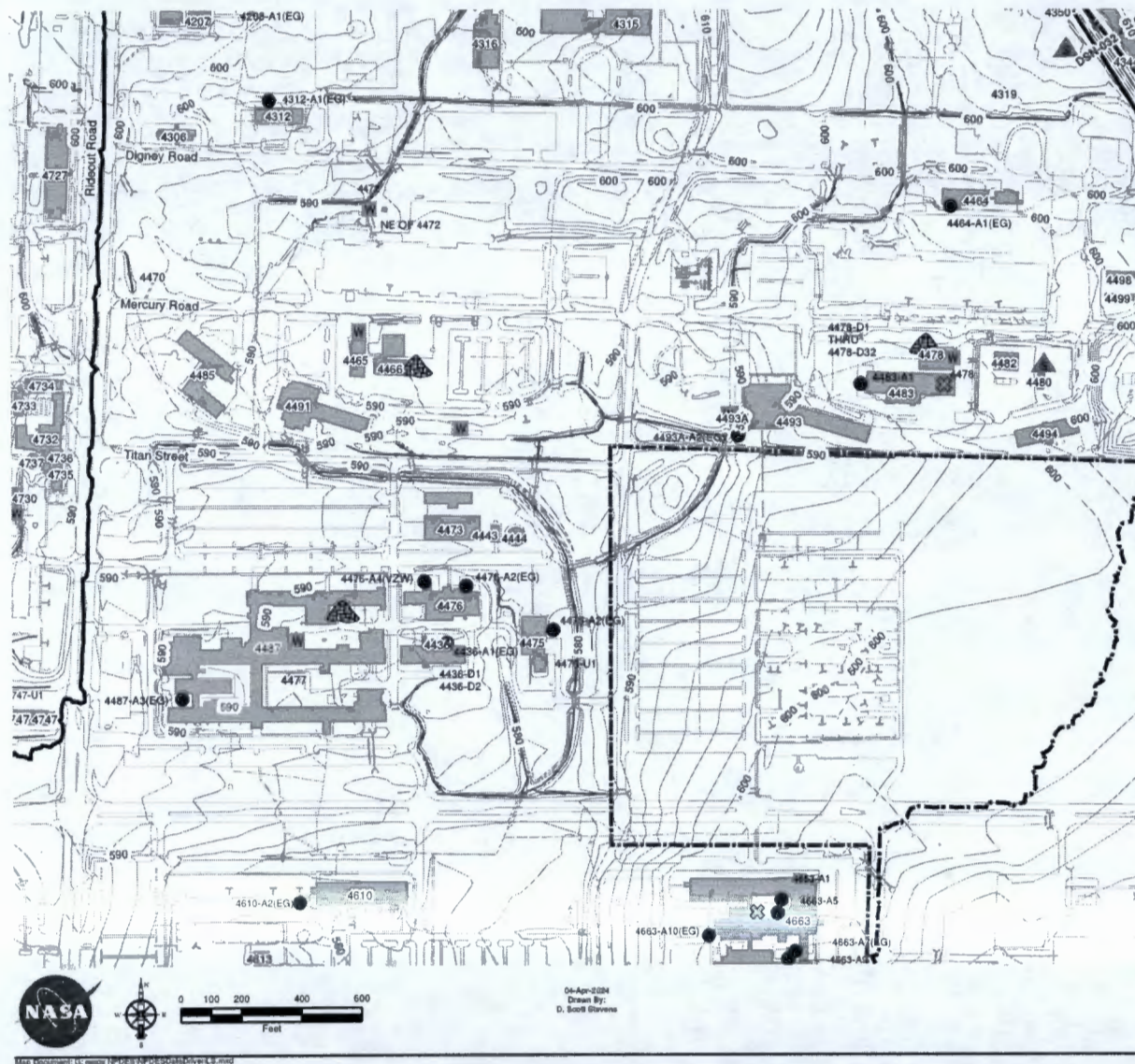
KEY MAP



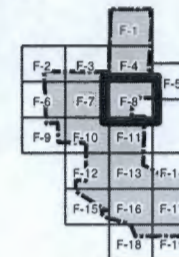
Legend

- ABOVE GROUND STORAGE TANK AND ID NO.
- HAZARDOUS WASTE OR MATERIAL STORAGE
- ▲ STORAGE YARD
- UNDERGROUND STORAGE TANK
- PORTABLE CONTAINER
- ◆ OIL-FILLED EQUIPMENT
- ▲ SCRAP METAL
- TEST STANDS WITH WATER
- TEST STANDS
- BUILDINGS
- BASIN BOUNDARIES
- UNDERGROUND STORMWATER LINES
- UNDERGROUND CULVERT
- TRANSPORTATION
- DRAINAGES
- OUTFALL

Figure F-6
Potential Sources of Stormwater Pollution
Marshall Space Flight Center, Huntsville, AL
NPDES Permit Renewal Application



KEY MAP



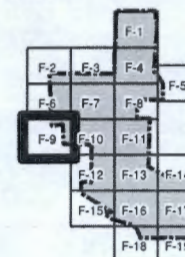
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- HAZARDOUS WASTE OR MATERIAL STORAGE
- STORAGE YARD
- UNDERGROUND STORAGE TANK
- PORTABLE CONTAINER
- ◆ OIL-FILLED EQUIPMENT
- ▲ SCRAP METAL
- TEST STANDS WITH WATER
- TEST STANDS
- BUILDINGS
- BARRIERS
- UNDERGROUND STORMWATER LINES
- UNDERGROUND CULVERT
- TRANSPORTATION
- DRAINAGES
- OUTFALL

Figure F-9
Potential Sources of Stormwater Pollution
Marshall Space Flight Center, Huntsville, AL
NPDES Permit Renewal Application

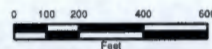


KEY MAP



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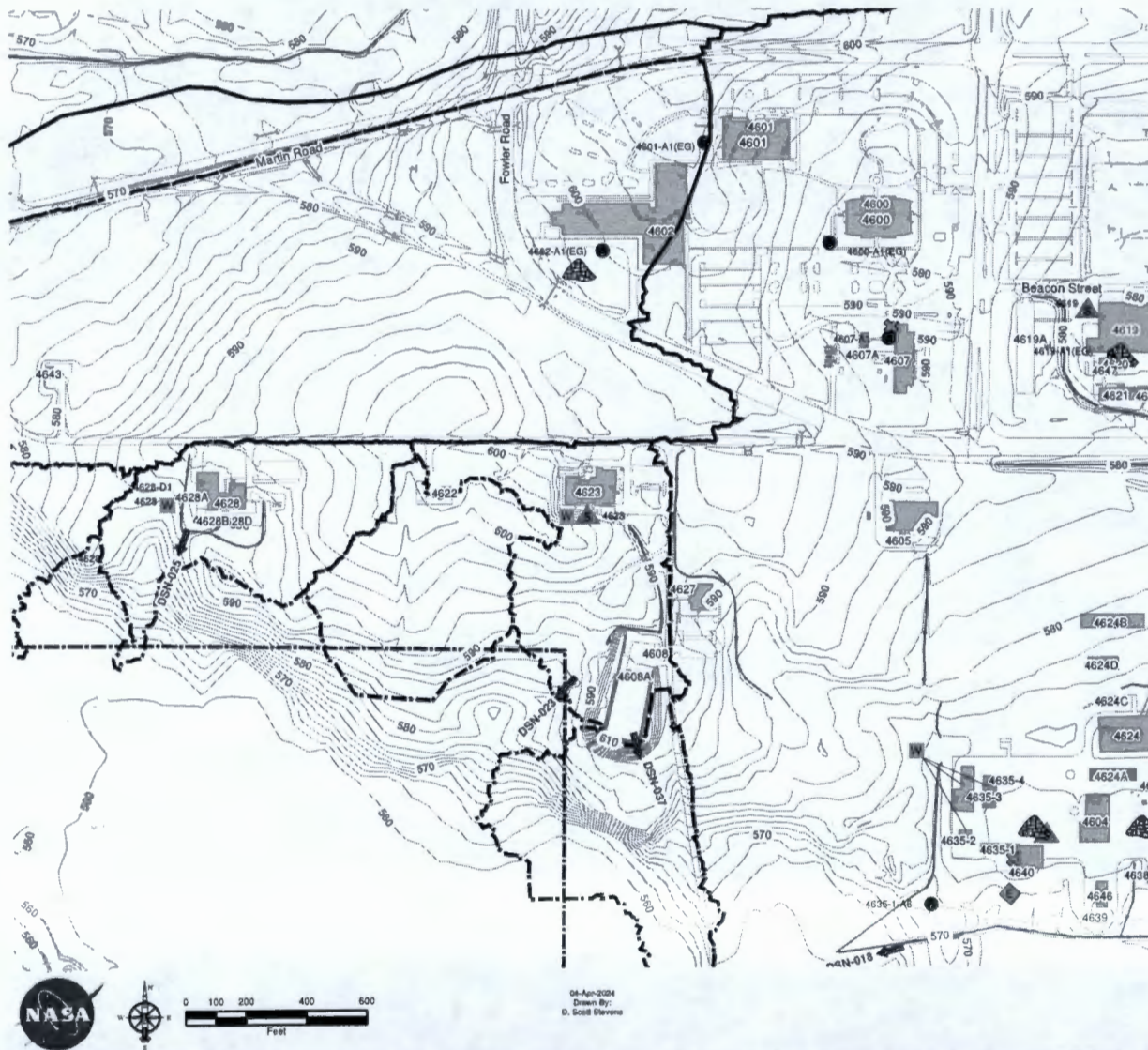
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- ▲ STORAGE YARD
- UNDERGROUND STORAGE TANK
- PORTABLE CONTAINER
- ◆ OIL-FILLED EQUIPMENT
- ▲ SCRAP METAL
- TEST STANDS WITH WATER
- TEST STANDS
- BUILDINGS
- BASIN BOUNDARIES
- UNDERGROUND STORMWATER LINES
- UNDERGROUND CULVERT
- TRANSPORTATION
- DRAINAGES
- OUTFALL



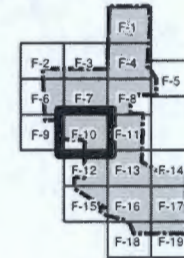
04-Apr-2004
Drawn By:
D. Scott Stevens

Map Document to: mspg NPDES NPDES0305Ver1.0.mxd

Figure F-10
Potential Sources of Stormwater Pollution
Marshall Space Flight Center, Huntsville, AL
NPDES Permit Renewal Application



KEY MAP



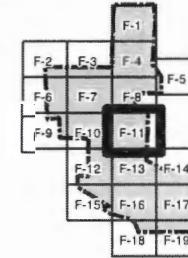
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- HAZARDOUS WASTE OR MATERIAL STORAGE
- STORAGE YARD
- UNDERGROUND STORAGE TANK
- PORTABLE CONTAINER
- ◆ OIL-FILLED EQUIPMENT
- ▲ SCRAP METAL
- TEST STANDS WITH WATER
- TEST STANDS
- BUILDINGS
- BASIN BOUNDARIES
- UNDERGROUND STORMWATER LINES
- UNDERGROUND CULVERT
- TRANSPORTATION
- DRAINAGES
- OUTFALL

Figure F-11
Potential Sources of Stormwater Pollution
Marshall Space Flight Center, Huntsville, AL
NPDES Permit Renewal Application



KEY MAP



Legend

- ABOVE GROUND STORAGE TANK AND ID NO.
- HAZARDOUS WASTE OR MATERIAL STORAGE
- STORAGE YARD
- UNDERGROUND STORAGE TANK
- PORTABLE CONTAINER
- ▲ OIL-FILLED EQUIPMENT
- ▲ SCRAP METAL
- TEST STANDS WITH WATER
- TEST STANDS
- BUILDINGS
- BASIN BOUNDARIES
- UNDERGROUND STORMWATER LINES
- UNDERGROUND CULVERT
- TRANSPORTATION
- DRAINAGES
- OUTFALL

Figure F-12
Potential Sources of Stormwater Pollution
Marshall Space Flight Center, Huntsville, AL
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Most Important Symptoms and Effects Both Acute and Delayed

General: Causes severe skin burns and eye damage.

Inhalation: Contact may cause immediate severe irritation progressing quickly to chemical burns.

Skin Contact: Causes severe skin burns. Symptoms may include: redness, pain, serious skin burns, and blisters.

Eye Contact: Causes serious eye damage. Symptoms may include: redness, pain, swelling, itching, burning, tearing, and blurred vision.

Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: None expected under normal conditions of use.

Indication of Any Immediate Medical Attention and Special Treatment Needed

If you feel unwell, seek medical advice (show the label where possible).

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Unsuitable Extinguishing Media: Do not use water jet. Use of heavy stream of water may spread fire.

Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not considered flammable but may burn at high temperatures.

Explosion Hazard: Not explosive, but may release hydrogen gas on contact with some metals.

Reactivity: May be corrosive to metals. Contact with metals may evolve flammable hydrogen gas.

Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers. Do not breathe fumes from fires or vapors from decomposition. Do not allow run-off from firefighting to enter drains or water courses.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Potassium oxides. Sodium oxides. Phosphorous oxide. Sulfur oxides. Nitrogen compounds. Toxic and corrosive gases and fumes. Formaldehyde.

Reference to Other Sections

Refer to section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Do not breathe vapor, mist or spray. Do not get in eyes, on skin, or on clothing.

For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Environmental Precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

Methods and Material for Containment and Cleaning Up

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Cautiously neutralize spilled liquid. Spills should be contained with mechanical barriers. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

Reference to Other Sections

See heading 8, Exposure Controls and Personal Protection. Concerning disposal elimination after cleaning, see item 13.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Additional Hazards When Processed: Any proposed use of this product in elevated-temperature processes should be thoroughly evaluated to assure that safe operating conditions are established and maintained. Contact with metals may evolve flammable hydrogen gas. May be corrosive to metals.

Hygiene Measures: Do not eat, drink or smoke when using this product. Handle in accordance with good industrial hygiene and safety procedures. Always wash your hands immediately after handling this product, and once again before leaving the workplace.

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Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: May be corrosive to metals. Avoid contact with metals (such as aluminum), which may liberate flammable hydrogen gas that can produce an explosion in confined vessels.

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container closed when not in use. Storage areas should be periodically checked for corrosion and integrity. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials.

Incompatible Materials: Strong acids. Strong bases. Strong oxidizers. Metals. Halogenated hydrocarbons. Maleic anhydride.

Specific End Use(s)

For professional use only.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government.

Sodium bisulfite (7631-90-5)		
USA ACGIH	ACGIH TWA (mg/m ³)	5 mg/m ³
USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen
USA NIOSH	NIOSH REL (TWA) (mg/m ³)	5 mg/m ³
Alberta	OEL TWA (mg/m ³)	5 mg/m ³
British Columbia	OEL TWA (mg/m ³)	5 mg/m ³
Manitoba	OEL TWA (mg/m ³)	5 mg/m ³
New Brunswick	OEL TWA (mg/m ³)	5 mg/m ³
Newfoundland & Labrador	OEL TWA (mg/m ³)	5 mg/m ³
Nova Scotia	OEL TWA (mg/m ³)	5 mg/m ³
Nunavut	OEL STEL (mg/m ³)	10 mg/m ³
Nunavut	OEL TWA (mg/m ³)	5 mg/m ³
Northwest Territories	OEL STEL (mg/m ³)	10 mg/m ³
Northwest Territories	OEL TWA (mg/m ³)	5 mg/m ³
Ontario	OEL TWA (mg/m ³)	5 mg/m ³
Prince Edward Island	OEL TWA (mg/m ³)	5 mg/m ³
Québec	VEMP (mg/m ³)	5 mg/m ³
Saskatchewan	OEL STEL (mg/m ³)	10 mg/m ³
Saskatchewan	OEL TWA (mg/m ³)	5 mg/m ³
Formaldehyde (50-00-0)		
Mexico	OEL Ceiling (mg/m ³)	3 mg/m ³
Mexico	OEL Ceiling (ppm)	2 ppm
USA ACGIH	ACGIH Ceiling (ppm)	0.3 ppm
USA ACGIH	ACGIH chemical category	dermal sensitizer,Suspected Human Carcinogen
USA OSHA	OSHA PEL (TWA) (ppm)	0.75 ppm
USA OSHA	OSHA PEL (STEL) (ppm)	2 ppm (see 29 CFR 1910.1048)
USA NIOSH	NIOSH REL (TWA) (ppm)	0.016 ppm
USA NIOSH	NIOSH REL (ceiling) (ppm)	0.1 ppm
USA IDLH	US IDLH (ppm)	20 ppm
Alberta	OEL Ceiling (mg/m ³)	1.3 mg/m ³
Alberta	OEL Ceiling (ppm)	1 ppm
Alberta	OEL TWA (mg/m ³)	0.9 mg/m ³
Alberta	OEL TWA (ppm)	0.75 ppm
British Columbia	OEL Ceiling (ppm)	1 ppm
British Columbia	OEL TWA (ppm)	0.3 ppm
Manitoba	OEL Ceiling (ppm)	0.3 ppm
New Brunswick	OEL STEL (ppm)	1.5 ppm

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New Brunswick	OEL TWA (ppm)	0.5 ppm
Newfoundland & Labrador	OEL Ceiling (ppm)	0.3 ppm
Nova Scotia	OEL Ceiling (ppm)	0.3 ppm
Nunavut	OEL Ceiling (mg/m ³)	2.4 mg/m ³
Nunavut	OEL Ceiling (ppm)	2 ppm
Northwest Territories	OEL Ceiling (mg/m ³)	2.4 mg/m ³
Northwest Territories	OEL Ceiling (ppm)	2 ppm
Ontario	OEL Ceiling (ppm)	1.5 ppm
Ontario	OEL STEL (ppm)	1.0 ppm
Prince Edward Island	OEL Ceiling (ppm)	0.3 ppm
Québec	PLAFOND (mg/m ³)	3 mg/m ³
Québec	PLAFOND (ppm)	2 ppm
Saskatchewan	OEL Ceiling (ppm)	0.3 ppm
Yukon	OEL Ceiling (mg/m ³)	3 mg/m ³
Yukon	OEL Ceiling (ppm)	2 ppm

Potassium hydroxide (1310-58-3)		
USA ACGIH	ACGIH Ceiling (mg/m ³)	2 mg/m ³
USA NIOSH	NIOSH REL (ceiling) (mg/m ³)	2 mg/m ³
Alberta	OEL Ceiling (mg/m ³)	2 mg/m ³
British Columbia	OEL Ceiling (mg/m ³)	2 mg/m ³
Manitoba	OEL Ceiling (mg/m ³)	2 mg/m ³
New Brunswick	OEL Ceiling (mg/m ³)	2 mg/m ³
Newfoundland & Labrador	OEL Ceiling (mg/m ³)	2 mg/m ³
Nova Scotia	OEL Ceiling (mg/m ³)	2 mg/m ³
Nunavut	OEL Ceiling (mg/m ³)	2 mg/m ³
Northwest Territories	OEL Ceiling (mg/m ³)	2 mg/m ³
Ontario	OEL Ceiling (mg/m ³)	2 mg/m ³
Prince Edward Island	OEL Ceiling (mg/m ³)	2 mg/m ³
Québec	PLAFOND (mg/m ³)	2 mg/m ³
Saskatchewan	OEL Ceiling (mg/m ³)	2 mg/m ³
Yukon	OEL Ceiling (mg/m ³)	2 mg/m ³

Exposure Controls

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Personal Protective Equipment: Protective goggles. Gloves. Protective clothing. Insufficient ventilation: wear respiratory protection. Face shield.

Materials for Protective Clothing: Chemically resistant materials and fabrics.

Hand Protection: Wear chemically resistant protective gloves.

Eye Protection: Chemical safety goggles.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn.

Consumer Exposure Controls: Do not eat, drink or smoke during use

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on Basic Physical and Chemical Properties

Physical State	: Liquid
Appearance	: Clear yellow
Odor	: Bland
Odor Threshold	: Not available
pH	: 12 - 14

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Melting Point	: Not applicable
Freezing Point	: Not available
Boiling Point	: Not available
Flash Point	: Not available
Auto-ignition Temperature	: Not available
Decomposition Temperature	: Not available
Flammability (solid, gas)	: Not applicable
Lower Flammable Limit	: Not available
Upper Flammable Limit	: Not available
Vapor Pressure	: Not available
Relative Vapor Density at 20 °C	: Not available
Relative Density	: Not available
Specific Gravity	: 1.20 - 1.25
Solubility	: Not available
Partition Coefficient: N-Octanol/Water	: Not available
Viscosity	: Not available
Explosion Data – Sensitivity to Mechanical Impact	: Not expected to present an explosion hazard due to mechanical impact.
Explosion Data – Sensitivity to Static Discharge	: Not expected to present an explosion hazard due to static discharge.

SECTION 10: STABILITY AND REACTIVITY

Reactivity: May be corrosive to metals. Contact with metals may evolve flammable hydrogen gas.

Chemical Stability: Stable under recommended handling and storage conditions (see section 7).

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Direct sunlight. Extremely high or low temperatures. Sources of ignition. Incompatible materials.

Incompatible Materials: Strong acids. Strong bases. Strong oxidizers. Metals. Halogenated hydrocarbons. Maleic anhydride.

Hazardous Decomposition Products: Potassium oxides. Sodium oxides. Phosphorous oxide. Sulfur oxides. Nitrogen compounds. Toxic and corrosive gases and fumes. Formaldehyde. Formaldehyde is a potential carcinogen and can act as a potential skin and respiratory sensitizer. Formaldehyde can also cause respiratory and eye irritation.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Toxicological Effects - Product

Acute Toxicity: Not classified

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Causes severe skin burns and eye damage. (pH: 12 - 14)

Serious Eye Damage/Irritation: Causes serious eye damage. (pH: 12 - 14)

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Teratogenicity: Not classified

Carcinogenicity: Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Aspiration Hazard: Not classified

Potential Adverse Human Health Effects and Symptoms: Harmful if swallowed.

Symptoms/Injuries After Inhalation: Contact may cause immediate severe irritation progressing quickly to chemical burns.

Symptoms/Injuries After Skin Contact: Causes severe skin burns. Symptoms may include: redness, pain, serious skin burns, and blisters.

Symptoms/Injuries After Eye Contact: Causes serious eye damage. Symptoms may include: redness, pain, swelling, itching, burning, tearing, and blurred vision.

Symptoms/Injuries After Ingestion: Ingestion is likely to be harmful or have adverse effects.

Chronic Symptoms: None expected under normal conditions of use.

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Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Water (7732-18-5)	
LD50 Oral Rat	> 90000 mg/kg
Sodium bisulfite (7631-90-5)	
LD50 Oral Rat	1310 mg/kg
LD50 Dermal Rat	> 2000 mg/kg
Tetrapotassium pyrophosphate (7320-34-5)	
LD50 Dermal Rabbit	> 2000 mg/kg
LC50 Inhalation Rat (mg/l)	> 1.1 mg/l/4h (Exposure Time: 4 h - Species: Sprague-Dawley)
Sodium ligno sulfonate (8061-51-6)	
LD50 Oral Rat	> 40 g/kg
Formaldehyde (50-00-0)	
LD50 Oral Rat	100 mg/kg
LD50 Dermal Rat	270 mg/kg
ATE US (gases)	700.000 ppmV/4h
Potassium hydroxide (1310-58-3)	
LD50 Oral Rat	333 mg/kg
Sodium bisulfite (7631-90-5)	
IARC Group	3
Formaldehyde (50-00-0)	
IARC Group	1
National Toxicology Program (NTP) Status	Known Human Carcinogens.
OSHA Hazard Communication Carcinogen List	In OSHA Hazard Communication Carcinogen list.
OSHA Specifically Regulated Carcinogen List	In OSHA Specifically Regulated Carcinogen list.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity Not classified

Sodium bisulfite (7631-90-5)	
EC50 Daphnia 1	119 mg/l (Exposure time: 48 h - Species: Daphnia magna)
Tetrapotassium pyrophosphate (7320-34-5)	
LC50 Fish 1	101 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss)
EC50 Daphnia 1	101 mg/l (Exposure time: 48 h - Species: water flea)
Formaldehyde (50-00-0)	
LC50 Fish 1	22.6 - 25.7 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	2 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC 50 Fish 2	1510 µg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
EC50 Daphnia 2	11.3 - 18 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])

Persistence and Degradability

BWT-101	
Persistence and Degradability	Not established. May cause long-term adverse effects in the environment.

Bioaccumulative Potential

BWT-101	
Bioaccumulative Potential	Not established.

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Formaldehyde (50-00-0)	
Log Pow	0.35 (at 25 °C)
Potassium hydroxide (1310-58-3)	
Log Pow	0.65

Mobility in Soil Not available

Other Adverse Effects

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

Sewage Disposal Recommendations: Do not empty into drains; dispose of this material and its container in a safe way.

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations.

SECTION 14: TRANSPORT INFORMATION

14.1 In Accordance with DOT

Proper Shipping Name : POTASSIUM HYDROXIDE, SOLUTION
Hazard Class : 8
Identification Number : UN1814
Label Codes : 8
Packing Group : II
ERG Number : 154



14.2 In Accordance with IMDG

Proper Shipping Name : POTASSIUM HYDROXIDE SOLUTION
Hazard Class : 8
Identification Number : UN1814
Packing Group : II
Label Codes : 8
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-B



14.3 In Accordance with IATA

Proper Shipping Name : POTASSIUM HYDROXIDE SOLUTION
Packing Group : II
Identification Number : UN1814
Hazard Class : 8
Label Codes : 8
ERG Code (IATA) : 8L



14.4 In Accordance with TDG

Proper Shipping Name : POTASSIUM HYDROXIDE, SOLUTION
Packing Group : II
Hazard Class : 8
Identification Number : UN1814
Label Codes : 8



SECTION 15: REGULATORY INFORMATION

US Federal Regulations

BWT-101	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard
Water (7732-18-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

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2-Propenoic acid, polymer with 2-methyl-2-[(1-oxo-2-propenyl)amino]-1-propanesulfonic acid monosodium salt and sodium phosphinite (110224-99-2)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Sodium bisulfite (7631-90-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Tetrapotassium pyrophosphate (7320-34-5)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard
Sodium ligno sulfonate (8061-51-6)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Formaldehyde (50-00-0)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Listed on the United States SARA Section 302	
Listed on United States SARA Section 313	
SARA Section 302 Threshold Planning Quantity (TPQ)	500
SARA Section 311/312 Hazard Classes	Delayed (chronic) health hazard Immediate (acute) health hazard Fire hazard
SARA Section 313 - Emission Reporting	0.1 %
Sodium polymethacrylate (54193-36-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	
Potassium hydroxide (1310-58-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

US State Regulations

Formaldehyde (50-00-0)	
U.S. - California - Proposition 65 - Carcinogens List	WARNING: This product contains chemicals known to the State of California to cause cancer.
Sodium bisulfite (7631-90-5)	
U.S. - Massachusetts - Right To Know List	
U.S. - New Jersey - Right to Know Hazardous Substance List	
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List	
U.S. - Pennsylvania - RTK (Right to Know) List	
Formaldehyde (50-00-0)	
U.S. - Massachusetts - Right To Know List	
U.S. - New Jersey - Right to Know Hazardous Substance List	
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List	
U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances	
U.S. - Pennsylvania - RTK (Right to Know) List	
Potassium hydroxide (1310-58-3)	
U.S. - Massachusetts - Right To Know List	
U.S. - New Jersey - Right to Know Hazardous Substance List	
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List	
U.S. - Pennsylvania - RTK (Right to Know) List	

Canadian Regulations

BWT-101	
WHMIS Classification	Class E - Corrosive Material Class D Division 2 Subdivision B - Toxic material causing other toxic effects

Safety Data Sheet



Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification	Uncontrolled product according to WHMIS classification criteria
----------------------	---

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification	Class D Division 2 Subdivision B - Toxic material causing other toxic effects
----------------------	---

Listed on the Canadian DSL (Domestic Substances List)

Listed on the Canadian IDL (Ingredient Disclosure List)

IDL Concentration 1 %

WHMIS Classification	Uncontrolled product according to WHMIS classification criteria
----------------------	---

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification	Class D Division 2 Subdivision B - Toxic material causing other toxic effects
----------------------	---

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification	Uncontrolled product according to WHMIS classification criteria
----------------------	---

Listed on the Canadian DSL (Domestic Substances List)

Listed on the Canadian IDL (Ingredient Disclosure List)

IDL Concentration 0.1 %

WHMIS Classification	Class D Division 1 Subdivision A - Very toxic material causing immediate and serious toxic effects Class D Division 1 Subdivision B - Toxic material causing immediate and serious toxic effects Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects Class E - Corrosive Material
----------------------	--

Listed on the Canadian DSL (Domestic Substances List)

WHMIS Classification	Uncontrolled product according to WHMIS classification criteria
----------------------	---

Listed on the Canadian DSL (Domestic Substances List)

Listed on the Canadian IDL (Ingredient Disclosure List)

IDL Concentration 1 %

WHMIS Classification	Class D Division 1 Subdivision B - Toxic material causing immediate and serious toxic effects
	Class E - Corrosive Material
	Class D Division 2 Subdivision B - Toxic material causing other toxic effects

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

Revision date : 07/14/2015

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

Acute Tox. 3 (Dermal)	Acute toxicity (dermal) Category 3
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Safety Data Sheet

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Acute Tox. 3 (Inhalation:gas)	Acute toxicity (inhalation:gas) Category 3
Acute Tox. 3 (Oral)	Acute toxicity (oral) Category 3
Acute Tox. 4 (Oral)	Acute toxicity (oral) Category 4
Aquatic Acute 2	Hazardous to the aquatic environment - Acute Hazard Category 2
Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Carc. 2	Carcinogenicity Category 2
Comb. Dust	Combustible Dust
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Met. Corr. 1	Corrosive to metals Category 1
Skin Corr. 1A	Skin corrosion/irritation Category 1A
Skin Corr. 1B	Skin corrosion/irritation Category 1B
Skin Sens. 1	Skin sensitization Category 1
Comb. Dust	May form combustible dust concentrations in air
H290	May be corrosive to metals
H301	Toxic if swallowed
H302	Harmful if swallowed
H311	Toxic in contact with skin
H314	Causes severe skin burns and eye damage
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H319	Causes serious eye irritation
H331	Toxic if inhaled
H351	Suspected of causing cancer
H401	Toxic to aquatic life
H402	Harmful to aquatic life
H412	Harmful to aquatic life with long lasting effects

Party Responsible for the Preparation of This Document

CHEMRITE, INC.

For SDS Info: (770) 271-5576

Handle product with due care and avoid unnecessary contact. This information is supplied under U.S. OSHA'S "Right to Know" (29 CFR 1910.1200) and Canada's WHMIS regulations. Although certain hazards are described herein, we cannot guarantee these are the only hazards that exist. The information contained herein is based on data available to us and is believed to be true and accurate but it is not offered as a product specification. No warranty, expressed or implied, regarding the accuracy of this data, the hazards connected with the use of the product, or the results to be obtained from the use thereof, is made and Chemrite and its affiliates assume no responsibility.

8476

MATERIAL SAFETY
DATA SHEET

KEYSTONE LABORATORIES INC

cage-441

P O BOX 1367
DECATUR AL 35602
(256) 355-4783

24 HOUR EMERGENCY TELEPHONE: CHEMTREC (800) 424-9300

KEYSTONE PRODUCT NAME: KEYSTONE 3015.

LATEST REVISION: SEPTEMBER, 1998

PREPARED BY:

Whitney H. Huggins

SECTION I - PRODUCT IDENTIFICATION

CHEMICAL NAME AND SYNONYMS: SODIUM HYPOCHLORITE

CHEMICAL FAMILY: CHLORINE

FORMULA: PROPRIETARY

SECTION II - HAZARDOUS COMPONENTS

INGREDIENT	PERCENT	PEL	TLV	TOXICITY DATA
Sodium Hypochlorite	15	None Est	None Est	None Est

INGREDIENTS NOT PRECISELY IDENTIFIED ARE PROPRIETARY OR NONHAZARDOUS. ALL INGREDIENTS APPEAR ON THE EPA TSCA INVENTORY. VALUES ARE NOT PRODUCT SPECIFICATIONS.

SECTION III - PHYSICAL DATA

INITIAL BOILING POINT (F): 110 degrees SPECIFIC GRAVITY (H2O=1): 1.206
VAPOR PRESSURE: None Est %VOLATILE BY VOLUME: 94
VAPOR DENSITY (AIR=1): None Est EVAPORATION RATE (H2O=1): 1
SOLUBILITY IN WATER: Complete
APPEARANCE AND ODOR: Straw to yellow liquid, mild chlorine odor.

SECTION IV - FIRE AND EXPLOSION DATA

FLASH POINT: None Est
EXPLOSIVE LIMIT: None Est
EXTINGUISHING MEDIA: None Est
HAZARDOUS DECOMPOSITION PRODUCT: Hydrogen chloride, chlorine may be released.
SPECIAL FIREFIGHTING PROCEDURES: KEYSTONE 3015 is non-flammable. Wear self-contained breathing apparatus. Thoroughly wash area. Chlorine dioxide gas, (explosive at air concentrations greater than 10%), may be evolved if KEYSTONE 3015 is mixed with reducing acids or chlorine.

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE

BREATHING: Irritation to nose and throat.
EYES: Irreversible eye damage.
SKIN: Irritation.
SWALLOWING: None Est

SECTION V - HEALTH HAZARD DATA (CONTINUED)

FIRST AID

IF ON SKIN: Wash thoroughly with soap and water.
IF IN EYES: Flush eyes with water for 15 minutes; obtain medical assistance.
Wash contaminated clothing before reuse.
IF SWALLOWED: Feed bread soaked in milk, followed by olive oil or cooking oil.
Do not induce vomiting or give anything by mouth to an unconscious person.
IF BREATHED: Remove to fresh air.

SECTION VI - REACTIVITY DATA

HAZARDOUS POLYMERIZATION: Will not occur.
STABILITY: Stable.
INCOMPATIBILITY: Organics and any other readily oxidizable materials (strong reducing agents).

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED .

Sweep up spilled material and place in a clean, suitable container. Avoid contact with skin, eyes, or clothing. Avoid inhalation of dusts. Wash area of spill with large amounts of water. Wastes resulting from the use of this product may be disposed of on-site or at an approved disposal facility. Do not reuse empty container. Triple rinse the container (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incinerate. Burn only if allowed by state and local authorities. If burned stay out of smoke.

SECTION VIII - PROTECTIVE EQUIPMENT TO BE USED

RESPIRATORY PROTECTION: Dust mask essential where dusting may occur.
VENTILATION: Local exhaust recommended where dusting may occur.
PROTECTIVE GLOVES: Essential
EYE PROTECTION: Cup-type chemical safety goggles.
OTHER PROTECTIVE EQUIPMENT: Clothing designed to minimize skin contact.

SECTION IX - TRANSPORTATION INFORMATION

TRANSPORTATION INCIDENT INFORMATION: FOR FURTHER INFORMATION RELATIVE TO SPILLS RESULTING FROM TRANSPORTATION INCIDENTS, REFER TO LATEST DEPARTMENT OF TRANSPORTATION EMERGENCY RESPONSE GUIDEBOOK FOR HAZARDOUS MATERIALS INCIDENTS, DOT P 5800.3.

DOT IDENTIFICATION NUMBER: UN 1791 N.O.S.

THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE BASED UPON DATA BELIEVED TO BE CORRECT. HOWEVER, NO GUARANTEE OR WARRANTY OF ANY KIND EXPRESSED OR IMPLIED IS MADE WITH RESPECT TO THE INFORMATION CONTAINED HEREIN.

Keystone
PO# A 20193
J. Hicks

MATERIAL SAFETY
DATA SHEET

KEYSTONE LABORATORIES, INC.

P. O. BOX 1367
DECATUR, AL 35602
(205) 355-4783

PART A

24-HOUR EMERGENCY TELEPHONE: CHEMTREC 1-800-424-9300

KEYSTONE PRODUCT NAME: KEYSTONE 3020.

LATEST REVISION: June, 1991. PREPARED BY: W.W. Ferguson

SECTION I - PRODUCT IDENTIFICATION

CHEMICAL NAME AND SYNONYMS: Dithiocarbamate.

CHEMICAL FAMILY: Microbiocide. FORMULA: Proprietary.

SECTION II - HAZARDOUS COMPONENTS

INGREDIENT	PERCENT	PEL	TLV	TOXICITY DATA
POTASSIUM DIMETHYL DITHIOCARBAMATE	25	NONE	NONE	NONE

INGREDIENTS NOT PRECISELY IDENTIFIED ARE PROPRIETARY OR NONHAZARDOUS.
ALL INGREDIENTS APPEAR ON THE EPA TSCA INVENTORY. VALUES ARE NOT
PRODUCT SPECIFICATIONS.

SECTION III - PHYSICAL DATA

INITIAL BOILING POINT (F): 209 degrees SPECIFIC GRAVITY (H2O=1): 1.08
VAPOR PRESSURE: 18 % VOLATILE BY VOLUME: 80
VAPOR DENSITY (AIR=1): None. EVAPORATION RATE (H2O=1): Water
SOLUBILITY IN WATER: Complete.
APPEARANCE AND ODOR: Light straw to yellow liquid.

SECTION IV - FIRE AND EXPLOSION DATA

FLASH POINT: None.
EXPLOSIVE LIMIT: None.
EXTINGUISHING MEDIA: None.
HAZARDOUS DECOMPOSITION PRODUCTS: None.
SPECIAL FIREFIGHTING PROCEDURES: None.

SECTION V - HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE

BREATHING: See attached page.
EYES: See attached page.
SKIN: See attached page.
SWALLOWING: See attached page.

SECTION V - HEALTH HAZARD DATA (CONTINUED)

FIRST AID

IF ON SKIN: See attached page.
IF IN EYES: See attached page.
IF SWALLOWED: See attached page.
IF BREATHED: See attached page.

SECTION VI - REACTIVITY DATA

HAZARDOUS POLYMERIZATION: Will not occur.
STABILITY: Stable.
INCOMPATIBILITY: None.

SECTION VII - SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Hose down area of spill. To dispose of pour down drain in small increments with plenty of water.

SECTION VIII - PROTECTIVE EQUIPMENT TO BE USED

RESPIRATORY PROTECTION: None.
VENTILATION: Local exhaust non-recirculating.
PROTECTIVE GLOVES: Non-permeable type.
EYE PROTECTION: Recommended.
OTHER PROTECTIVE EQUIPMENT: None.

SECTION IX - TRANSPORTATION INFORMATION

TRANSPORTATION INCIDENT INFORMATION: FOR FURTHER INFORMATION RELATIVE TO SPILLS RESULTING FROM TRANSPORTATION INCIDENTS, REFER TO LATEST DEPARTMENT OF TRANSPORTATION EMERGENCY RESPONSE GUIDEBOOK FOR HAZARDOUS MATERIALS INCIDENTS, DOT P 5800.3.

DOT IDENTIFICATION NUMBER: Not regulated.

THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE BASED UPON DATA BELIEVED TO BE CORRECT. HOWEVER, NO GUARANTEE OR WARRANTY OF ANY KIND EXPRESSED OR IMPLIED IS MADE WITH RESPECT TO THE INFORMATION CONTAINED HEREIN.

update 937

MATERIAL SAFETY DATA SHEET

24-Hour Emergency Telephone: CHEMTREC (800) 424-9300

KEYSTONE PRODUCT NAME: KEYSTONE 3124

LATEST REVISION: June 2001

PREPARED BY:

SECTION I - PRODUCT IDENTIFICATION

CHEMICAL NAME AND SYNONYMS: Molybdate - Polyacrylic acid

CHEMICAL FAMILY: Polyacrylate

FORMULA: PROPRIETARY

SECTION II - HAZARDOUS COMPONENTS

IF PRESENT, IARC, NTP AND OSHA CARCINOGENS ARE IDENTIFIED IN THIS SECTION

INGREDIENT	PERCENT	PEL	TLV	TOXICITY DATA
Polymaleic Acid	< 2.0%	None Est	None Est	None Est
CAS# 26099-09-2				
Caustic Potash	< 7.0%	None Est	None Est	None Est
CAS# 1310-58-3				
(Hydroxyethylidene)	< 5.0%	None Est	None Est	None Est
diphosphonic acid	CAS# 2809-21-4			
Alkyl Dimethyl	< 1.0%	None Est	5 mg/m3	None Est
Benzyl ammonium chloride	CAS# 68424-85-1			
Sodium Tolytriazole	< 2.0%	None Est	None Est	None Est
CAS# 29385-43-1				
Sodium polyacrylate	< 8.0%	None Est	None Est	None Est

INGREDIENTS NOT PRECISELY IDENTIFIED ARE PROPRIETARY OR NON-HAZARDOUS. ALL INGREDIENTS APPEAR ON THE EPA TSC INVENTORY. VALUES ARE NOT PRODUCT SPECIFICATIONS.

SECTION III - PHYSICAL DATA

INITIAL BOILING POINT (F): 220 degrees	SPECIFIC GRAVITY (H ₂ O=1): 1.20
VAPOR PRESSURE: 25	%VOLATILE BY VOLUME: 85
VAPOR DENSITY (AIR=1): 1.0	EVAPORATION RATE (H ₂ O=1): 1.0
SOLUBILITY IN WATER: Total	
APPEARANCE AND ODOR: Amber liquid; very slight odor.	

SECTION IV - FIRE AND EXPLOSION DATA

FLASH POINT: Above 250 degrees F
EXPLOSIVE LIMIT: None Est
EXTINGUISHING MEDIA: Water
HAZARDOUS DECOMPOSITION PRODUCT: None Est
SPECIAL FIREFIGHTING PROCEDURES: None Est

SECTION V – HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE

BREATHING: Possible mild irritation.

EYES: Irritation.

SKIN: Possible mild irritation.

SWALLOWING: May be toxic. Due to high pH, may cause severe irritation to internal tissues.

FIRST AID

IF ON SKIN: Rinse affected area with water.

IF IN EYES: Flush with water, consult physician.

IF SWALLOWED: Do not induce vomiting; seek medical attention. Drink water.

IF BREATHED: Remove to fresh air.

SECTION VI – REACTIVITY DATA

HAZARDOUS POLYMERIZATION: Will not occur.

CONDITIONS TO AVOID: None Est

STABILITY: Stable

CONDITIONS TO AVOID: None Est

INCOMPATIBILITY: None Est

SECTION VII – SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Wash down storm sewer with water. Dispose of in storm sewer.

SECTION VIII – PROTECTIVE EQUIPMENT TO BE USED

RESPIRATORY PROTECTION: None Est

VENTILATION: None Est

PROTECTIVE GLOVES: Recommended

EYE PROTECTION: Safety glasses

OTHER PROTECTIVE EQUIPMENT: Apron, gloves

SECTION IX – TRANSPORTATION INFORMATION

TRANSPORTATION INCIDENT INFORMATION:

FOR FURTHER INFORMATION RELATIVE TO SPILLS RESULTING FROM TRANSPORTATION INCIDENTS, REFER TO LATEST DEPARTMENT OF TRANSPORTATION (DOT) EMERGENCY RESPONSE GUIDEBOOK FOR HAZARDOUS MATERIALS INCIDENTS, DOT P 5800.3.

DOT IDENTIFICATION NUMBER: UN1760

THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE BASED UPON DATA BELIEVED TO BE CORRECT. HOWEVER, NO GUARANTEE OR WARRANTY OF ANY KIND EXPRESSED OR IMPLIED IS MADE WITH RESPECT TO THE INFORMATION CONTAINED HEREIN.

update 938

MATERIAL SAFETY DATA SHEET

24-Hour Emergency Telephone: CHEMTREC (800) 424-9300

KEYSTONE PRODUCT NAME: KEYSTONE 3723

LATEST REVISION: June 2001

PREPARED BY:

SECTION I - PRODUCT IDENTIFICATION

CHEMICAL NAME AND SYNONYMS: Molybdate-nitrite solution

CHEMICAL FAMILY: Nitrite

FORMULA: PROPRIETARY

SECTION II - HAZARDOUS COMPONENTS

IF PRESENT, IARC, NTP AND OSHA CARCINOGENS ARE IDENTIFIED IN THIS SECTION

INGREDIENT	PERCENT	PEL	TLV
Sodium Molybdate CAS#7631-95-0	<18%	None Est	5 mg/m3
Caustic Potash CAS#1310-58-3	<1%	None Est	2 mg/m3
Sodium Nitrite CAS#7632-00-0	<9%	None Est	None Est
Sodium Tolytriazole CAS#29385-43-1	<1.0%	None Est	None Est
Sodium Lignosulfonate CAS#68131-31-7	<1%	None Est	None Est

INGREDIENTS NOT PRECISELY IDENTIFIED ARE PROPRIETARY OR NON-HAZARDOUS. ALL INGREDIENTS APPEAR ON THE EPA TSC INVENTORY. VALUES ARE NOT PRODUCT SPECIFICATIONS.

SECTION III - PHYSICAL DATA

INITIAL BOILING POINT (F): 220 degrees	SPECIFIC GRAVITY (H ₂ O=1): 1.07
VAPOR PRESSURE: 18	%VOLATILE BY VOLUME: 81
VAPOR DENSITY (AIR=1): 1.0	EVAPORATION RATE (H ₂ O=1): 1.0
SOLUBILITY IN WATER: Total	
APPEARANCE AND ODOR: Clear medium to dark liquid; no odor.	

SECTION IV - FIRE AND EXPLOSION DATA

FLASH POINT: Above 250 degrees F
EXPLOSIVE LIMIT: None Est
EXTINGUISHING MEDIA: Water, carbon dioxide, foam
HAZARDOUS DECOMPOSITION PRODUCT: N₂O₃
SPECIAL FIREFIGHTING PROCEDURES: None Est

SECTION V – HEALTH HAZARD DATA

EFFECTS OF OVEREXPOSURE

BREATHING: Not a route of exposure.
EYES: Irritation after prolonged contact.
SKIN: Irritation after prolonged contact.
SWALLOWING: None known.

FIRST AID

IF ON SKIN: Flush with large amounts of water.
IF IN EYES: Flush with large amounts of water, consult physician.
IF SWALLOWED: Do not induce vomiting, seek medical attention immediately.
IF BREATHED: Remove to fresh air.

SECTION VI – REACTIVITY DATA

HAZARDOUS POLYMERIZATION: Will not occur.
STABILITY: Stable
INCOMPATIBILITY: Strong acids, reducing agents.

SECTION VII – SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Avoid excessive skin contact. Flush spill area with water until clean. To dispose of, flush down storm or sanitary sewer.

SECTION VIII – PROTECTIVE EQUIPMENT TO BE USED

RESPIRATORY PROTECTION: None Est
VENTILATION: Mechanical recommended
PROTECTIVE GLOVES: Recommended
EYE PROTECTION: Safety glasses or goggles
OTHER PROTECTIVE EQUIPMENT: None Est

SECTION IX – TRANSPORTATION INFORMATION

TRANSPORTATION INCIDENT INFORMATION:

FOR FURTHER INFORMATION RELATIVE TO SPILLS RESULTING FROM TRANSPORTATION INCIDENTS, REFER TO LATEST DEPARTMENT OF TRANSPORTATION (DOT) EMERGENCY RESPONSE GUIDEBOOK FOR HAZARDOUS MATERIALS INCIDENTS, DOT P 5800.3.

DOT IDENTIFICATION NUMBER: UN1760

THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE BASED UPON DATA BELIEVED TO BE CORRECT. HOWEVER, NO GUARANTEE OR WARRANTY OF ANY KIND EXPRESSED OR IMPLIED IS MADE WITH RESPECT TO THE INFORMATION CONTAINED HEREIN.

**Supplement to NPDES App.
Biocides and Corrosion Inhibitors**

NASA-MSFC

Additive Name	Trade Name	Frequency of Use	Purpose	Quantities to be Used	Proposed Discharge Concentrations	EPA Registration Number	96-hour Median Tolerance Limit
Liquid Caustic Potash (7732-18-5); Sodium Metabisulfate (7681-57-4); 2-Phosphonobutane-1,2,4-Tricarboxylic Acid (37971-36-1)	CHEM-E BWT-101	As Needed	Internal Steam Boiler Water Treatment	~ 10 gal/month	0*	N/A	N/A
Sodium Hypochlorite (7681-52-9)	Keystone 3015	As needed	Biocide for cooling towers located at 4473, 4561, 4570, 4583, 4607, 4614, 4628, 4666, 4670, 4674, and 4718.	~100 - 125 gallons/month	0*	N/A	0.6 mg/L Bluegil 1.0 mg/L Daphnia (48 hours, Aquatic LC ₅₀ Toxic)
Potassium Dimethyl Dithiocarbamate	Keystone 3020	As needed	Biocide for cooling towers located at 4473, 4561, 4570, 4583, 4607, 4614, 4628, 4666, 4670, 4674, and 4718.	~100 - 125 gallons/month	0*	1448-277	N/A
Polymaleic Acid (26099-09-2); Caustic Potash (1310-58-3); diphosphonic acid (2609-21-4); Alkyl Dimethyl (68424-85-1); Sodium Tolytriazolen (29385-43-1); Sodium Polyacrylate (9003-04-7)	Keystone 3124	As needed	Biocide for cooling towers located at 4473, 4561, 4570, 4583, 4607, 4614, 4628, 4666, 4670, 4674, and 4718.	~100 - 125 gallons/month	0*	N/A	N/A
Sodium Molybdate (7631-95-0); Caustic Potash (1310-58-3); Sodium Nitrate (7632-00-0); Sodium Tolytriazolen (29385-43-1); Sodium Lignosulfonate (68131-31-7)	Keystone 3723	Continual	Chiller plant for buildings located at 4203, 4207, 4353, 4471, 4476, 4481, 4487, 4561, 4570, 4583, 4605, 4610, 4612, 4618, 4619, 4650, 4653, 4663, 4674, 4702, 4705, 4707, 4708, 4712, 4714, 4718, 4735, 4755	~100 - 125 gallons/month	0*	N/A	N/A

Notes: According to MSDSs, the above listed hazardous ingredients are included in the respective products.

N/A = not available

*Cooling towers are routed to sewer and do not flow to any NPDES outfalls

Delegation of Signatory Authority

Directions for Use:

1. This document may be used by a Responsible Official (as defined in 335-6-6-.09(1) or 335-6-5-.14(1)) to delegate signatory authority to an individual or position within an organization that has/have responsibility for the overall operation of the regulated facility or activity pursuant to the following regulations:

335-6-6-.09(2) [NPDES Permits]/335-6-5-.14(2) [State Indirect Discharge (SID) Permits]

All reports required by permits and other information requested by the Department shall be signed by a person described under paragraph 335-6-6-.09(1)/335-6-5-.14(1) or by a duly authorized representative of that person. **A person is a duly authorized representative only if:**

- (a) The authorization is made in writing by a person described in paragraph 335-6-6-.09(1)/335-6-5-.14(1);
- (b) The authorization specifies either an individual or a position **having responsibility for the overall operation of the regulated facility or activity** and;
- (c) The written authorization is submitted to the Department.

2. To sign this form as a Responsible Official, the person must be at a level of Vice President or higher, a Managing Member, a Partner, an Owner, or a Ranking Elected Official for the company/entity holding the permit or its parent company.
3. All information requested must be provided.

A. Responsible Official (i.e. person delegating signatory rights):

Name	Title/Position	Company/Organization	Phone	Email
June Malone	Director, Office of Center Operations	NASA/Marshall Space Flight Center	256-714-7494	june.e.malone@nasa.gov

B. Duly Authorized Representative (i.e. individual(s) or position (s) being delegated signatory authority):

Name	Title/Position	Company/Organization	Phone	Email
Farley Davis	Manager, Env Eng and Occ Health Office	NASA/Marshall Space Flight Center	256-714-4151	farley.davis@nasa.gov

C. NPDES or SID Permit Number(s) for which the delegation will apply (Note: if permit not issued yet, site name and location will suffice):

AL0000221

D. Certification:

I, the abovenamed Responsible Official, delegate the individual(s)/position(s) named above the authority to sign reports, notifications, and other information on my behalf for the permit(s)/site(s) listed above and certify that the individual(s)/position(s) named above has/have responsibility for the overall operation of the regulated facility or activity.

June E. Malone

03/03/2025

Responsible Official's Signature

Date Signed

Note: If an individual or position listed above does NOT have responsibility for the overall operation of the regulated facility or activity, the delegation for that individual or position will NOT be honored by the Department. In addition, if the person signing this delegation does not meet the definition of Responsible Official in 335-6-6-.09(1) or 335-6-5-.14(1), this delegation will not be honored by the Department.

NPDES Permit Renewal Application

Prepared for
**National Aeronautics and Space Administration
Marshall Space Flight Center
Huntsville, Alabama
NPDES Permit # AL0000221**

February 2025

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Acronyms and Abbreviations

°C	degree(s) Celsius
ADEM	Alabama Department of Environmental Management
AST	aboveground storage tank
BOD	biochemical oxygen demand
BOD ₅	5-day biochemical oxygen demand
CFR	<i>Code of Federal Regulations</i>
CH2M	CH2M HILL, Inc.
COD	chemical oxygen demand
EPA	U.S. Environmental Protection Agency
mgd	million gallons per day
mL	milliliter(s)
MSFC	Marshall Space Flight Center
N/A	not applicable
NASA	National Aeronautics and Space Administration
Na ₂ S ₂ O ₃	sodium thiosulfate
NH ₃	ammonia
NPDES	National Pollutant Discharge Elimination System
RSA	Redstone Arsenal
SAP	Sampling and Analysis Plan
SID	State Indirect Discharge
SO ₄	sulfate
TCE	trichloroethene
TKN	total Kjeldahl nitrogen
TOC	total organic carbon
TSS	total suspended solids
UST	underground storage tank
VOC	volatile organic compound

SECTION 1

Introduction

The National Aeronautics and Space Administration (NASA) is submitting to the Alabama Department of Environmental Management (ADEM) its National Pollutant Discharge Elimination System (NPDES) permit application for the Marshall Space Flight Center (MSFC) near Huntsville, Alabama, for the renewal of NPDES Permit AL0000221.

1.1 Site Description

MSFC is located on 1,840 acres within Redstone Arsenal near Huntsville, Alabama (Figure 1-1). MSFC was established by a Presidential Executive Order in March 1960 to support a national program for the exploration of space. MSFC is used to design, fabricate, and test rocket vehicles, engines, and spacecraft components. Support operations in propellant handling, process development, and basic research are conducted. MSFC is NASA's primary propulsion development center. Its scientists, engineers, and support personnel play a major role in the development of the new Space Launch System; advanced technologies necessary for the human journey to Mars; and the next generation of missions to observe the outer edge of the universe, the surface of the sun, and our own planet, Earth.

1.2 NPDES Permit Background

NASA currently holds NPDES permit number AL0000221 for MSFC, which became effective on September 1, 2020, and expires on August 31, 2025. Under its existing NPDES permit, NASA is authorized to discharge treated process wastewater and stormwater to Indian Creek, an unnamed tributary (UT) to Indian Creek, an UT to Wheeler Lake, and an UT to Huntsville Spring Branch via 19 outfalls. An additional outfall (DSN037) is being added for a pistol range. This application includes completed U.S. Environmental Protection Agency (EPA) Forms 1, 2C, and 2F.

1.3 NPDES Permit Renewal Application Overview

Because NASA's current NPDES permit expires on August 31, 2025, this application for permit renewal is being submitted to ADEM by March 4, 2025, which is 180 days prior to the expiration of the existing permit to ensure automatic administrative extension of the permit. This application includes a description of the facility and its discharges, the requested permit changes, and the required EPA Forms 1, 2C, and 2F.

Description of Outfalls and Sampling

2.1 Outfall Descriptions

NASA has 19 permitted outfalls in its existing NPDES permit for MSFC. MSFC is requesting the addition of a new outfall for the pistol ranges that will be DSN037. Including the new outfall, 20 outfalls are included in this permit application, 2 that are combined process water and stormwater outfalls and 18 that are stormwater- only outfalls. Further details are provided in Table 2-1 of this document.

2.2 NPDES Permit Renewal Sampling

Based on ADEM's concurrence, 5 stormwater only outfalls were sampled as representative of all stormwater outfalls and the 2 combined process and stormwater outfalls were sampled. The combined process water and stormwater outfalls were sampled during dry weather, and during a storm event; all other outfalls were sampled during storm events. Table 2-1 describes the discharge sources and lists the EPA forms to be completed for the permit renewal application.

TABLE 2-1
Outfall Descriptions
NASA MSFC NPDES Permit Renewal Sampling Plan

Outfall		Description of Sources	Acreage	Sampling Required	EPA Form	Comments
DSN001	None		N/A	N/A	N/A	The outfall was plugged and removed from the NPDES permit during the 2018 renewal.
DSN003	None		N/A	N/A	N/A	This outfall is included in DSN022 and was eliminated in 1995.
DSN003A	None		N/A	N/A	N/A	This outfall was changed to DSN022A in 1995. The sources have been removed; DSN022A was eliminated in 2001.
DSN004	None		N/A	N/A	N/A	The sources have been removed; DSN004 was eliminated in 1995.
DSN005	None		N/A	N/A	N/A	This outfall is included in DSN016 and was eliminated in 1995.
DSN006	None		N/A	N/A	N/A	This outfall is included in DSN012 and was eliminated in 1995.
DSN007	None		N/A	N/A	N/A	This outfall is included in DSN018 and was eliminated in 2001.
DSN008	Stormwater associated with industrial activities from: AST dike drainage, vehicle fueling area/loading and unloading and storage yard runoff	66	Yes (during a rain event)	2F	DSN008 was sampled during rain event. This outfall is representative for DSN016, DSN,017, DSN020, and DSN021.	
DSN009	None	N/A	N/A	N/A	The sources have been removed; DSN009 was eliminated in 2006.	
DSN010	Stormwater associated with industrial activities from: Hazardous waste or material storage/drum storage, storage yards and test stand area runoff	82	No (DSN033 is representative)	2F	DSN033 was sampled as representative for this outfall.	
DSN011	None	N/A	N/A	N/A	The sources have been removed; DSN011 was eliminated in 2006.	
DSN012	Process water: Test Stand Overflow Stormwater associated with industrial activities from: Hazardous waste or material storage/drum storage, storage yards and test stand area runoff	58	Yes (during dry weather and a rain event)	2C, 2F	DSN012 was sampled for 2C during dry weather to capture test overflow. It was also sampled during a rain event.	

TABLE 2-1
Outfall Descriptions
NASA MSFC NPDES Permit Renewal Sampling Plan

Outfall	Description of Sources	Acreage	Sampling Required	EPA Form	Comments
DSN013	Stormwater associated with industrial activities from: Hazardous waste or material storage/drum storage, storage yards, oil filled equipment and scrap metal runoff	25	No (DSN033 is representative)	2F	DSN033 was sampled as representative for this outfall.
DSN014	None	N/A	N/A	N/A	The sources have been removed; DSN014 was eliminated in 2006.
DSN015	Stormwater associated with industrial activities from: Storage yard runoff	3.5	No (DSN033 is representative)	2F	DSN033 was sampled as representative for this outfall.
DSN016	Stormwater associated with industrial activities from: AST dike drainage, hazardous waste or material storage/drum storage, storage yards, portable equipment, oil filled equipment, scrap metal and test stand area runoff	191	No (DSN008 is representative)	2F	DSN008 was sampled as representative for this outfall.
DSN017	Stormwater associated with industrial activities from: AST dike drainage, hazardous waste or material storage/drum storage, storage yards and scrap metal runoff	17	No (DSN008 is representative)	2F	DSN008 was sampled as representative for this outfall.
DSN018	Stormwater associated with industrial activities from: AST dike drainage, UST loading/unloading, vehicle fueling area, hazardous waste or material storage/drum storage, storage yards, oil filled equipment, and scrap metal runoff	697	Yes (during a rain event)	2F	DSN018 was sampled during a rain event.
DSN019	Process water: Test Stand Overflow and TCE-contaminated groundwater from basement dewatering activities Stormwater associated with industrial activities from: AST dike drainage, vehicle fueling area, hazardous waste or material storage/drum storage, storage yards, portable tank pad, scrap metal and test stand area runoff	41	Yes (during dry weather and a rain event)	2C, 2F	DSN019 was sampled at the treatment system effluent for 2C during dry weather to capture TCE-contaminated groundwater from basement dewatering activities. It was sampled during a rain event for 2F.

TABLE 2-1
Outfall Descriptions
NASA MSFC NPDES Permit Renewal Sampling Plan

Outfall	Description of Sources	Acreage	Sampling Required	EPA Form	Comments
DSN020	Stormwater associated with industrial activities from: AST dike drainage and storage yard runoff	57	No (DSN008 is representative)	2F	DSN008 was sampled as representative for this outfall.
DSN021	Stormwater associated with industrial activities from: AST dike drainage, scrap metal and industrial roadway runoff	12	No (DSN008 is representative)	2F	DSN008 was sampled as representative for this outfall.
DSN022	Stormwater associated with industrial activities from: AST dike drainage, hazardous waste or material storage/drum storage, storage yard, and scrap metal, skeet range, and sandblasting runoff	312	Yes (during a rain event)	2F	DSN022 was sampled during a rain event to capture stormwater associated with sandblasting activities.
DSN022A	None	N/A	N/A	N/A	The sources have been removed; DSN022A was eliminated in 2001.
DSN023	Stormwater associated with industrial activity from: Hazardous waste or material storage/drum storage and storage yard runoff	11	No (DSN033 is representative)	2F	DSN033 was sampled as representative for this outfall.
DSN024	None	N/A	N/A	N/A	DSN024 was removed during the 2018 NPDES permit renewal.
DSN025	Stormwater associated with industrial activities from: Hazardous waste or material storage/drum storage and runoff	9	No (DSN033 is representative)	2F	DSN033 was sampled as representative for this outfall.
DSN026	None	N/A	N/A	N/A	DSN026 was removed during the 2018 NPDES permit renewal.
DSN027	None	N/A	N/A	N/A	The sources were transferred to RSA in 1999; DSN027 was eliminated in 2008.
DSN028	None	N/A	N/A	N/A	The sources were transferred to RSA in 1999; DSN028 was eliminated in 2008.

TABLE 2-1
Outfall Descriptions
NASA MSFC NPDES Permit Renewal Sampling Plan

Outfall	Description of Sources	Acreage	Sampling Required	EPA Form	Comments
DSN029	None	N/A	N/A	N/A	The sources have been removed and were previously removed from the permit.
DSN030	None	N/A	N/A	N/A	The sources have been removed and were previously removed from the permit.
DSN031	Stormwater associated with industrial activities from: Hazardous waste or material storage/drum storage, storage yard, and portable equipment runoff	1.15	No (DSN033 is representative)	2F	DSN033 was sampled as representative for this outfall.
DSN032	Stormwater associated with industrial activities from: Hazardous waste or material storage/drum storage, storage yard, and portable equipment runoff	1.84	No (DSN033 is representative)	2F	DSN033 was sampled as representative for this outfall.
DSN033	Stormwater associated with industrial activities from: AST dike drainage, Hazardous waste or material storage/drum storage, storage yard, and scrap metal runoff	24	Yes (during a rain event)	2F	DSN033 was sampled during a rain event. This outfall is representative for DSN010, DSN013, DSN015, DSN023, DSN025, DSN031, DSN032, DSN034, and DSN035.
DSN034	Stormwater associated with industrial activities from: Industrial roadway runoff	55	No (DSN033 is representative)	2F	DSN033 was sampled as representative for this outfall.
DSN035	Stormwater associated with industrial activities from: Portable equipment and test stand area runoff.	7	No (DSN033 is representative)	2F	DSN033 was sampled as representative for this outfall.
DSN037	Stormwater associated with pistol range	1	Yes (during a rain event)	2F	DSN037 was sampled during a rain event.

TABLE 2-1

Outfall Descriptions*NASA MSFC NPDES Permit Renewal Sampling Plan*

Outfall	Description of Sources	Acreage	Sampling Required	EPA Form	Comments
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AST = aboveground storage tank
EPA = U.S. Environmental Protection Agency
N/A = not applicable
RSA = Redstone Arsenal
TCE = trichloroethene
UST = underground storage tank

SECTION 3

Derivation of Permit Limits

This section discusses effluent limitation guidelines (ELGs), water quality calculations, and reasonable potential analysis.

3.1 Applicable Effluent Limitation Guidelines

NASA MSFC discharges process wastewaters to the following receiving waters:

- UT to Indian Creek via DSN019
- UT to Huntsville Spring Branch via DSN012

Process water to DSN019 consists of deluge water from test stand operations and treated trichloroethylene (TCE)-contaminated groundwater from basement dewatering activities. Process water to DSN012 consists of deluge water from test stand operations.

There are no operations limited under an ELG that discharge process wastewater to any of these permitted outfalls. Therefore, there are no ELG calculations associated with this permit renewal.

3.2 Water Quality Calculations

3.2.1 DSN019

Waters known to contain TCE are treated with an air stripper and subsequently discharged through NASA MSFC's process wastewater outfall, DSN019, to a UT to Indian Creek that has a human health criteria for fish consumption only. TCE is classified as a carcinogen by EPA and therefore uses Equation 19 from ADEM Administrative Code 335-6-10-.07 to determine the monthly average water quality standard of 17.5 micrograms per liter.

3.3 Reasonable Potential Analysis

The ADEM Reasonable Potential Spreadsheet was used to evaluate the reasonable potential of the discharge to exceed water quality criteria using the following inputs:

- 1Q10 and 7Q10 flow rates of zero
- Upstream flow rate of zero

The spreadsheet results indicate that NASA MSFC discharge does not exhibit a reasonable potential of exceeding water quality criteria at DSN019 or DSN012.

SECTION 4

Requested Permit Modifications

This section provides a discussion of the requested modifications for the NASA MSFC NPDES permit renewal based on best professional judgment.

4.1 Outfall DSN037

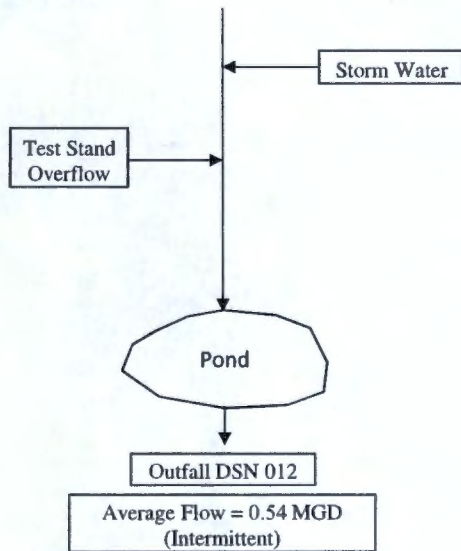
Outfall DSN037 is located at the onsite pistol range. NASA is requesting that DSN037 be added to the NPDES permit during this renewal.

Attachment to EPA Form 2C

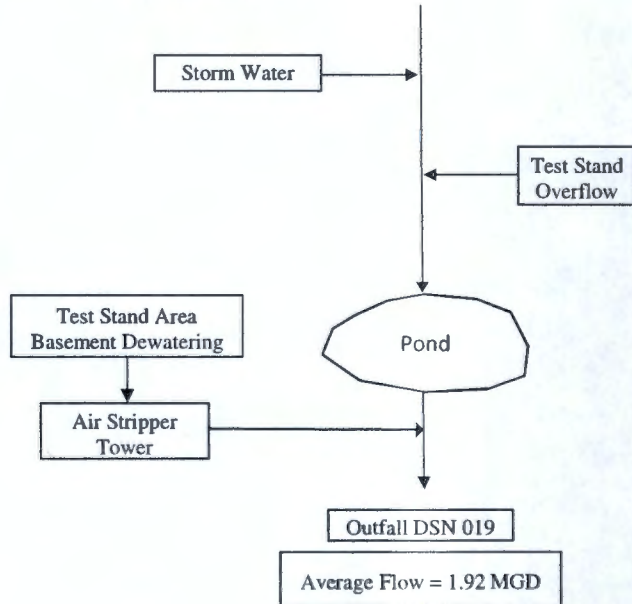
Section 2

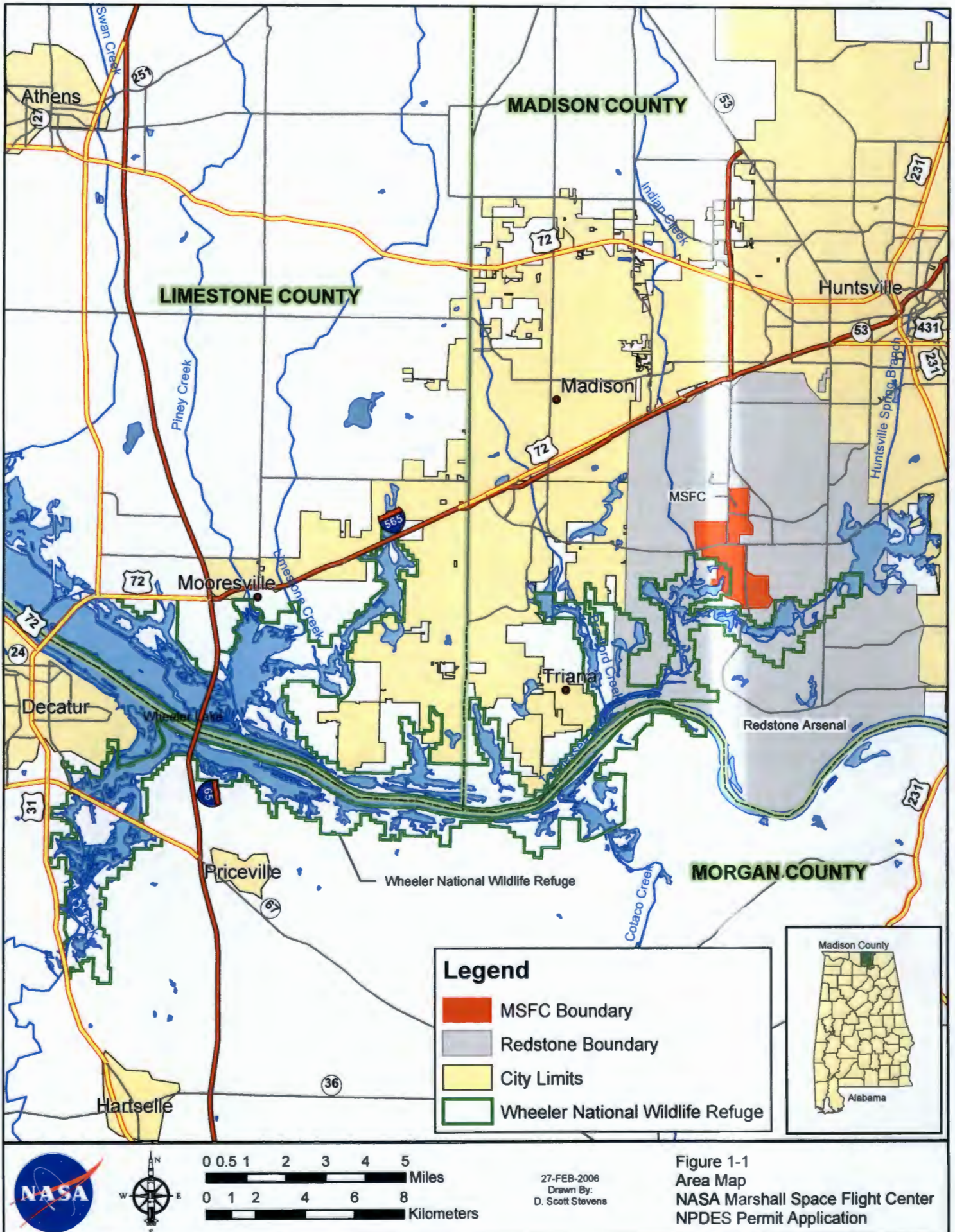
Flows, Sources of Pollution, and Treatment Technologies - Line Drawing
NASA-MSFC

Outfall DSN 012



Outfall DSN 019







Re: [EXTERNAL] Outfall Locations

From Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Date Thu 12/18/2025 9:42 AM

To Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Good Morning Marla,

Thanks for letting me know. These were important because slight change in location might give different receiving streams resulting in wrong analysis. I will update it in AEPACS.

I will be in touch if I need anything else during the drafting the permit.

Thank you and Happy Holidays!

Muhammad Uzair Mehmood
Industrial Section
Industrial/ Municipal Branch
Water Division
Alabama Department of Environmental Management
P.O Box # 301463
Montgomery, Alabama 36110
334-279-3065



Mission: Assure for all citizens of the state a safe, healthful and productive environment

From: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Sent: Thursday, December 18, 2025 9:13 AM

To: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Subject: RE: [EXTERNAL] Outfall Locations

Hey, Muhammad –

Heard back from our contractor. From what he found, the locations listed in form 2F are correct. They also match what was listed in the form 2F in the previous location. Not sure why AEPACs has something different listed. But the locations in the application should be the correct ones.

Thanks and Happy Holidays,



Marla K. Smith

Environmental Compliance Team, Air Program Manager

Environmental Engineering & Occupational Health (EEOH)

George C. Marshall Space Flight Center

Mail Stop AS10

4600 Rideout Road, Huntsville, AL 35812

M: 256.431.0293

O: 256.961.9087

marla.k.smith@nasa.gov

From: Smith, Marla K. (MSFC-AS10)

Sent: Wednesday, December 10, 2025 2:13 PM

To: 'Mehmood, Muhammad Uzair' <muhammad.mehmood@adem.alabama.gov>

Subject: RE: [EXTERNAL] Outfall Locations

Hi, Muhammad -

I promise I have not forgotten. I've reached out to our contract support to see where the changes came from and have not heard back yet. As soon as I do, I will pass the relevant information along to you.

Thanks,



Marla K. Smith

Environmental Compliance Team, Air Program Manager

Environmental Engineering & Occupational Health (EEOH)

George C. Marshall Space Flight Center

Mail Stop AS10

4600 Rideout Road, Huntsville, AL 35812

M: 256.431.0293

O: 256.961.9087

marla.k.smith@nasa.gov

From: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Sent: Monday, December 8, 2025 11:08 AM

To: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Subject: Re: [EXTERNAL] Outfall Locations

Good Morning,

I am following up on our conversation. Please let me know if there are any updates.
Thank you.

Muhammad Uzair Mehmood

Industrial Section

Industrial/ Municipal Branch

Water Division

Alabama Department of Environmental Management

P.O Box # 301463

Montgomery, Alabama 36110



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From: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Sent: Tuesday, November 25, 2025 3:23 PM

To: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Subject: RE: [EXTERNAL] Outfall Locations

Hey, Muhammad –

Just wanted to let you know I've seen your email. I'm still figuring out all things water here and will need to ask someone just to confirm. But with the holiday, I might not get back to you until early next week.

Thanks,

Marla K. Smith

Environmental Compliance Team, Air Program Manager

Environmental Engineering & Occupational Health (EEOH)

George C. Marshall Space Flight Center

Mail Stop AS10

4600 Rideout Road, Huntsville, AL 35812

M: 256.431.0293

O: 256.961.9087

marla.k.smith@nasa.gov



From: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Sent: Tuesday, November 25, 2025 3:22 PM

To: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Subject: [EXTERNAL] Outfall Locations

Good Afternoon,

Can you please confirm the outfall locations for the following outfalls?

Outfall	In Application (Form 2F)		In AEPACS	
	Latitude	Longitude	Latitude	Longitude
DSN010	34.624167	86.666389	34.37707	86.88782
DSN016	34.634722	86.668056	34.625	86.656944
DSN020	34.633333	86.670833	34.6375	86.670833
DSN021	34.645833	86.683333	34.6985	86.628

The locations listed in the application are different from what is already in AEPACS. I wanted to confirm before I change them in the system.

Let me know if you have any questions for me.

Thank you.

Muhammad Uzair Mehmood

Industrial Section

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RE: Stream Information - MSFC AL0000221

From Mooney, James J <jjmooney@adem.alabama.gov>

Date Fri 1/16/2026 2:13 PM

To Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Good Afternoon Muhammad,

See below. The receiving waterbody for outfall DSN025 has been updated to UT to Indian Creek, just FYI.

Stream Name	Outfall	Coordinates		Classification	7Q10 (cfs)	7Q2 (cfs)	1Q10 (cfs)	Annual Average Flow (cfs)	303dlist	Impairment	TMDL
McDonald Creek				Fish and Wildlife	0.34	0.81	0.28	13.85	No	None	No
Indian Creek	DSN034	34.645278	86.685556	Fish and Wildlife	0.31	.70	.27	11.60	No	Pathogens, Siltation	Yes
Unnamed Tributary to Indian Creek	DSN019	34.631111	86.674444	Fish and Wildlife	0	0	0	3.13	No	None	No
Unnamed Tributary to Huntsville Spring Branch	DSN032	34.654167	86.661667	Fish and Wildlife	0	0	0	0.09	Yes	Metals(Arsenic)	No
Unnamed Tributary to Wheeler Lake Indian Creek	DSN025	34.6375	86.680556	Fish and Wildlife	0.32	0.71	0.27	11.83	No	None	No

From: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Sent: Thursday, January 15, 2026 3:42 PM

To: Mooney, James J <jjmooney@adem.alabama.gov>

Subject: Re: Stream Information - MSFC AL0000221

The updated table is attached.

Stream Name	Outfall	Coordinates		Classification	7Q10 (cfs)	7Q2 (cfs)	1Q10 (cfs)	Annual Average Flow (cfs)	303dlist	Impairment	TMDL
McDonald Creek				Fish and Wildlife	0.34	0.81	0.28	13.85	No	None	No
Indian Creek	DSN034	34.645278	86.685556								
Unnamed Tributary to Indian Creek	DSN019	34.631111	86.674444								
Unnamed Tributary to Huntsville Spring Branch	DSN032	34.654167	86.661667	Fish and Wildlife	0	0	0	0.09	Yes	Metals(Arsenic)	No
Unnamed Tributary to Wheeler Lake	DSN025	34.6375	86.680556								

Please let me know if you need anything else.

Thanks.

Muhammad.

From: Mooney, James J <jjmooney@adem.alabama.gov>

Sent: Thursday, January 15, 2026 2:23 PM

To: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Subject: RE: Stream Information - MSFC AL0000221

From the table below can you provide me with a lat/lon for the highlighted waterbodies so that I can calculate the low flow statistics.

Thanks!

Stream Name	Classification	7Q10 (cfs)	7Q2 (cfs)	1Q10 (cfs)	Annual Average Flow (cfs)	303dlist	Impairment	TMDL
McDonald Creek	Fish and Wildlife	0.34	0.81	0.28	13.85	No	None	No
Indian Creek								
Unnamed Tributary to Indian Creek								
Unnamed Tributary to Huntsville Spring Branch	Fish and Wildlife	0	0	0	0.09	Yes	Metals(Arsenic)	No
Unnamed Tributary to Indian								

From: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>
Sent: Thursday, January 15, 2026 8:22 AM
To: Mooney, James J <jjmooney@adem.alabama.gov>
Subject: Re: Stream Information - MSFC AL0000221

Good Morning James,

I am following up on our conversation. Please let me know.

Thanks.

Muhammad Uzair Mehmood

Industrial Section

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Water Division

Alabama Department of Environmental Management

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Montgomery, Alabama 36110

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From: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Sent: Thursday, December 18, 2025 2:04 PM

To: Mooney, James J <jjmooney@adem.alabama.gov>

Subject: Re: Stream Information - MSFC AL0000221

Good Afternoon James,

There was a mismatch between some of the outfall locations in renewal application and what we had in AEPACS. The facility has confirmed all the locations and are listed below. Also, the second table lists all the receiving streams that might be involved. Can you please provide the information for the missing streams and confirm the information that's in the first table? There is also an excel file with the tables attached if its more convenient.

Thank you and Happy Holidays!

Outfall	Latitude	Longitude	Receiving Water
DSN008	34.626389	86.668056	Unnamed Tributary to Huntsville Spring Branch
DSN010	34.624167	86.666389	Unnamed Tributary to Huntsville Spring Branch
DSN012	34.625	86.656944	Unnamed Tributary to Huntsville Spring Branch
DSN013	34.633056	86.654444	Unnamed Tributary to Huntsville Spring Branch
DSN015	34.635833	86.658056	Unnamed Tributary to Huntsville Spring Branch
DSN016	34.634722	86.668056	Unnamed Tributary to Indian Creek
DSN017	34.6375	86.668056	Unnamed Tributary to Indian Creek
DSN018	34.6375	86.675	Unnamed Tributary to Indian Creek
DSN019	34.631111	86.674444	Unnamed Tributary to Indian Creek
DSN020	34.633333	86.670833	Unnamed Tributary to Indian Creek
DSN021	34.645833	86.683333	Indian Creek

DSN022	34.645833	86.686111 Indian Creek
DSN023	34.641667	86.677778 Unnamed Tributary to Indian Creek
DSN025	34.6375	86.680556 Unnamed Tributary to Wheeler Lake
DSN031	34.655	86.662222 Unnamed Tributary to Huntsville Spring Branch
DSN032	34.654167	86.661667 Unnamed Tributary to Huntsville Spring Branch
DSN033	34.658611	86.6625 Unnamed Tributary to Huntsville Spring Branch
DSN034	34.645278	86.685556 Indian Creek
DSN035	34.628056	86.674167 Unnamed Tributary to Indian Creek
DSN037	34.640833	86.676667 Unnamed Tributary to Indian Creek

Stream Name	Classification	7Q10 (cfs)	7Q2 (cfs)	1Q10 (cfs)	Annual Average Flow (cfs)	303dlist	Impairment	TMDL
McDonald Creek	Fish and Wildlife	0.34	0.81	0.28		13.85 No	None	No
Indian Creek								
Unnamed Tributary to Indian Creek								
Unnamed Tributary to Huntsville Spring Branch	Fish and Wildlife	0	0	0		0.09 Yes	Metals(Arsenic)	No
Unnamed Tributary to Wheeler Lake								

Muhammad Uzair Mehmood

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From: Mooney, James J <jjmooney@adem.alabama.gov>

Sent: Tuesday, November 25, 2025 8:26 AM

To: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Subject: RE: Stream Information - MSFC AL0000221

Good Morning Muhammad,

See the flow information below. The receiving waterbody was changed (based on the provided coordinates) for DSN021 and DSN016.

Also can you check the coordinates for DSN025 and verify those are correct. The lat/lon for DSN025 is the same as DSN021, so there maybe a typo there?

Location of DSN021: (-86.628 34.6985)

Receiving Stream: DSN021, DSN022, and DSN0034 discharge to ~~Indian Creek~~ **McDonald Creek**

Classification: Fish and Wildlife

River Basin: Tennessee River Basin

7Q10: **0.34 cfs**

7Q2: **0.81 cfs**

1Q10: **0.28 cfs**

Annual Average Flow: **13.85 cfs**

303(d) List: **NO**

Impairment: **None**

TMDL: NO

Location of DSN016: (-86.656944 34.625)

Receiving Stream: DSN016, DSN017, DSN018, DSN019, DSN020, DSN023, DSN035, and DSN037 discharge to ~~Unnamed Tributary to Indian Creek~~ Unnamed Tributary to Huntsville Spring Branch

Classification: Fish and Wildlife

River Basin: Tennessee River Basin

7Q10: 0 cfs

7Q2: 0 cfs

1Q10: 0 cfs

Annual Average Flow: 0.09 cfs

303(d) List: YES

Impairment: Huntsville Spring Branch is impaired for Metals (Arsenic)

TMDL: NO

Location of DSN008:(-86.668056 34.626389)

Receiving Stream: DSN008, DSN010, DSN012, DSN013, DSN015, DSN031, DSN032 and DSN033 discharge into Unnamed Tributary to Huntsville Spring Branch

Classification: Fish and Wildlife

River Basin: Tennessee River Basin

7Q10: 0 cfs

7Q2: 0 cfs

1Q10: 0 cfs

Annual Average Flow: 0.10 cfs

303(d) List: YES

Impairment: Huntsville Spring Branch is impaired for Metals (Arsenic)

TMDL: NO

Location of DSN025: (-86.628 34.6985)

Receiving Stream: DSN025 discharge into Unnamed Tributary to Wheeler Lake

Classification: Fish and Wildlife

River Basin: Tennessee River Basin

7Q10:

7Q2:

1Q10:

Annual Average Flow:

303(d) List: YES

Impairment: Wheeler Lake is impaired for Nutrients

TMDL: NO

From: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Sent: Thursday, November 13, 2025 1:49 PM

To: Mooney, James J <jjmooney@adem.alabama.gov>

Subject: Stream Information - MSFC AL0000221

Good Afternoon James,

Can you provide the missing stream information for the following streams. Also, can you confirm the information I have for them?
Thank you.

Location of DSN021: (-86.628 34.6985)

Receiving Stream: DSN021, DSN022, and DSN0034 discharge to Indian Creek

Classification: Fish and Wildlife

River Basin: Tennessee River Basin

7Q10:

7Q2:

1Q10:

Annual Average Flow:

303(d) List: YES

Impairment: Pathogens, Nutrients

TMDL: NO

Location of DSN016: (-86.656944 34.625)

Receiving Stream: DSN016, DSN017, DSN018, DSN019, DSN020, DSN023, DSN035, and DSN037 discharge to Unnamed Tributary to Indian Creek

Classification: Fish and Wildlife

River Basin: Tennessee River Basin

7Q10:

7Q2:

1Q10:

Annual Average Flow:

303(d) List: YES

Impairment: Indian Creek is impaired for Pathogens and Nutrients

TMDL: NO

Location of DSN008: (-86.668056 34.626389)

Receiving Stream: DSN008, DSN010, DSN012, DSN013, DSN015, DSN031, DSN032 and DSN033 discharge into Unnamed Tributary to Huntsville Spring Branch

Classification: Fish and Wildlife

River Basin: Tennessee River Basin

7Q10:

7Q2:

1Q10:

Annual Average Flow:

303(d) List: YES

Impairment: Huntsville Spring Branch is impaired for Metals (Arsenic)

TMDL: NO

Location of DSN025: (-86.628 34.6985)

Receiving Stream: DSN025 discharge into Unnamed Tributary to Wheeler Lake

Classification: Fish and Wildlife

River Basin: Tennessee River Basin

7Q10:

7Q2:

1Q10:

Annual Average Flow:

303(d) List: YES

Impairment: Wheeler Lake is impaired for Nutrients

TMDL: NO

Let me know if you need anything else from my end.
Thank you.

Muhammad Uzair Mehmood

Industrial Section

Industrial/ Municipal Branch

Water Division

Alabama Department of Environmental Management

P.O Box # 301463

Montgomery, Alabama 36110

334-279-3065



Mission: Assure for all citizens of the state a safe, healthful and productive environment

Re: [EXTERNAL] Outfall Locations

From Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Date Thu 7/23/2026 9:05 AM

To Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

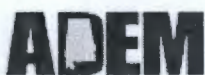
Good morning,

I have added Malene as certifier and she should be able to sign and submit the documents.

Please let me know if there are any issues.

Thank you.

Muhammad Uzair Mehmood
Industrial Section
Industrial/ Municipal Branch
Water Division
Alabama Department of Environmental Management
P.O Box # 301463
Montgomery, Alabama 36110
334-279-3065



Mission: Assure for all citizens of the state a safe, healthful and productive environment

From: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Sent: Monday, July 20, 2026 11:07 AM

To: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Subject: RE: [EXTERNAL] Outfall Locations

See our comments below. Regarding Malene's certifier access, we sent a letter designating her as a responsible official last September when our previous manager retired. See attached. Malene has had editor access in AEPACS for quite some time we just need her to be able to certify. Since we designated her as a signatory authority last year, do I need to fill out this form? If so, please advise on who should be listed in the responsible official section of your form since we already designated her as an RO.

Thanks,

MSFC Comments RE representative outfalls:

1. As indicated in NPDES permit No. AL0000221, outfall DSN008 is representative of stormwater outfalls DSN016, DSN017, DSN020, and DSN021. DSN008 is considered representative of these outfalls because it captures storm water from one of the larger drainage basins (66 acres) at MSFC and encompasses a variety of sources. Industrial activities in the DSN008 drainage basin include petroleum aboveground storage tank

(AST) loading and unloading, AST dike drainage, vehicle fueling, and storage yard runoff. Similar industrial activities are conducted in the drainage basins for outfalls DSN016, DSN017, DSN020, and DSN021. Therefore, DSN008 is designated as representative of those outfalls based on current operations.

As indicated in NPDES permit No. AL0000221, outfall DSN033 is representative of stormwater outfalls DSN010, DSN013, DSN015, DSN023, DSN025, DSN031, DSN032, DSN034, and DSN035. DSN033 is considered representative of these outfalls because it encompasses a variety of sources. Industrial activities in the DSN033 drainage basin include petroleum AST loading and unloading, AST dike drainage, hazardous waste or material storage/drum storage, storage yard runoff, and runoff from scrap metal storage areas. Similar industrial activities are conducted in the drainage basins for outfalls DSN010, DSN013, DSN015, DSN023, DSN025, DSN031, DSN032, DSN034, and DSN035. Therefore, DSN033 is designated as representative of those outfalls based on current operations.

2. As allowed under NPDES permit No. AL0000221, representative sampling was used to demonstrate compliance with the discharge limitations for outfalls DSN010, DSN013, DSN015, DSN016, DSN017, DSN020, DSN021, DSN023, DSN025, DSN031, DSN032, DSN034, and DSN035. Therefore, monitoring data from the current permit cycle is not available for these outfalls and NASA is electing not to collect additional samples at this time.



Marla K. Smith

Environmental Compliance Team, Air Program Manager

Environmental Engineering & Occupational Health (EEOH)

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4600 Rideout Road, Huntsville, AL 35812

M: 256.431.0293

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marla.k.smith@nasa.gov

From: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Sent: Tuesday, July 14, 2026 3:08 PM

To: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Subject: Re: [EXTERNAL] Outfall Locations

Good afternoon, Marla,

You can submit a letter or send the rationale through email, either will work.

Please fill out the attached DAR form and I will give Malene Certifier Access in AEPACS. She will be able to sign and submit the documents once she has the Certifier Access.

Let me know if there are any issues.

Thank you.

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From: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>
Sent: Tuesday, July 14, 2026 1:38 PM
To: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>
Subject: RE: [EXTERNAL] Outfall Locations

Hey, Muhammad

Our contractors are working on it and I'll get it to you as soon as I have a letter. We have some basic bullet point comments, but not in letter form. Would the basic comments work or does it have to be a letter?

On another note, can you add Malene McElroy to AEPACS (malene.a.mcelroy@nasa.gov) as the primary approver? She is now the permanent environmental manager here. David Thaxton can remain as the back up approver.

Thanks,

Marla K. Smith

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From: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>
Sent: Wednesday, July 8, 2026 4:06 PM
To: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>
Subject: Re: [EXTERNAL] Outfall Locations

Good afternoon,

I am following up on our conversation. Is there any update on the representative outfall's justification letter? Please let me know.

The permit draft is ready to be sent out. Attaching the letter with the draft permit will decrease the possibility of getting any comments from the EPA during the public notice period.

Thank you.

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From: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>
Sent: Monday, June 8, 2026 10:55 AM
To: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>
Subject: RE: [EXTERNAL] Outfall Locations

Received.



Marla K. Smith

Environmental Compliance Team, Air Program Manager

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From: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>
Sent: Monday, June 8, 2026 10:46 AM
To: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>
Subject: Re: [EXTERNAL] Outfall Locations

Good morning,

The Department has a couple of comments on the permit reissuance:

1. Please submit a justification for all the outfalls that are selected as representative this permit reissuance.

2. The stormwater sampling data has been submitted only for the representative outfalls but its missing for the outfalls being represented. The data for all the outfalls being represented should be submitted at least once every 10 years or 2 permit cycles. It was submitted during the last permit cycle so it's not a requirement for the current reissuance. However, if MSFC has collected the data for these outfalls or are willing to do so, it can still be submitted to be included in the application package and permitting records.

Please let me know if you have any questions for me.

Thank you.

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From: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Sent: Thursday, December 18, 2025 9:13 AM

To: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Subject: RE: [EXTERNAL] Outfall Locations

Hey, Muhammad –

Heard back from our contractor. From what he found, the locations listed in form 2F are correct. They also match what was listed in the form 2F in the previous location. Not sure why AEPACs has something

different listed. But the locations in the application should be the correct ones.

Thanks and Happy Holidays,



Marla K. Smith

Environmental Compliance Team, Air Program Manager

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From: Smith, Marla K. (MSFC-AS10)

Sent: Wednesday, December 10, 2025 2:13 PM

To: 'Mehmood, Muhammad Uzair' <muhammad.mehmood@adem.alabama.gov>

Subject: RE: [EXTERNAL] Outfall Locations

Hi, Muhammad -

I promise I have not forgotten. I've reached out to our contract support to see where the changes came from and have not heard back yet. As soon as I do, I will pass the relevant information along to you.

Thanks,

Marla K. Smith

Environmental Compliance Team, Air Program Manager

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marla.k.smith@nasa.gov

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From: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Sent: Monday, December 8, 2025 11:08 AM

To: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Subject: Re: [EXTERNAL] Outfall Locations

-
Good Morning,

I am following up on our conversation. Please let me know if there are any updates.
Thank you.

-
-
Muhammad Uzair Mehmood

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ADEM

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From: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Sent: Tuesday, November 25, 2025 3:23 PM

To: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Subject: RE: [EXTERNAL] Outfall Locations

-

Hey, Muhammad –

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Just wanted to let you know I've seen your email. I'm still figuring out all things water here and will need to ask someone just to confirm. But with the holiday, I might not get back to you until early next week.

-

Thanks,

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Marla K. Smith

Environmental Compliance Team, Air Program Manager

Environmental Engineering & Occupational Health (EEOH)

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From: Mehmood, Muhammad Uzair <muhammad.mehmood@adem.alabama.gov>

Sent: Tuesday, November 25, 2025 3:22 PM

To: Smith, Marla K. (MSFC-AS10) <marla.k.smith@nasa.gov>

Subject: [EXTERNAL] Outfall Locations

-

Good Afternoon,

Can you please confirm the outfall locations for the following outfalls?

-

<u>Outfall</u>	<u>In Application (Form 2F)</u>		<u>In AEPACS</u>	
	<u>Latitude</u>	<u>Longitude</u>	<u>Latitude</u>	<u>Longitude</u>
<u>DSN010</u>	<u>34.624167</u>	<u>86.666389</u>	<u>34.37707</u>	<u>86.88782</u>
<u>DSN016</u>	<u>34.634722</u>	<u>86.668056</u>	<u>34.625</u>	<u>86.656944</u>
<u>DSN020</u>	<u>34.633333</u>	<u>86.670833</u>	<u>34.6375</u>	<u>86.670833</u>
<u>DSN021</u>	<u>34.645833</u>	<u>86.683333</u>	<u>34.6985</u>	<u>86.628</u>

-

The locations listed in the application are different from what is already in AEPACS. I wanted to confirm before I change them in the system.

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Let me know if you have any questions for me.

Thank you.

-

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