Edward F. Poolos
Director

Jeffery W. Kitchens
Deputy Director

Kay Ivey
Governor

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

November 13, 2025

Mr. Paul Lojek
VP Operations, North America
Ferroglobe USA Quartz
202 Pebble Drive
Marietta, OH 45750

RE: Draft Permit
Meadows Pit
NPDES Permit Number AL0084501
Lowndes County (085)

Dear Mr. Lojek:

Transmitted herein is a draft of the above referenced permit. Please review the enclosed draft permit carefully. If previously permitted, the draft may contain additions/revisions to the language in your current permit. Please submit any comments on the draft permit to the Department within 30 days from the date of receipt of this letter.

Since the Department has made a tentative decision to reissue and modify the above referenced permit, ADEM Admin. Code r. 335-6-6-.21 requires a public notice of the draft permit followed by a period of at least 30 days for public comment before the permit can be issued. The United States Environmental Protection Agency will also receive the draft permit for review during the 30-day public comment period.

Any mining, processing, construction, land disturbance, or other regulated activity proposed to be authorized by this draft permit is prohibited prior to the effective date of the formal permit. Any mining or processing activity within the drainage basin associated with each permitted outfall which is conducted prior to Departmental receipt of certification from a professional engineer licensed to practice in the State of Alabama, that the Pollution Abatement/Prevention Plan was implemented according to the design plan, or notification from the Alabama Surface Mining Commission that the sediment control structures have been certified, is prohibited.

This permit requires Discharge Monitoring Reports (DMR) to be submitted utilizing the Department's web-based electronic reporting system. Please read Part I.D of the permit carefully and visit https://aepacs.adem.alabama.gov/nviro/ncore/external/home.

Should you have any questions concerning this matter, please contact Ange Boatwright at (334) 274-4208 or maboatwright@adem.alabama.gov.

Sincerely,

William D. McClimans, Chief
Mining and Natural Resource Section
Stormwater Management Branch
Water Division

WDM/mab File: DPER/49592

cc: Ange Boatwright, ADEM
Environmental Protection Agency Region IV
Alabama Department of Conservation and Natural Resources
U.S. Fish and Wildlife Service
Alabama Historical Commission
Advisory Council on Historic Preservation
U.S. Army Corps of Engineers Mobile District
U.S. Army Corps of Engineers Nashville District
Alabama Department of Labor

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)

ADEM
Alabama Department of Environmental Management

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM INDIVIDUAL PERMIT

PERMITTEE:	Ferroglobe USA Quartz, Inc. 3174 County Road 40E Lowndesboro, AL 36752
FACILITY LOCATION:	Meadows Pit Jones Bluff Road Lowndesboro, AL 36752 Lowndes County T16N, R14E, S25, 26, 35, 36
PERMIT NUMBER:	AL0084501
DSN & RECEIVING STREAM:	001-1 Unnamed Tributary to Powell Creek/Groundwater 002-1 Unnamed Tributary to Powell Creek/Groundwater 004-1 Unnamed Tributary to Powell Creek/Groundwater 007-1 Unnamed Tributary to Cypress Creek/Groundwater 008-1 Unnamed Tributary to Cypress Creek/Groundwater 009-1 Unnamed Tributary to Cypress Creek/Groundwater 011-1 Unnamed Tributary to Powell Creek/Groundwater

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

MINING AND NATURAL RESOURCE SECTION

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT

TABLE OF CONTENTS

PART I DISCHARGE LIMITATIONS, CONDITIONS, AND REQUIREMENTS

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

1. 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 all Outfalls, identified on Page 1 of this Permit and described more fully in the Permittee's application, if the outfalls have been constructed and certified. Discharges shall be limited and monitored by the Permittee as specified below:

Parameter	Discharge Limitations			Monitoring Requirements	
	Daily Minimum	Monthly Average	Daily Maximum	Sample Type	Measurement Frequency[1]
pH 00400	6.0 s.u.	-------	8.5 s.u.	Grab	2/Month
Solids, Total Suspended 00530	-------	35.0 mg/L	70.0 mg/L	Grab	2/Month
Flow, In Conduit or Thru Treatment Plant[2] 50050	-------	Report MGD	Report MGD	Instantaneous	2/Month

B. REQUIREMENTS TO ACTIVATE A PROPOSED MINING OUTFALL

1. Discharge from any point source identified on Page 1 of this Permit which is a proposed outfall is not authorized by this Permit until the outfall has been constructed and certification received by the Department from a professional engineer, registered in the State of Alabama, certifying that such facility has been constructed according to good engineering practices and in accordance with the Pollution Abatement and/or Prevention (PAP) Plan.

2. Certification required by Part I.B.1. shall be submitted on a completed ADEM Form 432. The certification shall include the latitude and longitude of the constructed and certified outfall.

3. Discharge monitoring and Discharge Monitoring Report (DMR) reporting requirements described in Part I.C. of this Permit do not apply to point sources that have not been constructed and certified.

4. Upon submittal of the certification required by Part I.B.1. to the Department, all monitoring and DMR submittal requirements shall apply to the constructed and certified outfall.

C. DISCHARGE MONITORING AND RECORD KEEPING REQUIREMENTS

1. **Sampling Schedule and Frequency**

   a. The Permittee shall collect at least one grab sample of the discharge to surface waters from each constructed and certified point source identified on Page 1 of this Permit and described more fully in the Permittee's application twice per month at a rate of at least every other week if a discharge occurs at any time during the two week period, but need not collect more than two samples per calendar month. Each sample collected shall be analyzed for each parameter specified in Part I.A. of this Permit.

---

[1] See Part I.C.2. for further measurement frequency requirements.

[2] Flow must be determined at the time of sample collection by direct measurement, calculation, or other method acceptable to the Department.

b. If the final effluent is pumped in order to discharge (e.g. from incised ponds, old highwall cuts, old pit areas or depressions, etc.), the Permittee shall collect at least one grab sample of the discharge from each point source identified on Page 1 of this Permit and described more fully in the Permittee's application each quarterly (three month) monitoring period if a discharge occurs at any time during the quarterly monitoring period which results from direct pumped drainage. Each sample collected shall be analyzed for each parameter specified in Part I.A. of this Permit.

c. The Permittee may increase the frequency of sampling listed in Parts I.C.1.a and I.C.1.b; however, all sampling results must be reported to the Department and included in any calculated results submitted to the Department in accordance with this Permit.

2. Measurement Frequency

Measurement frequency requirements found in Part I.A. shall mean:

a. A measurement frequency of one day per week shall mean sample collection on any day of discharge which occurs every calendar week.

b. A measurement frequency of two days per month shall mean sample collection on any day of discharge which occurs every other week, but need not exceed two sample days per month.

c. A measurement frequency of one day per month shall mean sample collection on any day of discharge which occurs during each calendar month.

d. A measurement frequency of one day per quarter shall mean sample collection on any day of discharge which occurs during each calendar quarter.

e. A measurement frequency of one day per six months shall mean sample collection on any day of discharge which occurs during the period of January through June and during the period of July through December.

f. A measurement frequency of one day per year shall mean sample collection on any day of discharge which occurs during each calendar year.

3. Monitoring Schedule

The Permittee shall conduct the monitoring required by Part I.A. in accordance with the following schedule:

a. 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. More frequently than monthly and monthly monitoring may be done anytime during the month, unless restricted elsewhere in this Permit, but the results should be reported on the last Discharge Monitoring Report (DMR) due for the quarter (i.e., with the March, June, September, and December DMRs).

b. 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 the results should be reported on the last DMR due for the quarter (i.e., with the March, June, September, and December DMRs).

c. 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 semiannual calendar 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 reported on the last DMR due for the month of the semiannual period (i.e., with the June and December DMRs).

d. 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 reported on the December DMR.

4. Sampling Location

Unless restricted elsewhere in this Permit, samples collected to comply with the monitoring requirements specified in Part I.A. shall be collected at the nearest accessible location just prior to discharge and after final treatment, or at an alternate location approved in writing by the Department.

5. Representative Sampling

Sample collection and measurement actions 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.

6. 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, guidelines published pursuant to Section 304(h) of the FWPCA, 33 U.S.C. Section 1314(h), and ADEM Standard Operating Procedures. 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 pollutant 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 identified in Parts I.C.6.a. and b. 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.

7. **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 or measurements;

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.

8. **Routine Inspection by Permittee**

a. The Permittee shall inspect all point sources identified on Page 1 of this Permit and described more fully in the Permittee's application and all treatment or control facilities or systems used by the Permittee to achieve compliance with the terms and conditions of this Permit at least as often as the applicable sampling frequency specified in Part I.C.1 of this Permit.

b. The Permittee shall maintain a written log for each point source identified on Page 1 of this Permit and described more fully in the Permittee's application in which the Permittee shall record the following information:

(1) The date and time the point source and any associated treatment or control facilities or systems were inspected by the Permittee;

(2) Whether there was a discharge from the point source at the time of inspection by the Permittee;

(3) Whether a sample of the discharge from the point source was collected at the time of inspection by the Permittee;

(4) Whether all associated treatment or control facilities or systems appeared to be in good working order and operating as efficiently as possible, and if not, a description of the problems or deficiencies; and

(5) The name and signature of the person performing the inspection of the point source and associated treatment or control facilities or systems.

9. **Records Retention and Production**

a. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Permit, and records of all data used to complete the above reports or the application for this Permit, for a period of at least three (3) years from the date of the sample collection, 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, AEMA, 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, the Permittee shall provide the Director with a copy of any record required to be retained by this paragraph. Copies of these records should not be submitted unless requested.

b. All records required to be kept for a period of three (3) years shall be kept at the permitted facility or an alternate location approved by the Department in writing and shall be available for inspection.

10. **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.

D. DISCHARGE REPORTING REQUIREMENTS

1. **Requirements for Reporting of Monitoring**

a. Monitoring results obtained during the previous three (3) months shall be summarized for each month on a Discharge Monitoring Report (DMR) Form approved by the Department, and submitted to the Department so that it is received by the Director no later than the 28th day of the month following the quarterly reporting period (i.e., on the 28th day of January, April, July, and October of each year).

b. The Department utilizes a web-based electronic reporting system for submittal of DMRs. **Except as allowed by Part I.D.1.c. or d., the Permittee shall submit all DMRs required by Part I.D.1.a. by utilizing the Department's current electronic reporting system.** The Department's current reporting system, Alabama Environmental Permitting and Compliance System (AEPACS), can be found online at https://aepacs.adem.alabama.gov/nviro/ncore/external/home.

c. If the electronic reporting system is down (i.e. electronic submittal of DMR data is unable to be completed due to technical problems originating with the Department's system; this could include entry/submittal issues with an entire set of DMRs or individual parameters), permittees are not relieved of their obligation to submit DMR data to the Department by

the required submittal date. However, if the electronic reporting system is down on the 28th day of the month or is down for an extended period of time as determined by the Department when a DMR is required to be submitted, the facility 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 five calendar days of the electronic reporting system resuming operation, the Permittee shall enter the data into the reporting system unless an alternate timeframe is approved by the Department. An attachment should be included with the electronic DMR submittal verifying the original submittal date (date of the fax, copy of dated e-mail, or hand-delivery stamped date).

d. 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 Part I.D.1.j.

e. If the Permittee, using approved analytical methods as specified in Part I.C.6., monitors any discharge from a point source identified on Page 1 of this Permit and describe more fully in the Permittee's application 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 Form, and the increased frequency shall be indicated on the DMR Form.

f. In the event no discharge from a point source identified on Page 1 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 Form.

g. Each DMR Form submitted by the Permittee to the Department in accordance with Part I.D.1. must be legible and bear an original signature or electronic signature. Photo and electronic copies of the signature are not acceptable and shall not satisfy the reporting requirements of this Permit.

h. All reports and forms required to be submitted by this Permit, the AWPCA, and the Department's rules and regulations, shall be signed by a "responsible official" of the Permittee as defined in ADEM Admin. Code r. 335-6-6-.09 or a "duly authorized representative" of such official as defined in ADEM Admin. Code r. 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 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. All DMRs, reports, and forms required to be submitted by this Permit, the AWPCA and the Department's rules and regulations, shall be submitted through the Department's electronic reporting system, AEPACS, or, if in hardcopy, shall be addressed to:

Alabama Department of Environmental Management
Water Division, Mining and Natural Resource Section
Post Office Box 301463
Montgomery, Alabama 36130-1463

Certified and Registered Mail shall be addressed to:

Alabama Department of Environmental Management
Water Division, Mining and Natural Resource Section
1400 Coliseum Boulevard
Montgomery, Alabama 36110-2059

j. Unless authorized in writing by the Department, approved reporting forms required by this Permit or the Department are not to be altered, and if copied or reproduced, must be consistent in format and identical in content to the ADEM approved form. Unauthorized alteration, falsification, or use of incorrectly reproduced forms constitutes noncompliance with the requirements of this Permit and may significantly delay processing of any request, result in denial of the request, result in permit termination, revocation, suspension, modification, or denial of a permit renewal application, or result in other enforcement action.

k. If this Permit is a reissuance, 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.D.1.

2. Noncompliance Notification

a. The Permittee must notify the Department if, for any reason, the Permittee's discharge:

(1) Potentially threatens human health or welfare;

(2) Potentially threatens fish or aquatic life;

(3) Causes an in-stream water quality criterion to be exceeded;

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

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

(6) Exceeds any discharge limitation for an effluent parameter as a result of an unanticipated bypass or upset.

The Permittee shall orally or electronically report any of the above occurrences, describing the circumstances and potential effects 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 or electronic report, the Permittee shall submit to the Director a written report as provided in Part I.D.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 a written report to the Director as provided in Part I.D.2.c. This report must be submitted with the next Discharge Monitoring Report required

to be submitted by Part I.D.1. of this Permit after becoming aware of the occurrence of such noncompliance.

c. Any written report required to be submitted to the Director in accordance with Parts I.D.2.a. and 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.

3. Reduction, Suspension, or Termination of Monitoring and/or Reporting

a. The Director may, with respect to any point source identified on Page 1 of this Permit and described more fully in the Permittee's application, authorize the Permittee to reduce, suspend, or terminate the monitoring and/or reporting required by this Permit upon the submission of a written request for such reduction, suspension, or termination by the Permittee provided:

(1) All mining, processing, or disturbance in the drainage basin(s) associated with the discharge has ceased and site access is adequately restricted or controlled to preclude unpermitted and unauthorized mining, processing, transportation, or associated operations/activity;

(2) Permanent, perennial vegetation has been re-established on all areas mined or disturbed for at least one year since mining has ceased in the drainage basin(s) associated with the surface discharge, or all areas have been permanently graded such that all drainage is directed back into the mined pit to preclude all surface discharges;

(3) Unless waived in writing by the Department, the Permittee has been granted, in writing, a 100% Bond Release, if applicable, by the Alabama Department of Industrial Relations and, if applicable, by the Surface Mining Commission for all areas mined or disturbed in the drainage basin(s) associated with the discharge;

(4) Unless waived in writing by the Department, the Permittee has submitted inspection reports prepared and certified by a Professional Engineer (PE) registered in the State of Alabama or a qualified professional under the PE's direction which certify that the facility has been fully reclaimed or that water quality remediation has been achieved. The first inspection must be conducted approximately one year prior to and the second inspection must be conducted within thirty days of the Permittee's request for termination of monitoring and reporting requirements;

(5) All surface effects of the mining activity such as fuel or chemical tanks, preparation plants or equipment, old tools or equipment, junk or debris, etc., must be removed and disposed of according to applicable state and federal regulations;

(6) The Permittee's request for termination of monitoring and reporting requirements contained in this Permit has been supported by monitoring data covering a period

of at least six consecutive months or such longer period as is necessary to assure that the data reflect discharges occurring during varying seasonal climatological conditions;

(7) The Permittee has stated in its request that the samples collected and reported in the monitoring data submitted in support of the Permittee's request for monitoring termination or suspension are representative of the discharge and were collected in accordance with all Permit terms and conditions respecting sampling times (e.g., rainfall events) and methods and were analyzed in accordance with all Permit terms and conditions respecting analytical methods and procedures;

(8) The Permittee has certified that during the entire period covered by the monitoring data submitted, no chemical treatment of the discharge was provided;

(9) The Permittee's request has included the certification required by Part I.D.1.e. of this Permit; and

(10) The Permittee has certified to the Director in writing as part of the request, its compliance with (1) through (9) above.

b. It remains the responsibility of the Permittee to comply with the monitoring and reporting requirements of this Permit until written authorization to reduce, suspend, or terminate such monitoring and/or reporting is received by the Permittee from the Director.

E. 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 on Page 1 of this Permit and described more fully in the Permittee's application have permanently ceased.

3. Updating Information

a. The Permittee shall inform the Director of any change in the Permittee's mailing address or telephone number or in the Permittee's designation of a facility contact or officer(s) having the authority and responsibility to prevent and abate violations of the AWPCA, the AEMA, the Department's rules and regulations, and the terms and conditions of this Permit, in writing, no later than ten (10) days after such change. Upon request of the Director, 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**

a. The Permittee shall furnish to the Director, within a reasonable time, any information which the Director may request to determine whether cause exists for modifying, suspending, terminating, or revoking and reissuing this Permit, in whole or in part, or to determine compliance with this Permit. The Permittee shall also furnish to the Director upon request, copies of records required to be maintained by this Permit.

b. The Permittee shall furnish to the Director upon request, within a reasonable time, available information (name, phone number, address, and site location) which identifies offsite sources of material or natural resources (mineral, ore, or other material such as iron, coal, coke, dirt, chert, shale, clay, sand, gravel, bauxite, rock, stone, etc.) used in its operation or stored at the facility.

F. SCHEDULE OF COMPLIANCE

The Permittee shall achieve compliance with the discharge limitations specified in Part I.A. of this Permit in accordance with the following schedule:

Compliance must be achieved by the effective date of this Permit.

PART II OTHER REQUIREMENTS, RESPONSIBILITIES, AND DUTIES

A. OPERATIONAL AND MANAGEMENT REQUIREMENTS

1. Facilities Operation and Management

The Permittee shall at all times operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this Permit. Proper operation and maintenance 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 this Permit.

2. Pollution Abatement and/or Prevention Plan

a. The Pollution Abatement and/or Prevention (PAP) Plan shall be prepared and certified by a registered PE licensed to practice in the State of Alabama, and shall include, at a minimum:

(1) The information indicated in ADEM Admin. Code ch. 335-6-9 and its Appendices A and B;

(2) A description of methods which will be implemented to prevent offsite vehicle tracking onto roadways and/or into ditches at the entrances and/or exits of the Permittee's operations;

(3) A description of setbacks from waters of the State in units of linear feet on the horizontal plane; a description of the methods taken to visibly delineate setbacks from waters of the State; and a description of any other actions taken to prevent encroachment upon setbacks;

(4) A description of the methods used to delineate the boundaries of coverage under this Permit such that the boundaries are readily visible during the life of the operation;

(5) A description of any other Best Management Practices (BMPs) which will be implemented to provide control of all nonpoint source pollution that is or may be associated with the Permittee's operations;

b. The PAP Plan shall become a part of this Permit and all requirements of the PAP Plan shall become requirements of this Permit pursuant to ADEM Admin Code r. 335-6-9-.05(2). The PAP Plan shall be amended if the Department determines that the existing sediment control measures, erosion control measures, or other site management practices are ineffective or do not meet the requirements of this Permit.

c. For existing sources, the PAP Plan shall be updated to include all requirements of this section within 180 days of the effective date of this permit. New sources shall submit the PAP plan with the Notification of Intent (NOI) prior to coverage under this Permit.

3. Best Management Practices (BMPs)

a. Unless otherwise authorized in writing by the Director, the Permittee shall provide a means of subsurface withdrawal for any discharge from each point source identified on Page 1 of this Permit and described more fully in the Permittee's application. Notwithstanding the above provision, a means of subsurface withdrawal need not be provided for any discharge caused by a 24-hour precipitation event greater than a 10-year, 24-hour precipitation event.

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

c. The Permittee shall minimize the contact of water with overburden, including but not limited to stabilizing disturbed areas through grading, diverting runoff, achieving quick growing stands of temporary vegetation, sealing acid-forming and toxic-forming materials, and maximizing placement of waste materials in back-fill areas.

d. The Permittee shall prepare, submit to the Department for approval, and implement a Best Management Practices (BMPs) Plan for containment of any or all process liquids or solids, in a manner such that these materials do not present a potential for discharge, if so required by the Director. 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.

e. Spill Prevention, Control, and Management

The Permittee shall prepare, implement, and maintain a Spill Prevention, Control and Countermeasures (SPCC) Plan acceptable to the Department that is prepared and certified by a Professional Engineer (PE), registered in the State of Alabama, for all onsite petroleum product or other pollutant storage tanks or containers as provided by ADEM Admin. Code r. 335-6-6-.08(j)5. The Plan shall describe and the Permittee shall implement appropriate structural and/or non-structural spill prevention, control, and/or management pursuant to ADEM Admin. Code r. 335-6-6-.12 (r) sufficient to prevent any spills of pollutants from entering a ground or surface water of the State or a publicly or privately owned treatment works. The Plan shall include at a minimum, the engineering requirements provided in 40 C.F.R. §§112.1. 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. Such containment systems shall be capable of retaining a volume equal to 110 percent of the capacity of the largest tank for which containment is provided. The Plan shall list any materials which the Permittee may utilize to contain and to absorb fuel and chemical spills and leaks. The Permittee shall maintain sufficient amounts of such materials onsite or have sufficient amounts of such materials readily available to contain and/or absorb fuel and chemical spills and leaks. Soil contaminated by chemical spills, oil spills, etc., must be immediately cleaned up or be removed and disposed of in a manner consistent with all State and federal regulations.

f. All surface drainage and storm water runoff which originate within or enters the Permittee's premises and which contains any pollutants or other wastes shall be discharged, if at all, from a point source identified on Page 1 of this Permit and described more fully in the Permittee's application.

g. The Permittee shall take all reasonable precautions to prevent any surface drainage or storm water runoff which originates outside the Permittee's premises and which contains any pollutants or other wastes from entering the Permittee's premises. At no time shall the Permittee discharge any such surface drainage or storm water runoff which enters the Permittee's premises if, either alone or in combination with the Permittee's effluent, the discharge would exceed any applicable discharge limitation specified in Part I.A. of this Permit.

4. Biocide Additives

a. The Permittee shall notify the Director in writing not later than sixty (60) days prior to instituting the use of any biocide corrosion inhibitor or chemical additive in any cooling or boiler system(s) regulated by this Permit. Notification is not 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:

(a) Name and general composition of biocide or chemical;

(b) 96-hour median tolerance limit data for organisms representative of the biota of the water(s) which the discharge(s) enter(s);

(c) Quantities to be used;

(d) Frequencies of use;

(e) Proposed discharge concentrations; and

(f) EPA registration number, if applicable.

b. The use of any biocide or chemical additive containing tributyl tin, tributyl tin oxide, zinc, chromium, or related compounds in any cooling or boiler system(s) regulated by the Permit 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.

5. Facility Identification

The Permittee shall clearly display prior to commencement of any regulated activity and until permit coverage is properly terminated, the name of the Permittee, entire NPDES permit number, facility or site name, and other descriptive information deemed appropriate by the Permittee at an easily accessible location(s) to adequately identify the site, unless approved otherwise in writing by the Department. The Permittee shall repair or replace the sign(s) as necessary upon becoming aware that the identification is missing or is unreadable due to age, vandalism, theft, weather, or other reason.

6. Removed Substances

Solids, sludges, filter backwash, or any other pollutants or other wastes removed in the course of treatment or control of wastewaters shall be disposed of in a manner that complies with all applicable Department rules and regulations.

7. Loss or Failure of Treatment Facilities

Upon the loss or failure of any treatment facility, 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 Part I.A. of this Permit or any other terms or conditions of this Permit, cease, reduce, or otherwise control production and/or discharges until treatment is restored.

8. **Duty to Mitigate**

The Permittee shall promptly take all reasonable steps to minimize or prevent any violation of this Permit or to mitigate and minimize any adverse impact to waters resulting from noncompliance with any discharge limitation specified in Part I.A. of this Permit, including such accelerated or additional monitoring of the discharge and/or the receiving waterbody as is necessary to determine the nature and impact of the noncomplying discharge.

B. BYPASS AND UPSET

1. Bypass

a. Any bypass is prohibited except as provided in Parts II.B.1.b. and c.

b. A bypass is not prohibited if:

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

(2) The discharge resulting from such bypass enters the same receiving water as the discharge from the permitted outfall;

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

(4) The Permittee monitors the discharge resulting from such bypass at a frequency, at least daily, sufficient to prove compliance with the discharge limitations specified in Part I.A. of this Permit.

c. A bypass is not prohibited and need not meet the discharge limitations specified in Part 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 the Permittee could have installed adequate backup equipment 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, if possible, prior to the anticipated bypass or within 24 hours of an unanticipated bypass, the Permittee is granted such authorization, and Permittee complies with any conditions imposed by the Director to minimize any adverse impact to waters resulting from the bypass.

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

2. Upset

a. The Permittee may seek to demonstrate that noncompliance with technology-based effluent limits occurred as a result of an upset if the conditions of Part II.B.2.b are met and if the Permittee complies with the conditions provided in Part II.B.2.c:

(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; 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, design drawings, construction certification, maintenance records, weir flow measurements, dated photographs, rain gauge measurements, 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 treatment 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 to waters resulting from the upset.

b. Notwithstanding the provisions of Part II.B.2.a., a discharge which is an overflow from a treatment facility or system, or an excess discharge from a point source associated with a treatment facility or system and which results from a 24-hour precipitation event larger than a 10-year, 24-hour precipitation event is not exempted from the discharge limitations specified in Part I.A. of this Permit unless:

(1) The treatment facility or system is designed, constructed, and maintained to contain the maximum volume of wastewater which would be generated by the facility during a 24-hour period without an increase in volume from precipitation and the maximum volume of wastewater resulting from a 10-year, 24-hour precipitation event or to treat the maximum flow associated with these volumes.

In computing the maximum volume of wastewater which would result from a 10-year, 24-hour precipitation event, the volume which would result from all areas contributing runoff to the individual treatment facility must be included (i.e., all runoff that is not diverted from the mining area and runoff which is not diverted from the preparation plant area); and

(2) The Permittee takes all reasonable steps to maintain treatment of the wastewater and minimize the amount of overflow or excess discharge.

c. The Permittee has the burden of establishing that each of the conditions of Parts II.B.2.a. and b. have been met to qualify for an exemption from the discharge limitations specified in Part I.A. of this Permit.

C. PERMIT CONDITIONS AND RESTRICTIONS

1. Prohibition against Discharge from Facilities Not Certified

a. Notwithstanding any other provisions of this Permit, if the permitted facility has not obtained or is not required to obtain a permit from the Alabama Surface Mining Commission, any discharge(s) from any point or nonpoint source(s) from the permitted facility which was not certified to the Department on a form approved by the Department by a professional engineer, registered in the State of Alabama, as being designed, constructed, and in accordance with plans and specifications reviewed by the Department is prohibited; or

b. Notwithstanding any other provisions of this Permit, if the permitted facility has obtained or is required to obtain a permit from the Alabama Surface Mining Commission, any discharge(s) from any point or nonpoint source(s) from the permitted facility which is associated with a treatment facility which was not constructed and certified to the Alabama Surface Mining Commission pursuant to applicable provisions of said Commission's regulations, is prohibited until the Permittee submits to the Alabama Surface Mining Commission, certification by a professional engineer, registered in the State of Alabama, certifying that such facility has been constructed in accordance with plans and specifications approved by the Alabama Surface Mining Commission. This requirement shall not apply to pumped discharges from the underground works of underground coal mines where no surface structure is required by the Alabama Surface Mining Commission, provided the Department is notified in writing of the completion or installation of such facilities, and the pumped discharges will meet permit effluent limits without treatment.

2. Permit Modification, Suspension, Termination, and Revocation

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

(1) The violation of any term or condition of this Permit;

(2) The obtaining of this Permit by misrepresentation or the failure to disclose fully all relevant facts;

(3) The submission of materially false or inaccurate statements or information in the permit application or reports required by the Permit;

(4) The need for a change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge;

(5) The existence of any typographical or clerical errors or of any errors in the calculation of discharge limitations;

(6) The existence of 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;

(7) The threat of the Permittee's discharge on human health or welfare; or

(8) Any other cause allowed by ADEM Admin. Code ch. 335-6-6.

b. The filing of a request by the Permittee for modification, suspension, termination, or revocation and reissuance of this Permit, in whole or in part, does not stay any Permit term or condition of this Permit.

3. **Automatic Expiration of Permits for New or Increased Discharges**

a. Except as provided by ADEM Admin. Code r. 335-6-6-.02(h) and 335-6-6-.05, if this Permit was issued for a new discharger or new source, it shall expire eighteen months after the issuance date if construction has not begun during that eighteen month period.

b. Except as provided by ADEM Admin. Code r. 335-6-6-.02(h) and 335-6-6-.05, if any portion of this Permit was issued or modified to authorize the discharge of increased quantities of pollutants to accommodate the modification of an existing facility, that portion of this Permit shall expire eighteen months after this Permit's issuance if construction of the modification has not begun within eighteen month period.

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

(1) Begun, or caused to begin as part of a continuous on-site construction program:

(i) Any placement, assembly, or installation of facilities or equipment; or

(ii) 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

(2) 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.

d. The automatic expiration of this Permit for new or increased discharges if construction has not begun within the eighteen month period after the issuance of this Permit may be tolled by administrative or judicial stay.

4. **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 this 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.

5. Groundwater

Unless authorized on page 1 of this Permit, this Permit does not authorize any discharge 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.

6. 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. RESPONSIBILITIES

1. Duty to Comply

a. The Permittee must comply with all terms and conditions of this Permit. Any permit noncompliance constitutes a violation of the AWPCA, AEMA, 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 Permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the FWPCA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this Permit has not yet been modified to incorporate the effluent standard, prohibition or requirement.

c. For any violation(s) of this Permit, the Permittee is subject to a civil penalty as authorized by the AWPCA, the AEMA, the FWPCA, and Code of Alabama 1975, §§22-22A-1 et. seq., as amended, and/or a criminal penalty as authorized by Code of Alabama 1975, §22-22-1 et. seq., as amended.

d. The necessity to halt or reduce production or other activities in order to maintain compliance with the conditions of this Permit shall not be a defense for a Permittee in an enforcement action.

e. Nothing in this Permit shall be construed to preclude or 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.

f. 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.

g. 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.

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, increase the quantity of a discharged pollutant, or

that could result in an additional discharge point. This requirement also applies to pollutants 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 knows or has reason to believe that it has begun or expects to begin to discharge any pollutant listed as a toxic pollutant pursuant to Section 307(a) of the FWPCA, 33 U.S.C. §1317(a), any substance designated as a hazardous substance pursuant to Section 311(b)(2) of the FWPCA, 33 U.S.C. §1321(b)(2), any waste listed as a hazardous waste pursuant to Code of Alabama 1975, §22-30-10, or any other pollutants or other wastes which is not subject to any discharge limitations specified in Part I.A. of this Permit and was not reported in the Permittee's application, was reported in the Permittee's application in concentrations or mass rates lower than that which the Permittee expects to begin to be discharged, or has reason to believe has begun to be discharged.

3. Compliance with Toxic or Other Pollutant Effluent 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 Sections 301(b)(2)(C),(D),(E) and (F) of the FWPCA, 33 U.S.C. §1311(b)(2)(C),(D),(E), and (F); 304(b)(2) of the FWPCA, 33 U.S.C. §1314(b)(2); or 307(a) of the FWPCA, 33 U.S.C. §1317(a), for a toxic or other pollutant discharged by the Permittee, and such standard or prohibition is more stringent than any discharge limitation on the pollutant specified in Part I.A. of this Permit or controls a pollutant not limited in Part I.A. of this Permit, this Permit shall be modified to conform to the toxic or other 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 or other pollutant effluent standard or prohibition before the effective date of such standard or prohibition, the authorization to discharge in this Permit shall be void to the extent that any discharge limitation on such pollutant in Part I.A. of this Permit exceeds or is inconsistent with the established toxic or other pollutant effluent standard or prohibition.

4. Compliance with Water Quality Standards and Other Provisions

a. 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 will assure compliance with applicable water quality standards. However, this Permit does not relieve the Permittee from compliance with applicable State water quality standards established in ADEM Admin. Code ch. 335-6-10, and does not preclude the Department from taking action as appropriate to address the potential for contravention of applicable State water quality standards which could result from discharges of pollutants from the permitted facility.

b. Compliance with Permit terms and conditions notwithstanding, if the Permittee's discharge(s) from point source(s) identified on Page 1 of this Permit cause(s) or contribute(s) to a condition in contravention of State water quality standards, the Department may require abatement action to be taken by the Permittee, modify the Permit pursuant to the Department's rules and regulations, or both.

c. If the Department determines, on the basis of a notice provided pursuant to Part II.C.2. of 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 noticed act until the Permit has been modified.

5. **Compliance with Statutes and Rules**

a. This Permit has been issued under ADEM Admin. Code div. 335-6. All provisions of this division, that are applicable to this Permit, are hereby made a part of this Permit. A copy of this division may be obtained for a small charge from the Office of General Counsel, Alabama Department of Environmental Management, 1400 Coliseum Blvd., Montgomery, AL 36110-2059.

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.

6. **Right of Entry and Inspection**

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

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

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

c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Permit; and

d. Sample or monitor at reasonable times, for the purposes of assuring Permit compliance or as otherwise authorized by the AWPCA, any substances or parameters at any location.

7. **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 with the Department a complete permit application for reissuance of this Permit at least 180 days prior to its expiration.

b. If the Permittee does not desire to continue the discharge(s) allowed by this Permit, the Permittee shall notify the Department at least 180 days prior to expiration of this Permit of the Permittee's intention not to request reissuance of this Permit. This notification must include the information required in Part I.D.4.a. and be signed by an individual meeting the signatory requirements for a permit application as set forth in ADEM Admin. Code r. 335-6-6-.09.

c. Failure of the Permittee to submit to the Department a complete application for reissuance of this Permit at least 180 days prior to the expiration date of this Permit will void the automatic continuation of this Permit provided by ADEM Admin. Code r. 335-6-6-.06; and should this Permit not be reissued for any reason, any discharge after the expiration of this Permit will be an unpermitted discharge.

PART III ADDITIONAL REQUIREMENTS, CONDITIONS, AND LIMITATIONS

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 this Permit shall, upon conviction, be subject to penalties and/or imprisonment as provided by the AWPCA and/or the AEMA.

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 punished as provided by applicable State and Federal law.

3. Permit Enforcement

This NPDES Permit is a Permit for the purpose of the AWPCA, the AEMA, and the FWPCA, and as such all terms, conditions, or limitations of this Permit are enforceable under State and Federal law.

4. Relief From Liability

Except as provided in Part II.B.1. (Bypass) and Part II.B.2. (Upset), nothing in this Permit shall be construed to relieve the Permittee of civil or criminal liability under the AWPCA, AEMA, 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 to under Section 311 of the FWPCA, 33 U.S.C. §1321.

C. AVAILABILITY OF REPORTS

Except for data determined to be confidential under Code of Alabama 1975, §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. Knowingly making any false statement in any such report may result in the imposition of criminal penalties as provided for in Section 309 of the FWPCA, 33 U.S.C. §1319, and Code of Alabama 1975, §22-22-14.

D. DEFINITIONS

1. Alabama Environmental Management Act (AEMA) - means Code of Alabama 1975, §§22-22A-1 et. seq., as amended.

2. Alabama Water Pollution Control Act (AWPCA) - means Code of Alabama 1975, §§22-22-1 et. seq., as amended.

3. 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).

4. Arithmetic Mean - means the summation of the individual values of any set of values divided by the number of individual values.

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. Controlled Surface Mine Drainage – means any surface mine drainage that is pumped or siphoned from the active mining area.

9. Crushed stone mine - means an area on or beneath land which is mined, quarried, or otherwise disturbed in activity related to the extraction, removal, or recovery of stone from natural or artificial deposits, including active mining, reclamation, and mineral storage areas, for production of crushed stone.

10. 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.

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

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

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

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

15. Director - means the Director of the Department or his authorized representative or designee.

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

17. Discharge monitoring report (DMR) - means the form approved by the Director to accomplish monitoring report requirements of an NPDES Permit.

18. DO - means dissolved oxygen.

19. E. coli – means the pollutant parameter Escherichia coli.

20. 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.

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

22. Federal Water Pollution Control Act (FWPCA) - means 33 U.S.C. §§1251 et. seq., as amended.

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

24. 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).

25. 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.

26. 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.

27. 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.

28. mg/L - means milligrams per liter of discharge.

29. MGD - means million gallons per day.

30. Monthly Average - means, other than for E. coli bacteria, the arithmetic mean of all the composite or grab samples taken for the daily discharges collected in one month period. The monthly average for E. coli 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. (Zero discharges shall not be included in the calculation of monthly averages.)

31. 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. From which the discharge of pollutants did not commence 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.

32. New Source - means:

a. A new source as defined for coal mines by 40 CFR Part 434.11 (1994); and

b. Any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced:

(1) After promulgation of standards of performance under Section 306 of FWPCA which are applicable to such source; or

(2) After proposal of standards of performance in accordance with Section 306 of the FWPCA which are applicable to such source, but only if the standards are promulgated in accordance with Section 206 within 120 days of their proposal.

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

34. 1-year, 24-hour precipitation event - means the maximum 24-hour precipitation event with a probable recurrence interval of once in one year as defined by the National Weather Service and Technical Paper No. 40, "Rainfall Frequency Atlas of the U.S.," May 1961, or equivalent regional or rainfall probability information developed therefrom.

35. Permit application - means forms and additional information that are required by ADEM Admin. Code r. 335-6-6-.08 and applicable permit fees.

36. 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. §1362(14).

37. Pollutant - includes for purposes of this Permit, but is not limited to, those pollutants specified in Code of Alabama 1975, §22-22-1(b)(3) and those effluent characteristics, excluding flow, specified in Part I.A. of this Permit.

38. Pollutant of Concern - means those pollutants for which a water body is listed as impaired or which contribute to the listed impairment.

39. Pollution Abatement and/or Prevention Plan (PAP Plan) – mining operations plan developed to minimize impacts on water quality to avoid a contravention of the applicable water quality standards as defined in ADEM Admin. Code r. 335-6-9-.03

40. Preparation, Dry - means a dry preparation facility within which the mineral/material is cleaned, separated, or otherwise processed without use of water or chemical additives before it is shipped to the customer or otherwise utilized. A dry preparation plant includes all ancillary operations and structures necessary to clean, separate, or otherwise process the mineral/material, such as storage areas and loading facilities. Dry preparation also includes minor water spray(s) used solely for dust suppression on equipment and roads to minimize dust emissions.

41. Preparation, Wet - means a wet preparation facility within which the mineral/material is cleaned, separated, or otherwise processed using water or chemical additives before it is shipped to the customer or otherwise utilized. A wet preparation plant includes all ancillary operations and structures necessary to clean, separate, or otherwise process the mineral/material, such as storage areas and loading facilities. Wet preparation also includes mineral extraction/processing by dredging, slurry pumping, etc.

42. 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".

43. Publicly Owned Treatment Works (POTW) - 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.

44. Receiving Stream - means the "waters" receiving a "discharge" from a "point source".

45. 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.

46. 10-year, 24-hour precipitation event - means that amount of precipitation which occurs during the maximum 24-hour precipitation event with a probable recurrence interval of once in ten years as defined by the National Weather Service and Technical Paper No. 40, "Rainfall Frequency Atlas of the U.S.," May 1961, or equivalent regional or rainfall probability information developed therefrom.

47. TKN - means the pollutant parameter Total Kjeldahl Nitrogen.

48. TON - means the pollutant parameter Total Organic Nitrogen.

49. TRC - means Total Residual Chlorine.

50. TSS – means the pollutant parameter Total Suspended Solids

51. Treatment facility and treatment system - means all structures which contain, convey, and as necessary, chemically or physically treat mine and/or associated preparation plant drainage, which remove pollutants limited by this Permit from such drainage or wastewater. This includes all pipes, channels, ponds, tanks, and all other equipment serving such structures.

52. 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.

53. 24-hour precipitation event - means that amount of precipitation which occurs within any 24-hour period.

54. 2-year, 24-hour precipitation event - means the maximum 24-hour precipitation event with a probable recurrence interval of once in two years as defined by the National Weather Service and Technical Paper No. 40, "Rainfall Frequency Atlas of the U.S.," May 1961, or equivalent regional or rainfall probability information developed therefrom.

55. 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 control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate facilities, lack of preventive maintenance, or careless or improper operation.

56. 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, §22-22-1(b)(2). "Waters" include all "navigable waters" as defined in §502(7) of the FWPCA, 33 U.S.C. §1362(7), which are within the State of Alabama.

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

58. 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.

E. 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.

F. PROHIBITIONS AND ACTIVIES NOT AUTHORIZED

1. Discharges from disposal or landfill activities as described in ADEM Admin. Code div. 335-13 are not authorized by this Permit unless specifically approved by the Department.

2. Relocation, diversion, or other alteration of a water of the State is not authorized by this Permit unless specifically approved by the Department.

3. Lime or cement manufacturing or production and discharge of process waters from such manufacturing or production is not authorized by this Permit unless specifically approved by the Department.

4. Concrete or asphalt manufacturing or production and discharge of process waters from such manufacturing or production is not authorized by this Permit unless specifically approved by the Department.

5. 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.

G. DISCHARGES TO IMPAIRED WATERS

1. This Permit does not authorize new sources or new discharges of pollutants of concern to impaired waters unless consistent with an EPA-approved or EPA-established Total Maximum Daily Load (TMDL) and applicable State law, or unless compliance with the limitations and requirements of the Permit ensure that the discharge will not contribute to further degradation of the receiving stream. Impaired waters are those that do not meet applicable water quality standards and are identified on the State of Alabama's §303(d) list or on an EPA-approved or EPA-established TMDL. Pollutants of concern are those pollutants for which the receiving water is listed as impaired or contribute to the listed impairment.

2. Facilities that discharge into a receiving stream which is listed on the State of Alabama's §303(d) list of impaired waters, and with discharges that contain the pollutant(s) for which the waters are impaired, must within six (6) months of the Final §303(d) list approval, document in its BMP plan how the BMPs will control the discharge of the pollutant(s) of concern, and must ensure that there will be no increase of the pollutants of concern. A monitoring plan to assess the effectiveness of the BMPs in achieving the allocations must also be included in the BMP plan.

3. If the facility discharges to impaired waters as described above, it must determine whether a TMDL has been developed and approved or established by EPA for the listed waters. If a TMDL is approved or established during this Permit cycle by EPA for any waters into which the facility discharges, the facility must review the applicable TMDL to see if it includes requirements for control of any water discharged by the Permittee. Within six (6) months of the date of TMDL approval or establishment, the facility must notify the Department on how it will modify its BMP plan to include best management practices specifically targeted to achieve the allocations prescribed by the TMDL, if necessary. Any revised BMP plans must be submitted to the Department for review. The facility must include in the BMP plan a monitoring component to assess the effectiveness of the BMPs in achieving the allocations.

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
WATER DIVISION

NPDES INDIVIDUAL PERMIT RATIONALE

Company Name:	Ferroglobe USA Quartz, Inc.
Facility Name:	Meadows Pit
County:	Lowndes County
Permit Number:	AL0084501
Prepared by:	Ange Boatwright
Date:	November 5, 2025
Receiving Waters:	Unnamed Tributaries to Powell Creek, Unnamed Tributaries Cypress Creek, Groundwater
Permit Coverage:	Construction Sand and Gravel Mine, Wet and Dry Preparation, Transportation and Storage, and Associated Areas
SIC Code(s):	1442

The Department has made a tentative determination that the available information is adequate to support reissuance and modification of this permit. The reissuance includes the transition from a General Permit to an Individual Permit. The modification includes the transfer of the permit from Alabama Sand and Gravel, Inc. to Ferroglobe USA Quartz, Inc. The modification also includes the removal of Outfalls 003-1, 005-1, and 006-1, as well as the addition of Outfalls 009-1, 010-1, and 011-1.

This proposed permit covers a wet and dry preparation construction sand and gravel mine and associated areas which discharge to ground and surface waters.

This proposed permit authorizes treated discharges into unnamed tributaries to Powell Creek and Unnamed Tributaries to Cypress Creek which currently have the water quality classification of Fish and Wildlife (F&W) per ADEM Admin. Code Ch. 335-6-11. If the requirements of the proposed permit are fully implemented, the facility will not discharge pollutants at levels that will cause or contribute to a violation of the F&W classifications.

Full compliance with the proposed permit terms and conditions is expected to be protective of instream water quality and ensure consistency with applicable instream State water quality standards for the receiving stream.

Technology Based Effluent Limits (TBELs) for construction sand and gravel facilities can be found in 40 CFR 436.32(1) and (2) for facilities that recycle waste water for use in processing and mine dewatering, respectively. The TBELs were promulgated for existing dischargers using the Best Practicable Control Technology Available (BPT). New Source Performance Standards (NSPS) have not yet been developed by the EPA for the Construction Sand and Gravel Subcategory.

The TBELs for 40 CFR 436 Subpart C do not include limitations for Total Suspended Solids (TSS). TSS is classified as a conventional pollutant in 40 CFR 401.16 and is expected to be discharged from this type of facility. Therefore, monthly average and daily maximum effluent limitations for TSS were prepared using Best Professional Judgment (BPJ) with consideration given to the NSPS for TSS in 40 CFR 434.35.

The proposed permit covers discharges to Groundwater. Monitoring for discharges to groundwater is not required because of the natural treatment provided by the sand and gravel formation; however, discharges to surface waters must be monitored twice per month.

40 CFR 436.32 includes the TBEL of 6.0 – 9.0 s.u. for pH. However, the applicable State water quality criteria for pH in streams classified as F&W is 6.0 – 8.5 s.u. per ADEM Admin. Code r. 335-6-10-.09 and is therefore used in this permit.

The applicant has requested, in accordance with 40 CFR Part 122.21 and their NPDES permit application, a waiver from testing for the Part A, B, and C pollutants listed in the EPA Form 2C and 2D that are not addressed in their application. They have also certified that due to the processes involved in their mining activity these pollutants are believed to be not present in the waste stream.

The Pollution Abatement/Prevention (PAP) plan for this facility has been prepared by a professional engineer (PE) registered in the State of Alabama and is designed to ensure reduction of pollutants in the waste stream to a level that, if operated properly, the discharge will not contribute to or cause a violation of applicable State water quality standards. The proposed permit terms and conditions are predicated on the basis of ensuring a reduction of pollutants in the discharge to a level that reduces the potential of contributing to or causing a violation of applicable State water quality standards.

In accordance with ADEM Admin. Code r. 335-6-3-.07, the design professional engineer, as evidenced by their seal and/or signature on the application, has accepted full responsibility for the effectiveness of the waste treatment facility to treat the permittee's effluent to meet NPDES permit limitations and requirements, and to fully comply with Alabama's water quality standards, when such treatment facilities are properly operated.

If there is a reasonable potential that a pollutant present in the treated discharges from a facility could cause or contribute to a contravention of applicable State water quality standards above numeric or narrative criteria, 40 CFR Part 122 requires the Department to establish effluent limits using calculated water quality criterion, establish effluent limits on a case-by-case basis using criteria established by EPA, or establish effluent limits based on an indicator parameter. Based on available information, potential pollutants discharged from this facility, if discharged within the concentrations allowed by this permit, would not have a reasonable potential to cause or contribute to a contravention of applicable State water quality standards.

Pursuant to ADEM Admin. Code r. 335-6-6-.12(r) this permit requires the permittee to design and implement a Spill Prevention Control and Countermeasures (SPCC) plan for all stored chemicals, fuels and/or stored pollutants that have the potential to discharge to a water of the State. This plan must meet the minimum engineering requirements as defined in 40 CFR Part 112 and must provide for secondary containment adequate to control a potential spill.

The applicant is not proposing discharges of pollutants into a water of the State with an approved Total Maximum Daily Load (TMDL).

The applicant is not proposing discharges into a stream segment or other State water that is included on Alabama's current CWA §303(d) list.

The applicant is not proposing any new discharges of pollutants to an ADEM identified Tier I water.

The proposed permit action authorizes new discharges of pollutants to receiving waters determined by the Department to be waters where the quality exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water (Tier II). Pursuant to ADEM Admin. Code r. 335-6-10 (Antidegradation Policy and Implementation of the Antidegradation Policy), the applicant has submitted, and the Department has reviewed and considered information regarding (1) demonstration of necessity/importance, (2) alternatives analysis, and (3) calculations of total annualized costs for technically feasible treatment alternatives regarding the proposed new discharges to Tier II waters. The Department has determined, based on the applicant's demonstration, that the proposed new discharges to the Tier II waters are necessary for important economic or social development in the area in which the waters are located

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
WATER DIVISION

ANTIDEGRADATION RATIONALE

Company Name: Ferroglobe USA Quartz, Inc.

Facility Name: Meadows Pit

County: Lowndes

Permit Number: AL0084501

Prepared by: Ange Boatwright

Date: November 5, 2025

Receiving Waters: Unnamed Tributaries to Powell Creek, Unnamed Tributaries to Cypress Creek

Stream Category: Tier II as defined by ADEM Admin. Code 335-6-10-.12

Discharge Description: This proposed permit covers a construction sand and gravel mine, wet and dry preparation, transportation and storage, and associated areas which discharge to surface waters.

The following preliminary determination was prepared in accordance with ADEM Admin. Code 335-6-10-.12 (7) (c):

The Department has reviewed the information submitted by applicant in accordance with ADEM Admin. Code 335-6-10-.12(9). The applicant has demonstrated that there are no technically or economically viable treatment options in its alternatives analysis that would completely eliminate a direct discharge.

The permit applicant has indicated that the following economic and social benefits will result from this project:

1. The Permittee submits that the issuance of the permit will allow for the continued employment of the current employees.
2. The Permittee expects to continue to pay employment, local, and county taxes if the permit is issued.
3. The Permittee submits that they will provide jobs to the local community and support local venders.

The Department has determined that the discharge proposed by the permit applicant is necessary for important economic and social development in the area of the outfall location in the receiving water.

Reviewed By: William McClimans

Date: November 13, 2025

NPDES Individual Application - Mining (Form 315)

version 3.4

(Submission #: HPP-YN0R-11Q9J, version 3)

Details

Submission ID HPP-YN0R-11Q9J

Form Input

Processing Information

Is this a coalbed methane operation?
No

Please indicate the purpose of this application:
Initial Permit Application for Existing Facility (e.g., facility previously permitted less than 5 acres)

Please provide the most recent NPDES permit number associated with the existing facility:
ALG850130

General Instructions

NPDES Individual Permit Application ◆ Mining Operations (Form 315)

This form should be used to submit an application for an NPDES individual permit to authorize discharges from surface & underground mineral, ore, or mineral product mining, quarrying, excavation, borrowing, hydraulic mining, storage, processing, preparation, recovery, handling, loading, storing, or disposing activities, and associated areas including pre-mining site development, construction, excavation, clearing, disturbance, and reclamation.

Incomplete or incorrect answers or missing signatures will delay processing. Attach additional comments or information as needed. Commencement of activities applied for as detailed in this application are not authorized until permit coverage has been issued by the Department.
For assistance, please click here to determine the permit staff responsible for the site or call (334) 394-4372.

Please click here for the Alabama 303(d) list of Impaired Waters

Please click here for Information on Alabama TMDLs

Permittee Information

Permittee

Permittee Name
Ferroglobe USA Quartz, Inc.

Mailing Address

3714County Road 40E

Lowndesboro, AL 36752

Responsible Official

Prefix
Mr.

First Name	Last Name
George	Adams

Title
Plant Director

Organization Name
Ferrogloge USA Quartz

Phone Type	Number	Extension
Business	6065236438	

Email
gadams@ferroglobe.com

Mailing Address

332 W CUMBERLAND GAP PKWY

STE 100

CORBIN, KY 40701-4818

Facility/Operations Information

Facility/Operations Name
Meadows Pit

Permittee Organization Type
Corporation

Parent Corporation and Subsidiary Corporations of Applicant, if any:
Feroglobe

Landowner(s) Name, Address and Phone Number:
Kirk Meadows

Sub-contractor(s)/Operator(s), if known:
None

Is the "Company/Permittee" properly registered and in good standing with the Alabama Secretary of State's office?
Yes

Facility/Operations Address or Location Description

Jones Bluff Road

Lowndesboro, AL 36752

Facility/Operations County (Front Gate)
Lowndes

Do the operations span multiple counties?
No

Detailed Directions to the Facility/Operations
In Lownesboro, travel North From Highway 80 on Highway 29 (Jones Bluff Road), from Railroad track crossing go about 1/2 mile North and mine entrance will be on your left (South side of Jones Bluff Road at entrance sign)

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

Facility/Operations Front Gate Latitude and Longitude
32.33073052579947,-86.62779808044434

Robinson Switch ROad

Township(s), Range(s), Section(s) (Note: If you are submitting multiple TRSs, please separate each TRS by a semicolon. Example: T19S,R1E,S15; T20S,R2E,S16)
T16N, R14E, S25; T16N, R14E, S26;T16N, R14E, S35; T16N, R14E, S36

SIC Code(s) [Please select your primary SIC code first]:
1442-Construction Sand and Gravel

NAICS Code(s) [Please select your primary NAICS code first]:
212390-Other Nonmetallic Mineral Mining And Quarrying

Facility/Operations Contact

Prefix
Mr.

First Name	Last Name
Chad	Richards

Title
Mine Supervisor

Organization Name
Ferroglobe USA Quartz, Inc.

Phone Type	Number	Extension
Mobile	740-336-0674	

Email
crichards@ferroglobe.com

Member Information

Identify the name, title/position, and unless waived in writing by the Department, the resident address of every officer (a PO Box is not acceptable), general partner, LLP partner, LLC member, investor, director, or person performing a function similar to a director, of the applicant, and each person who is the record or beneficial owner of 10 percent or more of any class of voting stock of the applicant, or any other responsible official(s) of the applicant with legal or decision making responsibility or authority for the facility/operations:

List of Names/Titles/Addresses, as described in the instructions above, will be entered by:
Manually Entering in Table

Name	Title/Position	Physical Address of Residence
Brian D'Amico	Vice President/Secretary	1650 Onway Drive; Miami, FL 33133
Paul Lojek	President	202 Pebble Drive; Marietta, OH 45750

Other than the "Company/Permittee", identify the name of each corporation, partnership, association, and single proprietorship for which any individual identified above is or was an officer, general partner, LLP partner, LLC member, investor, director, or individual performing a function similar to a director, or principal (10% or more) stockholder, that had an Alabama NPDES permit at any time during the five year (60 month) period immediately preceding the date on which this form is signed (if this does not apply, then enter N/A after selecting "Manually Enter in Table"):

List of Corporations/Partnerships/etc, Names and Titles, as described in the instructions above, will be entered by:
Manually Entering in Table

Name of Corporation, Partnership, Association, or Single Proprietorship	Name of Individual	Title/Position in Corporation, Partnership, Association, or Single Proprietorship
Ferroglobe PLC	Brian D'Amico	Director
Ferroglobe PLC	Paul Lojek	Director
Ferroglobe Holding Company LTD	Brian D'Amico	Director
Ferroglobe Holding Company LTD	Paul Lojek	Director

Name of Corporation, Partnership, Association, or Single Proprietorship	Name of Individual	Title/Position in Corporation, Partnership, Association, or Single Proprietorship
Globe Specialty Metals, Inc.	Brian D'Amico	Director
Globe Specialty Metal, Inc.	Paul Lojek	Director
Globe Metallurgical Inc.	Brian D'Amico	Director
Globe Metallurgical Inc.	Paul Lojek	Director

Additional Contacts (1 of 1)

ADDITIONAL CONTACTS:

Contact Type
NONE PROVIDED

Contact

First Name *NONE PROVIDED*
Last Name *NONE PROVIDED*

Title
NONE PROVIDED

Organization Name
NONE PROVIDED

Phone Type **Number** **Extension**
NONE PROVIDED

Email
NONE PROVIDED

Address
[NO STREET ADDRESS SPECIFIED]
[NO CITY SPECIFIED], *[NO STATE SPECIFIED]* *[NO ZIP CODE SPECIFIED]*

Compliance History

Has the applicant ever had any of the following:

Event	Apply?
An Alabama NPDES, SID, or UIC permit suspended or terminated	No
An Alabama or federal environmental permit suspended/terminated	No
An Alabama State Oil Gas Board permit or other approval suspended or terminated	No
An Alabama or federal performance/environmental bond, or similar security deposited in lieu of a bond, or portion thereof, forfeited	No

Has the applicant, parent corporation, subsidiary, general partner, LLP partner, or LLC Member had any Warning Letters, Notice of Violations (NOVs), Administrative Actions, or litigation filed by ADEM or EPA during the three year (36 month) period preceding the date on which this form is signed?
Yes

Identify every Warning Letter, Notice of Violation (NOV), Administrative Action, or litigation issued to the applicant, parent corporation, subsidiary, general partner, LLP partner, or LLC Member and filed by ADEM or EPA during the three year (36 month) period preceding the date on which this form is signed.

Date of Issuance	Type of Action	Briefly describe alleged violations:	Date of Final Resolution
08/02/2022	Consent Order	Stipulations involved with ADEM Compliance Inspection	11/30/2022

For this facility, list any other NPDES or other environmental permits (including permit numbers), authorizations, or certifications that have been applied for or issued within the State by ADEM, EPA, Alabama Department of Labor (ADOL), US Army Corp of Engineers (USACE), or other agency, to the applicant, parent corporation, subsidiary, or LLC member whether presently effective, expired, suspended, revoked, or terminated:
None

For other facilities, list any other NPDES or other ADEM permits (including permit numbers), authorizations, or certifications that have been applied for or issued within the State by ADEM, EPA, ASMC, ADOL, or USACE, to the applicant, parent corporation, subsidiary, or LLC member whether presently effective, expired, suspended, revoked, or terminated:
ALG850142

Anti-Degradation Evaluation

Pursuant to ADEM Admin. Code ch. 335-6-10-.12(9), responses to the following questions must be provided by the applicant requesting NPDES permit coverage for new or expanded discharges of pollutant(s) to Tier 2 waters (except discharges eligible for coverage under general permits). As part of the permit application review process, the Department is required to consider, based on the applicant's demonstration, whether the proposed new or increased discharge to Tier 2 waters is necessary for important economic or social development in the area in which the waters are located. Do you have new or increased discharges?
Yes

CORRECTION REQUEST *(APPROVED)*
Anti-Degradation Rationale

Please give more detailed answers to the for the anti-degradation rationale.
Created on 11/17/2023 11:20 AM by **Ange Boatwright**

NOTE

If the discharge is to a Tier II waterbody as defined in ADEM Admin. Code r. 335-6-10-.12(4), complete questions below, ADEM Form 311-Alternatives Analysis, and either ADEM Form 312 or ADEM Form 313- Calculation of Total Annualized Project Costs (Public-Sector or Private-Sector Projects, whichever is applicable). ADEM Form 312 or ADEM Form 313, whichever is applicable, must be provided for each treatment discharge alternative considered technically viable.
ADEM forms can be found on the Department's website here.

What environmental or public health problem will the discharger be correcting?
none, No public health problem(s) are known

How much will the discharger be increasing employment (at its existing facility or as the result of locating a new facility)?
None, the issuance of a permit will allow continued employment of existing work force

How much reduction in employment will the discharger be avoiding?
none; Employment will continue and no reduction in employment is forecast

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

What public service to the community will the discharger be providing?
Employment, Local sales tax, some support to local vendors as needed

What economic or social benefit will the discharger be providing to the community?
Employment, Sales tax, County Road Tax

Attach Form 311 (Alternative Analysis)
Form311.JM.pdf - 06/24/2025 09:34 AM
Comment
NONE PROVIDED

Please attach Form 312 (Public Sector Projects) or Form 313 (Private Sector Projects).
Form313.pdf - 04/04/2023 09:57 AM
Comment
NONE PROVIDED

Activity Description & Information

Narrative description of activity(s):
Surface Mining of Construction Grade Sand and Gravel

Total Facility/Operations Area (acres)
985.20

Total Disturbed Area (acres)
449.00

Anticipated Commencement Date
05/04/2017

Anticipated Completion Date
12/31/2031

Please identify which of the following apply to this operation:

Activity/Condition	Appy?
An existing facility/operation which currently results in discharges to State waters?	Yes
A proposed facility/operation which will result in a discharge to State waters?	Yes
Be located within any 100-year flood plain?	No
Discharge to Municipal Separate Storm Sewer?	No
Discharge to waters of or be located in the Coastal Zone?	No
Need/have ADEM UIC permit coverage?	No
Be located on Indian/historically significant lands?	No
Need/have ADEM SID permit coverage?	No
Need/have ASMC permit coverage?	No
Need/have State Oil & Gas Board permit coverage?	No
Need/have ADOL permit coverage?	Yes
Generate, treat, store, or dispose of hazardous or toxic waste?	No
Be located in or discharge to a Public Water Supply (PWS) watershed or be located within mile of any PWS well?	No
Incised pit	Yes

Does your facility/operation use cooling water?
No

Material to be Removed, Processed, or Transloaded

Material To Be Removed, Processed, Or Transloaded (Note: Sum must equal 100.)

Mineral(s)/Mineral product(s)	%
Sand and/or Gravel	100
	Sum: 100

Proposed Activity To Be Conducted

Type(s) of activity presently conducted at applicant's existing facility or proposed to be conducted at facility (Select Yes or No)):

Activity	Apply?
Adjacent/associated asphalt/concrete plant(s)	No
Alternative fuels operation	No
Auger mining	No
Cement production	No

Activity	Apply?
Chemical processing or leaching	No
Chemicals used in process or wastewater treatment (coagulant, biocide, etc.)	Yes
Construction related temporary borrow pits/areas	Yes
Creek/stream crossings	Yes
Excavation	Yes
Grading, clearing, grubbing, etc.	Yes
Hydraulic mining	No
Hydraulic mining, dredging, instream or between stream-bank mining	No
Lime production	No
Low volume sewage treatment package plant	No
Mineral dry processing (crushing & screening)	Yes
Mineral loading	Yes
Mineral storing	Yes
Mineral transportation	Yes
Mineral wet preparation	Yes
Onsite construction debris or equipment storage/disposal	Yes
Onsite mining debris or equipment storage/disposal	Yes
Other beneficiation & manufacturing operations	No
Pre-construction ponded water removal	No
Pre-mining logging or land clearing	Yes
Preparation plant waste recovery	Yes
Quarrying	No
Reclamation of disturbed areas	Yes
Solution mining	No
Surface mining	Yes
Synthetic fuel production	No
Underground mining	No
Waterbody relocation or other alteration	No
Within-bank mining	No

If the operation will include activities other than those listed above, please describe them below:
NONE PROVIDED

If the type of activity presently conducted or proposed is Mineral Transportation, please indicate which of the following apply:

Method	Apply?
Barge	No
Rail	No
Truck	Yes

Please specify the chemical(s) used in process or wastewater treatment (coagulant, biocide, etc.):
coagulant (CQ310)

Attach MSDS
ASGcoagulantandflocculant.pdf - 12/27/2022 03:59 PM
Comment
NONE PROVIDED

Fuel - Chemical Handling, Storage, & Spill Prevention Control & Countermeasures (SPCC) Plan

Will fuels, chemicals, compounds, or liquid waste be used or stored onsite?
Yes

Please identify the fuel, chemicals, compounds, or liquid waste and indicate the volume of each:

Volume (gallons)	Contents
10.000	Off Road Diesel Fuel
1.000	Unleaded Gasoline
1,000.0	Diesel Fuel
330.0	Motor Oil
330.0	Motor Oil
330.0	Motor Oil

SPCC Plan
SPCC Meadows Pit - 062325.pdf - 06/24/2025 09:38 AM
Comment
NONE PROVIDED

ASMC Regulated Entities

Is this a coal mining operation regulated by ASMC?
No

Topographic Map Submittal

Topographic Map

Attach to this application a 7.5 minute series U.S.G.S. topographic map(s) or equivalent map(s) no larger than, or folded to a size of 8.5 by 11 inches (several pages may be necessary), of the area extending to at least one mile beyond property boundaries. The topographic or equivalent map(s) must include a caption indicating the name of the topographic map, name of the applicant, facility name, county, and township, range, & section(s) where the facility are located. Unless approved in advance by the Department, the topographic or equivalent map(s), at a minimum, must show: a) An accurate outline of the area to be covered by the permit (b) An outline of the facility (c) All existing and proposed disturbed areas (d) Location of intake and discharge areas (e) Proposed and existing discharge points (f) Perennial, intermittent, and ephemeral streams (g) Lakes, springs, water wells, wetlands (h) All known facility dirt/improved access/haul roads (i) All surrounding unimproved/improved roads (j) High-tension power lines and railroad tracks (k) Contour lines, township-range-section lines (l) Drainage patterns, swales, washes (m) All drainage conveyance/treatment structures (ditches, berms, etc.) (n) Any other pertinent or significant feature.

Topographic Map
Figure 1.pdf - 06/24/2025 09:37 AM
Comment
NONE PROVIDED

CORRECTION REQUEST *(APPROVED)*
Topo Map

The number of outfalls on the topo map does not match the number of outfalls submitted.
Created on 11/21/2023 11:56 AM by **Ange Boatwright**

Detailed Facility Map Submittal

Detailed Facility Map
Figure 1.pdf - 06/23/2025 12:50 PM
Figure 2.pdf - 06/23/2025 12:51 PM
Comment
NONE PROVIDED

Outfalls (1 of 7)

Outfall Identifier: 010

NOTE *(CREATED)*
Outfall 010

Outfall 010 will be Outfall 001 in the permit.
Created on 11/17/2023 11:32 AM by **Ange Boatwright**

Feature Type
Outfall (External)

Outfall Identifier
010

Outfall Status
Existing

Please be aware that you should only mark an outfall status as existing if (1) the Department has been previously notified that it was constructed as proposed or (2) it began discharge prior to this application. A proposed outfall is one that is being newly added to the permit OR one that has never discharged or has never been authorized by the Department to discharge. Should you have any questions about which status to select, please contact the Department's permit engineer for this site.

Receiving Water
Powell Creek

Check below if the discharge enters the receiving water via an unnamed tributary.
Unnamed Tributary

Location of Outfall
32.33103682434509,-86.62214668976706

303(d) Segment?
No

TMDL Segment?
No

Outfalls (2 of 7)

Outfall Identifier: 011

NOTE *(CREATED)*
Outfall 011

Outfall 011 will be Outfall 002 in the permit.
Created on 11/17/2023 11:36 AM by **Ange Boatwright**

Feature Type
Outfall (External)

Outfall Identifier
011

Outfall Status
Existing

Please be aware that you should only mark an outfall status as existing if (1) the Department has been previously notified that it

was constructed as proposed or (2) it began discharge prior to this application. A proposed outfall is one that is being newly added to the permit OR one that has never discharged or has never been authorized by the Department to discharge. Should you have any questions about which status to select, please contact the Department's permit engineer for this site.

Receiving Water
Powell Creek

Check below if the discharge enters the receiving water via an unnamed tributary.
Unnamed Tributary

Location of Outfall
32.32991653278705,-86.619446895888

303(d) Segment?
No

TMDL Segment?
No

Outfalls (3 of 7)

Outfall Identifier: 019

NOTE *(CREATED)*
Outfall 019

Outfall 019 will be 004 in the permit.
Created on 5/23/2024 5:10 PM by **Ange Boatwright**

Feature Type
Outfall (External)

Outfall Identifier
019

Outfall Status
Existing

Please be aware that you should only mark an outfall status as existing if (1) the Department has been previously notified that it was constructed as proposed or (2) it began discharge prior to this application. A proposed outfall is one that is being newly added to the permit OR one that has never discharged or has never been authorized by the Department to discharge. Should you have any questions about which status to select, please contact the Department's permit engineer for this site.

Receiving Water
Powell Creek

Check below if the discharge enters the receiving water via an unnamed tributary.
Unnamed Tributary

Location of Outfall
32.33653586495086,-86.62395216697564

303(d) Segment?
No

TMDL Segment?
No

Outfalls (4 of 7)

Outfall Identifier: 020

NOTE *(CREATED)*
Outfall 020

Outfall 020 will be Outfall 007 in the Permit.
Created on 10/24/2024 10:02 AM by **Ange Boatwright**

Feature Type
Outfall (External)

Outfall Identifier
020

Outfall Status
Existing

Please be aware that you should only mark an outfall status as existing if (1) the Department has been previously notified that it was constructed as proposed or (2) it began discharge prior to this application. A proposed outfall is one that is being newly added to the permit OR one that has never discharged or has never been authorized by the Department to discharge. Should you have any questions about which status to select, please contact the Department's permit engineer for this site.

Receiving Water
Cypress Creek

Check below if the discharge enters the receiving water via an unnamed tributary.
Unnamed Tributary

Location of Outfall
32.3247660946992,-86.63301390127299

303(d) Segment?
No

TMDL Segment?
No

Outfalls (5 of 7)

Outfall Identifier: 021

NOTE *(CREATED)*
Outfall 021

Outfall 021 will be Outfall 008 in the Permit.
Created on 10/24/2024 10:05 AM by **Ange Boatwright**

Feature Type
Outfall (External)

Outfall Identifier
021

Outfall Status
Existing

Please be aware that you should only mark an outfall status as existing if (1) the Department has been previously notified that it

was constructed as proposed or (2) it began discharge prior to this application. A proposed outfall is one that is being newly added to the permit OR one that has never discharged or has never been authorized by the Department to discharge. Should you have any questions about which status to select, please contact the Department's permit engineer for this site.

Receiving Water
Cypress Creek

Check below if the discharge enters the receiving water via an unnamed tributary.
Unnamed Tributary

Location of Outfall
32.32274073435005,-86.634514749563

303(d) Segment?
No

TMDL Segment?
No

Outfalls (6 of 7)

Outfall Identifier: 022

NOTE *(CREATED)*
Outfall 022

Outfall 022 will be Outfall 011 in the permit.
Created on 10/24/2024 10:10 AM by **Ange Boatwright**

Feature Type
Outfall (External)

Outfall Identifier
022

Outfall Status
Proposed

Please be aware that you should only mark an outfall status as existing if (1) the Department has been previously notified that it was constructed as proposed or (2) it began discharge prior to this application. A proposed outfall is one that is being newly added to the permit OR one that has never discharged or has never been authorized by the Department to discharge. Should you have any questions about which status to select, please contact the Department's permit engineer for this site.

Receiving Water
Powell Creek

Check below if the discharge enters the receiving water via an unnamed tributary.
Unnamed Tributary

Location of Outfall
32.32574059412728,-86.62016344556883

303(d) Segment?
No

TMDL Segment?
No

Outfalls (7 of 7)

Outfall Identifier: 024

NOTE *(CREATED)*
Outfall 024

Outfall 024 will be Outfall 009 in the Permit.
Created on 10/24/2024 10:15 AM by **Ange Boatwright**

Feature Type
Outfall (External)

Outfall Identifier
024

Outfall Status
Proposed

Please be aware that you should only mark an outfall status as existing if (1) the Department has been previously notified that it was constructed as proposed or (2) it began discharge prior to this application. A proposed outfall is one that is being newly added to the permit OR one that has never discharged or has never been authorized by the Department to discharge. Should you have any questions about which status to select, please contact the Department's permit engineer for this site.

Receiving Water
Cypress Creek

Check below if the discharge enters the receiving water via an unnamed tributary.
Unnamed Tributary

Location of Outfall
32.32656774309076,-86.62551685271475

303(d) Segment?
No

TMDL Segment?
No

Discharge Characterization

EPA Form 2C, EPA Form 2D, and/or ADEM Form 567 Submittal
Yes, pursuant to 40 CFR 122.21, the applicant requests a waiver for completion of EPA Form 2C, EPA Form 2D, and ADEM Form 567 and certifies that the operating facility will discharge treated stormwater only; that chemical/compound additives are not used (unless waived in writing by the Department on a programmatic, categorical, or individual compound/chemical basis); that there are no process, manufacturing, or other industrial operations or wastewaters, including but not limited to lime or cement production and synfuel operations; and that coal and coal products are not mined nor stored onsite.

Please download the following Excel file to enter your information. Once complete, please attach to the below control.
Download spreadsheet here.

Required attachment:
Copy of Form315 TableB.xlsx - 06/24/2025 09:56 AM
Comment
NONE PROVIDED

CORRECTION REQUEST *(APPROVED)*
Form 315 Table B

Please fill out the required information for any proposed outfalls.
Created on 11/21/2023 12:00 PM by **Ange Boatwright**

2 COMMENTS
Jarrod Milligan (jmilligan@tjacge.com) (6/24/2025 9:57 AM)

Only proposed additional outfalls are 009 and 011

Ange Boatwright (maboatwright@adem.alabama.gov) (10/24/2024 10:23 AM)
Please fill in the expected discharge information for Outfalls 006, 009, 010, 011

Please download the following Excel file to enter your information. Once complete, please attach to the below control.
Download spreadsheet here.

Required attachment:
Form315TableC.xlsx - 02/20/2023 03:49 PM
Comment
NONE PROVIDED

Discharge Structure Description & Pollutant Source

Please download the following Excel file to enter your information. Once complete, please attach to the below control.
Download spreadsheet here.

Required attachment:
Copy of Form315 DischargeStructure.xlsx - 06/24/2025 09:54 AM
Comment
NONE PROVIDED

CORRECTION REQUEST *(APPROVED)*
Form 315 Discharge Sturcture

Please mark "Yes" in the groudwater column for all outfalls. Also, the number of outfalls does not match the number of outfalls submitted.
Created on 11/21/2023 12:03 PM by **Ange Boatwright**

1 COMMENT
Ange Boatwright (maboatwright@adem.alabama.gov) (10/24/2024 10:20 AM)
Please mark "yes" in the "Groundwater Discharge" column.

Variance Request

Do you intend to request or renew one or more of the CWA technology variances authorized at 40 CFR 122.21(m)?
No

Pollution Abatement & Prevention (PAP) Plan Summary (1 of 1)

CORRECTION REQUEST *(APPROVED)*
PAP Plan Summary

The PAP summary does not include all permitted outfalls.
Created on 11/21/2023 12:53 PM by **Ange Boatwright**

Outfall(s):
001, 002, 004, 007, 008, 009, 011

Outfall Questions:	Please select one:
Runoff from all areas of disturbance is controlled	Yes
Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond	Yes
Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage	Yes

Outfall Questions:	Please select one:
Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity	Yes
Trees, boulders, and other obstructions removed from pond during initial construction	Yes
Width of top of dam greater than 12'	Yes
Side slopes of dam no steeper than 3:1	Yes
Cutoff trench at least 8' wide	N/A
Side slopes of cutoff trench no less than 1:1	Yes
Cutoff trench located along the centerline of the dam	N/A
Cutoff trench extends at least 2' into bedrock or impervious soil	N/A
Cutoff trench filled with impervious material	N/A
Embankments and cutoff trench 95% compaction standard proctor ASTM	N/A
Embankment free of roots, tree debris, stones >6" diameter, etc.	N/A
Embankment constructed in lifts no greater than 12"	N/A
Spillpipe sized to carry peak flow from a one year storm event	N/A
Spillpipe will not chemically react with effluent	Yes
Subsurface withdrawal	Yes
Anti-seep collars extend radially at least 2' from each joint in spillpipe	Yes
Splashpad at the end of the spillpipe	Yes
Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream	N/A
Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream	N/A
Emergency overflow at least 20' long	Yes
Side slopes of emergency spillway no steeper than 2:1	Yes
Emergency spillway lined with riprap or concrete	Yes
Minimum of 1.5' of freeboard between normal overflow and emergency overflow	N/A
Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam	N/A
All emergency overflows are sized to handle entire drainage area for ponds in series	N/A
Dam stabilized with permanent vegetation	Yes
Sustained grade of haul road <10%	Yes
Maximum grade of haul road <15% for no more than 300'	Yes
Outer slopes of haul road no steeper than 2:1	Yes
Outer slopes of haul road vegetated or otherwise stabilized	Yes
Detail drawings supplied for all stream crossings	Yes
Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans	Yes
Long-Term Stabilization/Grading And Permanent Reclamation or Water Quality Remediation Plans	Yes

Identify and provide detailed explanation for any "N" or "N/A" response(s):
Stream is not PWS stream
Sediment ponds designed, constructed and certified by others, Observation is that the ponds appear to be working fine.

Pollution Abatement & Prevention (PAP) Plan Review Checklist

General Information:	Please select one:
PE Seal with License #	Yes
Name and Address of Operator	Yes
Legal Description of Facility	Yes
Name of Company	Yes
Number of Employees	Yes
Products to be Mined	Yes

General Information:	Please select one:
Hours of Operation	Yes
Water Supply and Disposition	Yes

Maps:	Please select one:
Topographic Map including Information from Part XIII (a) – (o) of this Application	Yes
1– – 500– or Equivalent Facility Map including Information from Part XIV of this Application	Yes

Detailed Design Diagrams:	Please select one:
Plan Views	Yes
Cross-section Views	Yes
Method of Diverting Runoff to Treatment Basins	Yes
Line Drawing of Water Flow through Facility with Water Balance or Pictorial Description of Water Flow	Yes

Narrative of Operations:	Please select one:
Raw Materials Defined	Yes
Processes Defined	Yes
Products Defined	Yes

Schematic Diagram:	Please select one:
Points of Waste Origin	Yes
Collection System	Yes
Disposal System	Yes

Post Treatment Quantity and Quality of Effluent:	Please select one:
Flow	Yes
Suspended Solids	Yes
Iron Concentration	N/A
pH	Yes

Identify and provide detailed explanation for any "N" or "N/A" response(s):
Iron monitoring not required as part of effluent monitoring

Description of Waste Treatment Facility:	Please select one:
Pre-Treatment Measures	Yes
Recovery System	Yes
Expected Life of Treatment Basin	Yes
Measures for Ensuring Access to All Treatment Structures and Related Appurtenances including Outfall Locations	Yes
Schedule of Cleaning and/or Abandonment	Yes

Other:	Please select one:
Precipitation/Volume Calculations/Diagram Attached	Yes
BMP Plan for Haul Roads	Yes
Measures for Minimizing Impacts to Adjacent Stream (e.g., Buffer Strips, Berms)	Yes
Measures for Ensuring Appropriate Setbacks are Maintained at All Times	Yes
Methods for Minimizing Nonpoint Source Discharges	Yes
If Chemical Treatment Used, Methods for Ensuring Appropriate Dosage	Yes
Facility Closure Plans	Yes

Other:	Please select one:
PE Rationale(s) For Alternate Standards, Designs or Plans	N/A

Identify and provide detailed explanation for any "N" or "N/A" response(s):
No alternate plans proposed

Pollution Abatement & Prevention (PAP) Plan

Is this a coal mining operation regulated by ASMC?
No

For non-coal mining facilities, has a PAP Plan in accordance with ADEM Admin. Code r. 335-6-9-.03 been completed?
Yes

PAP Plan (non-coal mining facilities)
PAP Meadows Pit - 062325.pdf - 06/24/2025 09:43 AM
Comment
NONE PROVIDED

CORRECTION REQUEST *(APPROVED)*
PAP Plan

The narrative of the PAP Plan needs to include descriptions of (1) the methods used to control vehicle tracking onto roadways and/or ditches at entrances and exits; (2) how the required 50ft setback to waters of the State will be visibly marked; and (3) the methods used to mark the permit boundaries so that they are readily visible during the life of the operation. These will be new items required by the Permit to be included in the PAP Plan. Also, the attached topo map includes outfalls that were not included in the application and a schematic diagram of the site was missing.
Created on 11/21/2023 3:25 PM by **Ange Boatwright**

Professional Engineer (PE)

Registration License Number
31642

Professional Engineer

Prefix
Mr.

First Name	Last Name
JARROD	MILLIGAN

Title
PRINCIPAL ENGINEER

Organization Name
Tom Joiner

Phone Type	Number	Extension
Business	2053452311	

Email
jmilligan@tjacge.com

Address
517 Energy Center Blvd
Northport, AL 35473

Information for the Applicant

Please read the following information and acknowledge below:

Contact the Department prior to submittal with any questions or to request acceptable alternate content/format.

Be advised that you are not authorized to commence regulated activity until this application can be processed, publicly noticed, and approval to proceed is received in writing from the Department.

EPA Form(s) 1 and 2F need not be submitted unless specifically required by the Department. EPA Form(s) 2C and/or 2D are required to be submitted unless the
applicant is eligible for a waiver and the Department grants a waiver, or unless the relevant information required by EPA Form(s) 2C and/or 2D are submitted to the Department in an alternative format acceptable to the Department.

Planned/proposed mining sites that are greater than 5 acres, that mine/process coal or metallic mineral/ore, or that have wet or chemical processing, must apply for and obtain coverage under an Individual or General NPDES Permit prior to commencement of any land disturbance. Such Individual NPDES Permit coverage may be requested via this ADEM Form 315.

The applicant is advised to contact:
(1) The Alabama Surface Mining Commission (ASMC) if coal, coal fines, coal refuse, or other coal related materials are mined, transloaded, processed, etc.;
(2) The Alabama Department of Labor (ADOL) if conducting non-coal mining operations;
(3) The Alabama Historical Commission for requirements related to any potential historic or culturally significant sites;
(4) The Alabama Department of Conservation and Natural Resources (ADCNR) for requirements related to potential presence of threatened/endangered species;
(5) The US Army Corps of Engineers, Mobile or Nashville Districts, if this project could cause fill to be placed in federal waters or could interfere with navigation.

The Department must be in receipt of a completed version of this form, including any supporting documentation, and the appropriate processing fee [including Greenfield Fee and Biomonitoring & Toxicity Limits fee(s), if applicable], prior to development of a draft NPDES permit.

Acknowledgement
I acknowledge I have read and understand the information above.

Additional Attachments

Additional Attachments
NONE PROVIDED
Comment
NONE PROVIDED

Application Preparer

Application Preparer

Prefix
Mr.

First Name	Last Name
JARROD	MILLIGAN

Title
PRINCIPAL ENGINEER

Organization Name
Tom Joiner

Phone Type	Number	Extension
Business	2053452311	

Email
jmilligan@tjacge.com

Address
517 Energy Center Blvd
Northport, AL 35473

Fees Assessed

The following itemized fees have been assessed in accordance with Fee Schedule D and 335-1-6-.04(a) of ADEM Admin. Code Division 1 regulations based on the information provided in this application.

Wet Preparation, Processing, Beneficiation:
6860

Fee

Fee
6860

Revisions

Revision	Revision Date	Revision By
Revision 1	12/15/2022 8:25 AM	JOSEPH PATRICK
Revision 2	12/12/2023 10:10 AM	JOSEPH PATRICK
Revision 3	1/27/2025 1:33 PM	Kelly Johns

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.

Professional Engineer

A detailed, comprehensive Pollution Abatement & Prevention (PAP) Plan must be prepared, signed, and certified by a professional engineer (PE), registered in the State of Alabama, and the PE must certify as follows: I certify on behalf of the applicant, that I have completed an evaluation of discharge alternatives for any proposed new or increased discharges of pollutant(s) to Tier 2 waters and reached the conclusions indicated. I certify under penalty of law that technical information and data contained in this application, and a comprehensive PAP Plan including any attached SPCC plan, maps, engineering designs, etc. acceptable to ADEM, for the prevention and minimization of all sources of pollution in stormwater and authorized related process wastewater runoff has been prepared under my supervision for this facility utilizing effective, good engineering and pollution control practices and in accordance with the provisions of ADEM Admin. Code Division 335-6 , including Chapter 335-6-9 and Appendices A & B. If the PAP Plan is properly implemented and maintained by the Permittee, discharges of pollutants can reasonably be expected to be effectively minimized to the maximum extent practicable and according to permit discharge limitations and other permit requirements. The applicant has been advised that appropriate pollution abatement/prevention facilities and structural & nonstructural management practices or Department approved equivalent management practices as detailed in the PAP Plan must be fully implemented and regularly maintained as needed at the facility in accordance with good sediment, erosion, and other pollution control practices, permit requirements, and other ADEM requirements to ensure protection of groundwater and surface water quality.

Signed By Jarrod Milligan on 08/20/2025 at 8:08 PM

Responsible Official

This application must be signed and initialed by a Responsible Official of the applicant pursuant to ADEM Admin. Code Rule 335-6-6-.09 who has overall responsibility for the operation of the facility. I certify under penalty of law that this document, including technical information and data, the PAP Plan, including any SPCC plan, maps, engineering designs, and all other attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the PE and other person or persons under my supervision 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 or imprisonment for knowing violations. A comprehensive PAP Plan to prevent and minimize discharges of pollution to the maximum extent practicable has been prepared at my direction by a PE for this facility utilizing effective, good engineering and pollution control practices and in accordance with the provisions of ADEM Admin. Code Division 335-6, including Chapter 335-6-9 and Appendices A & B, and information contained in this application, including any attachments. I understand that regular inspections must be performed by, or under the direct supervision of, a PE and all appropriate pollution abatement/prevention facilities and structural & nonstructural management practices or Department approved equivalent management practices identified by the PE must be fully implemented prior to and concurrent with commencement of regulated activities and regularly maintained as needed at the facility in accordance with good sediment, erosion, and other pollution control practices and ADEM requirements. I understand that the PAP Plan must be fully implemented and regularly maintained so that discharges of pollutants can reasonably be expected to be effectively minimized to the maximum extent practicable and according to permit discharge limitations and other requirements to ensure protection of groundwater and surface water quality. I understand that failure to fully implement and regularly maintain required management practices for the protection of groundwater and surface water quality may subject the Permittee to appropriate enforcement action. I certify that this form has not been altered, and if copied or reproduced, is consistent in format and identical in content to the ADEM approved form. I further certify that the discharges described in this application have been tested or evaluated for the presence of non-stormwater discharges and any non-mining associated beneficiation/process pollutants and wastewaters have been fully identified. I acknowledge my understanding that if coal, coal fines, coal refuse, or other coal related materials are mined, transloaded, processed, etc., that I may be required to obtain a permit from the ASMC. I acknowledge my understanding that if non-coal, non-limestone materials are mined, transloaded, processed, etc., that I may be required to obtain a permit from the ADOL. I acknowledge my understanding that if the proposed activities will be conducted in or potentially impact waters of the state or waters of the US (including wetlands), that I may be required to obtain a permit from the USACE.

Signed By George Adams on 09/12/2025 at 9:59 AM

Calculation of Total Annualized Project Costs for Private-Sector Projects

Capital Costs to be Financed (Supplied by applicant)	$ 0 (1)
Interest rate for Financing (Expressed as a decimal)	NA (i)
Time Period of Financing (Assume 10 years*)	10 years (n)
Annualization Factor $= \frac{i}{(1+i)^{10} - 1} + i$	NA (2)
Annualized Capital Cost [Calculate: (1) x (2)]	$ NA (3)
Annual Cost of Operation and Maintenance (including but not limited to monitoring, inspection, permitting fees, waste disposal charges, repair, administration and replacement)**	$ 268000 (4)
Total Annual Cost of Pollution Control Project [(3) + (4)]	$ 268,000 (5)

* While actual payback schedules may differ across projects and companies, assume equal annual payments over a 10-year period for consistency in comparing projects.

** For recurring costs that occur less frequently than once a year, pro rate the cost over the relevant number of years (e.g., for pumps replaced once every three years, include one-third of the cost in each year).

Attachment 1 to Supplementary Form
ADEM Form 311

Alternatives Analysis

Applicant/Project: ALG850130

All new or expanded discharges (except discharges eligible for coverage under general permits) covered by the NPDES permitting program are subject to the provisions of ADEM's antidegradation policy. Applicants for such discharges to Tier 2 waters are required to demonstrate " . . . that the proposed discharge is necessary for important economic or social development." As a part of this demonstration, the applicant must complete an evaluation of the discharge alternatives listed below, including a calculation of the total annualized project costs for each technically feasible alternative (using ADEM Form 312 for public-sector projects and ADEM Form 313 for private-sector projects). Alternatives with total annualized project costs that are less than 110% of the total annualized project costs for the Tier 2 discharge proposal are considered viable alternatives.

Alternative	Viable	Non-Viable	Comment
1 Land Application		X	Not feasible
2 Pretreatment/Discharge to POTW		X	No POTW near
3 Relocation of Discharge		X	Outfalls are gravity discharge
4 Reuse/Recycle		X	Discharge is stormwater only
5 Process/Treatment Alternatives		X	Discharge is stormwater only
6 On-site/Sub-surface Disposal		X	No injection wells at site
(other project-specific alternatives considered by the applicant; attach additional sheets if necessary)			
7			
8			
9			

Pursuant to ADEM Administrative Code Rule 335-6-3-.04, I certify on behalf of the applicant that I have completed an evaluation of the discharge alternatives identified above, and reached the conclusions indicated.

Signature: _____ *(Professional Engineer)*

Date: 6-15-25

ALABAMA LICENSED No. 31642 PROFESSIONAL ENGINEER JARROD MILLIGAN

(Supporting documentation to be attached, referenced, or otherwise handled as appropriate)

The applicant is required to supply the following information separately for every proposed (P) or existing (E) outfall. List expected average daily discharge flow rate in cfs and gpd; frequency of discharge in hours per day and days per month; average summer and winter temperature of discharge(s) in degrees centigrade; average pH in standard units; and average daily discharges in pounds per day of BOD5, Total Suspended Solids, Total Iron, Total Manganese, and Total Aluminum (if bauxite or bauxitic clay or if otherwise believed present):

Outfall E/P	Information Source - # of Samples	Flow (cfs)	Flow (gpd)	Frequency (hours/day)	Frequency (days/month)	Sum/Win Temp, (°C)	pH (s.u.)	BOD5 (lbs/day)	TSS (lbs/day)	Tot Fe (lbs/day)	Tot Mn (lbs/day)	Tot Al (lbs/day)
001 E	Outfall 004 - 1 sample*	0.0080	5138	<24	<31	33.3/1.66	7.47	0.514	0.799	0.271	0.014	0.142
002 E	Outfall 004 - 1 sample*	0.0037	2405	<24	<31	33.3/1.66	7.26	0.514	0.415	0.271	0.014	0.142
004 E	Lab Data *	0.0356	23009	<24	<31	33.3/1.66	7.53	0.514	5.22	0.271	0.014	0.142
007 E	Lab Data *	0.0601	38844	<24	<31	33.3/1.66	7.55	0.324	3.43	0.415	0.068	0.370
008 E	Lab Data *	0.0724	46793	<24	<31	33.3/1.66	7.47	0.570	0.2506	0.002	0.000	0.003
009 P	Outfall 008 - 1 sample*	0.0724	46793	<24	<31	33.3/1.68	7.47	0.570	0.2506	0.002	0.000	0.003
011 P	Outfall 008 - 1 sample*	0.0724	46793	<24	<31	33.3/1.69	7.47	0.570	0.2506	0.002	0.000	0.003
* Lab Data, BOD5, Fe, Mn and Al = 1 sample												
**pH & TSS values are average of 2024 Values. 009 & 010 represented by Outfall 008												
	001: 7 samples											
	002: 3 samples											
	004: 9 samples											
	007: 11 samples											

The applicant is required to supply the following information separately for every proposed or existing outfall. Identify and list expected average daily discharge of any other pollutant(s) listed in EPA Form 2C Tables A, B, C, D, and E that are not referenced in Part XVI.B. or otherwise submitted elsewhere, that you know is present or have reason to believe could be present in the discharge(s) at levels of concern:

Outfall E/P	Reason Believed Present	Information Source - # of Samples	TSS		pH					
			lbs/day	mg/L	lbs/day	mg/L	lbs/day	mg/L	lbs/day	mg/L
001E		0								
002E		0								
004E		1								
006 P		0								
007E		2								
008E		0								
009 P		0								
010 P		0								
011 P		0								

The applicant is required to supply outfall number(s) as it appears on the map(s) required by this application [if this application is for a modification to an existing permit do not change the numbering sequence of the permitted outfalls], describe each, (e.g., pipe, spillway, channel, tunnel, conduit, well, discrete fissure, or container), and identify the origin of pollutants. The response must be precise for each outfall. If the discharge of pollutants from any outfall is the result of commingling of waste streams from different origins, each origin must be completely described.

Description of Origin of Pollutants – typical examples: (1) Discharge of drainage from the underground workings of an underground coal mine, (2) Discharge of drainage from a coal surface mine, (3) Discharge of drainage from a coal preparation plant and associated areas, (4) Discharge of process wastewater from a gravel-washing plant, (5) Discharge of wastewater from an existing source coal preparation plant, (6) Discharge of drainage from a sand and gravel pit, (7) Pumped discharge from a limestone quarry, (8) Controlled surface mine drainage (pumped or siphoned), (9) Discharge of drainage from mine reclamation, (10) Other (please describe):

Outfall	Discharge structure Description	Description of Origin of pollutants	Surface Discharge	Groundwater Discharge	Wet Prep -Other Production Plant	Pumped or Controlled Discharge	Low Volume STP
001E	Pipe	6	Yes	Yes		No	NA
002E	Pipe	6	Yes	Yes		No	NA
004E	Pipe	4	Yes	Yes		No	NA
007 E	Pipe/spillway	4	Yes	Yes	Wash Plant	Yes	NA
008 E	Pipe/spillway	6	Yes	Yes		No	NA
009 P	Pipe/spillway	9	Yes	Yes		No	NA
011 P	Pipe/spillway	9	Yes	Yes		No	NA

R 14 E | R 15 E

T 15 N | T 16 N

NPDES PERMIT BOUNDARY

004

001

002

011

007

008

009

Revised 6/19/2025

Outfall	Latitude	Longitude
001	32.33083	-86.62192
002	32.33020	-86.61990
004	32.33670	-86.62416
007	32.32473	-86.63310
008	32.32282	-86.63445
009	32.32627	-86.62645
011	32.32590	-86.62040

FIGURE 1

VICINITY MAP

OUTFALL

NPDES PERMIT BOUNDARY

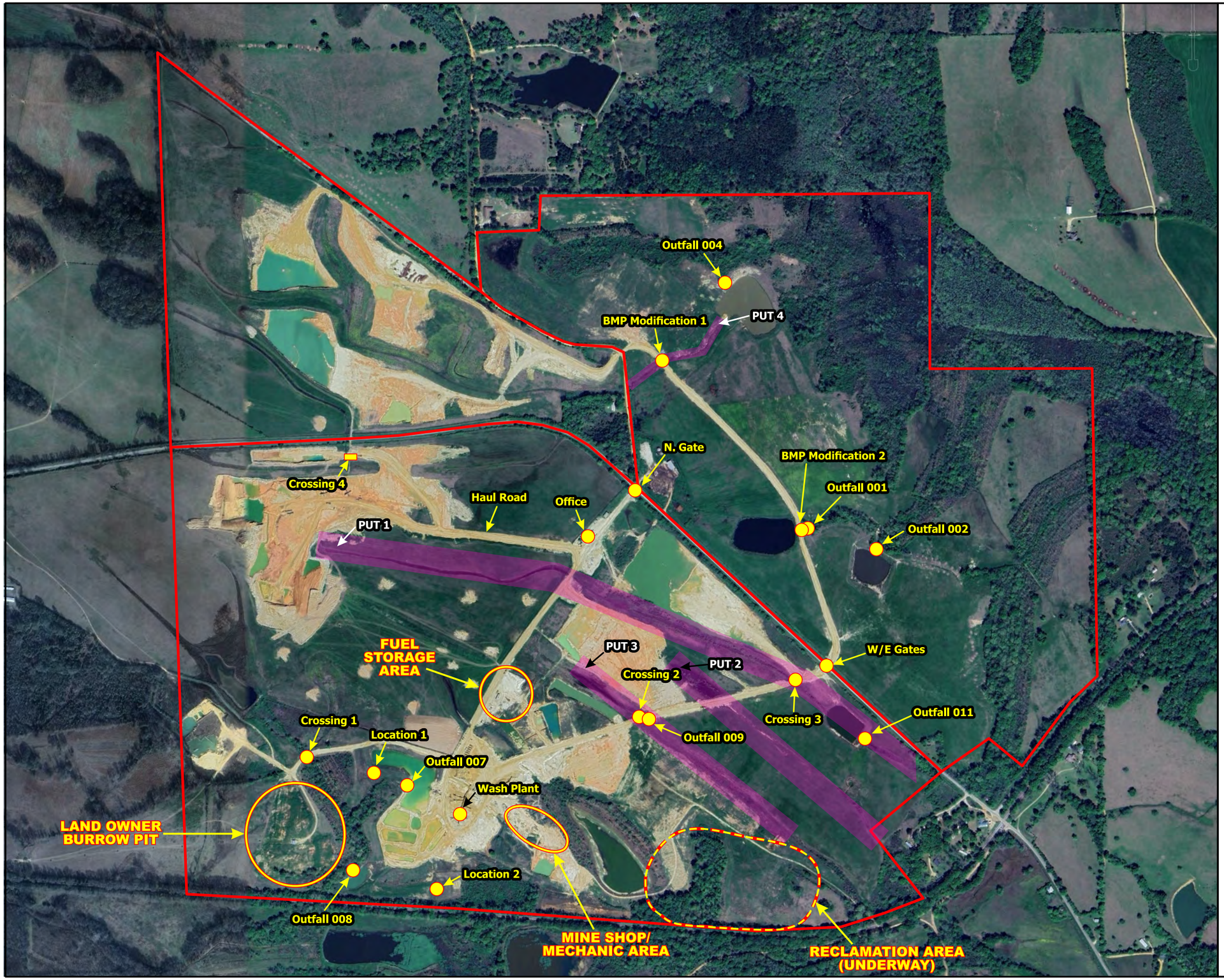
N

0 2000’

SCALE IN FEET

SOURCES: WHITE HALL 7.5’ USGS QUADRANGLE (1982) AND LOWNDESBORO 7.5’ USGS QUADRANGLE (1981)

FIGURE 2
LOCATION MAP



PUT = Potential Unnamed Tributary

N
W E
S

0 500 1,000 2,000 Feet

Source: Google Earth 3/27/2024 aerial photograph

Revised: 6/9/2025

MATERIAL SAFETY DATA SHEET

ZEE COMPANY
A Member of The Vincit Group

Date Issued: 08/02/2007
MSDS No: EA 17

EA 17

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: EA 17
PRODUCT DESCRIPTION: ANIONIC POLYACRYLAMIDE WASTE WATER POLYMER
PRODUCT FORMULATION NAME: EA 17
ACTIVE INGREDIENT(S): Petroleum distillate

MANUFACTURER
Zee Company, Inc.
4146 South Creek Road
Chattanooga, TN 37406
Emergency Contact: James A. Faller
Service Number: (423) 698-1401

24 HR. EMERGENCY TELEPHONE NUMBERS
CHEMTREC (800) 424-9300

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

PHYSICAL APPEARANCE: White liquid

IMMEDIATE CONCERNS: Eye irritant

POTENTIAL HEALTH EFFECTS

EYES: Irritation or burning of eyes

SKIN: May cause skin irritation.

INGESTION: May be harmful if ingested.

SIGNS AND SYMPTOMS OF OVEREXPOSURE

EYES: Severe irritation and burning

SKIN: Redness and irritation

INGESTION: Gastric pain and vomiting

INHALATION: Coughing and sneezing from extreme exposure.

CHRONIC EFFECTS: N/A

CARCINOGENICITY: N/A

MUTAGENICITY: N/A

REPRODUCTIVE TOXICITY

REPRODUCTIVE EFFECTS: N/A

TERATOGENIC EFFECTS: N/A

MEDICAL CONDITIONS AGGRAVATED: None known

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Wt.%	CAS
Petroleum distillate	20 - 35	64724-47-8

4. FIRST AID MEASURES

MATERIAL SAFETY DATA SHEET

ZEE COMPANY
A Member of The Vincit Group

Date Issued: 08/02/2007
MSDS No: EA 17

EA 17

EYES: Flush eyes with running water for at least 15 minutes. Get medical attention and check for corneal damage.

SKIN: Flush exposed skin with water for at least 15 minutes and get medical attention if irritation persists.

INGESTION: DO NOT induce vomiting. If conscious, give several large glasses of water. Never give anything by mouth to an unconscious person. Call physician immediately.

5. FIRE FIGHTING MEASURES

FLASHPOINT AND METHOD: > (215°F)

FLAMMABLE LIMITS: NA to NA

AUTOIGNITION TEMPERATURE: None

EXTINGUISHING MEDIA: Use water spray, dry chemical, carbon dioxide (CO2), or alcohol foam when fighting fires involving this material.

EXPLOSION HAZARDS: NONE

FIRE FIGHTING PROCEDURES: NONE

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL: Mop up spill and flush area with water.

LARGE SPILL: Dike spill and vacuum or pump spilled material into proper storage container for hazardous waste disposal.

7. HANDLING AND STORAGE

GENERAL PROCEDURES: Keep this and all chemicals out of the reach of children.

STORAGE: Do not freeze. Keep container closed when not in use. Follow label instructions.

STORAGE TEMPERATURE: (36°F) Minimum to (90°F) Maximum

ELECTROSTATIC ACCUMULATION HAZARD: N/A

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Chemical resistant safety goggles/glasses with side shields.

SKIN: Chemical resistant gloves recommended for any prolonged or repeated contact with any chemicals.

RESPIRATORY: Not required

PROTECTIVE CLOTHING: Not required

WORK HYGIENIC PRACTICES: Always use goodhousekeeping procedures when handling chemicals.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

ODOR: Petroleum distillate

MATERIAL SAFETY DATA SHEET

ZEE COMPANY
A Member of The Vince Group

Date Issued: 08/02/2007
MSDS No: EA 17

EA 17

APPEARANCE: Opaque liquid
COLOR: White
pH: 6 to 8
PERCENT VOLATILE: 56 - 62
VAPOR PRESSURE: Not Determined
VAPOR DENSITY: Not Established
BOILING POINT: No information
FREEZING POINT: No information
MELTING POINT: No information
FLASHPOINT AND METHOD: > (215°F)
SOLUBILITY IN WATER: Completely Miscible
EVAPORATION RATE: < 1 (Water = 1)
SPECIFIC GRAVITY: 1.030 to 1.06
VISCOSITY #1: at (80°F)
WEIGHT PER VOLUME: 8.7 lb/gal

10. STABILITY AND REACTIVITY

STABLE: Yes
HAZARDOUS POLYMERIZATION: No
POLYMERIZATION: Hazardous polymerization will not occur.
HAZARDOUS DECOMPOSITION PRODUCTS: Oxides of carbon and nitrogen on thermal decomposition
INCOMPATIBLE MATERIALS: Oxidizers

11. TOXICOLOGICAL INFORMATION

CARCINOGENICITY

IARC: Ingredients not listed.
NTP: Ingredients not listed.
OSHA: Ingredients not listed.

12. ECOLOGICAL INFORMATION

AQUATIC TOXICITY (ACUTE): Daphnia magna 48 hr. EC50 >100 mg/l. Brachydanio rerio 96 hr. LC50 >100 mg/l.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Dispose of in accordance with Federal, State and local regulations.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)

MATERIAL SAFETY DATA SHEET

ZEE COMPANY
A Member of The Vindet Group

Date Issued: 08/02/2007
MSDS No: EA 17

EA 17

PROPER SHIPPING NAME: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
TECHNICAL NAME: Contains Ammonium Acetate
PRIMARY HAZARD CLASS/DIVISION: 9
UN/NA NUMBER: UN3082
PACKING GROUP: III
REPORTABLE QUANTITY (RQ) UNDER CERCLA: 50000 pounds
BULK FREIGHT CLASS: 55

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

311/312 HAZARD CATEGORIES: Reporting required for inventory above TPQ

ACUTE: Yes

313 REPORTABLE INGREDIENTS: Not required

302/304 EMERGENCY PLANNING

EMERGENCY PLAN: Section 302 reporting not required. Section 304 reporting is required for releases above the threshold amount listed.

CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)

CERCLA REGULATORY: Same as section 304

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA REGULATORY: INGREDIENTS LISTED

RCRA STATUS: N/A

16. OTHER INFORMATION

APPROVED BY: James A. Faller **TITLE:** Director of Research
PREPARED BY: James A Faller
INFORMATION CONTACT: James Faller
REVISION SUMMARY: New MSDS

HMIS RATING

HEALTH:	2
FLAMMABILITY:	1
PHYSICAL HAZARD:	0
PERSONAL PROTECTION:	B

GENERAL STATEMENTS: The information contained herein is believed to be accurate but is not warranted to be so. Users are advised to confirm in advance of need that information is current, applicable, and suited to the circumstances of use. Vendor assumes no responsibility for injury to vendee

MATERIAL SAFETY DATA SHEET

ZEE COMPANY
A Member of The Vincit Group

Date Issued: 08/02/2007
MSDS No: EA 17

EA 17

or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed.

ZEE COMPANY®
A Member of The Vincit Group

MATERIAL SAFETY DATA SHEET

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product name CO 310

Synonyms None

Supplier ZEE COMPANY, INC.
4146 South Creek Road
Chattanooga, TN 37406
(423) 698-1401

NFPA Rating Health: 1 Flammability: 0 Reactivity: 0
HMIS Rating Health: 1 Flammability: 0 Reactivity: 0

Emergency telephone
CHEMTREC: (800) 424-9300

EMERGENCY OVERVIEW
Clear, viscous, straw colored liquid. May cause mild skin and eye irritation.

Section 2: HAZARDS IDENTIFICATION

Hazard Information
May cause mild eye and skin irritation.

Eye contact
None expected, but prolonged or repeated eye contact may result in mild irritation and redness of a short-term nature.

Skin contact
None expected, but prolonged or repeated skin contact may result in irritation of a short-term nature.

Inhalation
This product is not toxic by inhalation.

Ingestion
Effects of ingesting small amounts are negligible; ingesting large amounts may injure person slightly.

Aggravated Medical Conditions
None known

Chronic Exposure
Prolonged or repeated skin exposure may cause dermatitis.

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component name CAS Number	weight-%	OSHA - PEL's	ACGIH 2002 - TLV's
Polydimethyldiallylammonia chloride 26062-79-3	~20%	Not Established	Not Established
Water 7732-18-5	~80%	Not Established	Not Established

Section 4: FIRST AID MEASURES

Eye contact
Immediately flush with plenty of water for at least 15 minutes, holding eyelids apart to ensure flushing of the entire surface. Washing within one minute is essential to achieve maximum effectiveness. Seek medical attention if irritation should develop.

Skin contact
Immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and footwear. Wash contaminated clothing before reuse. Get medical attention if irritation develops.

Inhalation
Remove person to fresh air and watch for a delayed reaction. Give artificial respiration if breathing stops and seek medical attention.

Ingestion
Do not induce vomiting. If vomiting should occur spontaneously, keep the airway clear. Get medical attention. Never give anything by mouth to an unconscious person.

Chronic Exposure
Prolonged or repeated skin exposure may cause dermatitis.

Notes to Physician
Treat symptomatically.

Section 5: FIRE FIGHTING MEASURES

Flash point	> 100 °C / > 212 °F
Autoignition temperature	Not applicable
Flammable Limits in Air - Lower (%)	Not applicable
Flammable Limits in Air - Upper (%)	Not applicable

Suitable extinguishing media
Use extinguishing media appropriate for surrounding fire. This material is not expected to burn unless heated to dryness. Water. Foam. Carbon dioxide (CO2). Dry chemical.

Firefighting measures
Cool exposed containers with water spray after extinguishing fire.

Specific hazards during fire fighting:
Thermal decomposition (as may be experienced in a fire) may produce hydrogen chloride gas and/or may liberate oxides of nitrogen and carbon. Spills produce slippery surfaces and could present a physical hazard for firemen.

Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

Section 6: ACCIDENTAL RELEASE MEASURES

Procedure for Cleaning/Absorption
Area around spill should be diked immediately to prevent spreading. Clean up spill immediately using inert absorbent materials such as clays, sand, earth or other commercially available dry sweeping compound. Product may cause slip hazard. If slippery conditions persist, apply additional dry sweeping compound. Following containment, large spills should be pumped into salvage tanks.

Personal precautions
Wear suitable protective clothing and gloves.

Environmental precautions
Avoid runoff to waterways and sewers.

Section 7: HANDLING AND STORAGE

Advice on safe handling
Avoid contact with eyes, skin and clothing
Use with adequate ventilation and employ respiratory protection where mist or spray may be generated
Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing
Ensure that eyewash stations and safety showers are close to the workstation location
Keep container closed when not in use
Wash thoroughly after handling
Remove and wash any contaminated clothing.

Technical measures and storage conditions
Keep container closed when not in use
Store in a well-ventilated area
Store in a cool, dry place
Store between 5 - 30 °C (41 - 86 °F)
Avoid storage temperatures below freezing, since product may stratify
Changes in temperature create air pressure changes inside drums
Use proper precaution in unscrewing plug and/or opening container.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls
Local exhaust ventilation as necessary to maintain exposures to within applicable limits. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

Respiratory protection
Under most conditions, use adequate general ventilation and protective equipment since volatility and toxicity are very low. If significant vapors, mists or aerosols are present, use NIOSH approved respirator (ANSI Z882.1980) or equivalent, that is equipped with a dust/mist cartridge.

Hand protection
Gloves impervious to liquid material.

Skin and Body Protection
While there is a possibility of skin contact, rubber gloves and boots impervious to liquid material should be worn.

Eye/face protection
Chemical goggles or a face shield if splashing hazard exists.

Other Personal Protection Data
Eyewash fountains and safety showers must be easily accessible.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Color	Straw colored
Appearance	Viscous, clear
Odor	Musty amine
pH	5.0 - 8.0 (as is)
Specific gravity	1.02 - 1.06
Density	[illegible]
Bulk density	No information available
Flash point	> 100 °C / > 212 °F
Autoignition temperature	Not applicable
Boiling point / boiling range	> 100 °C / > 212 °F
Melting / freezing point	-3 to 0 °C / 26.6 to 32 °F
Vapor pressure	30 mm Hg @ 38 °C
Vapor density	> 60 mm Hg
Percent Volatile, wt.%	80 % (Water)
Evaporation rate	Equal to water
Solubility (water)	Completely; 100%
Solubility in other solvents	No information available
Volatile organic compounds (VOCs) content	No information available
Dynamic viscosity	1,000 - 3,000 cps
Kinematic viscosity	No information available
Molecular weight	No information available

Section 10: STABILITY AND REACTIVITY

Chemical stability
Stable.

Conditions to avoid
None

Materials to avoid
Strong oxidizers. Contact with copper, copper alloys, aluminum, mild steel or iron may cause corrosion/degradation.

Hazardous decomposition products
Thermal decomposition (as may be experienced in a fire) may produce hydrogen chloride gas and/or oxides of nitrogen and carbon.

Hazardous polymerization
Will not occur

Additional Guidelines:
None

Section 11: TOXICOLOGICAL INFORMATION

PRINCIPAL ROUTES OF EXPOSURE: Skin, eyes and respiratory tract.

Eye contact
None expected, but prolonged or repeated eye contact may result in mild irritation and redness of a short-term nature.

Skin contact
None expected, but prolonged or repeated skin contact may result in irritation of a short-term nature.

Inhalation
This product is not toxic by inhalation.

Ingestion
Effects of ingesting small amounts are negligible; ingesting large amounts may injure person slightly.

Carcinogenicity Status
This product does not contain any components in concentrations greater than or equal to 0.1% that are listed as known or suspected carcinogens by NTP, IARC, ACGIH, or OSHA.

Acute toxicity

Dermal LD50	No information available
Inhalation LC50	No information available

Acute Toxicity of Individual Components

Component name CAS Number	Oral LD50	Dermal LD50	Inhalation LC50
Polydimethyldiallylammonia chloride 26062-79-3	3 g/kg (Rat)	--	--

Chronic toxicity
NOEL / Oral / Rat / 90 days = 5000 mg/kg

Mutagenicity/Genotoxicity
Not teratogenic, NOEL = 175 mg/kg. Not mutagenic in AMES Test. Not mutagenic in micronucleus test on mice.

Skin corrosion/irritation
May cause skin irritation with susceptible persons.

Serious eye damage/eye irritation
Testing conducted on rabbits showed minor transient irritation that cleared within days.

Sensitization
Product is not expected to be sensitizing.

Other information
Conclusions are drawn from sources other than direct testing.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicological Information

Acute aquatic toxicity

Fish	LC50 (96 hour): > 10 mg/L - Zebra Fish (*Danio rerio*),
Crustacea	EC50 (48 hour): > 10 mg/L - Water flea (*Daphnia magna*)
Algae/aquatic plants	No information available

Mobility
No information available

Persistence and degradability
No information available

Bioaccumulative potential
This product does not bio-accumulate.

Chemical Fate Information
No information available

Effects on Aquatic Organisms
The effects of this product on aquatic organisms are rapidly and significantly reduced with the presence of 5 to 10 mg/L organic carbon as found in most surface waters.

Other information
No other ecological studies have been carried out on this product.

Section 13: DISPOSAL CONSIDERATIONS

Disposal of wastes
Recycle, if possible. If not, dispose of the waste material in accordance with all applicable federal, state and local laws and regulations regarding health and pollution. Under the Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user to determine whether a material should be classified waste at the time of the disposal. This is due to the fact that product use, transformation, synthesis, mixing, etc. may change the nature of the product.

RCRA

Is the unused product a RCRA hazardous waste if discarded? (Yes/No)	**No**
If yes, the EPA Hazardous Waste Code is:	**N/A**

Section 14: TRANSPORT INFORMATION

DOT

Status Not regulated

ICAO/IATA

Status Not regulated

IMDG

Status Not regulated

Flash point > 100 °C / > 212 °F

Section 15: REGULATORY INFORMATION

International Inventories:

TSCA (United States)
All ingredients are on the inventory or exempt from listing

Australia (AICS)
All ingredients are on the inventory or exempt from listing

Canada (DSL)
All ingredients are on the inventory or exempt from listing

Canada (NDSL)
None of the ingredients are on the inventory.

China (IECSC)
All ingredients are on the inventory or exempt from listing

EINECS (European Inventory of Existing Chemical Substances)
All ingredients are on the inventory or exempt from listing

ELINCS (European List of Notified Chemical Substances)
All of the components of this product are not listed on ELINCS.

ENCS (Japan)
All ingredients are on the inventory or exempt from listing

South Korea (KECL)
All ingredients are on the inventory or exempt from listing

Philippines (PICCS)
All ingredients are on the inventory or exempt from listing

New Jersey Trade Secret Registry Number(s):
N/A

SARA Section 311/ 312 Hazard Class
SARA Hazard Class: None

Other information

This product does not contain any ingredients subject to the reporting requirements of SARA Title III, Section 313 (40 CFR Part 372).

Section 16: OTHER INFORMATION

Product code	WWP37A
Revision date	2013-12-09
Revision Number	1
Additional information	None
Disclaimer	The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

*****END OF MSDS*****

Spill Prevention, Control and Countermeasures (SPCC) Plan

FOR

Ferroglobe USA Quartz, Inc.
NPDES permit ALG850130
Lowndesboro, Alabama

June 2025

Prepared by:
Tom Joiner & Associates, Inc.
P.O. Box 1490
Tuscaloosa, AL 35403
(205) 345-2311

ENGINEER CERTIFICATION

I hereby certify that I have visited and examined the Facility, and being familiar with the provisions of Environmental Protection Agency (EPA) Code of Federal Regulations, 40 CFR Part 112 and the Facility's NPDES permit, and attest that this SPCC Plan has been prepared in accordance with good engineering practices and the regulations, and it is adequate for the Facility.

Certifying Engineer: Jarrod Milligan, P.E.
Alabama Registration No. 31642

Signature: _____

Certification Date: 6-23-25 Engineer Seal

MANAGEMENT CERTIFICATION

I hereby certify that management of this Facility extends its full approval of this SPCC Plan and will commit the necessary resources for implementation.

Name: Chad Richards
Ferroglobe USA Quartz, Inc., Meadows Plant
Mine Manager

Signature: _____

Date: _____

Table of Contents

continued

FIGURES

APPENDICES

I. INTRODUCTION

This plan has been developed in accordance with Title 40 CFR 112.7 (Guidelines for the preparation and implementation of a Spill Prevention, Control and Countermeasure (SPCC) Plan in addition to State and Local regulations and the ADEM General National Pollutant Discharge Elimination System (NPDES) permit (ALG850130) for this Facility that requires the development and implementation of a SPCC Plan. This SPCC Plan is a facility-wide plan for the handling and storage of all fuels stored on site at the Meadows Mine operated by Ferroglobe USA Quartz, Inc. ("Facility") in Lowndesboro, Alabama. The plan also includes chemical coagulants and flocculants used at the site

This SPCC Plan provides information on all existing aboveground oil, petroleum based product or chemical storage tanks with a storage capacity exceeding 55 gallons. It also includes basic information of personnel training and steps to be taken in the event of a spill.

II. LOCATION OF SPCC PLAN

In accordance with 40 CFR 112.3, a complete copy of this SPCC Plan is maintained at the Plant office located in at the Meadows Pit mine office.

III. SPCC PLAN REVIEW

In accordance with 40 CFR 112.5, this SPCC Plan is reviewed and evaluated for changes at the Facility at least once every five years. Evidence of these reviews is recorded below:

Reviewed/Evaluated By:	Date	Details
Michael Erp, PE.	June 1, 2018	SPCC Plan
Joseph E. Patrick, PE	April 26, 2021	SPCC Plan revision/update
Joseph E. Patrick, PE	December 2021	SPCC Plan revision/update
Joseph E. Patrick	August 2022	SPCC Plan update
Joseph E. Patrick	December 2022	SPCC Plan update
Joseph E. Patrick	December, 2023	SPCC Plan (name change)
Jarrod Milligan, P.E.	June 2025	SPCC Plan Update

Action Items

In accordance with 40 CFR 112.7, action items are listed in the implementation schedule below. The Plant Manager will enter the actual date of completion of each item. Completed action items will be removed from the list at the next SPCC Plan revision.

Location	Action Item	Responsible Person	Date Completed

IV. FACILITY INFORMATION

Ferroglobe operates a sand and gravel mine in Lowndesboro, AL where they mine gravel that is used to extract silicon metals at an offsite facility. The gravel is mined using excavators and graders. Once mined it is hauled to an onsite washing plant for grading and cleanup and then it is stockpiled until it is loaded onto a truck or rail car for shipping

Site Location

The Meadows Mine is located in Sections 25, 26, 35 and 36, Township 16 North, Range 14 East in Lowndesboro, Alabama at latitude 33° 19′ 54″ and longitude 86° 37′ 15″ (See Figure 1). The street address is as follows:

Ferroglobe USA Quartz, Inc..
3714 County Road 40E
Lowndesboro, AL 36752

Fuel and Chemical Storage

A summary of the bulk fuels and chemicals handled and stored at the Facility are presented in Table 1. The containment systems are shown on Figures 2 though 5. Material Safety Data Sheets (MSDS) for these bulk fuels are included as Appendix A.

Table 1

Description of Bulk Containments for Petroleum Products

Location of Tanks *	Number of Tanks	Container and Size (gallons)	Minimum of 110% of Largest Tank	Stored Material	Secondary Containment
Fueling Area	1	10,000	Y	Diesel Fuel	Double Walled AST
	1	1,000	Y	Diesel Fuel	Double Walled AST
	1	1,000	Y	Unleaded Gasoline	Double Walled AST
	1	Varies (55)	Y	Grease/lube oils	Lined Containment
	2	330	Y	Oil (hydraulic)	Lined Containment
	2	1,000	Y	Oil (Engine and TO-4 Oil)	Lined Containment
	1	1000	Y	Used Oil	Lined Containment
	1	275	Y	Antifreeze	Lined Containment
Plant	1	275	Y	Coagulant CO310	Concrete Containment to be constructed
	1 to 2	275	Y	Flocculant	Spill Pallet(s)*
	1	Varies (275)	Y	**DEF	Lined Containment
	1	55	Y	Used oil	Spill Pallets

*** Non petroleum liquids may be handled with secondary containment or contingency plan**

****DEF: Diesel Exhaust Fluid**

Any subcontractors that bring petroleum substances on site will be required to identify them and provide Ferroglobe with the container size and containment necessary to meet the requirements of 40 CFR 112.7

Underground Storage Tanks

There are no underground or partially buried tanks at this site.

Facility Transfer Operations

It is not practical to provide secondary containment to hold at least the maximum capacity of any single compartment of truck loading and unloading where oil/chemicals are transferred from tanks to trucks or trucks to tanks.

Facility personnel will ensure that the loading and unloading procedures adhere to the following:

- Turn off vehicle engine.
- Engage vehicle hand brake or chock wheels.
- No open flames allowed.
- Measure the tank volume to determine available volume in the AST to be filled or emptied.
- Remain with the vehicle during the entire loading and unloading.
- Catch drips or clean-up any spills during the loading/unloading process.
- Prior to departing, inspect all valves/hoses of tanks and truck for leakage.

Prior to filling and departure the driver will be required to examine the lowermost drain and all outlets of the truck for leakage, and make any necessary adjustments or repairs, prior to departure. Truck drivers are warned not to depart before disconnecting transfer lines/hoses.

V. DISCHARGE PREVENTION

Discharge prevention will be accomplished using secondary containment, drainage procedures, training, and inspections as described below.

Secondary Containment

All bulk containers (including mobile or portable oil/chemical storage containers) that are 55 gallons or larger will be provided with a secondary means of containment for the entire capacity of the largest single container and sufficient freeboard to contain precipitation (110% of the volume of the largest single container). Existing and future containment areas are shown on Figures 2 through 5.

Non-petroleum chemical coagulants will either be stored with secondary containment or will be managed via a contingency plan. In the event of a spill of the chemical coagulants at the wash plant, Ferroglobe has installed a valve on the final discharge pond. If a spill event occurs and if it escapes the secondary containment, the coagulant would flow to the sediment ponds; closing the valve will prevent the discharge of any excess coagulants to the receiving stream.

Personnel Training and Briefing Guide

The Mine Manager will hold a formal briefing session at least once a year to discuss the SPCC plan and familiarize plant employees with the location and operation of the following items:

1. The location and contents of all storage tanks.
2. The correct loading and unloading procedures for all fuels and chemicals stored at the site.
3. The drainage procedures for secondary containment.
4. Inspection requirements.
5. Spill response procedures.
6. The location and use of spill cleanup materials.

In addition, Ferroglobe supervisors will be familiar with spill response actions. A form for documentation of personnel training is included in Appendix B.

Contingency Plans

Non petroleum products (coagulants, flocculants, etc.) may either be handled using spill containment or a contingency plan. Non-petroleum chemicals (coagulant and flocculant) used at the wash plant and water treatment basins may also be handled by following the following contingency plan. The storage

of these chemicals is within the drainage area of the after sedimentation ponds. In the event of a failure and release of these tanks, the discharge from the sediment pond (Outfall 007) will be closed or valved off such that the chemical is contained within the ponds and where it will either be neutralized or reused.

Security

All tanks/storage containers are located inside the fenced perimeter of the mine. Access to the mine is restricted (via a gate) to plant employees and approved contractors/vendors.

Each secondary containment drain valve is maintained in the closed position with a lock in place. The Mine Manager, or his/her designee, will have a key to open the lock in the event that the drain valve needs to be opened for the drainage of any accumulated rainwater. Loading and unloading connections to facility piping, not in service or in standby service, will be capped or blank flanged.

Drainage of Rainwater

All storage tanks are within drainage areas to an un-named tributary to Cypress Creek or an unnamed tributary to Powell Creek. Containment drainage is accomplished in accordance with the procedures outlined below.

In the event that rainwater accumulation occurs within the containment dike, drainage from the dike will be conducted using the drain valve according to the procedures outlined below. All containment drainage will be drained in general accordance with the procedures of the Containment Drainage Form (Appendix C).

1. The drain valve will be closed and locked under normal operating conditions.

2. The rainwater accumulation within the dike wall will be inspected by the employee prior to unlocking and opening the valve.

    a. If no oil or chemical is detected on accumulated waters, the drain valve may be opened and resealed/locked following drainage. The volume drained will be documented on the Containment Drainage Form (Appendix C).
    b. If spills are discovered within containment structures complete either steps 3 or 4.

3. If the spill is a small quantity, absorbent pads or material may be used to recover the substance prior to discharge; if oil is involved the discharge can proceed provided there is no oil (or sheen) in the discharge.

4. For Oil, if the spilled quantity is too large to be handled using absorbent materials, remove rainwater by draining the clear water beneath oil layer until that oil layer is within two inches of the containment drain line. The oil and associated water can then be pumped out with a portable pump or vacuum truck and will be managed in accordance with local state and federal regulations.

Inspections

Twice weekly Inspections will be conducted by Ferroglobe personnel to ensure that this Facility is equipped to avoid spills as well as to respond to spills during emergency actions. Inspections may include the following:

1. Inspection of all drums, tanks, tank supports, containment walls, dikes and all piping, pipe supports, hoses, nozzles, valves, and accessories by experienced personnel in general accordance with the Inspection Form included as See Appendix D. In addition, plant personnel will inspect oil-filled electrical, operating or manufacturing equipment for signs of leakage or spillage of oil. If any defects or leaks are noticed, they should be reported to the Mine Manager and repaired immediately.

2. Inventory of absorbent materials.

3. Inventory of fire extinguishers, spill response kits, and other safety equipment.

4. Inspection of areas around the tanks for accumulation of water, spills and contamination. Remove polluted substances and dispose of properly.

5. Inspection of field drainage systems (such as drainage ditches or road ditches), and oil traps, sumps, or skimmers, for an accumulation of oil that may have resulted from any small discharge.

Uses a coagulant that is injected at the wash plant to rinse waters before they discharge to the sediment ponds. The sediment ponds consist of several ponds constructed in series that function to treat the rinse water so that it can be reused. The final pond is equipped with an outfall that allows the final pond to discharge to an UT of Cypress Creek via Outfall 007. As a contingency, Ferroglobe will inspect these tanks/totes regularly and in the event that the tank were to experience a failure, the Mine Manager or designee will ensure that the 007 pond does not discharge (by sealing of closing the outfall pipe) and prevent any excess coagulant from leaving the pond system. Alternately, Ferroglobe may provide containment for these totes that store non-petroleum liquids.

Annual Aboveground Tank Testing

All aboveground storage tanks (ASTs) will be inspected and/or tested for structural integrity on an annual basis. Additionally, ASTs will be inspected if

the AST undergoes repair, alteration, reconstruction or change in service. Testing will consist of a visual inspection of all components of the tank, including the walls, seams, fittings, gaskets, valves, rivets, supports, foundations and piping. A person technically qualified to evaluate the structural integrity of the tank will perform this integrity testing. The form for documentation of this inspection can be found in Appendix E.

VI. DISCHARGE RESPONSE

In the event that a discharge is discovered, the following response procedure shall be followed, as outlined in Appendix F.

Discharge Response Procedure

1. Contact the Mine Manager.

2. Identify the source of the leak and take measures to secure the site and to prevent the leak or spill from posing an immediate hazard to human health or safety. For explosive/flammable petroleum products, this would involve the removal of obvious fire hazards such as electrical equipment and ignition sources. The local fire department can help and advise in this regard.

3. Take immediate action to stop the leak or spill and start clean-up using appropriate materials, equipment and containers. All spill and clean-up materials should be properly handled and recycled or disposed of.

4. Report all oil and petroleum product spills.

    a. Spills of 25 gallons or less which fall on land and are immediately contained and cleaned up, do not have to be reported.

    b. If a spill larger than 25 gallons occurs, contact the National Response Center, ADEM, and the Alabama EMA immediately by phone to report the following types of spills:

        i. Spills exceeding 25 gallons, which fall on land
        ii. Spills reaching water and causing a sheen or discoloration

The National Response Center will contact the EPA. The Mine Manager will submit a written report to ADEM reporting a NPDES Non-compliance event using ADEM Form 421.

Emergency Response Telephone Numbers

Mine Manager: Chad Richards	205-755-9995
Local Fire Department	911
Alabama EMA	205-280-2310
After Hours - State Warning Point	800-843-0699
Lowndes County EMA	334-548-2589
ADEM Ombudsman	800-533-2336
Field Operations	205-942-6168
(After Hours)	205-583-5560
US EPA, Atlanta	404-562-8700
National Response Center	800-424-8802

If >25 gallons is released, the release must be reported immediately to the National Response Center (NRC) (1-800-424-8802) as discussed in Section VI. A discharge information form is included as Appendix C.

In accordance with 40 CFR 112.7(a) (4), the following information must be reported to the NRC:

- Facility address and phone number
- Date and Time of release
- Type of material discharged
- Estimated discharge quantity
- Source of discharge
- Description of effected media
- Cause of discharge
- Damages or injuries caused by discharge
- Actions to stop discharge
- If an evacuation is necessary
- Names of organizations and/or individuals who have been contacted

In accordance with 40 CFR 112.4(a), a discharge of more than 1,000 gallons of oil in a single discharge or two discharges of more than 42 gallons each in a 12-month period will be reported to the EPA Regional Administrator within 60 days. The following information must be submitted:

- Facility name
- Name of operator/owner
- Facility address and description including maps as necessary
- Maximum storage
- Corrective action taken
- Cause of discharge
- Additional preventative measures taken to prevent reoccurrences

Potential Discharge Flow and Direction

Any potential discharge occurring as a result of major equipment failure (loading or unloading equipment, tank overflow, rupture, or leakage) would flow to the stormwater inlet and then to an un named tributary to Cypress or Powell Creek. However, in the event of a discharge, **Ferroglobe employees will contain any material using spill absorbents and dikes in an effort to prevent the material from migrating to a navigable water.** Any recovered materials will be managed in accordance with local, state and federal regulations.

Visible Discharges

Visible discharges that may result in a loss of oil from a container will be promptly corrected (included seams, gaskets, piping, pumps, valves, rivets and bolts). Additionally, any oil accumulations will be removed from diked areas as discussed in Section V of this SPCC Plan.

Recovered Material Disposal

Materials recovered will be disposed of in accordance with federal, state and local regulations.

VII. SPILL RECORD

There have been no reportable spill events at this site

Figures

R 14 E | R 15 E

T 15 N | T 16 N

NPDES PERMIT BOUNDARY

004

001

002

011

007

008

009

Revised 6/19/2025

Outfall	Latitude	Longitude
001	32.33083	-86.62192
002	32.33020	-86.61990
004	32.33670	-86.62416
007	32.32473	-86.63310
008	32.32282	-86.63445
009	32.32627	-86.62645
011	32.32590	-86.62040

FIGURE 1

VICINITY MAP

OUTFALL

NPDES PERMIT BOUNDARY

N

0 2000’

SCALE IN FEET

SOURCES: WHITE HALL 7.5’ USGS QUADRANGLE (1982) AND LOWNDESBORO 7.5’ USGS QUADRANGLE (1981)

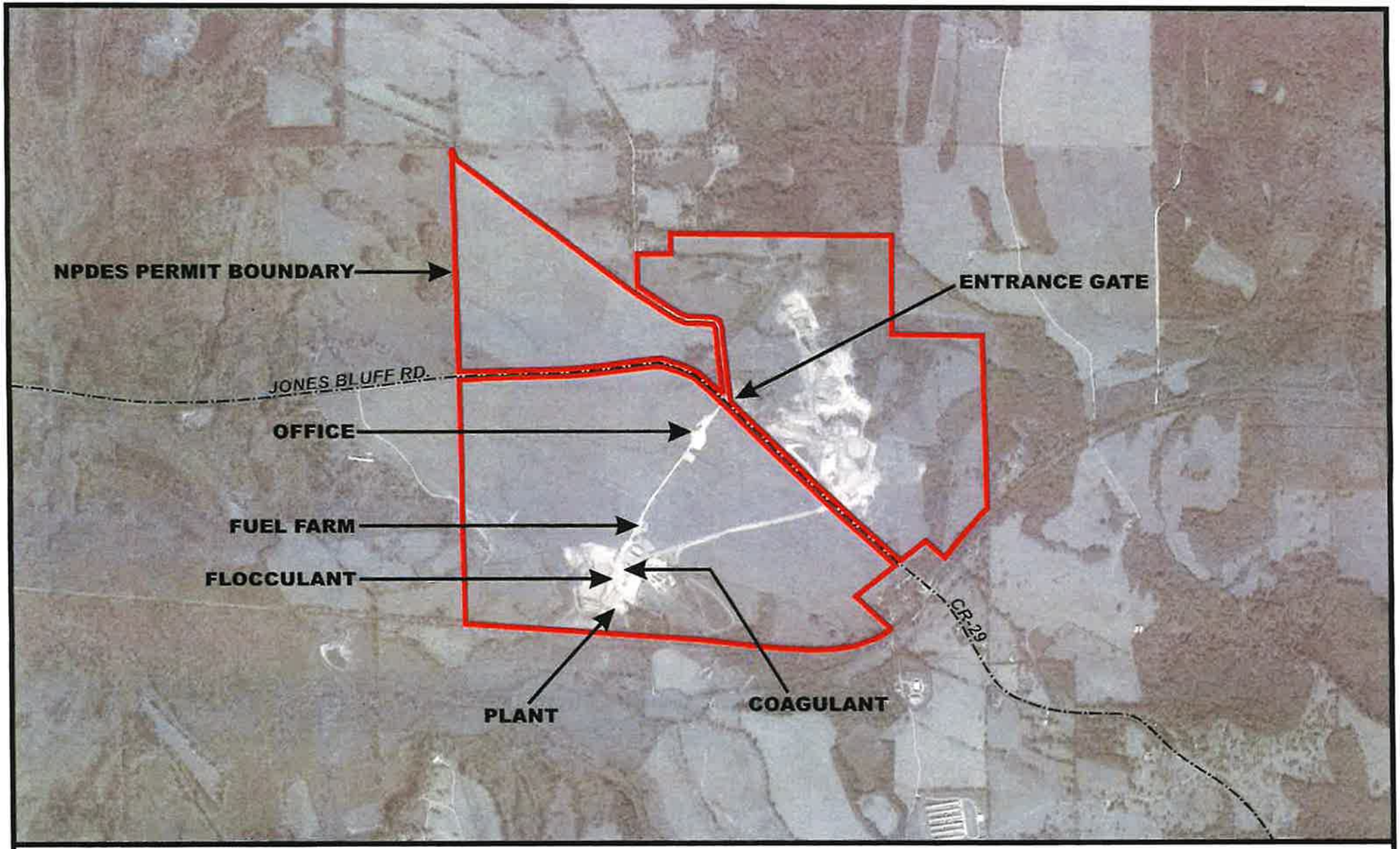


FIGURE 2

LOCATION MAP

N

0 2000'

SCALE IN FEET

SOURCE: GOOGLE EARTH IMAGERY (IMAGE DATE: 3/19/2019)

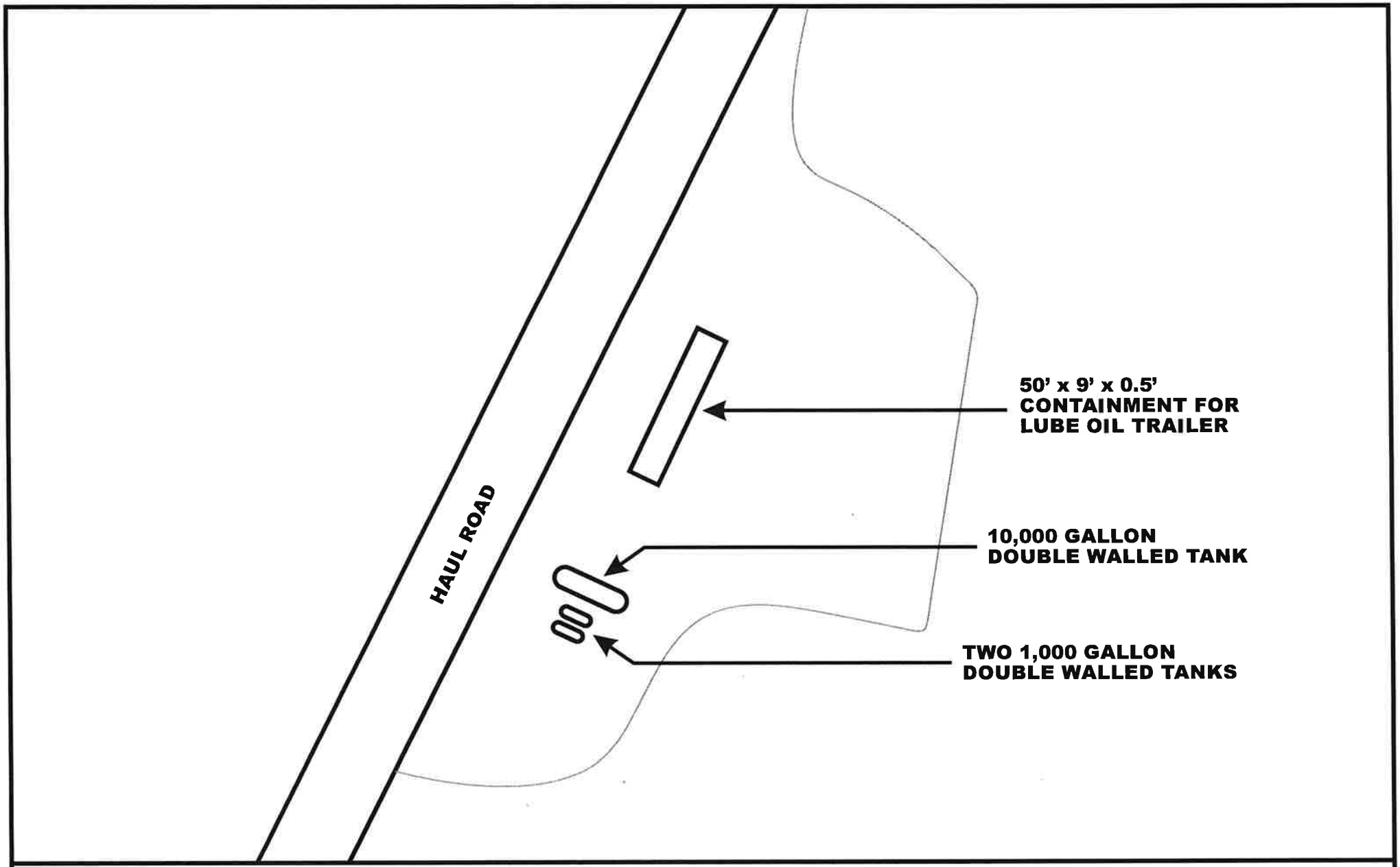
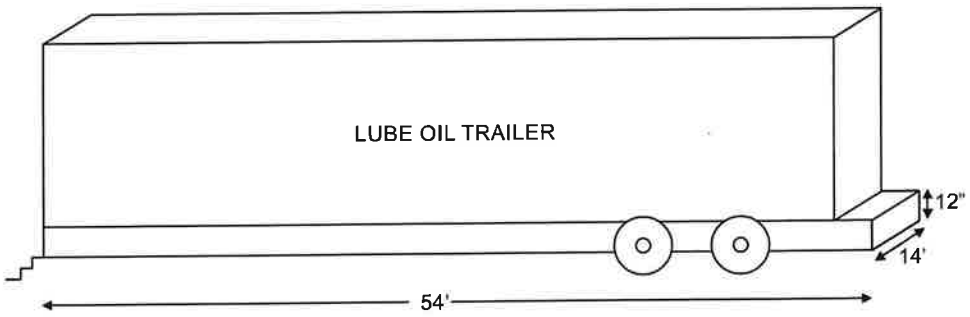


FIGURE 3

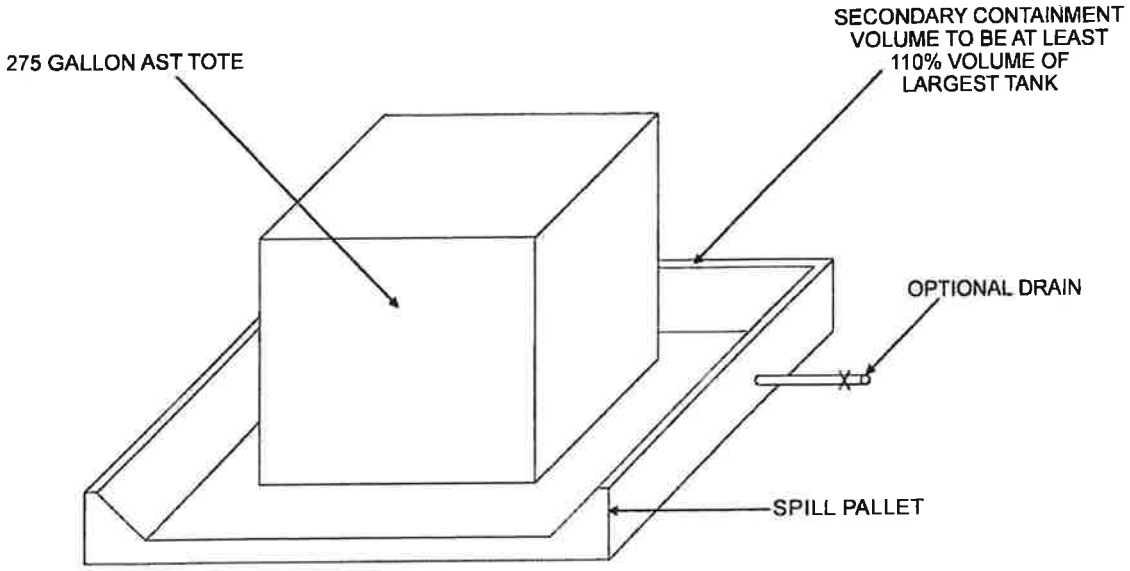
FUEL FARM
AREA SCHEMATIC



DIMENSIONS = 54' x 14' x 12"
CAPACITY = ~5,655 GAL

FIGURE 4

LUBE OIL TRAILER



SECTION VIEW

— ALL CONTAINMENT TO BE LABELED TO IDENTIFY CONTENTS

— ALL VALVES ON CONTAINMENT MUST BE OF THE MANUAL DESIGN AND MUST BE SECURED WITH A LOCK WHEN FACILITY IS NOT ATTENDED

FIGURE 5

275 GALLON FLOCCULANT STORAGE TANK

Appendices

Appendix A

SDS For Chemical Coagulant and Flocculant

MATERIAL SAFETY DATA SHEET

ZEE COMPANY
A Member of The Vincit Group

Date Issued: 08/02/2007
MSDS No: EA 17

EA 17

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: EA 17
PRODUCT DESCRIPTION: ANIONIC POLYACRYLAMIDE WASTE WATER POLYMER
PRODUCT FORMULATION NAME: EA 17
ACTIVE INGREDIENT(S): Petroleum distillate

MANUFACTURER
Zee Company, Inc.
4146 South Creek Road
Chattanooga, TN 37406
Emergency Contact: James A. Faller
Service Number: (423) 698-1401

24 HR. EMERGENCY TELEPHONE NUMBERS
CHEMTREC (800) 424-9300

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

PHYSICAL APPEARANCE: White liquid

IMMEDIATE CONCERNS: Eye irritant

POTENTIAL HEALTH EFFECTS

EYES: Irritation or burning of eyes

SKIN: May cause skin irritation.

INGESTION: May be harmful if ingested.

SIGNS AND SYMPTOMS OF OVEREXPOSURE

EYES: Severe irritation and burning

SKIN: Redness and irritation

INGESTION: Gastric pain and vomiting

INHALATION: Coughing and sneezing from extreme exposure.

CHRONIC EFFECTS: N/A

CARCINOGENICITY: N/A

MUTAGENICITY: N/A

REPRODUCTIVE TOXICITY

REPRODUCTIVE EFFECTS: N/A

TERATOGENIC EFFECTS: N/A

MEDICAL CONDITIONS AGGRAVATED: None known

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Wt.%	CAS
Petroleum distillate	20 - 35	64724-47-8

4. FIRST AID MEASURES

MATERIAL SAFETY DATA SHEET

ZEE COMPANY
A Member of The Vance Group

Date Issued: 08/02/2007
MSDS No: EA 17

EA 17

EYES: Flush eyes with running water for at least 15 minutes. Get medical attention and check for corneal damage.

SKIN: Flush exposed skin with water for at least 15 minutes and get medical attention if irritation persists.

INGESTION: DO NOT induce vomiting. If conscious, give several large glasses of water. Never give anything by mouth to an unconscious person. Call physician immediately.

5. FIRE FIGHTING MEASURES

FLASHPOINT AND METHOD: > (215°F)

FLAMMABLE LIMITS: NA to NA

AUTOIGNITION TEMPERATURE: None

EXTINGUISHING MEDIA: Use water spray, dry chemical, carbon dioxide (CO2), or alcohol foam when fighting fires involving this material.

EXPLOSION HAZARDS: NONE

FIRE FIGHTING PROCEDURES: NONE

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL: Mop up spill and flush area with water.

LARGE SPILL: Dike spill and vacuum or pump spilled material into proper storage container for hazardous waste disposal.

7. HANDLING AND STORAGE

GENERAL PROCEDURES: Keep this and all chemicals out of the reach of children.

STORAGE: Do not freeze. Keep container closed when not in use. Follow label instructions.

STORAGE TEMPERATURE: (36°F) Minimum to (90°F) Maximum

ELECTROSTATIC ACCUMULATION HAZARD: N/A

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Chemical resistant safety goggles/glasses with side shields.

SKIN: Chemical resistant gloves recommended for any prolonged or repeated contact with any chemicals.

RESPIRATORY: Not required

PROTECTIVE CLOTHING: Not required

WORK HYGIENIC PRACTICES: Always use goodhousekeeping procedures when handling chemicals.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

ODOR: Petroleum distillate

MATERIAL SAFETY DATA SHEET

ZEE COMPANY
A Member of The Vitest Group

Date Issued: 08/02/2007
MSDS No: EA 17

EA 17

APPEARANCE: Opaque liquid
COLOR: White
pH: 6 to 8
PERCENT VOLATILE: 56 - 62
VAPOR PRESSURE: Not Determined
VAPOR DENSITY: Not Established
BOILING POINT: No information
FREEZING POINT: No information
MELTING POINT: No information
FLASHPOINT AND METHOD: > (215°F)
SOLUBILITY IN WATER: Completely Miscible
EVAPORATION RATE: < 1 (Water = 1)
SPECIFIC GRAVITY: 1.030 to 1.06
VISCOSITY #1: at (80°F)
WEIGHT PER VOLUME: 8.7 lb/gal

10. STABILITY AND REACTIVITY

STABLE: Yes
HAZARDOUS POLYMERIZATION: No
POLYMERIZATION: Hazardous polymerization will not occur.
HAZARDOUS DECOMPOSITION PRODUCTS: Oxides of carbon and nitrogen on thermal decomposition
INCOMPATIBLE MATERIALS: Oxidizers

11. TOXICOLOGICAL INFORMATION

CARCINOGENICITY
IARC: Ingredients not listed.
NTP: Ingredients not listed.
OSHA: Ingredients not listed.

12. ECOLOGICAL INFORMATION

AQUATIC TOXICITY (ACUTE): Daphnia magna 48 hr. EC50 >100 mg/l. Brachydanio rerio 96 hr. LC50 >100 mg/l.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Dispose of in accordance with Federal, State and local regulations.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)

MATERIAL SAFETY DATA SHEET

ZEE COMPANY
A Member of The Vince Group

Date Issued: 08/02/2007
MSDS No: EA 17

EA 17

PROPER SHIPPING NAME: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
TECHNICAL NAME: Contains Ammonium Acetate
PRIMARY HAZARD CLASS/DIVISION: 9
UN/NA NUMBER: UN3082
PACKING GROUP: III
REPORTABLE QUANTITY (RQ) UNDER CERCLA: 50000 pounds
BULK FREIGHT CLASS: 55

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

311/312 HAZARD CATEGORIES: Reporting required for inventory above TPQ

ACUTE: Yes

313 REPORTABLE INGREDIENTS: Not required

302/304 EMERGENCY PLANNING

EMERGENCY PLAN: Section 302 reporting not required. Section 304 reporting is required for releases above the threshold amount listed.

CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)

CERCLA REGULATORY: Same as section 304

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA REGULATORY: INGREDIENTS LISTED

RCRA STATUS: N/A

16. OTHER INFORMATION

APPROVED BY: James A. Faller **TITLE:** Director of Research
PREPARED BY: James A Faller
INFORMATION CONTACT: James Faller
REVISION SUMMARY: New MSDS

HMIS RATING

HEALTH:	2
FLAMMABILITY:	1
PHYSICAL HAZARD:	0
PERSONAL PROTECTION:	B

GENERAL STATEMENTS: The information contained herein is believed to be accurate but is not warranted to be so. Users are advised to confirm in advance of need that Information is current, applicable, and suited to the circumstances of use. Vendor assumes no responsibility for injury to vendee

MATERIAL SAFETY DATA SHEET

ZEE COMPANY
A Member of The Vinca Group

Date Issued: 08/02/2007
MSDS No: EA 17

EA 17

or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed.

ZEE COMPANY®
A Member of The Vincit Group

MATERIAL SAFETY DATA SHEET

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product name	CO 310
Synonyms	None
Supplier	ZEE COMPANY, INC. 4146 South Creek Road Chattanooga, TN 37406 (423) 698-1401
NFPA Rating	Health: 1 Flammability: 0 Reactivity: 0
HMIS Rating	Health: 1 Flammability: 0 Reactivity: 0

Emergency telephone
CHEMTREC: (800) 424-9300

EMERGENCY OVERVIEW
Clear, viscous, straw colored liquid. May cause mild skin and eye irritation.

Section 2: HAZARDS IDENTIFICATION

Hazard Information
May cause mild eye and skin irritation.

Eye contact
None expected, but prolonged or repeated eye contact may result in mild irritation and redness of a short-term nature.

Skin contact
None expected, but prolonged or repeated skin contact may result in irritation of a short-term nature.

Inhalation
This product is not toxic by inhalation.

Ingestion
Effects of ingesting small amounts are negligible; ingesting large amounts may injure person slightly.

Aggravated Medical Conditions
None known

Chronic Exposure
Prolonged or repeated skin exposure may cause dermatitis.

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component name CAS Number	weight-%	OSHA - PEL's	ACGIH 2002 - TLV's
Polydimethyldiallylammonia chloride 26062-79-3	~20%	Not Established	Not Established
Water 7732-18-5	~80%	Not Established	Not Established

Section 4: FIRST AID MEASURES

Eye contact
Immediately flush with plenty of water for at least 15 minutes, holding eyelids apart to ensure flushing of the entire surface. Washing within one minute is essential to achieve maximum effectiveness. Seek medical attention if irritation should develop.

Skin contact
Immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and footwear. Wash contaminated clothing before reuse. Get medical attention if irritation develops.

Inhalation
Remove person to fresh air and watch for a delayed reaction. Give artificial respiration if breathing stops and seek medical attention.

Ingestion
Do not induce vomiting. If vomiting should occur spontaneously, keep the airway clear. Get medical attention. Never give anything by mouth to an unconscious person.

Chronic Exposure
Prolonged or repeated skin exposure may cause dermatitis.

Notes to Physician
Treat symptomatically.

Section 5: FIRE FIGHTING MEASURES

Flash point	> 100 °C / > 212 °F
Autoignition temperature	Not applicable
Flammable Limits in Air - Lower (%)	Not applicable
Flammable Limits in Air - Upper (%)	Not applicable

Suitable extinguishing media
Use extinguishing media appropriate for surrounding fire. This material is not expected to burn unless heated to dryness. Water. Foam. Carbon dioxide (CO2). Dry chemical.

Firefighting measures
Cool exposed containers with water spray after extinguishing fire.

Specific hazards during fire fighting:
Thermal decomposition (as may be experienced in a fire) may produce hydrogen chloride gas and/or may liberate oxides of nitrogen and carbon. Spills produce slippery surfaces and could present a physical hazard for firemen.

Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

Section 6: ACCIDENTAL RELEASE MEASURES

Procedure for Cleaning/Absorption
Area around spill should be diked immediately to prevent spreading. Clean up spill immediately using inert absorbent materials such as clays, sand, earth or other commercially available dry sweeping compound. Product may cause slip hazard. If slippery conditions persist, apply additional dry sweeping compound. Following containment, large spills should be pumped into salvage tanks.

Personal precautions
Wear suitable protective clothing and gloves.

Environmental precautions
Avoid runoff to waterways and sewers.

Section 7: HANDLING AND STORAGE

Advice on safe handling
Avoid contact with eyes, skin and clothing
Use with adequate ventilation and employ respiratory protection where mist or spray may be generated
Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing
Ensure that eyewash stations and safety showers are close to the workstation location
Keep container closed when not in use
Wash thoroughly after handling
Remove and wash any contaminated clothing.

Technical measures and storage conditions
Keep container closed when not in use
Store in a well-ventilated area
Store in a cool, dry place
Store between 5 - 30 °C (41 - 86 °F)
Avoid storage temperatures below freezing, since product may stratify
Changes in temperature create air pressure changes inside drums
Use proper precaution in unscrewing plug and/or opening container.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls
Local exhaust ventilation as necessary to maintain exposures to within applicable limits. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

Respiratory protection
Under most conditions, use adequate general ventilation and protective equipment since volatility and toxicity are very low. If significant vapors, mists or aerosols are present, use NIOSH approved respirator (ANSI Z882.1980) or equivalent, that is equipped with a dust/mist cartridge.

Hand protection
Gloves impervious to liquid material.

Skin and Body Protection
While there is a possibility of skin contact, rubber gloves and boots impervious to liquid material should be worn.

Eye/face protection
Chemical goggles or a face shield if splashing hazard exists.

Other Personal Protection Data
Eyewash fountains and safety showers must be easily accessible.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Color	Straw colored
Appearance	Viscous, clear
Odor	Musty amine
pH	5.0 - 8.0 (as is)
Specific gravity	1.02 - 1.06
Density	[illegible]
Bulk density	No information available
Flash point	> 100 °C / > 212 °F
Autoignition temperature	Not applicable
Boiling point / boiling range	> 100 °C / > 212 °F
Melting / freezing point	-3 to 0 °C / 26.6 to 32 °F
Vapor pressure	30 mm Hg @ 38 °C
Vapor density	> 60 mm Hg
Percent Volatile, wt.%	80 % (Water)
Evaporation rate	Equal to water
Solubility (water)	Completely; 100%
Solubility in other solvents	No information available
Volatile organic compounds (VOCs) content	No information available
Dynamic viscosity	1,000 - 3,000 cps
Kinematic viscosity	No information available
Molecular weight	No information available

Section 10: STABILITY AND REACTIVITY

Chemical stability
Stable.

Conditions to avoid
None

Materials to avoid
Strong oxidizers. Contact with copper, copper alloys, aluminum, mild steel or iron may cause corrosion/degradation.

Hazardous decomposition products
Thermal decomposition (as may be experienced in a fire) may produce hydrogen chloride gas and/or oxides of nitrogen and carbon.

Hazardous polymerization
Will not occur

Additional Guidelines:
None

Section 11: TOXICOLOGICAL INFORMATION

PRINCIPAL ROUTES OF EXPOSURE: Skin, eyes and respiratory tract.

Eye contact
None expected, but prolonged or repeated eye contact may result in mild irritation and redness of a short-term nature.

Skin contact
None expected, but prolonged or repeated skin contact may result in irritation of a short-term nature.

Inhalation
This product is not toxic by inhalation.

Ingestion
Effects of ingesting small amounts are negligible; ingesting large amounts may injure person slightly.

Carcinogenicity Status
This product does not contain any components in concentrations greater than or equal to 0.1% that are listed as known or suspected carcinogens by NTP, IARC, ACGIH, or OSHA.

Acute toxicity

Dermal LD50	No information available
Inhalation LC50	No information available

Acute Toxicity of Individual Components

Component name CAS Number	Oral LD50	Dermal LD50	Inhalation LC50
Polydimethyldiallylammonia chloride 26062-79-3	3 g/kg (Rat)	--	--

Chronic toxicity
NOEL / Oral / Rat / 90 days = 5000 mg/kg

Mutagenicity/Genotoxicity
Not teratogenic, NOEL = 175 mg/kg. Not mutagenic in AMES Test. Not mutagenic in micronucleus test on mice.

Skin corrosion/irritation
May cause skin irritation with susceptible persons.

Serious eye damage/eye irritation
Testing conducted on rabbits showed minor transient irritation that cleared within days.

Sensitization
Product is not expected to be sensitizing.

Other information
Conclusions are drawn from sources other than direct testing.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicological Information

Acute aquatic toxicity

Fish	LC50 (96 hour): > 10 mg/L - Zebra Fish (*Danio rerio*),
Crustacea	EC50 (48 hour): > 10 mg/L - Water flea (*Daphnia magna*)
Algae/aquatic plants	No information available

Mobility
No information available

Persistence and degradability
No information available

Bioaccumulative potential
This product does not bio-accumulate.

Chemical Fate Information
No information available

Effects on Aquatic Organisms
The effects of this product on aquatic organisms are rapidly and significantly reduced with the presence of 5 to 10 mg/L organic carbon as found in most surface waters.

Other information
No other ecological studies have been carried out on this product.

Section 13: DISPOSAL CONSIDERATIONS

Disposal of wastes
Recycle, if possible. If not, dispose of the waste material in accordance with all applicable federal, state and local laws and regulations regarding health and pollution. Under the Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user to determine whether a material should be classified waste at the time of the disposal. This is due to the fact that product use, transformation, synthesis, mixing, etc. may change the nature of the product.

RCRA

Is the unused product a RCRA hazardous waste if discarded? (Yes/No)	**No**
If yes, the EPA Hazardous Waste Code is:	**N/A**

Section 14: TRANSPORT INFORMATION

DOT

Status	Not regulated

ICAO/IATA

Status	Not regulated

IMDG

Status	Not regulated
Flash point	> 100 °C / > 212 °F

Section 15: REGULATORY INFORMATION

International Inventories:

TSCA (United States)
All ingredients are on the inventory or exempt from listing

Australia (AICS)
All ingredients are on the inventory or exempt from listing

Canada (DSL)
All ingredients are on the inventory or exempt from listing

Canada (NDSL)
None of the ingredients are on the Inventory.

China (IECSC)
All ingredients are on the inventory or exempt from listing

EINECS (European Inventory of Existing Chemical Substances)
All ingredients are on the inventory or exempt from listing

ELINCS (European List of Notified Chemical Substances)
All of the components of this product are not listed on ELINCS.

ENCS (Japan)
All ingredients are on the inventory or exempt from listing

South Korea (KECL)
All ingredients are on the inventory or exempt from listing

Philippines (PICCS)
All ingredients are on the inventory or exempt from listing

New Jersey Trade Secret Registry Number(s):
N/A

SARA Section 311/ 312 Hazard Class
SARA Hazard Class: None

Other information
This product does not contain any ingredients subject to the reporting requirements of SARA Title III, Section 313 (40 CFR Part 372).

Section 16: OTHER INFORMATION

Product code	WWP37A
Revision date	2013-12-09
Revision Number	1
Additional information	None
Disclaimer	The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

*****END OF MSDS*****

Appendix B

Training Form

Employee Training Record

- ☐ **1.** Location and contents of storage tanks
- ☐ **2.** Correct fuel-unloading procedure
- ☐ **3.** Containment drainage procedure
- ☐ **4.** Inspection program requirements
- ☐ **5.** Immediate spill response procedure
- ☐ **6.** Location and correct use of cleanup materials

_____ _____

Employee Signature **Date**

_____ _____

Trainer Signature **Date**

Appendix C

Containment Drainage Form

Containment Drainage Form

The _____ (*which containment basin*) containment was drained at approximately _____/_____/_____ ____:____ (*date/time*). The estimated volume of discharge was _____ gallons. The condition of the rainwater was (*reference below procedures*) _____. The Employee who made the visual inspection, authorized the discharge and then closed and locked the drain valve is _____.

Mark the appropriate Procedure used:

☐ Procedure A There was no oil film on top of the rainwater. Therefore, all the rainwater was discharged.

☐ Procedure B There was a small film on the rainwater. The oil was absorbed using oil absorbent pillows and blankets prior to rainwater being discharged.

☐ Procedure C There was a substantial amount of oil mixed with the rainwater. The mixture was pumped out and disposed of in an appropriate manner.

☐ Procedure D There was a substantial amount of oil floating on the rainwater. The rainwater was slowly discharged until the oil approached the drain line. The oil was pumped out and disposed of in an appropriate manner.

Appendix D

SPCC Inspection Forms
Monthly & Annual
Checklists

STI SP001 Monthly Inspection Checklist

General Inspection Information:

Inspection Date: _____ Prior Inspection Date: _____ Retain until date: _____

Inspector Name (print): _____ Title: _____

Inspector's Signature _____

Tank(s) inspected ID _____

Regulatory facility name and ID number (if applicable) _____

Inspection Guidance:

- This checklist is intended as a model. Locally developed checklists are acceptable as long as they are substantially equivalent (as applicable). Inspections of multiple tanks may be captured on one form as long as the tanks are substantially the same.
- For equipment not included in this Standard, follow the manufacturer recommended inspection/testing schedules and procedures.
- The periodic AST Inspection is intended for monitoring the external AST condition and its containment structure. This visual inspection does not require a Certified Inspector. It shall be performed by an owner's inspector per paragraph 4.1.2 of the standard.
- Upon discovery of water in the primary tank, secondary containment area, interstice, or spill container, remove promptly or take other corrective action. Inspect the liquid for regulated products or other contaminants and dispose of properly.
- Non-conforming items important to tank or containment integrity require evaluation by an engineer experienced in AST design, a Certified Inspector, or a tank manufacturer who will determine the corrective action. Note the non-conformance and corresponding corrective action in the comment section.
- Retain the completed checklists for at least 36 months.
- **After severe weather (snow, ice, wind storms) or maintenance (such as coating) that could affect the operation of critical components (normal and emergency vents, valves), an inspection of these components is required as soon as the equipment is safely accessible after the event.**

	ITEM	STATUS	COMMENTS / DATE CORRECTED
	Tank and Piping		
1	Is tank exterior (roof, shell, heads, bottom, connections, fittings, valves, etc.) free of visible leaks? **Note**: *If "No", identify tank and describe leak and actions taken.*	□ Yes □ No	
2	Is the tank liquid level gauge legible and in good working condition?	□ Yes □ No □ N/A	
3	Is the area around the tank (concrete surfaces, ground, containment, etc.) free of visible signs of leakage?	□ Yes □ No	

4	Is the primary tank free of water or has another preventative measure been taken? NOTE: Refer to paragraphs 6.10 and 6.11 of the standard for alternatives for Category 1 tanks. N/A is only appropriate for these alternatives.	□ Yes □ No □ N/A	
5	For double-wall or double bottom tanks or CE-ASTs, is interstitial monitoring equipment (where applicable) in good working condition?	□ Yes □ No □ N/A	
6	For double-wall tanks or double bottom tanks or CE-ASTs, is interstice free of liquid? Remove the liquid if it is found. If tank product is found, investigate possible leak.	□ Yes □ No □ N/A	
	Equipment on tank		
7	If overfill equipment has a "test" button, does it activate the audible horn or light to confirm operation? If battery operated, replace battery if needed.	□ Yes □ No □ N/A	
8	Is overfill prevention equipment in good working condition? If it is equipped with a mechanical test mechanism, actuate the mechanism to confirm operation.	□ Yes □ No □ N/A	
9	Is the spill container (spill bucket) empty, free of visible leaks and in good working condition?	□ Yes □ No □ N/A	
10	Are piping connections to the tank (valves, fittings, pumps, etc.) free of visible leaks? **Note**: *If "No", identify location and describe leak.*	□ Yes □ No	
11	Do the ladders/platforms/walkways appear to be secure with no sign of severe corrosion or damage?	□ Yes □ No □ N/A	
	Containment (Diking/Impounding)		
12	Is the containment free of excess liquid, debris, cracks, corrosion, erosion, fire hazards and other integrity issues?	□ Yes □ No □ N/A	
13	Are dike drain valves closed and in good working condition?	□ Yes □ No □ N/A	
14	Are containment egress pathways clear and any gates/doors operable?	□ Yes □ No □ N/A	
	Concrete Exterior AST (CE-AST)		
15	Inspect all sides for cracks in concrete. Are there any cracks in the concrete exterior larger than 1/16"?	□ Yes □ No □ N/A	
16	Inspect concrete exterior body of the tank for cleanliness, need of coating, or rusting where applicable. Tank exterior in acceptable condition?	□ Yes □ No □ N/A	
17	Visual inspect all tank top openings including nipples, manways, tank top overfill containers, and leak detection tubes. Is the sealant between all tank top openings and concrete intact and in good condition?	□ Yes □ No □ N/A	
	Other Conditions		
18	Is the system free of any other conditions that need to be addressed for continued safe operation?	□ Yes □ No	

Additional Comments:

STI SP001 Annual Inspection Checklist

General Inspection Information:

Inspection Date: _____ Prior Inspection Date: _____ Retain until date: _____

Inspector Name (print): _____ Title: _____

Inspector's Signature: _____

Tank(s) inspected ID _____

Regulatory facility name and ID number (if applicable) _____

Inspection Guidance:

- This checklist is intended as a model. Locally developed checklists are acceptable as long as they are substantially equivalent (as applicable).
- For equipment not included in this Standard follow the manufacturer recommended inspection/testing schedules and procedures.
- The periodic AST inspection is intended for monitoring the external AST condition and its containment structure. This visual inspection does not require a Certified Inspector. It shall be performed by an owner's inspector per paragraph 4.1.2 of the standard.
- Remove promptly standing water or liquid discovered in the primary tank, secondary containment area, interstice, or spill container. Before discharge to the environment, inspect the liquid for regulated products or other contaminants and disposed of it properly
- In order to comply with EPA SPCC (Spill Prevention, Control and Countermeasure) rules, a facility should regularly test liquid level sensing devices to ensure proper operation (40 CFR 112.8(c)(8)(v)).
- Non-conforming items important to tank or containment integrity require evaluation by an engineer experienced in AST design, a Certified Inspector, or a tank manufacturer who will determine the corrective action. Note the non-conformance and corresponding corrective action in the comment section
- Retain the completed checklists for at least 3R months
- Complete this checklist on an annual basis, supplements to the owner monthly-performed inspection checklists.
- **Note: If a change has occurred to the tank system or containment that may affect the SPCC plan, the condition should be evaluated against the current plan requirement by a Professional Engineer knowledgeable in SPCC development and implementation.**

	ITEM	STATUS	COMMENTS / DATE CORRECTED
	Tank Foundation/Supports		
1	Free of tank settlement or foundation washout?	☐Yes ☐No	
2	Concrete pad or ring wall free of cracking and spalling?	☐Yes ☐No ☐N/A	

3	Tank supports in satisfactory condition?	☐Yes ☐No ☐N/A	
4	Is water able to drain away from tank if tank is resting on a foundation or on the ground?	☐Yes ☐No ☐N/A	
5	Is the grounding strap between the tank and foundation/supports in good condition?	☐Yes ☐No ☐N/A	
	Tank Shell, Heads and Roof		
6	Free of visible signs of coating failure?	☐Yes ☐No	
7	Free of noticeable distortions, buckling, denting, or bulging?	☐Yes ☐No	
8	Free of standing water on roof?	☐Yes ☐No ☐N/A	
9	Are all labels and tags intact and legible?	☐Yes ☐No	
	Tank Manways, Piping, and Equipment		
10	Flanged connection bolts tight and fully engaged with no sign of wear or corrosion?	☐Yes ☐No ☐N/A	
	Tank Equipment		
11	Normal and emergency vents free of obstructions?	☐Yes ☐No	
12	Normal vent on tanks storing gasoline equipped with pressure/vacuum vent?	☐Yes ☐No ☐N/A	
13	Are flame arrestors free of corrosion and are air passages free of blockage?	☐Yes ☐No ☐N/A	
14	Is the emergency vent in good working condition and functional, as required by manufacturer? Consult manufacturer's requirements. Verify that components are moving freely (including long-bolt manways).	☐Yes ☐No ☐N/A	
15	Is interstitial leak detection equipment in good condition? Are windows on sight gauges clear? Are wire connections intact? If equipment has a test function, does it activate to confirm operation?"	☐Yes ☐No ☐N/A	

16	Are all valves free of leaks, corrosion and other damage? Follow manufacturers' instructions for regular maintenance of these items. Check the following and verify (as applicable): □ Anti-siphon valve □ Check valve □ Gate valve □ Pressure regulator valve □ Expansion relief valve □ Solenoid valve □ Fire valve □ Shear valve	☐Yes ☐No ☐N/A ☐Yes ☐No ☐N/A ☐Yes ☐No ☐N/A ☐Yes ☐No ☐N/A ☐Yes ☐No ☐N/A ☐Yes ☐No ☐N/A ☐Yes ☐No ☐N/A	
17	Are strainers and filters clean and in good condition?	☐Yes ☐No ☐N/A	
	Insulated Tanks		
18	Free of missing insulation? Insulation free of visible signs of damage? Insulation adequately protected from water intrusion?	☐Yes ☐No ☐N/A	
19	Insulation free of noticeable areas of moisture?	☐Yes ☐No ☐N/A	
20	Insulation free of mold?	☐Yes ☐No ☐N/A	
21	Free of visible signs of coating failure?	☐Yes ☐No ☐N/A	
	Tank / Piping Release Detection		
22	Is inventory control being performed and documented if required?	☐Yes ☐No ☐N/A	
23	Is release detection being performed and documented if required?	☐Yes ☐No ☐N/A	
	Other Equipment		
24	Are electrical wiring and boxes in good condition?	☐Yes ☐No ☐N/A	
25	Has the cathodic protection system on the tank been tested as required by the designing engineer?	☐Yes ☐No ☐N/A	

Additional Comments:

Appendix E

Annual Aboveground Storage Tank Testing Form

ABOVEGROUND STORAGE TANK
ANNUAL SPCC INSPECTION *

Inspection will be conducted by designated personnel technically qualified to evaluate the structural integrity of tank walls, seams, gaskets, rivets, fittings, supports, and foundations and to identify evidence of corrosion, erosion, leaking, weeping, or other structural deterioration.

Location	Quantity	Primary Volume	Contents	Structural Condition

Date Inspection Initiated

Date Inspection Completed

Name

Title or Designation

*Inspection/testing of underground tanks will be conducted according to accepted engineering procedures in conformance with applicable regulations.

Appendix F

Discharge Information Form

Discharge Information Form

Discharge Information	
Facility: Ferroglobe USA Quartz, Inc. Address: 1128 St. Claire Place Lowdnesboro, AL 36752 Phone:	Plant Manager: Chad Richards Office: 205-755-9995
Type of Material discharged:	Time and Date of discharge:
Estimated discharge quantity:	Source/Location of discharge:
Description of effected media:	
Cause of discharge:	
Damages or injuries caused by discharge:	
Actions taken to stop discharge:	
Is/Was an evacuation necessary?	

Organizations Contact Information		
*Report a Discharge in **any amount** to the following:*		
Contact	**Date and Time Contacted**	**Name of Individual Receiving Call**
*Report a Discharge of **more than 25 gallons** to the following:*		
Northport EMA 911		
Alabama EMA: 205-280-2310 (After Hrs) – State Warning Point 800-843-0699		
ADEM Ombudsman: 800-533-2336 Field Operations: (After Hours):		
National Response Center: 800-424-8802		

Appendix G

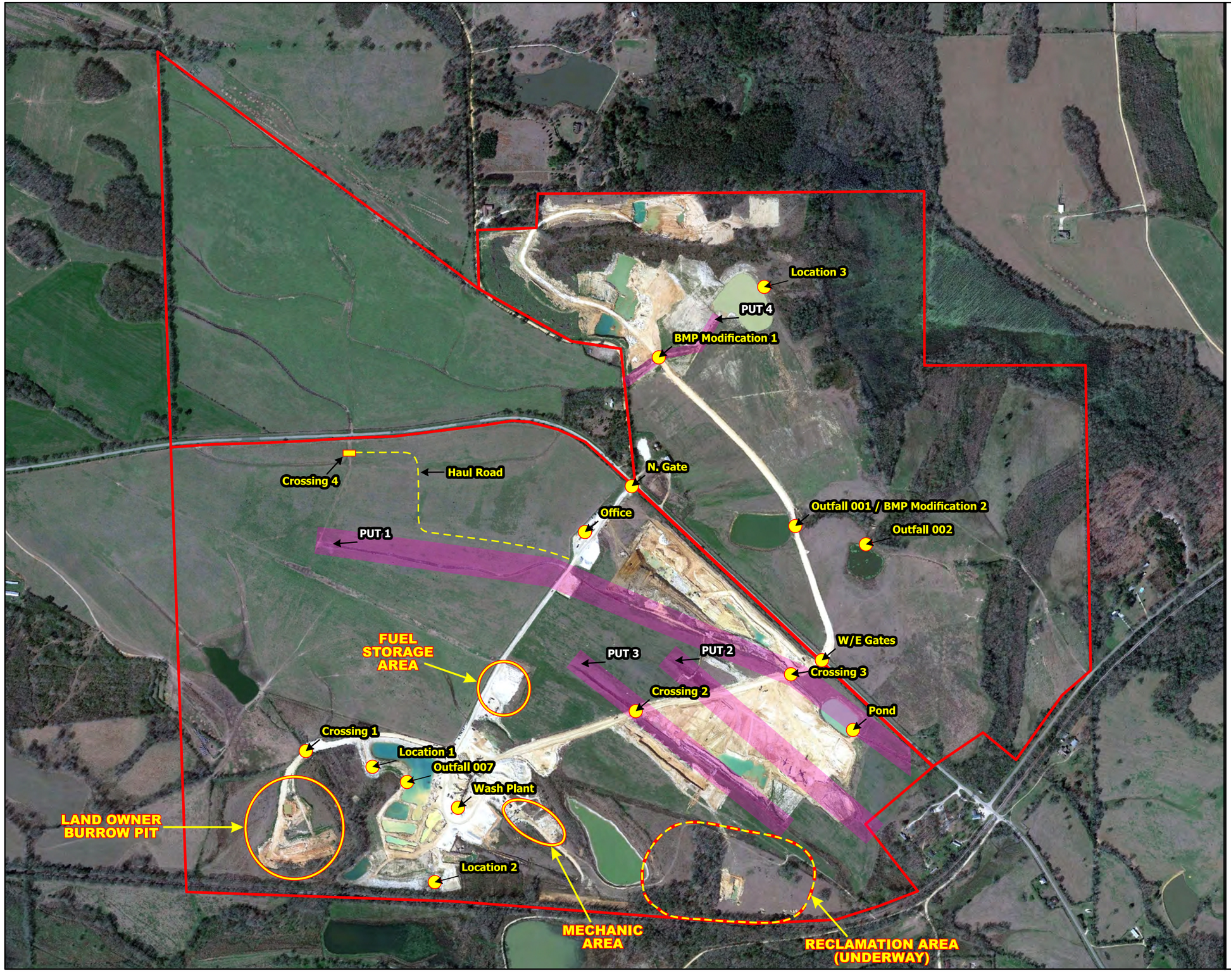
SPCC Plan Cross Reference

SPCC Plan Cross Reference

Regulation	Location in SPCC Plan	Page
40 CFR 112.3 (d)	Engineer Certification	ii
40 CFR 112.3 (e)	Location of SPCC Plan	1
40 CFR 112.4 (a)	Discharge Response	11
40 CFR 112.5 (b)	SPCC Plan Review	2
40 CFR 112.7	SPCC Plan Cross Reference Introduction	App. G 1
40 CFR 112.7 (a)(3)	Facility Information Figures 1 through 4 & Table 1	4 Figures 1-4
40 CFR 112.7 (a)(4)	Discharge Response Procedure Discharge Information Form Emergency Response & Telephone Numbers	12 App. F 12
40 CFR 112.7 (a)(5)	Discharge Response Procedure	11
40 CFR 112.7 (b)	Potential Discharge Flow & Direction	14
40 CFR 112.7 (c)	Secondary Containment Figure 1-4	8 1-4
40 CFR 112.7 (e)	Inspections	9
40 CFR 112.7 (f)	Personnel Training & Briefing Guide	7
40 CFR 112.7 (g)	Security	7
40 CFR 112.7 (h)	Facility Transfer Operations	6
40 CFR 112.7 (i)	Annual Aboveground Tank Testing	10
40 CFR 112.7 (j)	Introduction	1
40 CFR 112.8 (b)	Discharge Response Procedure	12
40 CFR 112.8 (c)(2)	Secondary Containment	8
40 CFR 112.8 (c)(3)	Discharge Response Procedure	12
40 CFR 112.8 (c)(6)	Inspections	9
40 CFR 112.8 (c)(10)	Visible Discharges	14
40 CFR 112.8 (c)(11)	Secondary Containment	8
40 CFR 112.8 (d) (4)	Inspections	9

This table cross-references select SPCC regulations of the Federal Register 12 CFR 40. For a listing of SPCC regulations, see a complete set of 40 CFR 112.

FIGURE 2
LOCATION MAP



PUT = Potential Unnamed Tributary

N
W E
S

0 500 1,000 2,000 Feet

Source: Google Earth 3/7/2021 aerial photograph

Revised: 1/19/2024

Pollution Abatement and/or Prevention (PAP) Plan

FOR

Ferroglobe USA Quartz, Inc.
NPDES permit ALG850130
Lowndesboro, Alabama

June 2025

Prepared by:
Tom Joiner & Associates, Inc.
P.O. Box 1490
Tuscaloosa, AL 35403
205-345-2311

Engineer Certification

This PAP Plan has been prepared based upon field observations, review of available records and discussions with Ferroglobe USA Quartz, Inc. personnel. These services have been performed in accordance with good engineering practices.

Certifying Engineer: Jarrod Milligan, P.E.
Alabama Registration No. 31642

Signature: _____

Certification Date: 6-23-25

Engineer Seal

Table of Contents

I. Introduction

This Pollution Abatement and/or Prevention (PAP) Plan has been prepared as required by the National Pollutant Discharge Elimination System (NPDES) permit application for the Ferroglobe USA Quartz, Inc. (Ferroglobe) Meadows Pit is in Lowndesboro, AL. This plan addresses planned actions at their Facility in conjunction with the mining operations. Previous to this, the mine site was covered under a general NPDES permit (ALG850130) PAP issued March 2017. The general permit expired on March 31, 2022 and Ferroglobe submitted a permit application to renew the general permit (December 2021). ADEM then decided in Fall 2022 that they wanted Ferroglobe to renew the permit as an Individual NPDES permit. This PAP has been prepared to comply with the requirement that the facility develop and implement a PAP to control point-source and non-point source discharges.

II. General

Ferroglobe mines and produces gravel that is a source material for the production of silica metal produced at Ferroglobe's other sites (SIC 1442). Mined sand and gravel is washed on site and gravel is trucked off site for further processing by others. The sand is kept on site and used to reclaim mined out pits for sale as a construction material.

III. Site Location

The Facility is located in Sections 25, 26, 35 and 36 of Township 16 North, Range 14 East in Lowndesboro, Alabama. The facility's front gate is located at Latitude 32° 19' 49.26", Longitude -86° 37' 39.95". The existing facility and permit boundary are shown on Figures 1 and 2.

IV. Operator Information

Names and addresses of Ferroglobe officials responsible for the implementation of this PAP Plan are as follows:

Headquarters:
Ferroglobe USA Quartz, Inc.
332 West Cumberland Gap Parkway
Corbin, KY 40701

Phone: 740-336-4164
Contact: Matt Greene

Meadows Pit
Ferroglobe USA Quartz, Inc
3714 County Road 40E
Lowndesboro, AL 36752

Phone: (205) 755-9995
Contact: Mine Manager – Chad Richards

The permit boundaries of the facility are shown on Figures 1 and 2 with Figure 2 showing detailed information concerning the areas of current mining operations.

The facility's pollution prevention team includes Ferroglobe personnel responsible for the preparation and implementation of this PAP Plan. Team members include the Facility's Mine Manager and Mine Environmental Manager. These individuals will operate and train other employees at this facility. Additionally, corporate management will be included as necessary. The Mine Environmental Manager is charged with overseeing the development and implementation of this PAP Plan and other environmental compliance matters.

V. Topographic Map

A topographic map (1 inch = 2,000 feet) that indicates the facility permit boundaries, areas of mining, location of gravel, washing plant, sediment ponds, discharge outfalls and nearby streams and ditches is included as Figure 1. A more detailed facility map is included as Figure 2.

VI. Raw Materials, Processes and Products

The operations performed at the facility consist of sand and gravel mining followed by washing operations to separate the sand and gravel. Once processed, the gravel is shipped off site and the sand is either sold as a building product (to others) or used as fill material to reclaim the mined areas.

The mining operation involves stripping of overburden materials (primarily sand) to the target depth of the sand and gravel. Once mined, the sand and gravel is transported by trucks to the Wash Plant where a wet washing operation is used to separate the gravel from sand and other fines. Effluent from the washing operation is circulated through a series of sediment ponds for reuse or for discharge via a permitted NPDES Outfall. The mining operation is generally performed 14 hours per day 6 days per week. About 25-30 persons are employed in this operation. Overburden from stripping operations is placed adjacent to mine areas in spoil piles or transported directly to a mined area for reclamation. Spoil piles are sloped and seeded in accordance with the BMP Plan (Appendix A) to minimize erosion, sedimentation, and non-point source pollution. Stormwater and process water are processed through ponds before discharge via permitted outfalls. The mine stormwater outfalls are designated as 001 through 011, and the process water outfall (007) are shown on Figure 1 and 2.

In accordance with their NPDES permit, Ferroglobe has conducted a material inventory within the drainage area of each outfall to identify pollutant sources. Potential pollutant sources identified in this inventory are discussed below.

A. Virgin Chemicals

Chemical Fluids used at the Facility that may be exposed to process or stormwater flow are identified below. All chemicals are stored in accordance with the Facility's Spill Prevention, Control and Countermeasures (SPCC) Plan.

Chemical	Amounts	Points where added	Feed System
Diesel Fuel	10,000 gal	Fuel Farm	DC Powered Pump
Gasoline	1- 1,000 gal	Fuel Farm	DC Powered Pump

Diesel	1- 1,000 gal	Fuel Farm	DC Powered Pump
Grease	55-gal drums	Fuel Farm	Manual
Diesel Exhaust Fluid	275-gal Tote	Fuel Farm	Manual
Lubricating oils	Varies	Lube Oil Trailer	Manual/pump
Hand Sanitizer	55-gal drum	Office	Manual
Chemical Coagulants	275-gal totes	Wash Plant	Peristaltic Pump
Chemical Flocculants	275-gallon totes	Wash Plant	Peristaltic Pump

B. Spillage or Overflow (including, but not limited to truck loading, etc.)

Spillage or overflow was evaluated with respect to fluids and dry materials. Dry material spillage could potentially occur during the loading and unloading of raw or finished materials to/from transport vehicles at the Facility. Stormwater run off from these areas will be routed to the facility sediment ponds for treatment and discharge in accordance with the NPDES permit. The potential for spillage/overflow of petroleum lubricants and fuels is discussed in the Facility's SPCC Plan.

C. Raw-Material Storage

Raw-material storage includes washed gravel and sand. The sand material has the potential to impact storm water run-off at this site (due to the fine particle sizes). Raw-material stockpiles are identified on Figure 3.

D. Solid Waste Generation and Management

Ferroglobe has placed wastes in a management area within the Facility boundaries. These areas are identified on Figure 2. These management areas will be inspected twice monthly to ensure that wastes and other materials are handled in accordance with Local, State and Federal regulations. Stormwater run-off from all storage areas drains to a sediment pond and permitted outfall. No new mine areas will be developed without prior written approval from the ADEM. Ferroglobe inspects and maintains all mine areas in accordance with the inspection criteria included in Appendix B.

Ferroglobe currently generates the below listed solid wastes as part of the mining processes at this Facility. Ferroglobe does not dispose of any regulated solid wastes on site.

a. Used oils

b. Used grease
c. Scrap metals
d. Garbage-Dumpster
e. Tires

Each solid waste is handled/disposed of as follows:

Used oils and grease are stored in secure areas and are managed under the Facility's SPCC Plan. The used-oil storage area is covered or contained and the used oil is stored in aboveground storage tanks (ASTs) with secondary containment. Licensed contractors transport used oil and grease off site for disposal/recycling.

The remaining wastes generated at the site (scrap metal and office waste/industrial waste) is placed in garbage dumpsters and is transported for off-site disposal by a local municipal waste disposal company.

Maintenance of mine vehicles is performed at the mine shop area.
No solvents are used in the vehicle maintenance. Used oil and grease generated from vehicle maintenance is transported to the used-oil storage area for storage until pickup for off-site disposal. Vehicle maintenance that is not performed at the Mine or plant are done off site at commercial facilities.

VII. Water Supply and Use

Drinking water is obtained from the Lowndes County Water Authority and is used at the office and other buildings. "Plant use" water is obtained from sediment basins (Pond No. 8, Figure 3).

VIII. Wastewater Sources and Disposal

A. Sanitary Wastewater

The sanitary wastewater at this site is generated at the Plant Office and it is supplied with an on-site septic tank. For Mine areas, Ferroglobe will maintain porta johns, as needed. Wastewater from these porta johns will be hauled off site for treatment by a licensed contractor.

B. Process Wastewater

Process wastewater is sourced from the wash plant. Rinse water drains through a series of sediment ponds via gravity flow to remove suspended solids. Ferroglobe may use chemical coagulants/flocculants to clarify the water if needed.

C. Stormwater

Stormwater run-off from the wash plant is routed to ponds and is then treated and reused or discharged to an UT to Cypress Creek via Outfall 007E.

Stormwater from mine operations typically drains to a mine sump or to a downstream stormwater pond before being discharged at a permitted and certified outfall. Ferroglobe is proposing gravity flow and discharge from the reclaimed area for outfall 009. Ferroglobe may occasionally dewater a mine site if groundwater inflow occurs. If this happens the water will be treated and discharged via permitted outfall in accordance with the NPDES permit.

D. Vehicle Wash water

Water from the washing of vehicle exteriors may be conducted occasionally at a wash area located near the wash plant. This water drains into the sediment ponds and is discharged through Outfall 007. Personnel will use phosphate-free detergent to wash the truck exteriors. Engine wash will not typically be conducted at this facility.

IX. Outfall Details – Schematic Diagram

Stormwater outfalls designed by others are shown on Figures 1 and 2; Outfall 007 discharges water to an UT to Cypress Creek. Diagrams showing location of each outfall are shown on Figures 1 and 2. These outfalls and associated Ponds have been designed and sized by others. Design diagrams of all surface ponds and discharge structures are included in Appendix B

The water treatment system for Outfall 007 consists of several ponds connected in series. Ferroglobe uses a chemical coagulant and flocculant to aid in the removal of colloidal-sized particles from the water before it is either discharged or recycled for washing. The Coagulant and Flocculant are added at the points shown on Figure 3. Safety Data sheets for the Chemical Coagulant and Flocculants are included in Appendix D.

The sediment ponds for Outfall 007 are shown on Figure 3 and function as described below. The chemical coagulant is injected into the discharge line before the water is discharged to the sediment pond No.3. At pond 3, the flocculant is added and then the water flows through Ponds 5, 6, 7 and 8. The clarified water is then gravity drained to Outfall 007 or it is recirculated to the plant via the pump. Ponds designated as 1, 2, and 4 are sludge drying ponds.

South of Jones Bluff Road, there are three ephemeral ditches that drain to the South-Southeast. This is an area that has been mined and currently there are no permitted outfalls

in this area. As a result Ferroglobe is proposing to permit two outfalls as shown on figure 2. Until the time that there are permitted, Ferroglobe will control the stormwater from the areas with BMPs. For outfall 009 there will be a pond constructed once permitted. Pond location, construction schematic and design calculations are shown on Figures 4 and 5. For outfall 011 there is a current pond already installed. Design of this pond has stood the test of time and no modifications are proposed. Pond location and dimensions are shown on Figure 6.

X. Waste Treatment Facilities

The wastewater treatment at this Facility is designed to remove suspended solids. Treatment technologies employed are gravitational settling with chemical coagulants and flocculants IX.

XI. Sampling and Reporting

Water samples will be collected twice a month from each active outfall and the results will be submitted quarterly to ADEM. Settling ponds have been constructed to allow adequate time for settling of suspended solids. Past sampling has indicated that the pH of the discharge will be between 7.5 and 8.5, as allowed by the permit.

XII. Sediment Control for Haul and Access Roads

The existing haul and access roads are shown on Figure 2. Within the plant area, haul roads drain to the sediment ponds for the wash plant. Haul roads will be maintained such that they are crowned to shed surface run-off to diversion channels or berms that drain to sediment sumps or ponds to remove suspended solids. Construction Exit Pads will be at locations where vehicles exit onto public roads. The Pads will be stone based and provide a buffer area to keep mud or caked soil from being trucked onto public roads.

XIII. Location of Streams and Ditches Adjacent to Mine

The Meadows mine site includes several ephemeral and intermittent ditches. The drainage areas for the onsite drainages are significantly less than 640 acres. As defined by ADEM regulations, they are not streams but are rather ephemeral drainage ditches. Ferroglobe has identified these drainages as shown on Figure 2. A buffer zone or offset of 50-feet will be maintained between the disturbed areas and any relevant streams/ditches. Ferroglobe will utilize the BMPs in Appendix A to control water discharges:

BMPs will be designed and operated to meet the effluent limitations for Total Suspended Solids and pH; flow will be managed and effluent samples will be collected at a frequency of twice per month when discharges occur. As a result of an April 2021 site inspection, Ferroglobe was issued a Notice of Violation (NOV) for 3 stream/ditch crossings, 2

locations with land disturbance violations, and 2 areas where mine activities had impacted drainage ditches (referred to as BMP modifications 1 and 2) (See Figure 2). These violations were corrected in accordance with the September 30, 2021 Engineering Report.

XIV. Non-point Source Pollution

Due to ground disturbance in the mining process, stormwater at the mine site and access roads may be contaminated with dust and small particulate matter. Site grading to promote the drainage of stormwater to collection ponds and sumps will prevent these non-point sources of pollution. Additional preventative measures to be employed will include the use of Best Management Practices (Appendix A). Water that drains to onsite sediment ponds will be discharged as point source water via a permitted NPDES outfall, non-point source water may also be generated and if so, it will be managed using BMPs in general accordance with the Alabama Handbook for Erosion Control.

XV. Spill Prevention Control and Countermeasure (SPCC) Plan

A SPCC Plan for this site is maintained for petroleum products stored on site. This plan is kept at the facility office and a copy is attached as Appendix C.

XVI. Run-off Calculations

Runoff calculations, performed by others, are included as Appendix B.

XVII. Management Practices and Reclamation Procedures

Overburden is periodically graded and vegetated to stabilize and prevent non-point source pollution from these areas. Run-off from disturbed areas is directed to sediment basins or the mine site/sump as needed. Management practices employed at this site to control pollutants in process or stormwater flows include BMPs (Appendix A) and the Facility's SPCC Plan (Appendix C). After the conclusion of Mining, each area is reclaimed and revegetated in accordance with this BMP plan, the Alabama Department of Labor (ADOL), the land owner and ADEM.

XVIII. Records

Records that have been generated as a result of the facility's current NPDES Permit includes:

1. SPCC Plans
2. PAP

3. Sampling Reports
4. Equipment Calibration Logs
5. Training records (PAP and SPCC Plan)
6. Inspection Logs (Twice Monthly)

These records will be stored and available for review at the Mine Office.

FIGURES

R 14 E | R 15 E

T 15 N | T 16 N

NPDES PERMIT BOUNDARY

004

001

002

011

007

008

009

Revised 6/19/2025

Outfall	Latitude	Longitude
001	32.33083	-86.62192
002	32.33020	-86.61990
004	32.33670	-86.62416
007	32.32473	-86.63310
008	32.32282	-86.63445
009	32.32627	-86.62645
011	32.32590	-86.62040

FIGURE 1

VICINITY MAP

OUTFALL

NPDES PERMIT BOUNDARY

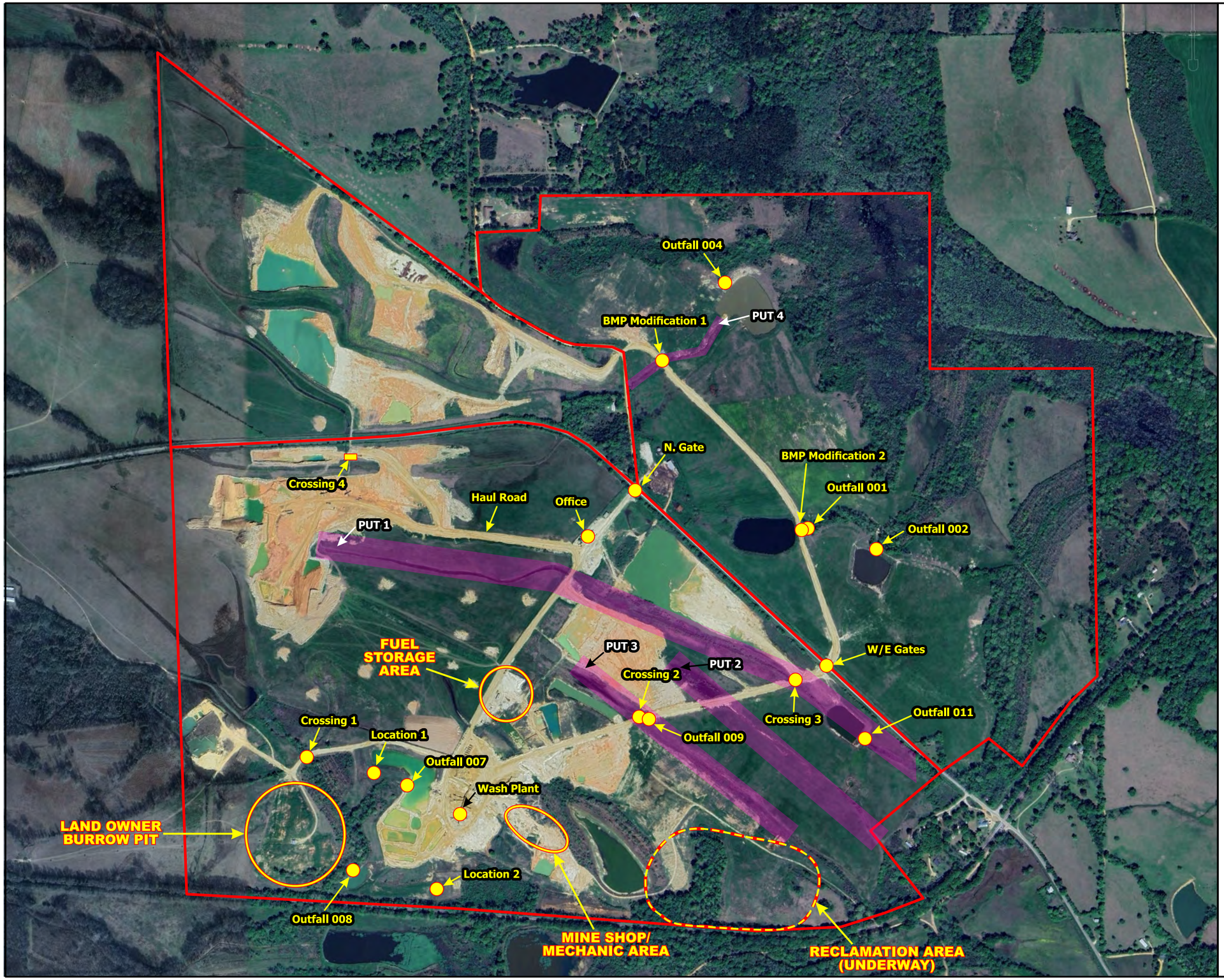
N

0 2000’

SCALE IN FEET

SOURCES: WHITE HALL 7.5’ USGS QUADRANGLE (1982) AND LOWNDESBORO 7.5’ USGS QUADRANGLE (1981)

FIGURE 2
LOCATION MAP



PUT = Potential Unnamed Tributary

N
W E
S

0 500 1,000 2,000 Feet

Source: Google Earth 3/27/2024 aerial photograph

Revised: 6/9/2025

FIGURE 3
SAND AND GRAVEL WASH PLANT

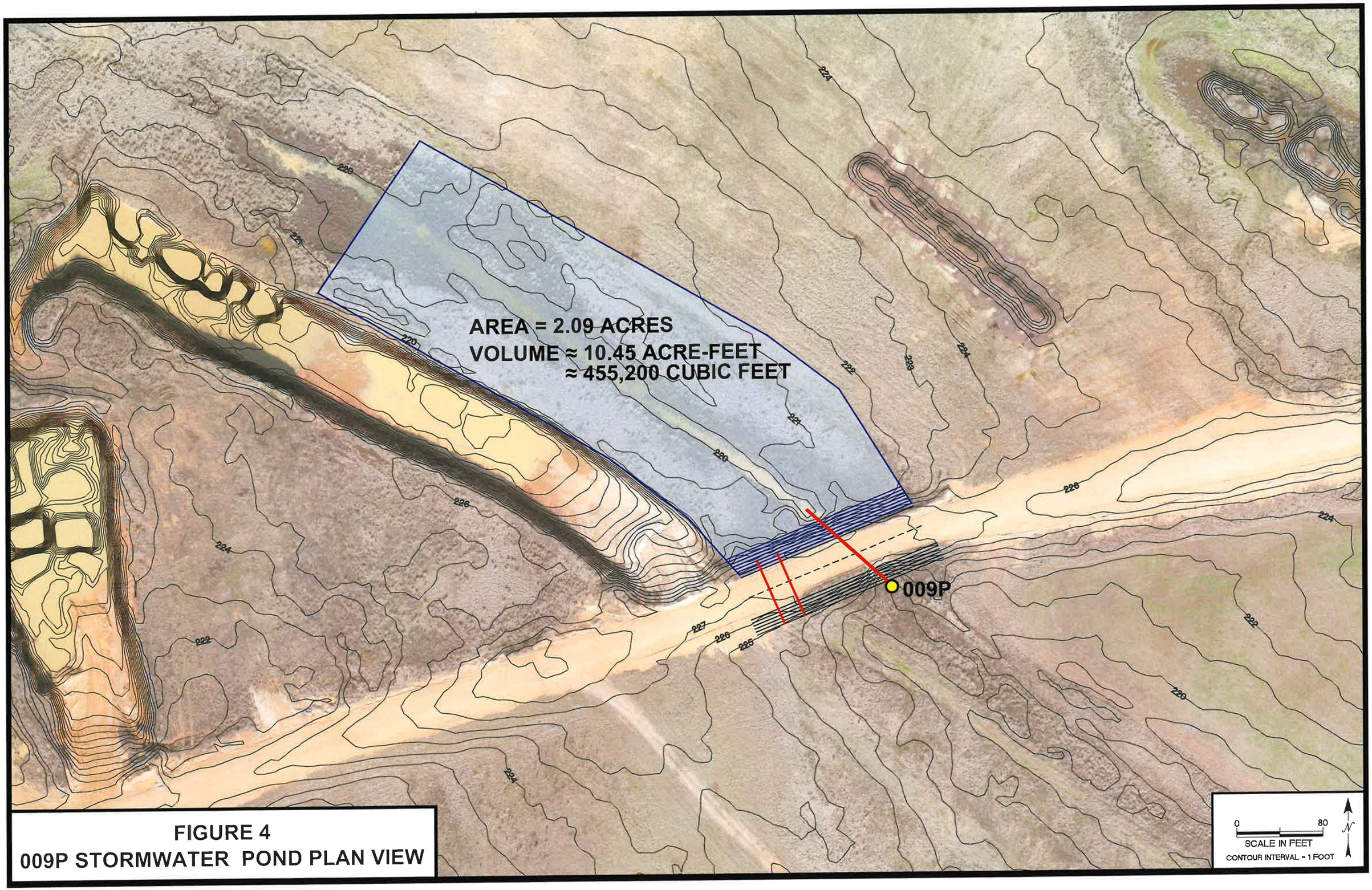
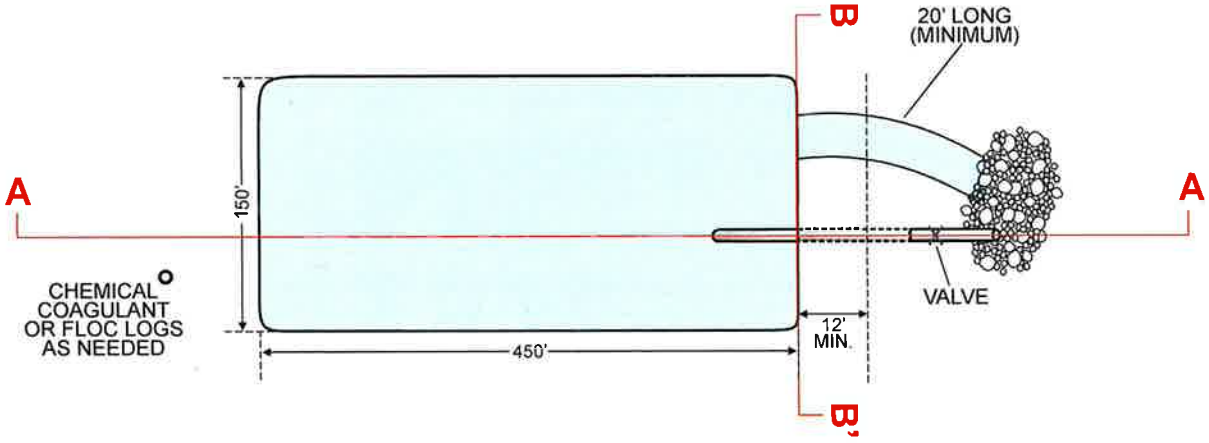
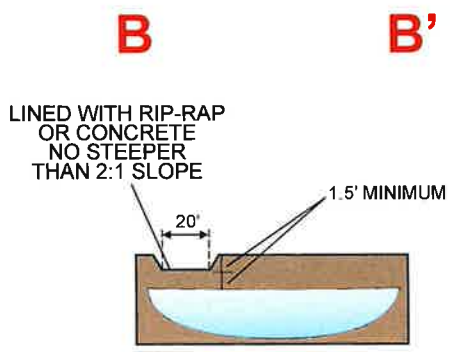


FIGURE 4
009P STORMWATER POND PLAN VIEW



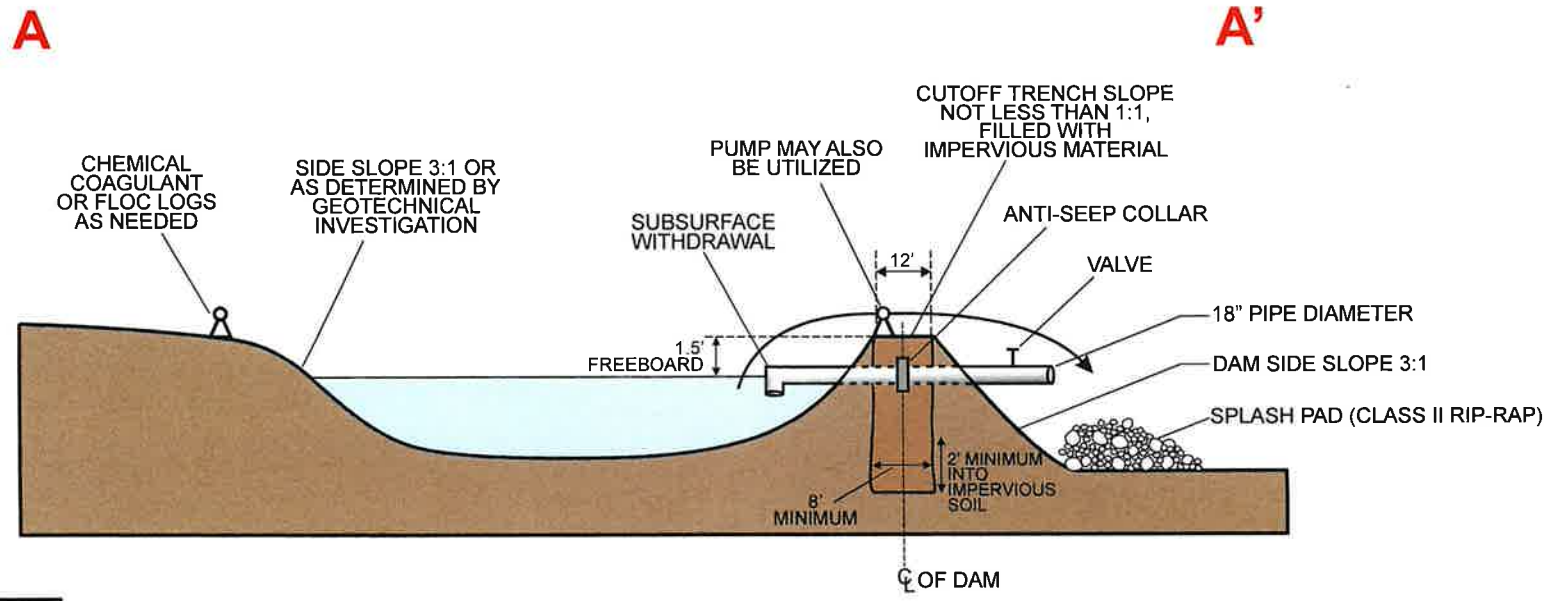
PLAN VIEW

NOT TO SCALE



CROSS SECTION VIEW

NOT TO SCALE



CROSS SECTION VIEW

NOT TO SCALE

FIGURE 5

OUTFALL 009P
STORMWATER POND DESIGN DIAGRAM

FERROGLOBE USA QUARTZ, INC.

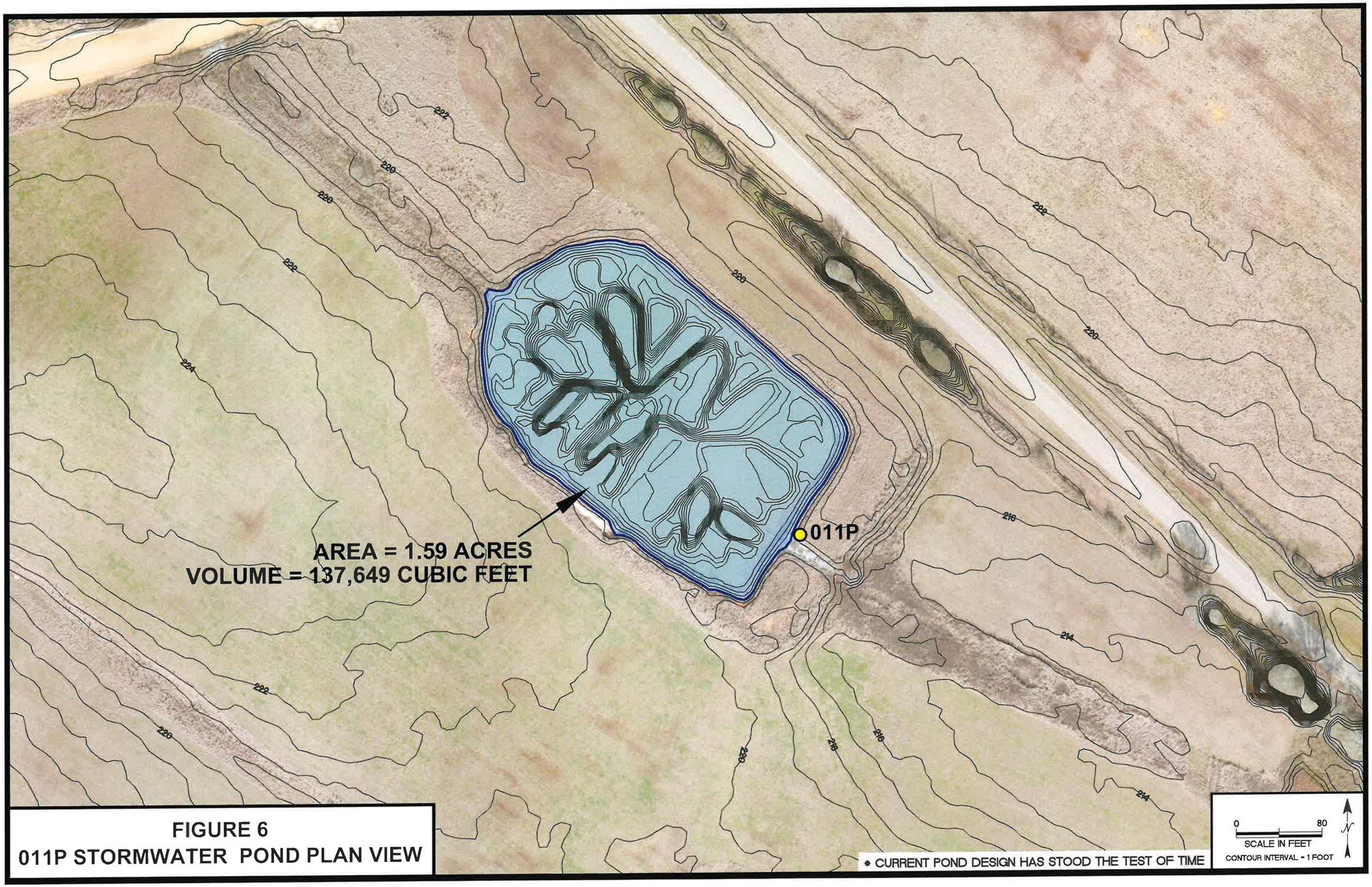


FIGURE 6
011P STORMWATER POND PLAN VIEW

APPENDICES

APPENDIX A

In accordance with the Facility's NPDES permit, BMPs to be employed include road construction, access roads, check dams, dust control, water diversion structures, ditch/stream crossings, equipment maintenance and storage, sedimentation basins, spoil pile management practices.

Additional BMPs that might be implemented will be as amendments to this plan but all will be in general accordance with the Alabama Handbook on Erosion and Sediment Control. The PAP will be amended upon the renewal of tis NPDES permit or anytime new sediment ponds or ditch/stream crossings are designed.

ACCESS ROADS

Description

Access roads are graveled areas or pads that allow construction equipment and workers to enter and leave the work site from a public right-of-way, street, alley, sidewalk or parking area. This practice provides for the delivery and removal of construction equipment and materials in a manner that will protect vegetative cover, prevent erosion, and protect water quality.

Pollutants Controlled and Impacts

Access roads effectively confine construction equipment to one or more specific area(s), thereby minimizing the amount of vegetation disturbed and reducing the potential for soil erosion.

Relationship with Other BMPs

Drainage from the roads should be diverted to vegetated areas or sediment ponds. (See Diversion BMP). Use Seeding and Mulching or Sodding if vegetation is needed alongside the road.

Design Considerations:

Roads should be designed based on the following specifications:

a. The road should be a minimum of 10 feet wide, or wide enough to accommodate the width of the largest piece of equipment. Design the road with no shoulders.
b. Side slopes should be 2:1 or less.
c. To be effective, the length of the aggregate portion of the road should not be less than 50 feet.
d. Stone size should be 2 inches. Reclaimed or recycled concrete of an equivalent diameter may also be used.
e. The road should consist of not less than 6 inches of the 2-inch aggregate. Aggregate should be placed in uniform, compacted layers of not more than 6 inches, nor less 3 inches.

After Construction:

If the mud and soil attached to truck tires does not fall off onto the gravel, truck tires should be washed on an area stabilized with crushed stone. The wash area should drain into a Sediment Basin or other suitable outlet. Wash racks may also be used.

Maintenance

Proper maintenance may include adding additional layers of stone when the original stone becomes covered with mud. After each storm event, inspect the road for erosion and make any necessary repairs. It is also important to check and maintain any BMPs that are used in conjunction with this BMP Plan, especially those for drainage. All sediment dropped or eroded onto public rights-of-way should be removed immediately by sweeping.

CHECK DAMS

Description

Check dams are constructed across drainage ways to reduce concentrated flows in the channel and protect vegetation in the early stages of growth. They can consist of stones, sandbags or gravel, and are most commonly used in the bottom of channels that will be stabilized at a later date. Although check dams also collect sediment and hence act as filters, their primary purpose is to reduce erosive velocities.

Pollutants Controlled and Impacts

By reducing run-off velocities in drainage ways, check dams reduce the potential for erosion to occur. Although they also help filter sediment, they should in no way replace other Filters, or Sediment Basins.

Application

When to Apply

Check dams are to be used when it is not practical to divert flow to a stabilized outlet, or where weather conditions prevent the timely installation of vegetation or non-erosive liners. Apply during the construction of ditches and diversions, and before vegetation is established.

Where to Apply

Apply this practice across drainage ways as needed to reduce concentrated flows to non-erosive velocity.

Design:

1. Check dams are usually used in a series. They should be spaced so that the toe of the upstream dam is at the same elevation as the top of the downstream dam. See Exhibit 1.
2. The side slope of the dam should be 2:1 or flatter.
3. The middle of the dam should be 9 inches lower than the outer edges at natural ground elevation. This allows water to flow over the center of the check dam, as opposed to around the sides where it would erode the banks. In areas of heavy flows, additional stone may be needed immediately below the check dam to help dissipate energy and to prevent undercutting of the check dam.
4. Stone size should be increased with increased slope and velocity. The stone should be big enough to stay in place during anticipated high flows. When larger sizes of stone are used, place smaller stones immediately downstream of and adjacent to the check dam to prevent undercutting of the dam.
5. Straw bales are not recommended for use as check dams.

After Construction:

Temporary check dams may only be removed after the vegetation or permanent lining has been established. Some check dams may remain as permanent structures.

Maintenance

Check dams should be inspected after each rain to ensure there is no piping under the structure or around its banks. Correct all damage immediately. Sediment should be removed when it accumulates to ½ the height of the dam, to ensure water can flow through the dam and to prevent large flows from carrying sediment over the dam. That sediment should be placed in the Spoil Pile or other approved upland area.

Add stones as needed to maintain design height and cross section. Also, be sure that culverts and other structures below the check dams are not damaged or blocked due to any displaced stone.

DUST CONTROL

Description

Dust is generated from rock crushers and when vegetation is removed and soil is exposed to wind. Light winds can pick up and transport silty soils, fine sands and clays. Coarse sands can also become erodible when winds are strong. Soil particles and any attached chemicals such as fertilizer and pesticides may settle out in surface waters. Airborne particles can scour leaves and tender shoots of vegetation. Clouds of dust can create a traffic hazard.

Dust control measures should be implemented to prevent the soil and attached pollutants from leaving the site. Acceptable dust control practices include watering, using mulch, establishing vegetation, and using spray-on adhesives.

Pollutants Controlled and Impacts

Maintaining an effective dust control program helps keep the lighter soils (silt, clay) on the site and sustains the textural qualities necessary for good vegetative growth. It also prevents sediment and attached chemicals such as fertilizer and pesticides from entering surface waters.

Relationship with Other BMPs

Dust control is an alternative control measure for temporary and permanent vegetation on areas that are to be surfaced with impervious materials. Mulching is another method of dust control.

Specifications

1. Use seeding, mulching and sodding to cover bare soil and prevent dust. Follow specifications in the Seeding and Mulching or Sodding BMPs.
2. On larger areas, consider planting trees and shrubs as wind breaks. Follow specifications in the Trees, Shrubs and Ground Covers BMP.
3. Watering should be done at a rate that prevents dust but does not cause soil erosion.
4. Use spray-on adhesives according to Table 1, below. These adhesives are recommended only if other methods cannot be used. Many of these adhesives are messy, sticky and form fairly impenetrable surfaces.

Table 1

Type of emulsion	Water dilution	Nozzle type	Apply Gal/Acre
Anionic asphalt emulsion	7:1	Course spray	1,200
Latex emulsion	12.5:1	Fine spray	235
Resin-in-water emulsion	4:1	Fine spray	300

Source: Excerpted from the Maryland Erosion and Sediment Control Planning and Design Manual.

Maintenance

To prevent dust from becoming a public nuisance and causing off-site damages, dust control should be ongoing during earth change activities.

DIVERSIONS

Description

A diversion is a graded channel and ridge constructed across a slope, perpendicular to the direction of run-off. It functions to protect other BMPs and sensitive areas by intercepting and diverting run-off and carrying it to a stabilized area. Diversions can be bare channels, vegetated channels or channels lined with a hard surface material.

Pollutants Controlled and Impacts

Diversions located down-gradient of a site will intercept sheet flow carrying sediment, and if diverted to a sediment basin or other stabilized area, will help minimize off-site sedimentation. Diversions can also be used to direct run-off away from highly erodible areas or other sensitive areas such as wetlands.

Application

Where to Apply

Diversions should be used:

- Where it is necessary to prevent off-site drainage from crossing over into excavated areas.
- Where it is necessary to protect adjoining areas from excessive run-off.
- To break up concentration of water on long gentle slopes and on undulating land surfaces generally considered too flat or irregular for terracing.
- To divert water away from buildings and other permanent structures.
- To intercept and channel run-off to other areas to prevent on-site erosion.

Relationship with Other BMPs

Diversions are often used to protect critical areas. Diverted run-off should outlet to a stabilized area such as a Sediment Basin, detention or retention basin, or other Stabilized Outlet. Closed conduit outlets may be suitable on steep slopes where ordinary outlets are unacceptable. When movement of sediment into a diversion channel is a significant problem, consider installing a vegetated Buffer/Filter Strip up-gradient of the diversion.

Maintenance

Before final stabilization, the diversion should be inspected after every rainfall. Sediment should be removed from the diversion channel and repairs made as necessary. Seeded areas that fail to establish a vegetative cover should be reseeded as necessary. Maintain a vigorous sod by applying lime and fertilizer as needed, in accordance with agricultural practices.

Once the diversion is established, remove excess growth of woody vegetation by mowing. Mowing other than to control woody vegetation should be done according to the diversion design.

Keep vehicular traffic off the diversion except for maintenance.

EQUIPMENT MAINTENANCE AND STORAGE AREAS

Description

The maintenance, repair, cleaning, and storage of construction machinery, vehicles, and equipment should be confined to areas specifically designed and designated for that purpose. This practice includes both open and covered equipment maintenance and storage areas, and emphasizes the importance of controlling run-off from both kinds of storage areas. It is applicable to construction sites as well as existing permanent storage facilities.

Pollutants Controlled and Impacts

Equipment storage areas that properly control run-off will prevent oil, grease, solvents, hydraulic fluids, sediment, wash water, and other pollutants from being carried off the area and entering surface waters. Proper use of this practice will also prevent pollution from filtering into the ground.

Relationship with Other BMPs

Where possible, the identification of an appropriate maintenance/storage area should be done before any construction is done on the site. Diversions should be considered to keep run-off from entering the storage area.

General Considerations for All Equipment Maintenance/Storage Areas:

1. Run-off from equipment maintenance/storage areas should be directed to stabilize outlets designed to assimilate the volume and type of pollutants discharged to them.
2. Heavy equipment should be well-maintained to prevent leaks.
3. Vehicles and other equipment should *not* be washed at locations where the run-off will flow directly into a watercourse or storm sewer.
4. Store, cover and isolate construction materials, including topsoil and chemicals, to prevent run-off of pollutants and contamination of groundwater, following the design guidance below.
5. A spill response plan should be developed which includes the procedures that will be taken in the case of a spill. This is discussed further in "Proper Storage, Use and Disposal of Chemicals," below.
6. A waste management plan should be developed. Empty canisters, cans or other chemical containers (i.e., from hydraulic fluids, etc.), scrap wood, scrap metal, and all other waste materials are to be disposed of daily or kept in sealed waste containers until they can be disposed of off-site in a landfill. Waste materials are *not* to be buried on-site.
7. Specific areas should also be designated and maintained for employee parking.

Maintenance

Outside equipment/maintenance storage areas should be inspected daily to ensure equipment isn't being stored within the drip line of trees and to ensure the vehicles and equipment aren't leaking. Also make sure waste materials are being properly disposed of. Periodic checks of the equipment wash areas should also be done to ensure it is not failing. Additional stone may be needed to maintain the wash area.

Ongoing maintenance of structural equipment maintenance/storage areas should include periodic inspections of the structure to check for cracks in the floor, and for other structural flaws.

SEDIMENTATION BASINS

Description

Sediment basins are man-made depressions in the ground where run-off water is collected and stored to allow suspended solids to settle out. They are used in conjunction with erosion control measures to prevent off-site sedimentation. They may consist of a dam, barrier or excavation, a principal and emergency outlet structure, and water storage space. Their primary purpose is to trap sediment and other course material. Secondary benefits can include run-off control and preserving the capacity of downstream reservoirs, ditches, canals, diversions, waterways and streams.

Pollutants Controlled and Impacts

Properly designed and maintained sediment basins can be very effective in preventing sedimentation of downstream areas. Course and medium size particles and associated pollutants will settle out in the basin. Suspended solids, attached nutrients, and adsorbed non-persistent pesticides may break down before proceeding downstream. Because sediment basins also retain water, they may help recharge the ground water.

Sediment basins are not as effective in controlling fine particles (i.e., silt, clay) as sand and other course particles.

Relationship with Other BMPs

In general, this practice should be used to help prevent off-site sedimentation. Flow-in Diversions are often directed to sediment basins. Dewatering operations may require the use of sediment basins. Energy dissipaters should be included at all outfalls to prevent erosion and/or scouring.

SPOIL PILES

Description

Spoil piles are excavated materials consisting of topsoil or subsoil that have been removed and temporarily stored during the construction activity.

Pollutants Controlled and Impacts

Properly placed and stabilized spoil piles will reduce soil erosion.

Relationship with Other BMPs

Spoil piles are usually created during Land Clearing operations. Filter fencing is usually put in at the base of the storage pile to prevent soil from leaving the site. Spoil piles should be stabilized following specifications in the Seeding BMP.

For Spoil from Construction Sites:

1. Spoil piles may be located around the perimeter of the project away from the construction activity or located in the immediate vicinity of the construction. Do not locate spoil piles in or immediately adjacent to wetlands and watercourses or such that any run-off from the spoil pile will end up in wetlands and watercourses. Include the location of the spoil pile(s) on the soil erosion/sedimentation control plan.
2. Where it is not possible to move the spoil pile upland, place the soil pile behind a bench or berm to prevent erosion. This is especially important on steep slopes.
3. If run-off can occur, place filter fencing at the base of the spoil pile to help retain soil until vegetation is stabilized.
4. Seed all spoil piles (temporary and permanent) following in accordance with agricultural practices.
5. Consider placing Construction Barriers around the spoil pile to prevent access by people and equipment.

Maintenance

When vegetative stabilization is promptly and effectively applied, very little maintenance is required. The guidelines below should be followed on all sites:

1. Periodic inspections should be done to ensure excessive erosion hasn't occurred. If run-off or wind erosion has occurred, reduce the side slopes of the spoil pile, or stabilize the spoil pile with pieces of sod laid perpendicular to the slope, and staked.
2. When filter fencing is used around a spoil pile, periodic checks should be made to ensure that piping has not occurred under the fencing and to ensure the fence has not collapsed due to soil slippage or access by construction equipment. Repair any damaged fencing immediately.
3. Berms at the base of the spoil pile that become damaged should be replaced.

GENERAL EROSION CONTROL TECHNIQUES

A. Erosion control implementation will be conducted under the guidance of persons experienced in construction techniques and erosion controls. This person(s) will have the authority to take special actions as necessary to prevent water quality deterioration. It is recognized that soil types are site specific and contribute significantly to erodibility characteristics and will be a factor in design and implementation of BMPs. Erosion control techniques to be used may include:

1. Water diversion and energy dispersion structures located at the discharge end of the diversion that will divert run-off onto level, vegetated areas, terracing, riprap, drop structures, or other satisfactory areas of dispersion.
2. Temporary erosion controls such as hay bales and/or silt fences will be installed in the natural drainage areas before or during the time of disturbance. BMP typicals are attached.
3. Erosion control methods of a more permanent nature, i.e., geotextiles, riprap, matting, etc. may be considered in areas necessitating more drastic controls.
4. Roadsides, drilling locations, and slopes that are steep enough to induce high velocity flow and erosion, should be limed, fertilized, seeded, and/or mulched as necessary and as soon as practical after construction and in accordance with accepted soil conservation practices.
5. All areas that are disturbed, regardless of location, will be paved, covered with gravel, or vegetated as soon as practical. All erosion controls will be maintained until the disturbed area is covered or permanent vegetation is re-established.
6. To aid in maintenance of vegetation in disturbed areas, on site topsoil if available, should be reused on the surface of each site.

SILT FENCE MATERIAL SPECIFICATIONS

1. Silt fences consist of a geotextile filter fabric mounted on posts, or a geotextile filter fabric attached to posts by means of adjustable belts or loops or other means that will securely hold the fabric in an upright position.
2. Filter fabric shall be a polymetric fabric from a plastic yarn of a long-chain synthetic polymer composed of at least 85% by weight of propylene ethylene, amide, ester or vinylidene chloride and shall contain stabilizers and/or inhibitors added to the base plastic to make the filaments resistant to deterioration due to ultraviolet and heat exposure for at least six months.
3. After forming, the fabric shall be processed so that the filaments retain their relative positions with respect to each other. The fabric shall be free of defects or flaws that significantly affect its physical and/or filtering properties. Geotextile fabrics shall retain at least 80% of the minimum specified Grab Strength at the end of the six month test.

SEEDING AND MULCHING SPECIFICATIONS

1. All seed used shall be labeled in accordance with U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act. All seed shall be furnished in sealed bags. Seed that has become wet and moldy or otherwise damaged in transit or in storage will not be used.

2. Seed Mixtures are Recommended as follows:

Spring and Summer Mixture (April – August)

Pensacola Bahiagrass	-	20 lbs. /acre
Hulled Common Burmudagrass	-	5 lbs. /acre
Hulled Sericea Lespedeza	-	5 lbs. /acre
Browntop Millet	-	15 lbs. /acre
Crimson Clover	-	5 lbs. /acre

Fall and Winter Mixture (September – March)

Pensacola Bahiagrass	-	18 lbs. /acre
Unhulled Common Bermuda	-	7 lbs. /acre
Unhulled Sericea Lespedeza	-	5 lbs. /acre
Kentucky 31 Fescue	-	7 lbs. /acre
Common Annual Rye	-	7 lbs. /acre
Crimson Clover Inoculated	-	3 lbs. /acre
Ladino Clover Inoculated	-	3 lbs. /acre

Note: These are recommended blends. Other blends of seeds may be utilized.

3. Fertilizer - Shall be 13-13-13 or equivalent grade, (1-1-1-ratio), pelletized, uniform in composition, free flowing, and suitable for application with approved equipment. The fertilizer shall be delivered to the site in bags or other convenient containers, each fully labeled, conforming to the applicable state fertilizer laws, and bearing the name, trade name or trademark and warranty of the producer. Rate should be equivalent to 500 lbs. per acre of actual fertilizer (13-13-13) or adjusted accordingly depending on fertilizer blend used and/or soil composition.
4. Dolomitic Limestone – Lime shall be applied at the rate of 2000 lbs. per acre or as required by soil composition.
5. Mulch – For use in hydraulic application of seed, lime and fertilizer, shall consist of a pulped ecology by-product made from printer's scrap paper that contains wood cellulose. The mulch shall contain no growth or germination-inhibiting factors and shall, after application, assume a contrasting color to the soil to facilitate visual metering to aid in applying the product over the area to be seeded. On an air-dry weight basis, the fiber shall contain a maximum of 8% moisture. The pH ratio shall be applied at the rate of 1200 lbs. per acre. The mulch shall after addition and agitation in slurry tanks with fertilizers, grass seeds, water, and other approved additives become uniformly suspended to form homogeneous slurry. Hay or straw mulch may also be an acceptable method of mulching.

GENERAL BMPs

Alabama Sand and Gravel (Ferroglobe) will implement source reduction measures in every effort to eliminate or reduce the amount of loading in its stormwater run-off. Reduction measures include preventative maintenance, good housekeeping, chemical substitution or elimination, material storage and inventory practices, and spill prevention. Ferroglobe will also implement source control measures where reduction measures cannot be employed. These controls include raw-material storage/separation/covering, waste handling and disposal, and inspection/cleaning of pollution control device/equipment.

A. Good Housekeeping Measures

Good housekeeping practices are designed to maintain a clean and orderly work environment. A clean and orderly work environment: (1) reduces the possibility of accidental spills caused by mishandling of chemical or petroleum products, (2) reduces safety hazards to plant personnel, (3) makes it easier for plant personnel to conduct routine inspections, and (4) limits the loading in stormwater run-off.

Procedures that will be implemented to promote good housekeeping including improved operation and maintenance of industrial machinery, material storage practices, material inventory controls, routine and regular cleanup schedules, maintaining well organized work areas, and employee training. The Facility will implement the following specific BMPs:

1. monthly stormwater inspections of the plant area by the Environmental Manager or his designee;
2. good housekeeping training sessions with key Facility employees;
3. maintenance of bulletin boards identifying good housekeeping procedures, tips and reminders to be employed at the Facility; and
4. routine cleaning of floors and ground surfaces using brooms, shovels or vacuum trucks.

B. Inspections

Inspections will be conducted to evaluate whether pollution devices/measures/reductions/controls are effective in preventing or removing pollutants from stormwater. These inspections will require the inspector to look at all disturbed areas, material storage areas, the land application area, and production areas at the site. The Facility's Environmental Manager or his designee will conduct inspections of the Facility. Routine inspections of plant operations will be conducted (during normal operating and as required by the Facility's NPDES permit) at least twice. The inspections will be conducted during both dry and wet weather conditions to evaluate conditions that increase the loading of storm water run-off.

Increased frequency of inspections will be determined by the types and amounts of materials handled at the Facility, existing BMPs at the Facility, and any other factors that may be relevant, such as the age of the equipment (in general, older facilities will be inspected at more frequent intervals). The following lists identify key equipment and plant areas to be inspected.

1. areas where spills and leaks are likely to occur (or where they have occurred);
2. material storage areas (tank farms, drum storage, raw materials);
3. outdoor material processing areas;
4. material handling areas (e.g., loading, unloading, transfer); and
5. waste generation, storage, treatment and disposal areas.

Inspections will be followed, as needed, with a written inspection report. When deemed necessary, the inspection report will include a discussion of:

1. whether pollution control measures were installed and/or performing correctly;
2. whether any damage or failure of BMPs were identified; and
3. the measures needed and taken to correct or remedy any noted problems.

Inspection records will note the date and time of the inspection, who conducted the inspections, what areas were inspected, what problems were found, and steps taken to correct any problems, including who has been notified. Records will be kept until at least one year after coverage under the applicable NPDES permit expires.

C. Material Storage Practices

Since materials are frequently purchased in bulk and are subsequently stored around the plant site, their management and storage is an important part of this BMP Plan. Ferroglobe will implement the following BMPs with respect to material storage:

1. provide adequate isle space to facilitate material transfer and easy inspection;
2. store drums, containers, pallets, etc., away from traffic routes to prevent accidental spills;
3. stack containers according to manufacturer's instructions to prevent container damage due to excessive weight distribution;
4. assign the responsibility of materials inventory to a limited number of people who are trained to handle the materials and wastes; and
5. place adequate spill containment around containers storing petroleum or chemical products pursuant to the Facility's SPCC Plan.

D. Material Inventory Procedures

Material inventories will be updated (hazardous and non-hazardous materials) annually at the Facility. These inventories will track material storage and their usage rate. Also, inventories will identify which materials pose the most risk to the environment. This list will allow the Environmental Manager to evaluate the Facility's inventory practices and help to identify chemicals that possibly can be substituted or eliminated. Inventories will be accomplished by:

1. reviewing MSDS sheets;
2. labeling containers to show contents, purchase date, expiration date, health hazards, and any other information that will identify the proper management of each chemical;
3. identifying materials that require special handling, storage, and/or disposal requirements;
4. identifying usage rates and determining if less toxic substitutes can be used; and
5. identifying storage practices and management of all raw and finished materials.

E. Preventative Maintenance

Ferroglobe has identified areas or practices that could contribute to loading in stormwater run-off. Pertinent items include petroleum-lubricated equipment, sediment removal structures (weirs, oil/water separators, dust control, etc.) and raw-material storage areas. These items/areas will be inspected and maintained at least monthly. More frequent inspections will be conducted as needed. Maintenance will include the routine servicing of all petroleum equipment to ensure no petroleum leaks are occurring. Also, all sediment structures will be cleaned out and evaluated as needed to determine how their performance can be improved.

F. Employee Training

Employee training will be conducted at least annually and will address information on good housekeeping measures at the Facility and specifically address measures for equipment and vehicle washing. Additionally, employees will be informed of the management team structure and the procedures for addressing environmental issues. Ferroglobe will, in addition, post bulletin boards with updated good housekeeping tips, procedures, and reminders.

G. Spill Prevention and Response

Establishing standard operating procedures such as safety and spill prevention procedures, along with proper employee training, can reduce accidental releases caused from spills and leaks. Avoiding spills and leaks is preferable to cleaning them up after they occur, not only from an environmental standpoint, but also because spills cause increased operating costs and lower productivity. A SPCC Plan has been developed for this site and will be implemented as required.

H. Sediment/Erosion Control and Run-off Management

Ferroglobe will periodically inspect the Facility during dry weather and wet weather rain events to identify areas that, due to topography, activities, or other factors, have a potential for significant soil erosion or sediment transport, and identify structural, vegetative, and/or stabilization measures to be used to limit such erosion. Also, Ferroglobe will evaluate treatment systems/BMPs employed to remove/minimize sediment from stormwater run-off. Stormwater monitoring will allow Ferroglobe to determine the effectiveness of the BMPs employed.

Advanced BMPs at this site include the use of chemical coagulation/flocculation to remove suspended solids from water that is discharged from the wash plant.

I. Recordkeeping and Reporting

Record keeping requirements will continue through one year after termination of this NPDES permit at the Facility and as required by the Facility's NPDES permit. Also, all sampling reports must be maintained for three (3) years after sampling or until one (1) year after termination of the Facility's NPDES permit. The Pollution Abatement plan must be available on site for reference by employees, contractors, and for review by regulatory authorities and the public.

Records may include the following (as appropriate):

Spill Incidents:

1. the date and time of the spill incident;
2. weather conditions and their duration;
3. cause of the spill event;
4. environmental problems caused from the event;
5. response procedures;
6. parties notified; and
7. recommended revisions to the Facility BMPs, operating procedures and/or equipment necessary to prevent any recurrences.

Inspections and maintenance activities:

Inspection and maintenance activity documentation will allow review and examination of the BMP procedures at the Facility. Documentation includes:

1. field notebooks;
2. timed and dated photographs;
3. inspection/maintenance logs;
4. drawings/maps; and
5. videotapes.

BMPs for Crossing 1

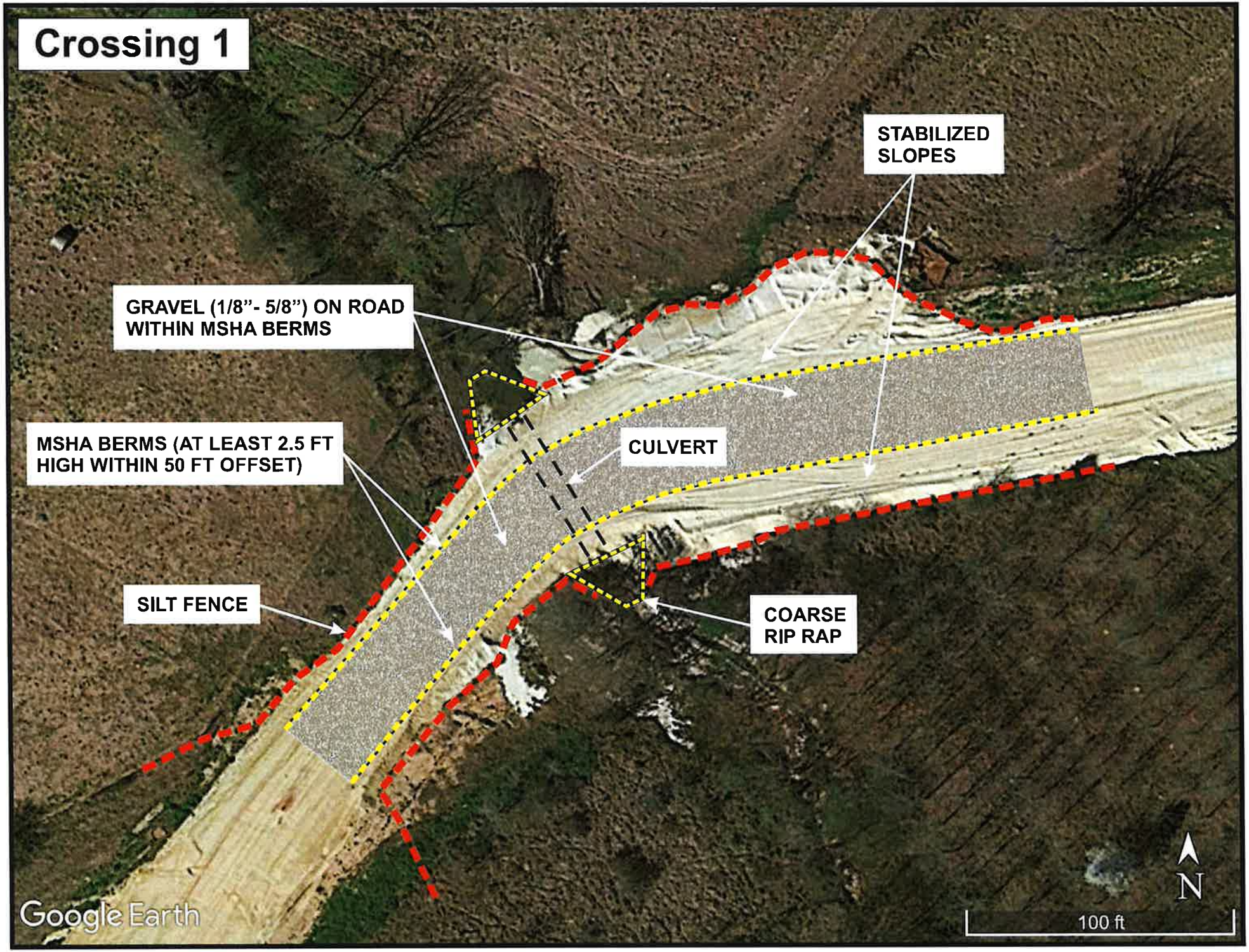
Ferroglobe USA Quartz, Inc.

Meadows Pit

Permit No ALG850130

1. Install silt fence.
2. Remove sediment between road and silt fence and prepare bed for top soil.
3. Install coarse rip rap around culvert, stay 2 ft above fill stream.
4. Install top soil (on bed prepared in Step 2).
5. Install/repair MSHA berms as required (at least 2.5 ft high on both sides of road within 50-foot offset). Berms to be constructed using sand fill and should be anchored with gravel (1/8" to 5/8", on both sides); or anchored with gravel (1/8" to 5/8" on the stream side) and vegetated (on the roadside) as necessary to prevent/minimize erosion of the berms. Routine inspections to be conducted to identify if any other corrective measures are needed.
6. but should be armored with gravel (1/8"-5/8").
7. Apply chemical stabilization (hydro seed) to top soil.
8. Install gravel on road within MSHA Berms.
9. Inspect finished job and amend disturbed soil as needed to provide stabilization (i.e. silt fence, hay mats, hay bales, etc.).

Sequence of steps to be done in order.


Crossing 1
STABILIZED SLOPES
GRAVEL (1/8"- 5/8") ON ROAD WITHIN MSHA BERMS
MSHA BERMS (AT LEAST 2.5 FT HIGH WITHIN 50 FT OFFSET)
CULVERT
SILT FENCE
COARSE RIP RAP
N
100 ft
Google Earth

BMPs for Crossing 2

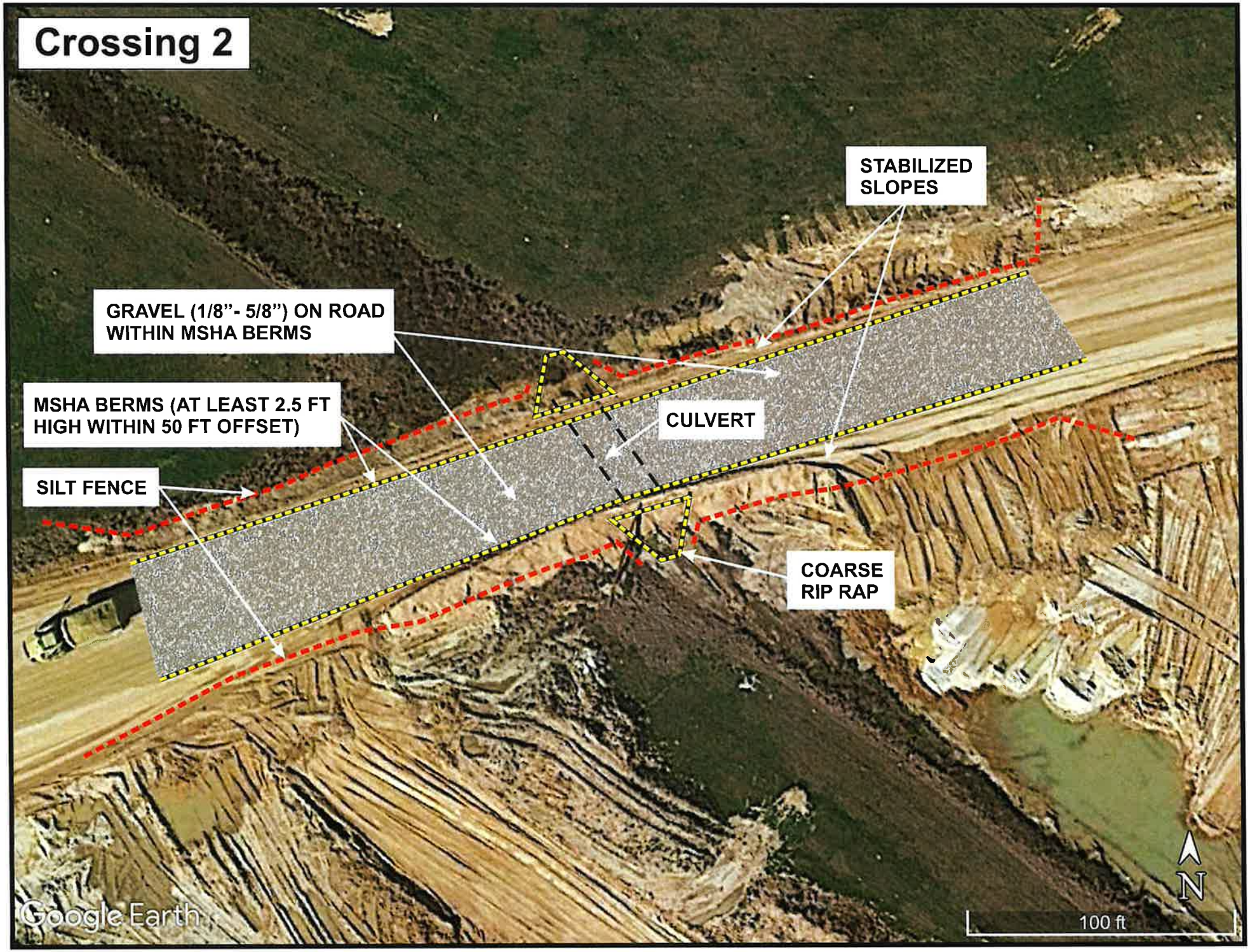
Ferroglobe USA Quartz, Inc.

Meadows Pit

Permit No ALG850130

1. Install Silt Fence.
2. Remove/grade sediment between road and silt fence and prepare bed for top soil.
3. Extend Drainage Culvert if needed.
4. Install coarse rip rap around culvert, stay 2 ft above ditch bed.
5. Install top soil (on bed prepared in Step 2).
   Install/repair MSHA berms as required (at least 2.5 ft high on both sides of road within 50-foot offset). Berms and be constructed using sand fill and anchored with gravel (1/8" to 5/8", on both sides); or anchored with gravel (1/8" to 5/8" on the stream side) and vegetated (on the roadside) as necessary to prevent/minimize erosion of the berms. Routine inspections to be conducted to identify if any other corrective measures are needed.
6. Apply chemical stabilization (hydro seed) to top soil.
7. Install gravel on road within MSHA Berms.
8. Inspect finished job and amend disturbed soil as needed to provide stabilization (i.e. silt fence, hay mats, hay bales, etc.).

Sequence of steps to be done in order.


Crossing 2
STABILIZED SLOPES
GRAVEL (1/8"- 5/8") ON ROAD WITHIN MSHA BERMS
MSHA BERMS (AT LEAST 2.5 FT HIGH WITHIN 50 FT OFFSET)
CULVERT
SILT FENCE
COARSE RIP RAP
N
100 ft
Google Earth

BMPs for Crossing 3

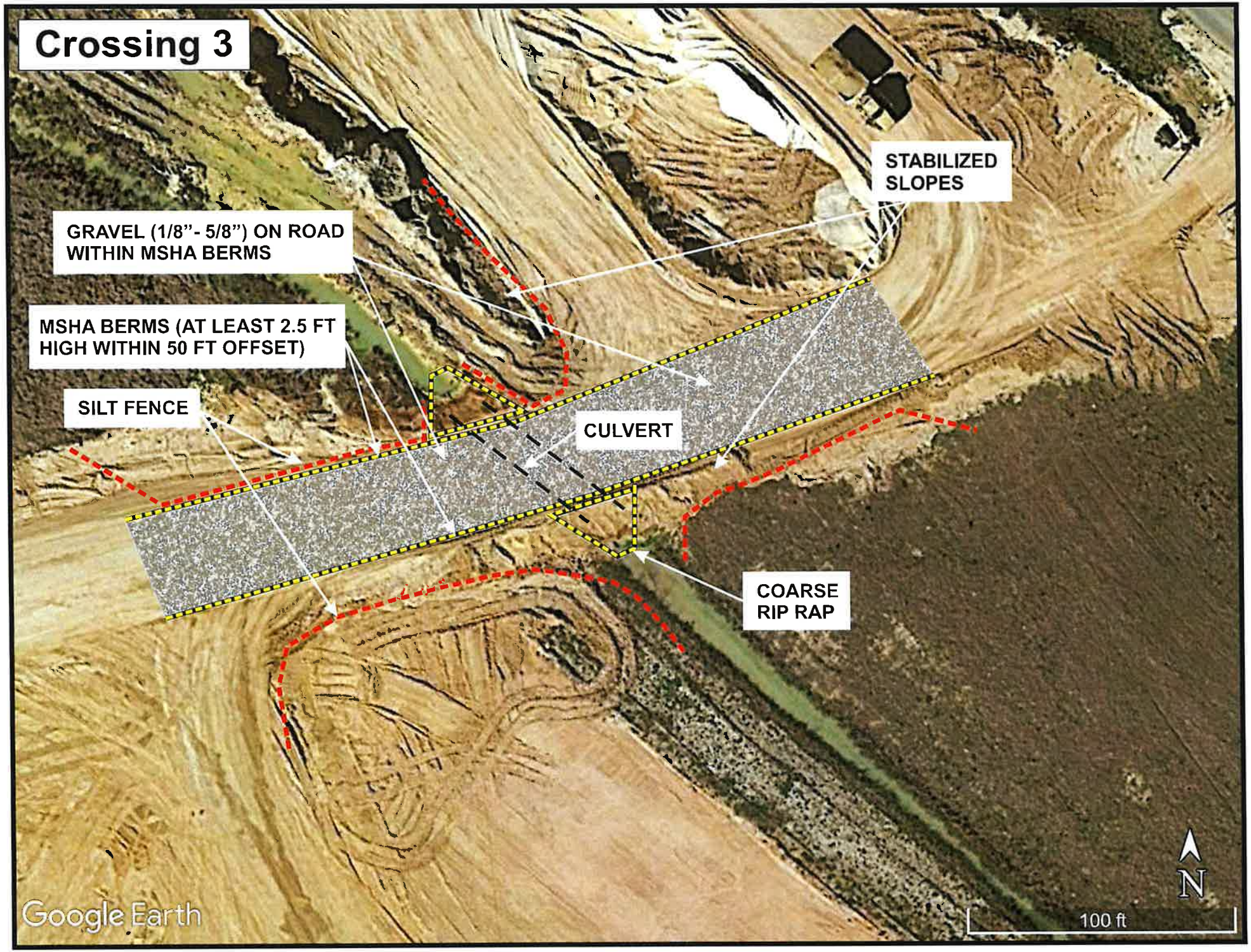
Ferroglobe USA Quartz, Inc.

Meadows Pit

Permit No ALG850130

1. Install Silt Fence.
2. Remove/grade sediment between road and silt fence and prepare bed for top soil.
3. Extend Drainage Culvert if needed.
4. Install coarse rip rap around culvert, stay 2 ft above ditch bed.
5. Install top soil (on bed prepared in Step 2).
6. Install/repair MSHA berms as required (at least 2.5 ft high on both sides of road within 50-foot offset). Berms and be constructed using sand fill and anchored with gravel (1/8" to 5/8", on both sides); or anchored with gravel (1/8" to 5/8" on the stream side) and vegetated (on the roadside) as necessary to prevent/minimize erosion of the berms. Routine inspections to be conducted to identify if any other corrective measures are needed.
7. Apply chemical stabilization (hydro seed) to top soil.
8. Install gravel on road within MSHA Berms.
9. Inspect finished job and amend disturbed soil as needed to provide stabilization (i.e. silt fence, hay mats, hay bales, etc.).

Sequence of steps to be done in order.


Crossing 3
STABILIZED SLOPES
GRAVEL (1/8"- 5/8") ON ROAD WITHIN MSHA BERMS
MSHA BERMS (AT LEAST 2.5 FT HIGH WITHIN 50 FT OFFSET)
SILT FENCE
CULVERT
COARSE RIP RAP
N
100 ft
Google Earth

BMPs for BMP Modification No. 1

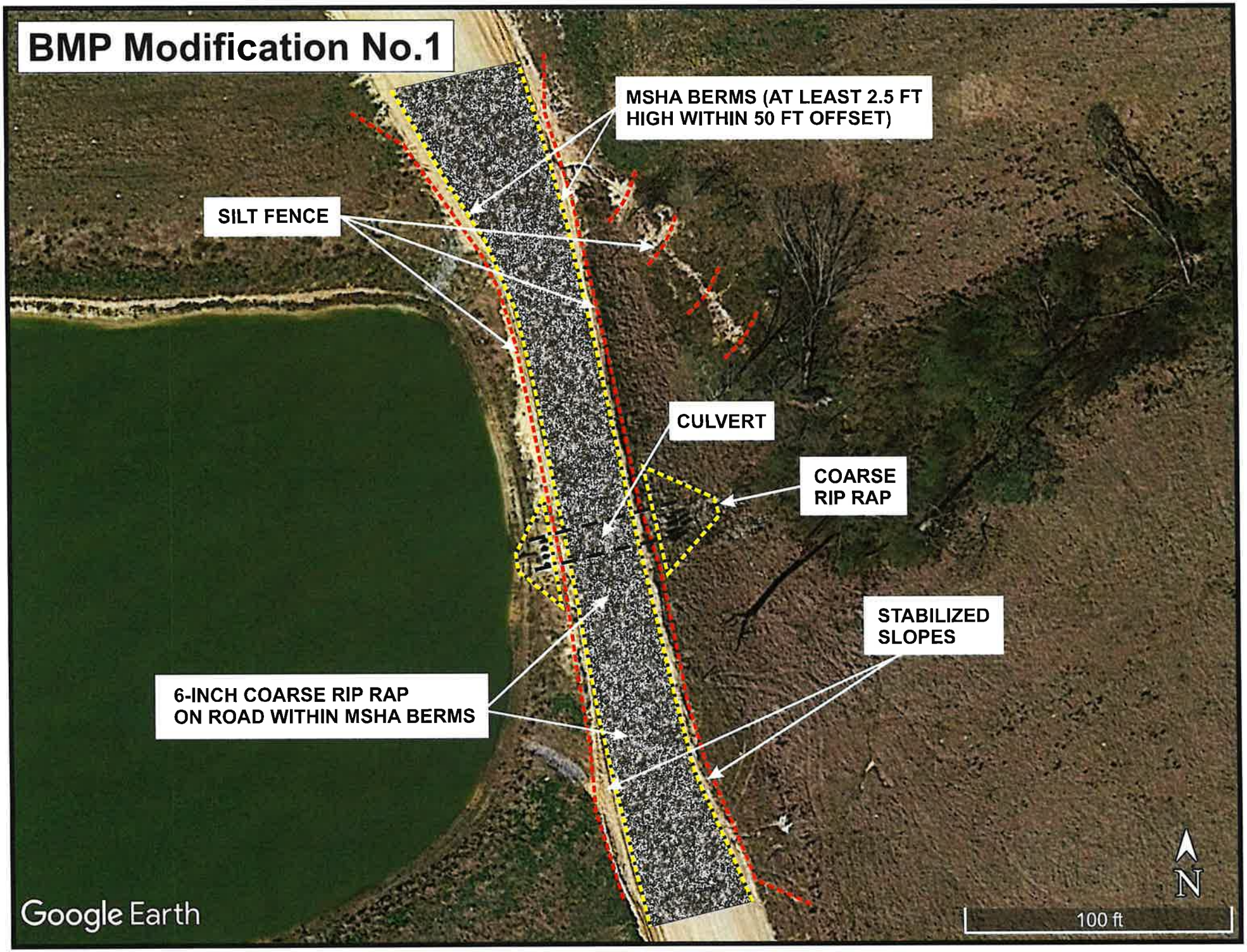
Ferroglobe USA Quartz, Inc.

Meadows Pit

Permit No ALG850130

1. Install Silt Fence adjacent to stream and 2 ft above ditch bed.
2. Install Silt fence at 50-offset (for buffer).
3. Remove/grade bank of stream to 3:1 slope
4. Install top soil (on bed prepared in Step 2)
5. Apply chemical stabilization (hydro seed) to top soil,
6. Inspect finished job and amend disturbed soil as needed to provide stabilization (i.e. silt fence, hay mats, hay bales, etc.).

Sequence of steps to be done in order.


BMP Modification No.1
MSHA BERMS (AT LEAST 2.5 FT HIGH WITHIN 50 FT OFFSET)
SILT FENCE
CULVERT
COARSE RIP RAP
STABILIZED SLOPES
6-INCH COARSE RIP RAP ON ROAD WITHIN MSHA BERMS
N
100 ft
Google Earth

BMPs for BMP Modification No. 2

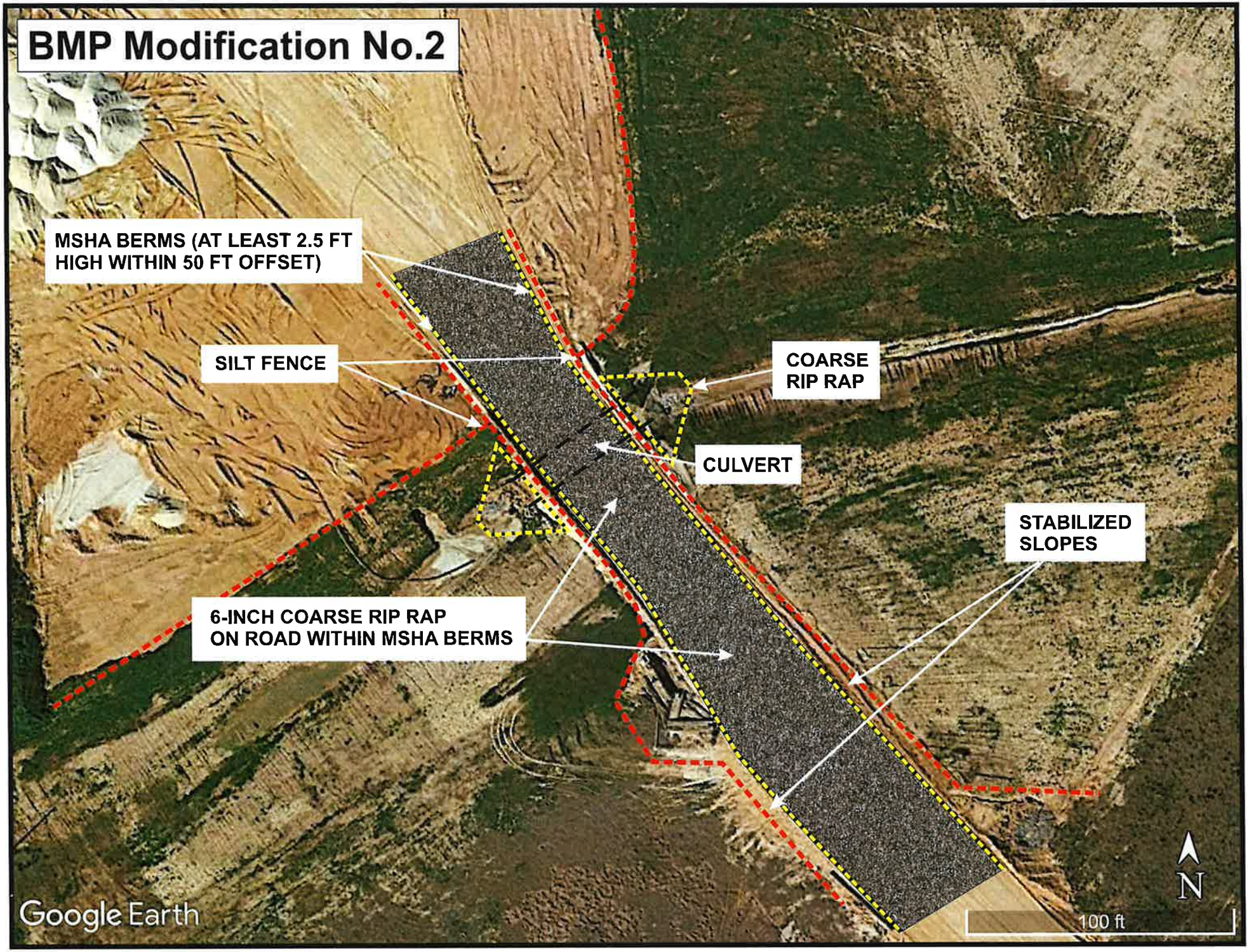
Ferroglobe USA Quartz, Inc.

Meadows Pit

Permit No ALG850130

1. Install Silt Fence.
2. Remove/grade sediment between road and silt fence and prepare bed for top soil.
3. Extend Drainage Culvert if needed.
4. Install coarse rip rap around culvert, stay 2 ft above ditch bed.
5. Install top soil (on bed prepared in Step 2).
6. Install/repair MSHA berms as required (at least 2.5 ft high on both sides of road within 50-foot offset). Berms and be constructed using sand fill and anchored with gravel (1/8" to 5/8", on both sides); or anchored with gravel (1/8" to 5/8" on the stream side) and vegetated (on the roadside) as necessary to prevent/minimize erosion of the berms. Routine inspections to be conducted to identify if any other corrective measures are needed.
7. Apply chemical stabilization (hydro seed) to top soil.
8. Install gravel on road within MSHA Berms.
9. Inspect finished job and amend disturbed soil as needed to provide stabilization (i.e. silt fence, hay mats, hay bales, etc.).

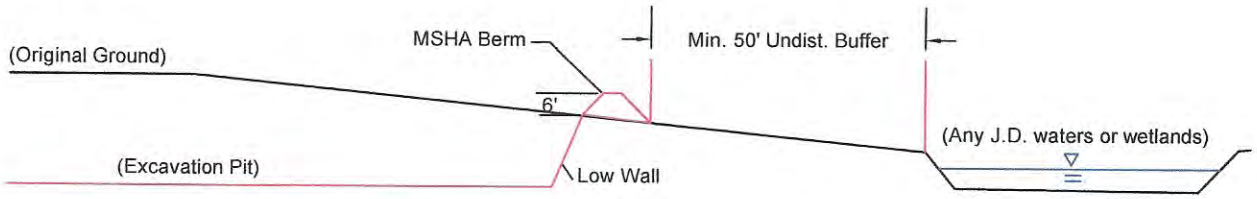
Sequence of steps to be done in order.


BMP Modification No.2
MSHA BERMS (AT LEAST 2.5 FT HIGH WITHIN 50 FT OFFSET)
SILT FENCE
COARSE RIP RAP
CULVERT
STABILIZED SLOPES
6-INCH COARSE RIP RAP ON ROAD WITHIN MSHA BERMS
Google Earth
N
100 ft

APPENDIX B

Pond Design Criteria

Schematic Mining/Berm Plan



ALABAMA LICENSED
No. 35397
PROFESSIONAL
ENGINEER
MICHAEL B. ERP

February 9, 2021
Date

Signature

Prepared by;

ALABAMA SAND & GRAVEL

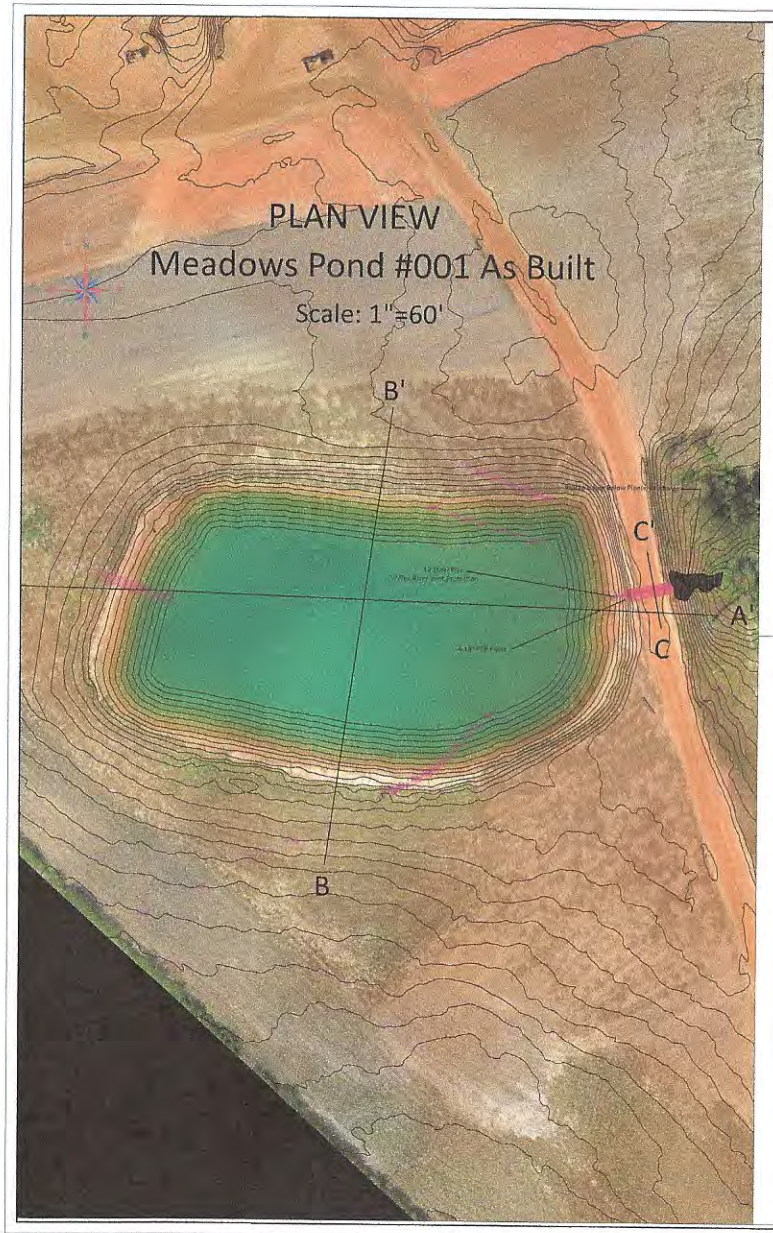
Engineering

Drawings By: stech
Plot Date/Time: 02/09/21 01:42pm
File Path: C:\Users\stech\Documents\ALABAMA SAND & GRAVEL\Meadows Rev 1-21-21\
File Name: Pond Designs Mod 1-21.dwg

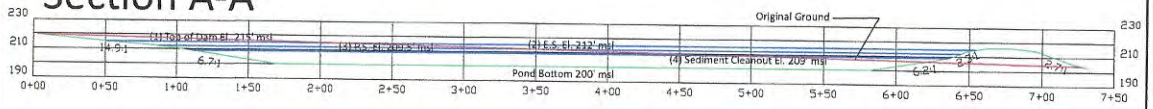
Scale: N.T.S.

Tab: Mine Scheme

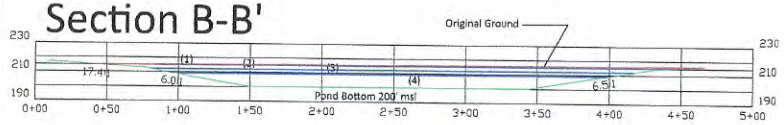
Drawing Created: 06/03/16 10:06am
Last Modified: 02/09/21 11:24am



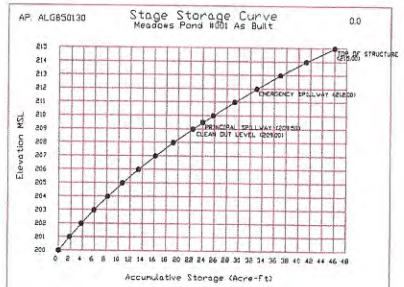
Section A-A'



Section B-B'



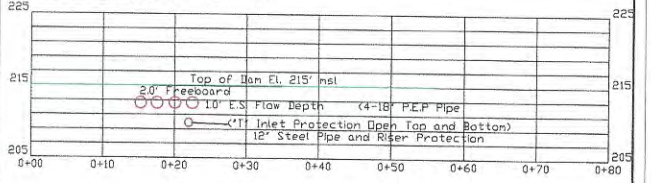
Scale: 1"=40'



Storage volume computations
ALG850130
Meadows Pond #001 As Built

ELEV. (FT)	Width (FT)	LENGTH (FT)	AREA (ac)	AVG. AREA (ac)	INTERVAL (FT)	STORAGE (ac-ft)	ACC. STORAGE (ac-ft)	STAGE INTERVAL (FT)
200.00	N/A	N/A	1.7229	1.8019	1.00	1.8014	1.8014	1.00
201.00	N/A	N/A	1.8808	1.9625	1.00	1.9623	3.7634	2.00
203.00	N/A	N/A	2.0441	2.1214	1.00	2.1279	5.8913	3.00
204.00	N/A	N/A	2.1987	2.2997	1.00	2.2982	8.1895	4.00
205.00	N/A	N/A	2.4006	2.4760	1.00	2.4758	10.6653	5.00
206.00	N/A	N/A	2.7514	2.6588	1.00	2.6577	13.3230	6.00
207.00	N/A	N/A	2.9403	2.8454	1.00	2.8449	16.1679	7.00
208.00	N/A	N/A	3.1006	3.0254	1.00	3.0251	19.1930	8.00
209.00	N/A	N/A	3.2952	3.2014	1.00	3.2024	22.3955	9.00
209.50	N/A	N/A	3.3811	3.3366	0.50	1.6683	24.0638	9.50
210.00	N/A	N/A	3.4498	3.3811	0.50	1.6904	25.7758	10.00
211.00	N/A	N/A	3.6306	3.5503	1.00	3.5501	29.3258	11.00
212.00	N/A	N/A	3.8193	3.7248	1.00	3.7241	33.0499	12.00
213.00	N/A	N/A	4.0624	3.9402	1.00	3.9418	36.9917	13.00
214.00	N/A	N/A	4.4367	4.2510	1.00	4.2489	41.2406	14.00
215.00	N/A	N/A	5.0633	4.7485	1.00	4.7641	46.0047	15.00

Section C-C'



Scale: NTS

CERTIFICATION

I hereby certify that this facility has been constructed in accordance with good engineering practices, and in strict agreement with NPDES Permit #ALG840130, ADEM Regulations, and substantial agreement with the construction plans or revision accepted for the referenced NPDES permit application with any exceptions that are documented herein.

October 24, 2019
Date

Michael B.Erp,P.E.
Signature

Digitally signed by Michael B Erp,P.E.
Date: 2019.10.24 13:50:14 -04'00'
Adobe Acrobat version: 2017.011.20120

ALABAMA LICENSED No. 28367 PROFESSIONAL ENGINEER MICHAEL B. ERP

Prepared for:

ALABAMA SAND & GRAVEL

Scale: 1"=40'

Tab: Pond #001 AB

Alabama Sand & Gravel Meadows Site

Pond 001

25yr-24hr Event

Michael B. Erp

Michael B. Erp, P.E.
116 Wildwood Drive
Somerset, KY 42503

Phone: 606-875-4271
Email: Michael.b.erp@gmail.com

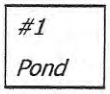
General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	7.500 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	Pond 001 Meadows



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	In	41.000	41.000	24.57	6.34
	Out			3.32	6.14

Structure Detail:

Structure #1 (Pond)

Pond 001 Meadows

Pond Inputs:

Initial Pool Elev:	190.00
Initial Pool:	10.69 ac-ft

Straight Pipe

Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev	Entrance Loss Coefficient	Tailwater Depth (ft)
12.00	40.00	1.00	0.0120	190.00	0.90	0.00

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
192.50	30.00	2.00:1	2.00:1	8.00

Pond Results:

Peak Elevation:	191.45
Dewater Time:	1.11 days

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
180.00	0.790	0.000	0.000	
180.50	0.815	0.401	0.000	
181.00	0.841	0.815	0.000	
181.50	0.867	1.242	0.000	
182.00	0.893	1.682	0.000	
182.50	0.920	2.136	0.000	
183.00	0.947	2.602	0.000	
183.50	0.975	3.083	0.000	
184.00	1.003	3.577	0.000	
184.50	1.031	4.086	0.000	

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
185.00	1.060	4.609	0.000		
185.50	1.090	5.146	0.000		
186.00	1.121	5.699	0.000		
186.50	1.152	6.267	0.000		
187.00	1.183	6.850	0.000		
187.50	1.215	7.450	0.000		
188.00	1.247	8.065	0.000		
188.50	1.280	8.697	0.000		
189.00	1.313	9.345	0.000		
189.50	1.346	10.010	0.000		
190.00	1.380	10.691	0.000		Spillway #1
190.50	1.414	11.390	0.751	11.25*	
191.00	1.449	12.105	2.094	6.85	
191.45	1.480	12.770	3.317	8.60	Peak Stage
191.50	1.484	12.838	3.443		
192.00	1.519	13.589	4.414		
192.50	1.555	14.357	5.173		Spillway #2
193.00	1.591	15.144	15.265		
193.50	1.628	15.948	25.252		
194.00	1.665	16.772	49.934		
194.50	1.702	17.613	79.617		
195.00	1.740	18.474	119.194		

**Designates time(s) to dewater have been extrapolated beyond the 50 hour hydrograph limit.*

Detailed Discharge Table

Elevation	Straight Pipe (cfs)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
180.00	0.000	0.000	0.000
180.50	0.000	0.000	0.000
181.00	0.000	0.000	0.000
181.50	0.000	0.000	0.000
182.00	0.000	0.000	0.000
182.50	0.000	0.000	0.000
183.00	0.000	0.000	0.000
183.50	0.000	0.000	0.000
184.00	0.000	0.000	0.000
184.50	0.000	0.000	0.000
185.00	0.000	0.000	0.000

Elevation	Straight Pipe (cfs)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
185.50	0.000	0.000	0.000
186.00	0.000	0.000	0.000
186.50	0.000	0.000	0.000
187.00	0.000	0.000	0.000
187.50	0.000	0.000	0.000
188.00	0.000	0.000	0.000
188.50	0.000	0.000	0.000
189.00	0.000	0.000	0.000
189.50	0.000	0.000	0.000
190.00	0.000	0.000	0.000
190.50	(3)>0.751	0.000	0.751
191.00	(3)>2.094	0.000	2.094
191.50	(5)>3.443	0.000	3.443
192.00	(5)>4.414	0.000	4.414
192.50	(6)>5.173	0.000	5.173
193.00	(6)>5.826	9.439	15.265
193.50	(6)>6.374	18.878	25.252
194.00	(6)>6.877	43.057	49.934
194.50	(6)>7.348	72.268	79.617
195.00	(6)>7.792	111.401	119.194

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	41.000	0.368	0.000	0.000	49.000	S	24.57	6.338
	Σ	**41.000**						**24.57**	**6.338**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	2.00	15.00	750.00	1.130	0.184
		3. Short grass pasture	2.00	15.00	750.00	1.130	0.184
#1	**1**	**Time of Concentration:**					**0.368**

Alabama Sand & Gravel Meadows Site

Pond 001

1yr-24hr Event

Pipe size only

Michael B. Erp

Michael B. Erp, P.E.
116 Wildwood Drive
Somerset, KY 42503

Phone: 606-875-4271
Email: Michael.b.erp@gmail.com

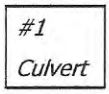
General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	2 yr - 24 hr
Rainfall Depth:	3.700 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Culvert	#1	==>	End	0.000	0.000	Pond 001 Pipe Only



Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	41.000	41.000	1.15	0.74

Structure Detail:

Structure #1 (Culvert)

Pond 001 Pipe Only

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
40.00	2.00	0.0120	1.00	0.00	0.90

Culvert Results:

Design Discharge = 1.15 cfs

Minimum pipe diameter: 1 - 8 inch pipe(s) required

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	41.000	0.368	0.000	0.000	49.000	S	1.15	0.744
	Σ	**41.000**						**1.15**	**0.744**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	2.00	15.00	750.00	1.130	0.184
		3. Short grass pasture	2.00	15.00	750.00	1.130	0.184
#1	**1**	**Time of Concentration:**					**0.368**

Meadows Pond 001 (Direct ES Routing) Riprrap Sizing

Material: Riprap

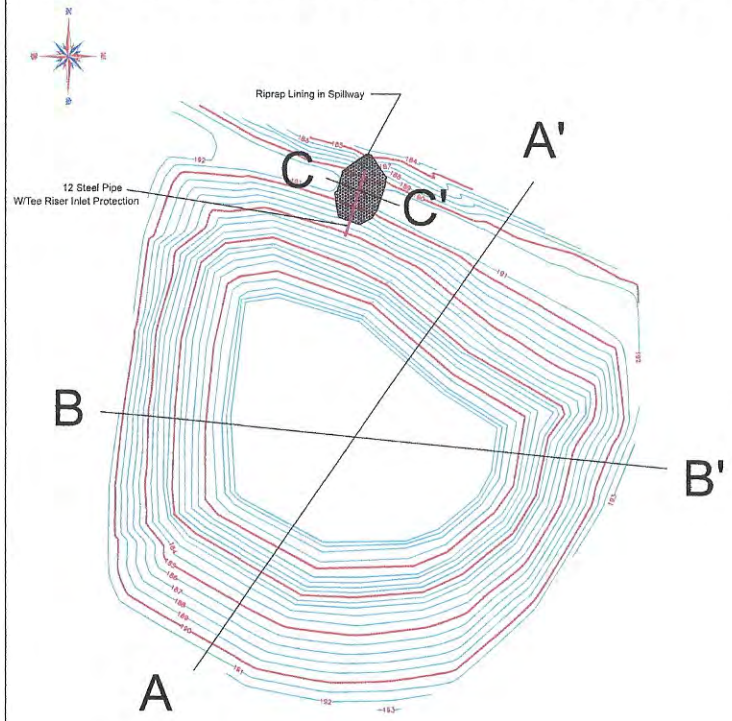
Trapezoidal Channel

Bottom Width (ft)	Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)
8.00	2.0:1	2.0:1	1.0	1.50		

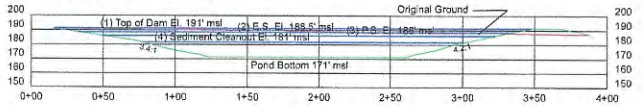
Simons/OSM Method - Mild Slope Design

	w/o Freeboard	w/ Freeboard
Design Discharge:	24.57 cfs	
Depth:	0.83 ft	2.33 ft
Top Width:	11.31 ft	17.31 ft
Velocity:	3.07 fps	
X-Section Area:	8.00 sq ft	
Hydraulic Radius:	0.684 ft	
Froude Number:	0.64	
Manning's n:	0.0377	
Dmin:	2.00 in	
D50:	9.00 in	
Dmax:	12.00 in	

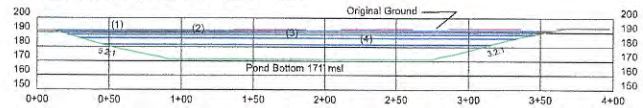
PLAN VIEW
Meadows Pond #002 As Built

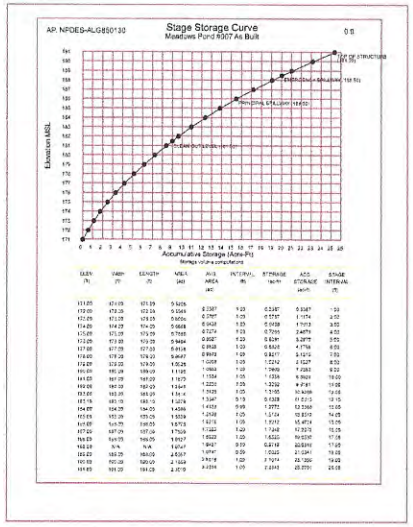


Section A-A'

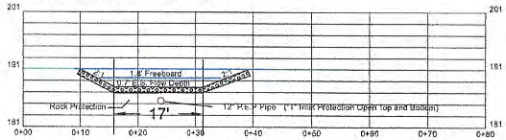


Section B-B'





Section C-C'



Scale: NTS

CERTIFICATION

I hereby certify that this facility has been constructed in accordance with good engineering practices, and in strict agreement with NPDES Permit #ALG850130, ADEM Regulations, and substantial agreement with the construction plans or revision required for the referenced NPDES permit application with minor deviations that are documented herein.

ALABAMA REGISTERED No. 22287 PROFESSIONAL ENGINEER MICHAEL B. ERP

Signature

Prepared for:

ALABAMA SAND & GRAVEL

Scale: 1"=40'

Tab: Meadows Pond 2 AB

Alabama Sand & Gravel
Meadows Site

Pond 002

25yr-24hr Event

Michael B. Erp

Michael B. Erp, P.E.
116 Wildwood Drive
Somerset, KY 42503

Phone: 606-875-4271
Email: Michael.b.erp@gmail.com

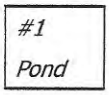
General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	7.500 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	Pond 002 Meadows



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	In	61.000	61.000	45.98	9.43
	Out			3.91	8.80

Structure Detail:

Structure #1 (Pond)

Pond 002 Meadows

Pond Inputs:

Initial Pool Elev:	190.00
Initial Pool:	15.29 ac-ft

Straight Pipe

Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev	Entrance Loss Coefficient	Tailwater Depth (ft)
12.00	40.00	1.00	0.0120	190.00	0.90	0.00

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
192.50	30.00	2.00:1	2.00:1	8.00

Pond Results:

Peak Elevation:	191.74
Dewater Time:	1.50 days

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
180.00	1.190	0.000	0.000	
180.50	1.221	0.603	0.000	
181.00	1.253	1.221	0.000	
181.50	1.285	1.856	0.000	
182.00	1.317	2.506	0.000	
182.50	1.350	3.173	0.000	
183.00	1.383	3.856	0.000	
183.50	1.417	4.556	0.000	
184.00	1.451	5.273	0.000	
184.50	1.485	6.007	0.000	

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
185.00	1.520	6.758	0.000		
185.50	1.556	7.527	0.000		
186.00	1.593	8.314	0.000		
186.50	1.630	9.120	0.000		
187.00	1.667	9.944	0.000		
187.50	1.705	10.787	0.000		
188.00	1.743	11.649	0.000		
188.50	1.782	12.530	0.000		
189.00	1.821	13.430	0.000		
189.50	1.860	14.351	0.000		
190.00	1.900	15.291	0.000		Spillway #1
190.50	1.939	16.250	0.751	15.46*	
191.00	1.979	17.230	2.094	9.05	
191.50	2.019	18.229	3.443	5.90	
191.74	2.039	18.724	3.915	5.60	Peak Stage
192.00	2.059	19.249	4.414		
192.50	2.100	20.289	5.173		Spillway #2
193.00	2.141	21.349	15.265		
193.50	2.183	22.430	25.252		
194.00	2.225	23.532	49.934		
194.50	2.267	24.655	79.617		
195.00	2.310	25.799	119.194		

**Designates time(s) to dewater have been extrapolated beyond the 50 hour hydrograph limit.*

Detailed Discharge Table

Elevation	Straight Pipe (cfs)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
180.00	0.000	0.000	0.000
180.50	0.000	0.000	0.000
181.00	0.000	0.000	0.000
181.50	0.000	0.000	0.000
182.00	0.000	0.000	0.000
182.50	0.000	0.000	0.000
183.00	0.000	0.000	0.000
183.50	0.000	0.000	0.000
184.00	0.000	0.000	0.000
184.50	0.000	0.000	0.000
185.00	0.000	0.000	0.000

Elevation	Straight Pipe (cfs)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
185.50	0.000	0.000	0.000
186.00	0.000	0.000	0.000
186.50	0.000	0.000	0.000
187.00	0.000	0.000	0.000
187.50	0.000	0.000	0.000
188.00	0.000	0.000	0.000
188.50	0.000	0.000	0.000
189.00	0.000	0.000	0.000
189.50	0.000	0.000	0.000
190.00	0.000	0.000	0.000
190.50	(3)>0.751	0.000	0.751
191.00	(3)>2.094	0.000	2.094
191.50	(5)>3.443	0.000	3.443
192.00	(5)>4.414	0.000	4.414
192.50	(6)>5.173	0.000	5.173
193.00	(6)>5.826	9.439	15.265
193.50	(6)>6.374	18.878	25.252
194.00	(6)>6.877	43.057	49.934
194.50	(6)>7.348	72.268	79.617
195.00	(6)>7.792	111.401	119.194

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	61.000	0.244	0.000	0.000	49.000	S	45.98	9.430
	Σ	**61.000**						**45.98**	**9.430**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	2.00	10.00	500.00	1.130	0.122
		3. Short grass pasture	2.00	10.00	500.00	1.130	0.122
#1	**1**	**Time of Concentration:**					**0.244**

Alabama Sand & Gravel Meadows Site

Pond 002

1yr-24hr Event

Pipe size only

Michael B. Erp

Michael B. Erp, P.E.
116 Wildwood Drive
Somerset, KY 42503

Phone: 606-875-4271
Email: Michael.b.erp@gmail.com

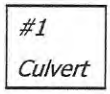
General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	2 yr - 24 hr
Rainfall Depth:	3.700 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Culvert	#1	==>	End	0.000	0.000	Pond 002 Pipe Only



Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	61.000	61.000	1.87	1.11

Structure Detail:

Structure #1 (Culvert)

Pond 002 Pipe Only

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
40.00	2.00	0.0120	1.00	0.00	0.90

Culvert Results:

Design Discharge = 1.87 cfs

Minimum pipe diameter: 1 - 12 inch pipe(s) required

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	61.000	0.244	0.000	0.000	49.000	S	1.87	1.107
	Σ	**61.000**						**1.87**	**1.107**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	2.00	10.00	500.00	1.130	0.122
		3. Short grass pasture	2.00	10.00	500.00	1.130	0.122
#1	**1**	**Time of Concentration:**					**0.244**

Meadows Pond 002 (Direct ES Routing) Riprap Sizing

Material: Riprap

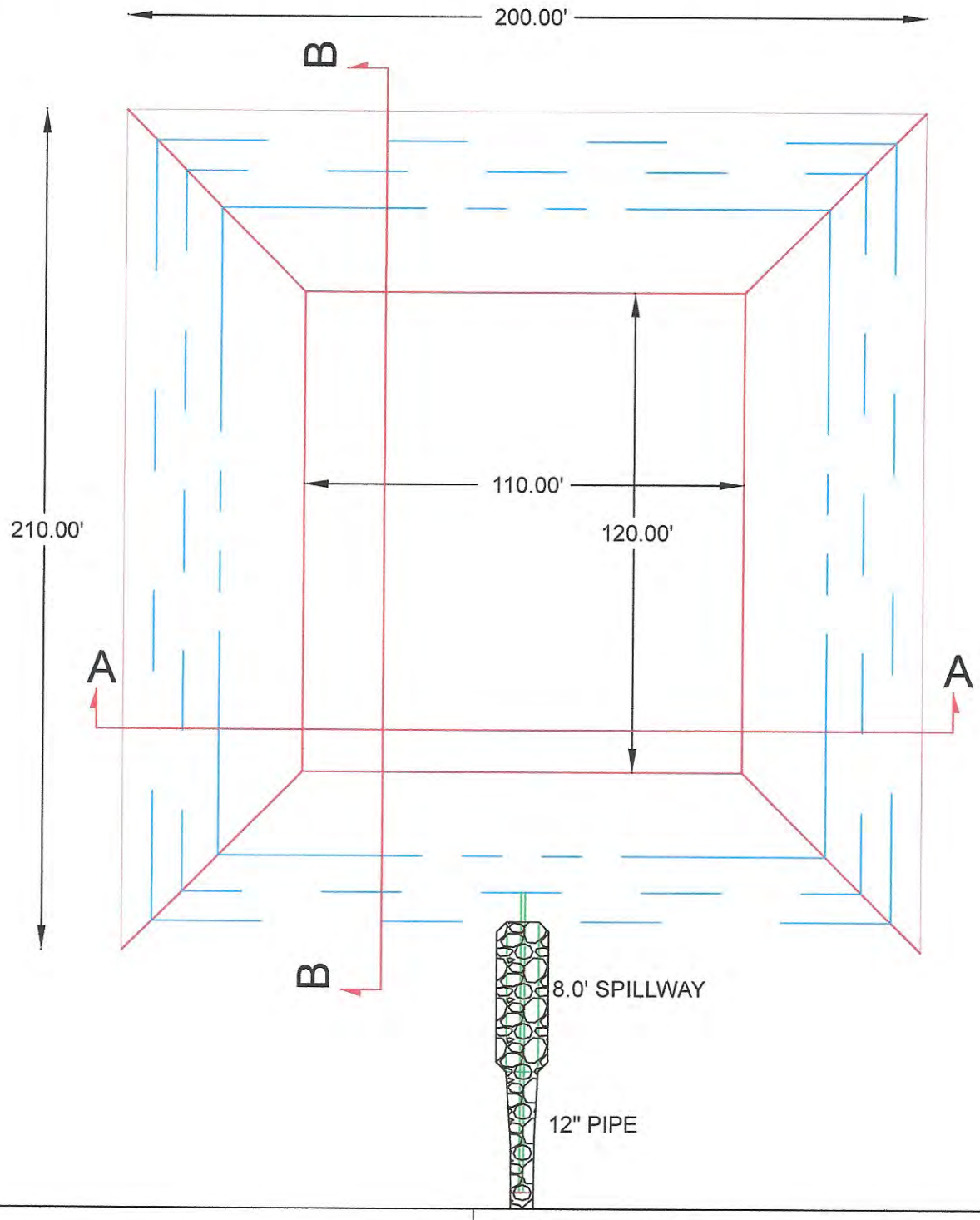
Trapezoidal Channel

Bottom Width (ft)	Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)
8.00	2.0:1	2.0:1	2.0	1.50		

PADER Method - Steep Slope Design

	w/o Freeboard	w/ Freeboard
Design Discharge:	46.00 cfs	
Depth:	0.98 ft	2.48 ft
Top Width:	11.91 ft	17.91 ft
Velocity:	4.73 fps	
X-Section Area:	9.73 sq ft	
Hydraulic Radius:	0.787 ft	
Froude Number:	0.92	
Manning's n:	0.0380	
Dmin:	2.00 in	
D50:	3.00 in	
Dmax:	4.50 in	

POND 003 Plan View



ALABAMA LICENSED
No. 35397
PROFESSIONAL
ENGINEER
MICHAEL B. ERP

February 9, 2021
Date

Signature

Prepared by;

ALABAMA SAND & GRAVEL

Engineering

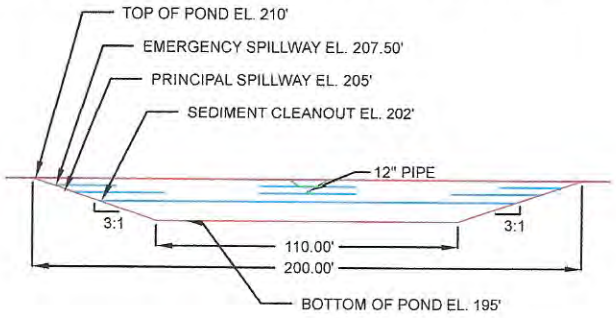
Drawings By: stech
Plot Date/Time: 02/09/21 09:00am
File Path: C:\Users\stech\Documents\ALABAMA SAND & GRAVEL\Meadows Rev 1-11-21
File Name: Pond Designs Mod 1-21.dwg

Scale: 1"=40'

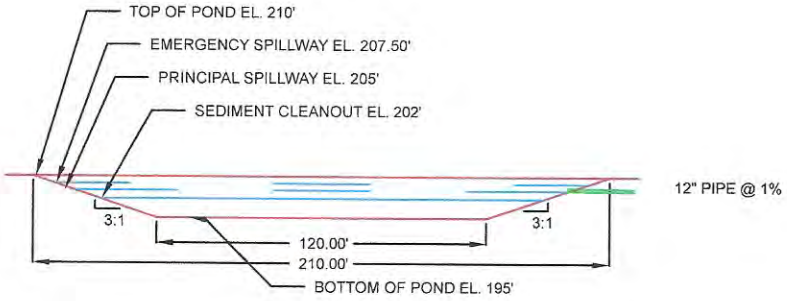
Tab: P3 Plan

Drawing Created: 06/03/16 10:06am
Last Modified: 01/15/21 04:56pm

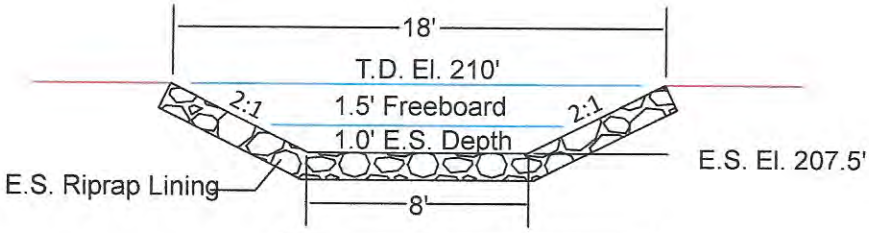
POND 003 Sections



SECTION A-A'



SECTION B-B'



OPEN SPILLWAY SECTION

ALABAMA LICENSED
No. 35397
PROFESSIONAL
ENGINEER
MICHAEL B. ERR

February 9, 2021
Date

Signature

Prepared by;

ALABAMA SAND & GRAVEL

Engineering

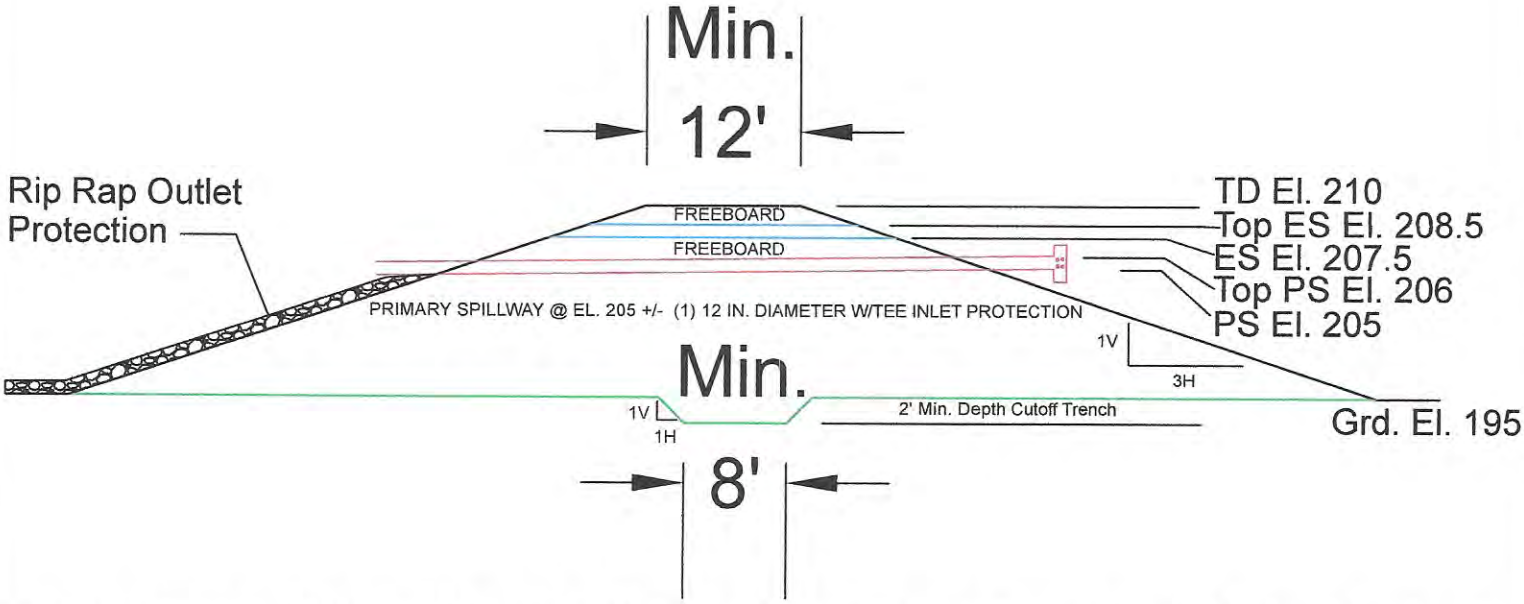
Drawings By: stech
Plot Date/Time: 02/09/21 09:02am
File Path: C:\Users\stech\Documents\ALABAMA SAND & GRAVEL\Meadows Rev 1\12-21\
File Name: Pond Designs Mod 1-21.dwg

Scale: N.T.S.

Tab: P3 Sections

Drawing Created: 06/03/16 10:06am
Last Modified: 01/15/21 04:56pm

SECTION THRU DIKE WITH SPILLWAYS ELEV. DESIGN DETAILS



Emerg. Spwy. is 8' Bottom Width by 2.5' Overall Depth Open Channel (See Design Drawings)

Meadows Pit Outfall DSN 003
NPDES Permit No. (Pending)

ALABAMA LICENSED No. 35397 PROFESSIONAL ENGINEER MICHAEL B. ERP

February 9, 2021
Date

Signature

Prepared by;

ALABAMA SAND & GRAVEL

Engineering

Drawings By: stech
Plot Date/Time: 02/09/21 08:56am
File Path: C:\Users\stech\Documents\ALABAMA SAND & GRAVEL\Meadows Rev
File Name: Pond Designs Mod 1-21.dwg

Scale: N.T.S.

Tab: P3 Elevs

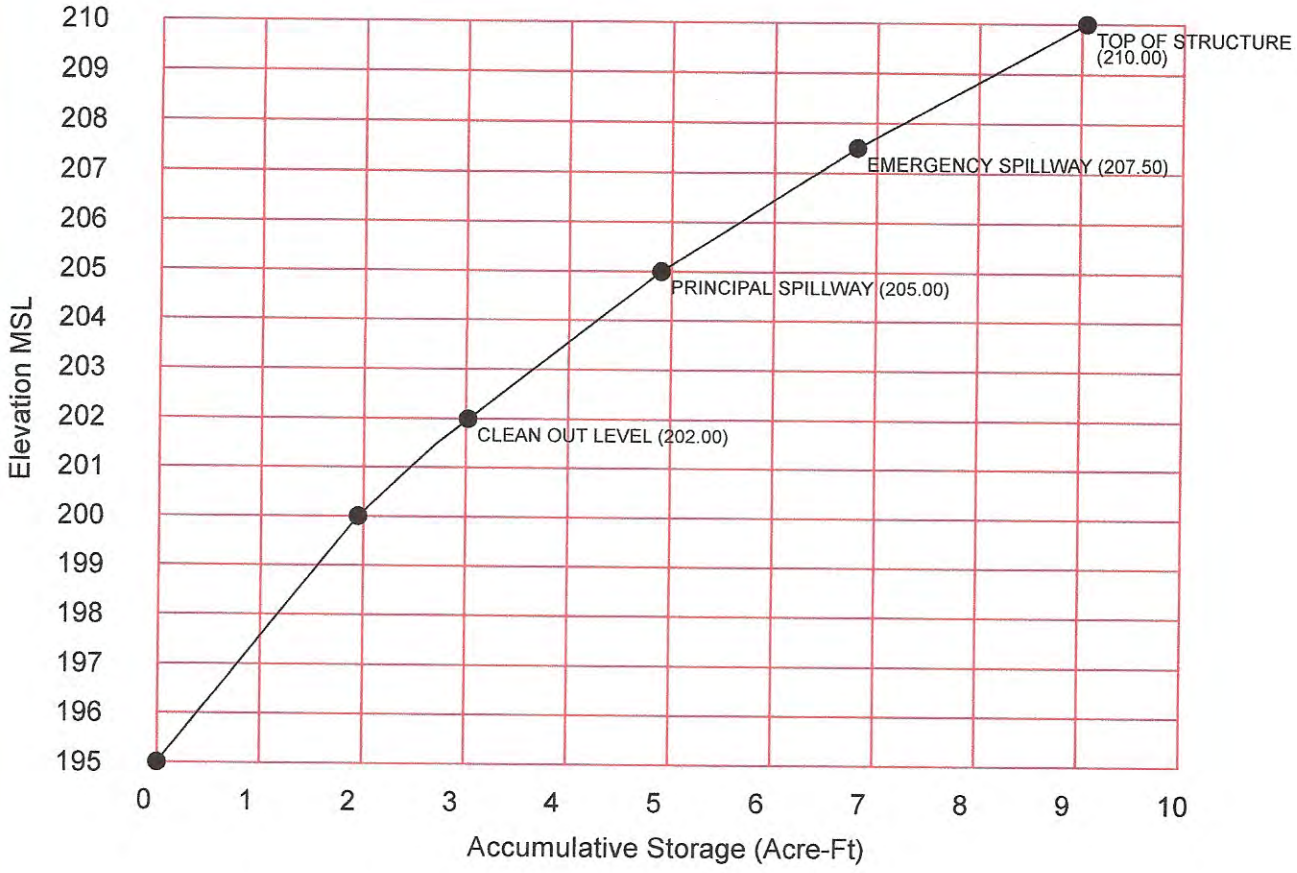
Drawing Created: 06/03/16 10:06am
Last Modified: 01/15/21 04:56pm

AP. NPDES

Stage Storage Curve

Pond #003 Meadows Property

0.0



Storage volume computations

NPDES

Pond #003 Meadows Property

ELEV. (ft)	Width (ft)	LENGTH (ft)	AREA (ac)	AVG. AREA (ac)	INTERVAL (ft)	STORAGE (ac-ft)	ACC. STORAGE (ac-ft)	STAGE INTERVAL (ft)
195.00	195.00	195.00	0.3000					
200.00	200.00	200.00	0.4800	0.3900	5.00	1.9500	1.9500	5.00
201.50	N/A	N/A	0.5460	0.5130	1.50	0.7695	2.7195	6.50
205.00	205.00	205.00	0.7000	0.5900	3.50	2.1805	4.9000	10.00
207.50	N/A	N/A	0.8300	0.7650	2.50	1.9125	6.8125	12.50
210.00	210.00	210.00	0.9600	0.8300	2.50	2.2375	9.0500	15.00

Alabama Sand & Gravel Meadows Site

Pond 003

25yr-24hr Event

Michael B. Erp

Michael B. Erp, P.E.
116 Wildwood Drive
Somerset, KY 42503

Phone: 606-875-4271
Email: Michael.b.erp@gmail.com

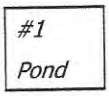
General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	7.500 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	Pond 003 Meadows



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	In	19.000	19.000	15.75	2.94
	Out			2.39	2.93

Structure Detail:

Structure #1 (Pond)

Pond 003 Meadows

Pond Inputs:

Initial Pool Elev:	205.00
Initial Pool:	4.87 ac-ft

Straight Pipe

Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev	Entrance Loss Coefficient	Tailwater Depth (ft)
12.00	40.00	1.00	0.0120	205.00	0.90	0.00

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
207.50	25.00	2.00:1	2.00:1	8.00

Pond Results:

Peak Elevation:	206.11
Dewater Time:	0.68 days

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
195.00	0.300	0.000	0.000	
195.50	0.316	0.154	0.000	
196.00	0.333	0.316	0.000	
196.50	0.350	0.487	0.000	
197.00	0.367	0.666	0.000	
197.50	0.385	0.854	0.000	
198.00	0.403	1.051	0.000	
198.50	0.422	1.257	0.000	
199.00	0.441	1.472	0.000	
199.50	0.460	1.698	0.000	

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
200.00	0.480	1.933	0.000		
200.50	0.500	2.178	0.000		
201.00	0.521	2.433	0.000		
201.50	0.542	2.698	0.000		
202.00	0.563	2.974	0.000		
202.50	0.585	3.261	0.000		
203.00	0.607	3.559	0.000		
203.50	0.630	3.869	0.000		
204.00	0.653	4.189	0.000		
204.50	0.676	4.521	0.000		
205.00	0.700	4.865	0.000		Spillway #1
205.50	0.724	5.221	0.751	5.74*	
206.00	0.749	5.590	2.094	8.80	
206.11	0.754	5.673	2.391	1.75	Peak Stage
206.50	0.774	5.970	3.443		
207.00	0.799	6.363	4.414		
207.50	0.825	6.769	5.173		Spillway #2
208.00	0.851	7.188	6.340		
208.50	0.878	7.621	26.255		
209.00	0.905	8.066	50.794		
209.50	0.932	8.525	82.560		
210.00	0.960	8.998	123.755		

**Designates time(s) to dewater have been extrapolated beyond the 50 hour hydrograph limit.*

Detailed Discharge Table

Elevation	Straight Pipe (cfs)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
195.00	0.000	0.000	0.000
195.50	0.000	0.000	0.000
196.00	0.000	0.000	0.000
196.50	0.000	0.000	0.000
197.00	0.000	0.000	0.000
197.50	0.000	0.000	0.000
198.00	0.000	0.000	0.000
198.50	0.000	0.000	0.000
199.00	0.000	0.000	0.000
199.50	0.000	0.000	0.000
200.00	0.000	0.000	0.000

Elevation	Straight Pipe (cfs)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
200.50	0.000	0.000	0.000
201.00	0.000	0.000	0.000
201.50	0.000	0.000	0.000
202.00	0.000	0.000	0.000
202.50	0.000	0.000	0.000
203.00	0.000	0.000	0.000
203.50	0.000	0.000	0.000
204.00	0.000	0.000	0.000
204.50	0.000	0.000	0.000
205.00	0.000	0.000	0.000
205.50	(3)>0.751	0.000	0.751
206.00	(3)>2.094	0.000	2.094
206.50	(5)>3.443	0.000	3.443
207.00	(5)>4.414	0.000	4.414
207.50	(6)>5.173	0.000	5.173
208.00	(6)>5.826	0.514	6.340
208.50	(6)>6.374	19.880	26.255
209.00	(6)>6.877	43.917	50.794
209.50	(6)>7.348	75.211	82.560
210.00	(6)>7.792	115.963	123.755

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	19.000	0.200	0.000	0.000	49.000	S	15.75	2.937
	Σ	**19.000**						**15.75**	**2.937**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	5.00	25.00	500.00	1.780	0.078
		3. Short grass pasture	2.00	10.00	500.00	1.130	0.122
#1	**1**	**Time of Concentration:**					**0.200**

Alabama Sand & Gravel Meadows Site

Pond 003

1yr-24hr Event

Pipe size only

Michael B. Erp

Michael B. Erp, P.E.
116 Wildwood Drive
Somerset, KY 42503

Phone: 606-875-4271
Email: Michael.b.erp@gmail.com

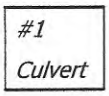
General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	2 yr - 24 hr
Rainfall Depth:	3.700 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Culvert	#1	==>	End	0.000	0.000	Pond 003 Pipe Only



Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	19.000	19.000	0.58	0.34

Structure Detail:

Structure #1 (Culvert)

Pond 003 Pipe Only

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
40.00	2.00	0.0120	1.00	0.00	0.90

Culvert Results:

Design Discharge = 0.58 cfs

Minimum pipe diameter: 1 - 6 inch pipe(s) required

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	19.000	0.200	0.000	0.000	49.000	S	0.58	0.345
	Σ	**19.000**						**0.58**	**0.345**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	5.00	25.00	500.00	1.780	0.078
		3. Short grass pasture	2.00	10.00	500.00	1.130	0.122
#1	**1**	**Time of Concentration:**					**0.200**

Meadows Pond 003 (Direct ES Routing) Riprap Sizing

Material: Riprap

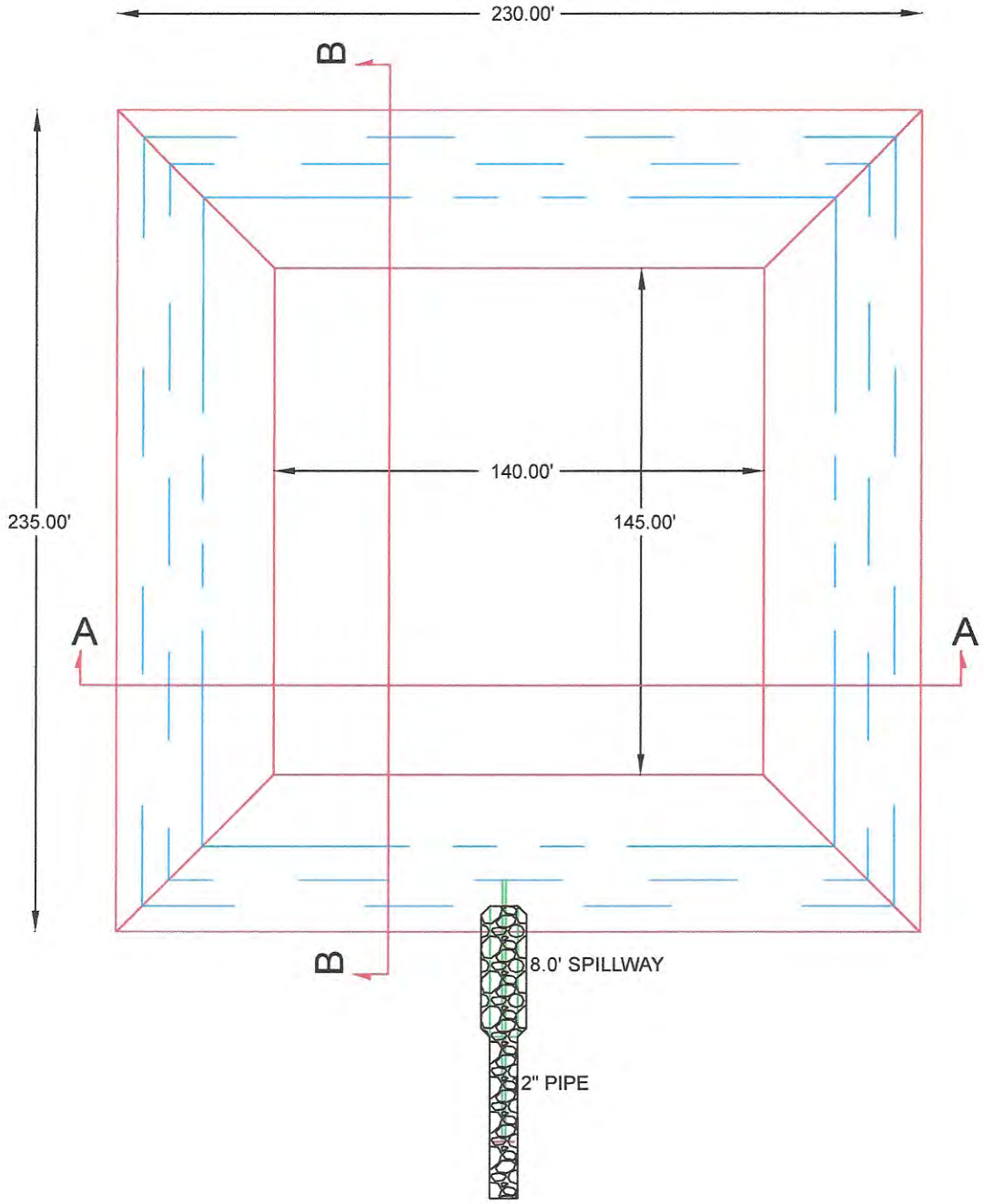
Trapezoidal Channel

Bottom Width (ft)	Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)
8.00	2.0:1	2.0:1	1.0	1.50		

PADER Method - Mild Slope Design

	w/o Freeboard	w/ Freeboard
Design Discharge:	16.00 cfs	
Depth:	0.60 ft	2.10 ft
Top Width:	10.40 ft	16.40 ft
Velocity:	2.90 fps	
X-Section Area:	5.51 sq ft	
Hydraulic Radius:	0.516 ft	
Froude Number:	0.70	
Manning's n:	0.0330	
Dmin:	1.00 in	
D50:	1.50 in	
Dmax:	3.00 in	

POND 004 Plan View



ALABAMA LICENSED
No. 35397
PROFESSIONAL
ENGINEER
MICHAEL B. ERP

February 9, 2021
Date

Signature

Prepared by;

ALABAMA SAND & GRAVEL

Engineering

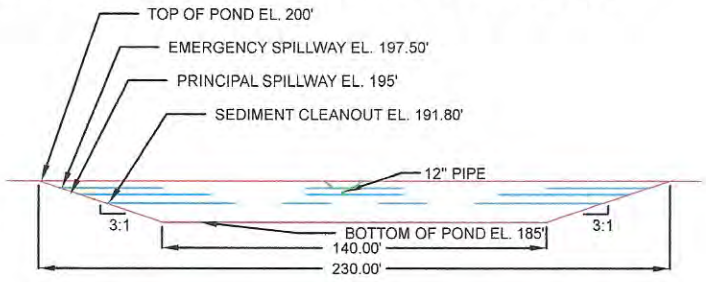
Drawings By: stech
Plot Date/Time: 02/09/21 10:47am
File Path: C:\Users\stech\Documents\ALABAMA SAND & GRAVEL\Meadows Rev 11-12-25
File Name: Pond Designs Mod 1-21.dwg

Scale: 1"=50'

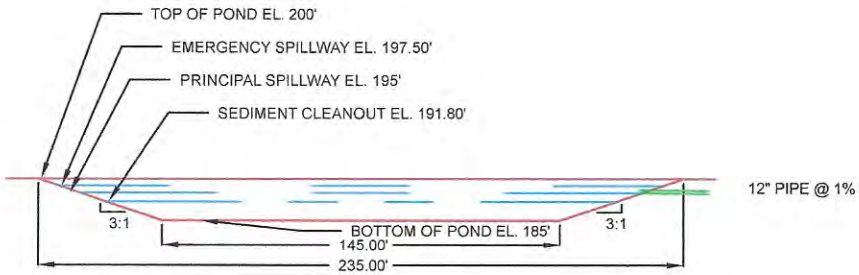
Tab: P4 Plan

Drawing Created: 06/03/16 10:06am
Last Modified: 02/09/21 09:24am

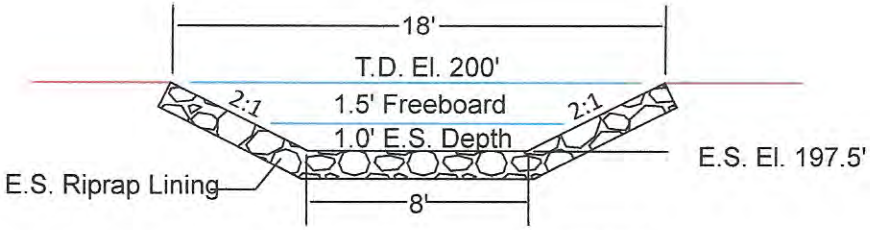
POND 004 Sections



SECTION A-A'



SECTION B-B'



OPEN SPILLWAY SECTION

ALABAMA LICENSED No. 35397 PROFESSIONAL ENGINEER MICHAEL B. ERP

February 9, 2021
Date

Signature

Prepared by;

ALABAMA SAND & GRAVEL

Engineering

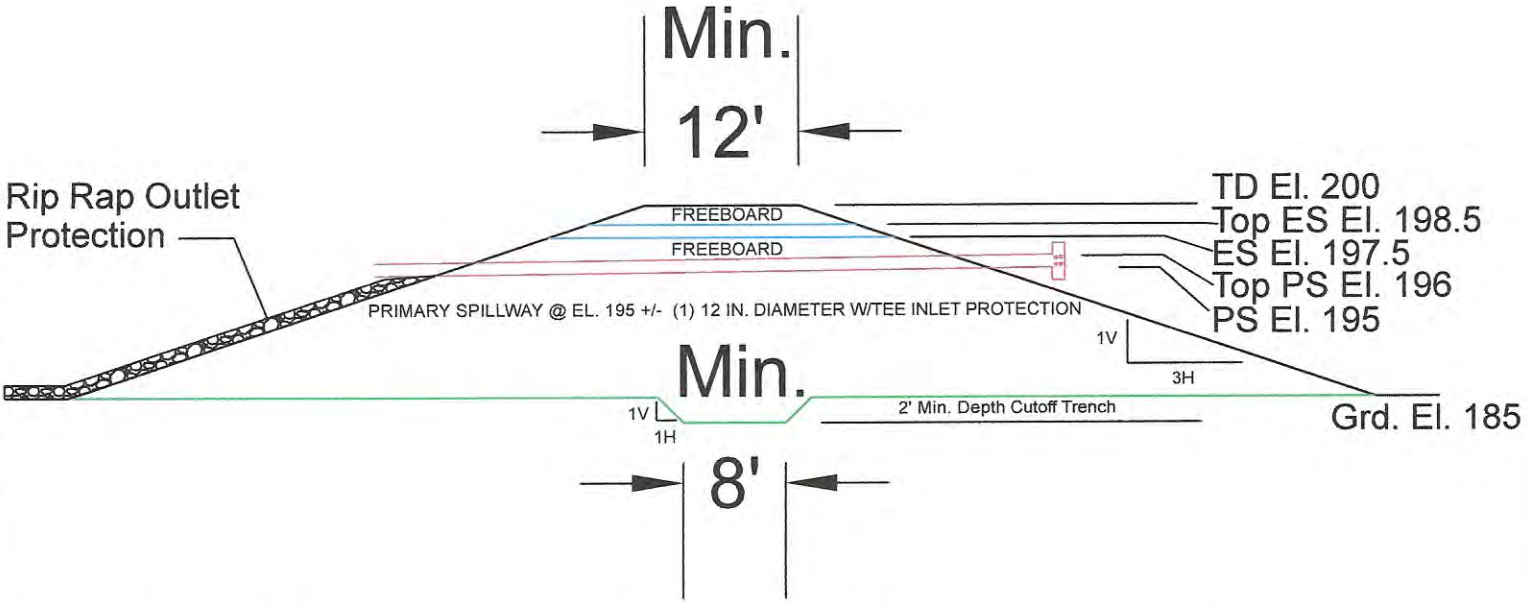
Drawings By: stech
Plot Date/Time: 02/09/21 01:30pm
File Path: C:\Users\stech\Documents\ALABAMA SAND & GRAVEL\Meadows Rev 1\12-21\
File Name: Pond Designs Mod 1-21.dwg

Scale: N.T.S.

Tab: P4 Sections

Drawing Created: 06/03/16 10:06am
Last Modified: 02/09/21 11:24am

SECTION THRU DIKE WITH SPILLWAYS ELEV. DESIGN DETAILS



Emerg. Spwy. is 8' Bottom Width by 2.5' Overall Depth Open Channel (See Design Drawings)

Meadows Pit Outfall DSN 004
NPDES Permit No. (Pending)

ALABAMA LICENSED
No. 35397
PROFESSIONAL
ENGINEER
MICHAEL B. ERP

February 9, 2021
Date

Signature

Prepared by;

ALABAMA SAND & GRAVEL

Engineering

Drawings By: stech
Plot Date/Time: 02/09/21 10:56am
File Path: C:\Users\stech\Documents\ALABAMA SAND & GRAVEL\Meadows Rev 1\2-25\
File Name: Pond Designs Mod 1-21.dwg

Scale: N.T.S.

Tab: P4 Elevs

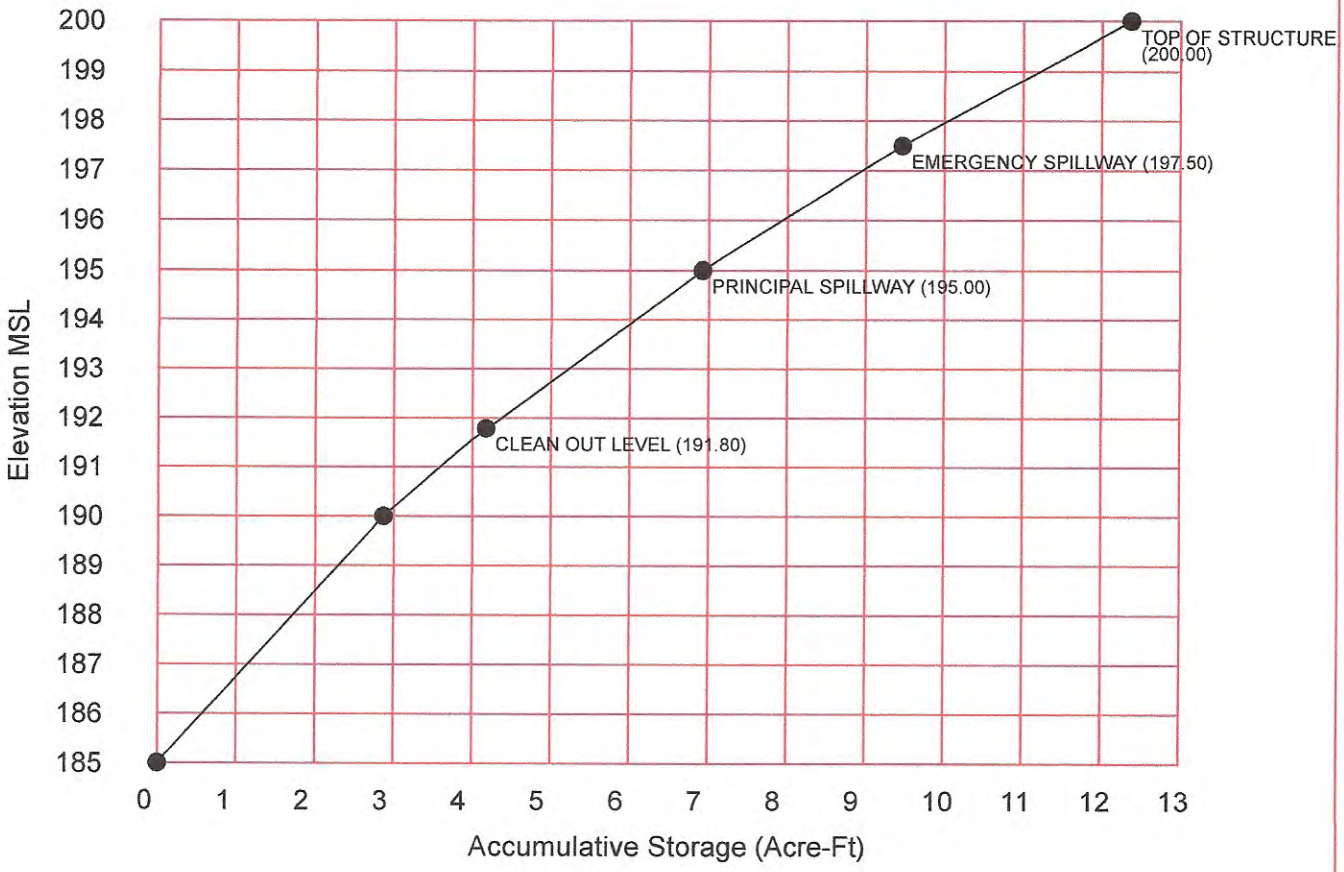
Drawing Created: 06/03/16 10:06am
Last Modified: 02/09/21 10:54am

AP. NPDES

Stage Storage Curve

Pond #004 Meadows Property

0.0



Storage volume computations

NPDES

Pond #004 Meadows Property

ELEV. (ft)	Width (ft)	LENGTH (ft)	AREA (ac)	AVG. AREA (ac)	INTERVAL (ft)	STORAGE (ac-ft)	ACC. STORAGE (ac-ft)	STAGE INTERVAL (ft)
185.00	185.00	185.00	0.4700					
190.00	190.00	190.00	0.6800	0.5750	5.00	2.8750	2.8750	5.00
191.50	N/A	N/A	0.7580	0.7190	1.50	1.0785	3.9535	6.50
195.00	195.00	195.00	0.9400	0.8100	3.50	2.9715	6.9250	10.00
197.50	N/A	N/A	1.0900	1.0150	2.50	2.5375	9.4625	12.50
200.00	200.00	200.00	1.2400	1.0900	2.50	2.9125	12.3750	15.00

Alabama Sand & Gravel Meadows Site

Pond 004

25yr-24hr Event

Michael B. Erp

Michael B. Erp, P.E.
116 Wildwood Drive
Somerset, KY 42503

Phone: 606-875-4271
Email: Michael.b.erp@gmail.com

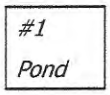
General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	7.500 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	Pond 004 Meadows



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	In	27.400	27.400	17.89	4.24
	Out			2.82	4.20

Structure Detail:

Structure #1 (Pond)

Pond 004 Meadows

Pond Inputs:

Initial Pool Elev:	195.00
Initial Pool:	6.89 ac-ft

Straight Pipe

Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev	Entrance Loss Coefficient	Tailwater Depth (ft)
12.00	40.00	1.00	0.0120	195.00	0.90	0.00

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
197.50	25.00	2.00:1	2.00:1	8.00

Pond Results:

Peak Elevation:	196.27
Dewater Time:	0.82 days

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
185.00	0.470	0.000	0.000	
185.50	0.489	0.240	0.000	
186.00	0.509	0.489	0.000	
186.50	0.529	0.749	0.000	
187.00	0.549	1.018	0.000	
187.50	0.570	1.298	0.000	
188.00	0.591	1.589	0.000	
188.50	0.613	1.890	0.000	
189.00	0.635	2.202	0.000	
189.50	0.657	2.525	0.000	

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
190.00	0.680	2.859	0.000		
190.50	0.704	3.205	0.000		
191.00	0.729	3.563	0.000		
191.50	0.754	3.934	0.000		
192.00	0.779	4.317	0.000		
192.50	0.805	4.713	0.000		
193.00	0.831	5.122	0.000		
193.50	0.858	5.544	0.000		
194.00	0.885	5.979	0.000		
194.50	0.912	6.428	0.000		
195.00	0.940	6.892	0.000		Spillway #1
195.50	0.968	7.369	0.751	7.69*	
196.00	0.997	7.860	2.094	7.85	
196.27	1.012	8.132	2.821	4.25	Peak Stage
196.50	1.026	8.365	3.443		
197.00	1.055	8.885	4.414		
197.50	1.085	9.420	5.173		Spillway #2
198.00	1.115	9.970	6.340		
198.50	1.146	10.536	26.255		
199.00	1.177	11.116	50.794		
199.50	1.208	11.712	82.560		
200.00	1.240	12.324	123.755		

**Designates time(s) to dewater have been extrapolated beyond the 50 hour hydrograph limit.*

Detailed Discharge Table

Elevation	Straight Pipe (cfs)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
185.00	0.000	0.000	0.000
185.50	0.000	0.000	0.000
186.00	0.000	0.000	0.000
186.50	0.000	0.000	0.000
187.00	0.000	0.000	0.000
187.50	0.000	0.000	0.000
188.00	0.000	0.000	0.000
188.50	0.000	0.000	0.000
189.00	0.000	0.000	0.000
189.50	0.000	0.000	0.000
190.00	0.000	0.000	0.000

Elevation	Straight Pipe (cfs)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
190.50	0.000	0.000	0.000
191.00	0.000	0.000	0.000
191.50	0.000	0.000	0.000
192.00	0.000	0.000	0.000
192.50	0.000	0.000	0.000
193.00	0.000	0.000	0.000
193.50	0.000	0.000	0.000
194.00	0.000	0.000	0.000
194.50	0.000	0.000	0.000
195.00	0.000	0.000	0.000
195.50	(3)>0.751	0.000	0.751
196.00	(3)>2.094	0.000	2.094
196.50	(5)>3.443	0.000	3.443
197.00	(5)>4.414	0.000	4.414
197.50	(6)>5.173	0.000	5.173
198.00	(6)>5.826	0.514	6.340
198.50	(6)>6.374	19.880	26.255
199.00	(6)>6.877	43.917	50.794
199.50	(6)>7.348	75.211	82.560
200.00	(6)>7.792	115.963	123.755

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	27.400	0.319	0.000	0.000	49.000	S	17.89	4.236
	Σ	**27.400**						**17.89**	**4.236**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	6.45	20.00	310.00	2.030	0.042
		6. Grassed waterway	1.00	15.00	1,500.00	1.500	0.277
#1	**1**	**Time of Concentration:**					**0.319**

Alabama Sand & Gravel Meadows Site

Pond 004

1yr-24hr Event

Pipe size only

Michael B. Erp

Michael B. Erp, P.E.
116 Wildwood Drive
Somerset, KY 42503

Phone: 606-875-4271
Email: Michael.b.erp@gmail.com

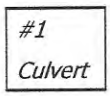
General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	2 yr - 24 hr
Rainfall Depth:	3.700 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Culvert	#1	==>	End	0.000	0.000	Pond 004 Pipe Only



Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	27.400	27.400	0.80	0.50

Structure Detail:

Structure #1 (Culvert)

Pond 004 Pipe Only

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
40.00	2.00	0.0120	1.00	0.00	0.90

Culvert Results:

Design Discharge = 0.80 cfs

Minimum pipe diameter: 1 - 8 inch pipe(s) required

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	27.400	0.319	0.000	0.000	49.000	S	0.80	0.497
	Σ	**27.400**						**0.80**	**0.497**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	6.45	20.00	310.00	2.030	0.042
		6. Grassed waterway	1.00	15.00	1,500.00	1.500	0.277
#1	**1**	**Time of Concentration:**					**0.319**

Meadows Pond 004 (Direct ES Routing) Riprap Sizing

Material: Riprap

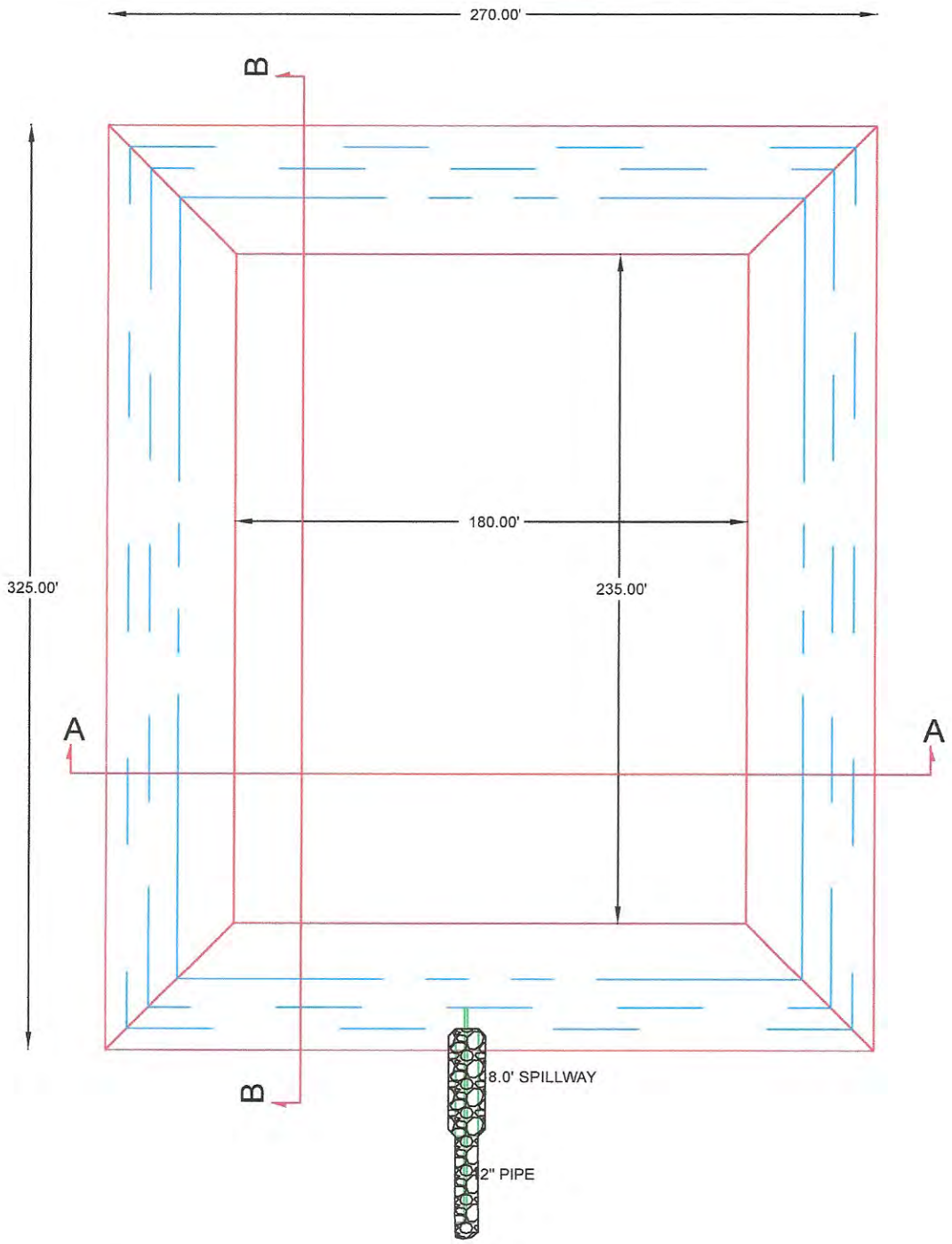
Trapezoidal Channel

Bottom Width (ft)	Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)
8.00	2.0:1	2.0:1	1.0	1.50		

PADER Method - Mild Slope Design

	w/o Freeboard	w/ Freeboard
Design Discharge:	18.00 cfs	
Depth:	0.64 ft	2.14 ft
Top Width:	10.57 ft	16.57 ft
Velocity:	3.02 fps	
X-Section Area:	5.95 sq ft	
Hydraulic Radius:	0.548 ft	
Froude Number:	0.71	
Manning's n:	0.0330	
Dmin:	1.00 in	
D50:	1.50 in	
Dmax:	3.00 in	

POND 005 Plan View



ALABAMA LICENSED
No. 35397
PROFESSIONAL
ENGINEER
MICHAEL B. ERP

February 9, 2021
Date

Signature

Prepared by;

ALABAMA SAND & GRAVEL

Engineering

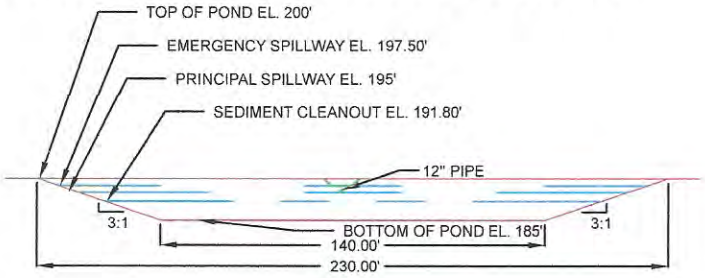
Drawings By: stech
Plot Date/Time: 02/09/21 01:34pm
File Path: C:\Users\stech\Documents\ALABAMA SAND & GRAVEL\Meadows Rev 1-12-21\
File Name: Pond Designs Mod 1-21.dwg

Scale: 1"=60'

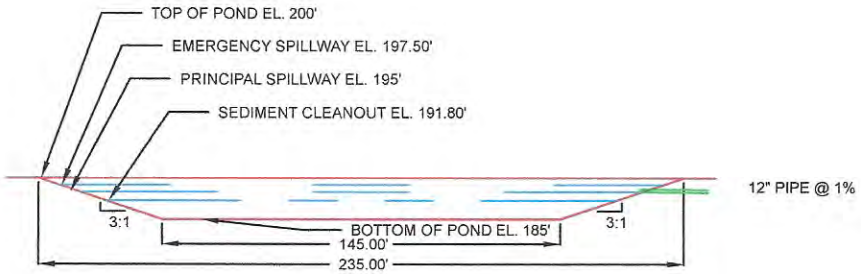
Tab: P5 Plan

Drawing Created: 06/03/16 10:06am
Last Modified: 02/09/21 11:24am

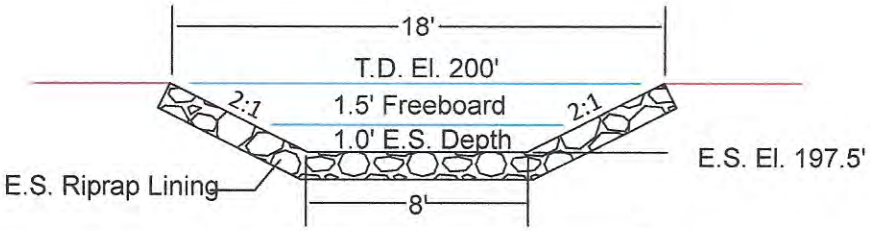
POND 004 Sections



SECTION A-A'



SECTION B-B'



OPEN SPILLWAY SECTION

ALABAMA LICENSED
No. 35397
PROFESSIONAL
ENGINEER
MICHAEL B. ERP

February 9, 2021
Date

Signature

Prepared by;

ALABAMA SAND & GRAVEL

Engineering

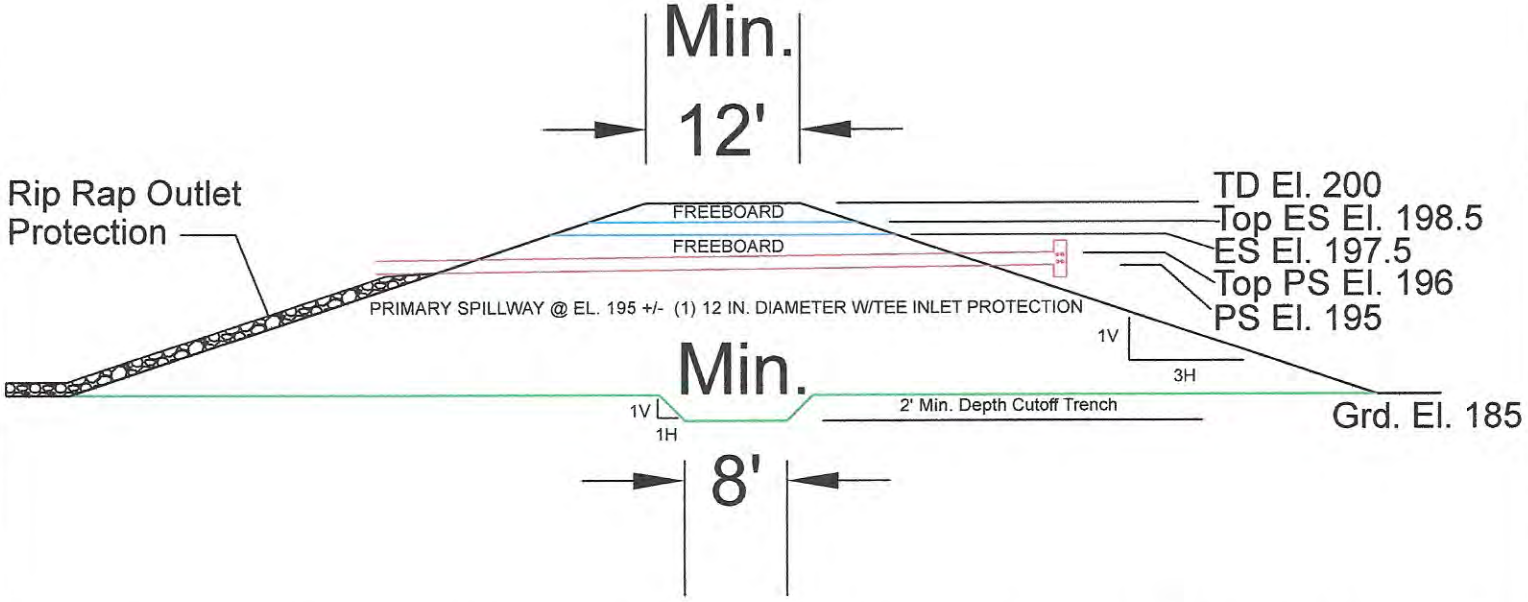
Drawings By: stech
Plot Date/Time: 02/09/21 01:34pm
File Path: C:\Users\stech\Documents\ALABAMA SAND & GRAVEL\Meadows Rev 1-12-21\
File Name: Pond Designs Mod 1-21.dwg

Scale: N.T.S.

Tab: P4 Sections

Drawing Created: 06/03/16 10:06am
Last Modified: 02/09/21 11:24am

SECTION THRU DIKE WITH SPILLWAYS ELEV. DESIGN DETAILS



Emerg. Spwy. is 8' Bottom Width by 2.5' Overall Depth Open Channel (See Design Drawings)

Meadows Pit Outfall DSN 005
NPDES Permit No. (Pending)

ALABAMA LICENSED No. 35397 PROFESSIONAL ENGINEER MICHAEL B. ERP

February 9, 2021
Date

Signature

Prepared by;

ALABAMA SAND & GRAVEL

Engineering

Drawings By: stech
Plot Date/Time: 02/09/21 01:35pm
File Path: C:\Users\stech\Documents\ALABAMA SAND & GRAVEL\Meadows Rev 1\
File Name: Pond Designs Mod 1-21.dwg

Scale: N.T.S.

Tab: P5 Elevs

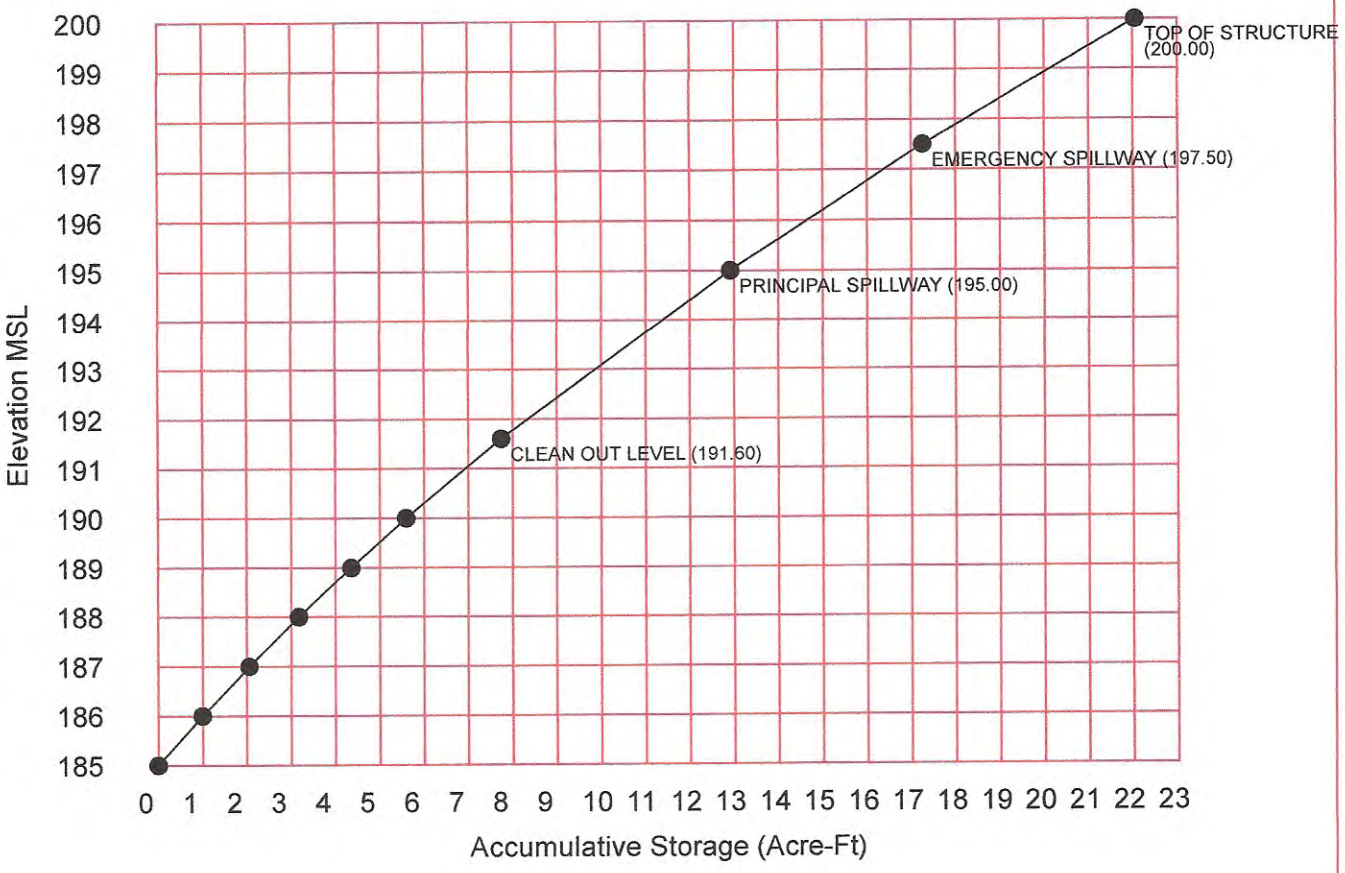
Drawing Created: 06/03/16 10:06am
Last Modified: 02/09/21 11:24am

AP. NPDES

Stage Storage Curve

Pond #005 Meadows Property

0.0



Storage volume computations

NPDES

Pond #005 Meadows Property

ELEV. (ft)	Width (ft)	LENGTH (ft)	AREA (ac)	AVG. AREA (ac)	INTERVAL (ft)	STORAGE (ac-ft)	ACC. STORAGE (ac-ft)	STAGE INTERVAL (ft)
185.00	185.00	185.00	0.9700					
186.00	186.00	186.00	1.0300	1.0000	1.00	1.0000	1.0000	1.00
187.00	187.00	187.00	1.0900	1.0600	1.00	1.0600	2.0600	2.00
188.00	188.00	188.00	1.1500	1.1200	1.00	1.1200	3.1800	3.00
189.00	189.00	189.00	1.2100	1.1800	1.00	1.1800	4.3600	4.00
190.00	190.00	190.00	1.2800	1.2450	1.00	1.2450	5.6050	5.00
191.60	N/A	N/A	1.3968	1.3384	1.60	2.1414	7.7464	6.60
195.00	N/A	N/A	1.6450	1.5209	3.40	5.1711	12.9175	10.00
197.50	N/A	N/A	1.8275	1.6121	2.50	4.3406	17.2581	12.50
200.00	200.00	200.00	2.0100	1.6450	2.50	4.7969	22.0550	15.00

Alabama Sand & Gravel Meadows Site

Pond 005

25yr-24hr Event

Michael B. Erp

Michael B. Erp, P.E.
116 Wildwood Drive
Somerset, KY 42503

Phone: 606-875-4271
Email: Michael.b.erp@gmail.com

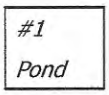
General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	7.500 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	Pond 005 Meadows



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	In	51.600	51.600	26.45	7.98
	Out			3.66	7.59

Structure Detail:

Structure #1 (Pond)

Pond 005 Meadows

Pond Inputs:

Initial Pool Elev:	195.00
Initial Pool:	12.86 ac-ft

Straight Pipe

Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev	Entrance Loss Coefficient	Tailwater Depth (ft)
12.00	40.00	1.00	0.0120	195.00	0.90	0.00

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
197.50	25.00	2.00:1	2.00:1	8.00

Pond Results:

Peak Elevation:	196.61
Dewater Time:	1.29 days

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
185.00	0.970	0.000	0.000	
185.50	0.999	0.492	0.000	
186.00	1.029	0.999	0.000	
186.50	1.059	1.521	0.000	
187.00	1.089	2.058	0.000	
187.50	1.120	2.610	0.000	
188.00	1.151	3.177	0.000	
188.50	1.183	3.761	0.000	
189.00	1.215	4.360	0.000	
189.50	1.247	4.975	0.000	

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
190.00	1.280	5.607	0.000		
190.50	1.313	6.255	0.000		
191.00	1.347	6.920	0.000		
191.50	1.381	7.602	0.000		
192.00	1.415	8.301	0.000		
192.50	1.450	9.017	0.000		
193.00	1.485	9.751	0.000		
193.50	1.521	10.502	0.000		
194.00	1.557	11.271	0.000		
194.50	1.593	12.059	0.000		
195.00	1.630	12.865	0.000		Spillway #1
195.50	1.666	13.689	0.751	13.28*	
196.00	1.703	14.531	2.094	7.85	
196.50	1.740	15.392	3.443	6.90	
196.61	1.748	15.588	3.660	2.90	Peak Stage
197.00	1.777	16.271	4.414		
197.50	1.815	17.169	5.173		Spillway #2
198.00	1.853	18.086	6.340		
198.50	1.892	19.022	26.255		
199.00	1.931	19.978	50.794		
199.50	1.970	20.953	82.560		
200.00	2.010	21.948	123.755		

**Designates time(s) to dewater have been extrapolated beyond the 50 hour hydrograph limit.*

Detailed Discharge Table

Elevation	Straight Pipe (cfs)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
185.00	0.000	0.000	0.000
185.50	0.000	0.000	0.000
186.00	0.000	0.000	0.000
186.50	0.000	0.000	0.000
187.00	0.000	0.000	0.000
187.50	0.000	0.000	0.000
188.00	0.000	0.000	0.000
188.50	0.000	0.000	0.000
189.00	0.000	0.000	0.000
189.50	0.000	0.000	0.000
190.00	0.000	0.000	0.000

Elevation	Straight Pipe (cfs)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
190.50	0.000	0.000	0.000
191.00	0.000	0.000	0.000
191.50	0.000	0.000	0.000
192.00	0.000	0.000	0.000
192.50	0.000	0.000	0.000
193.00	0.000	0.000	0.000
193.50	0.000	0.000	0.000
194.00	0.000	0.000	0.000
194.50	0.000	0.000	0.000
195.00	0.000	0.000	0.000
195.50	(3)>0.751	0.000	0.751
196.00	(3)>2.094	0.000	2.094
196.50	(5)>3.443	0.000	3.443
197.00	(5)>4.414	0.000	4.414
197.50	(6)>5.173	0.000	5.173
198.00	(6)>5.826	0.514	6.340
198.50	(6)>6.374	19.880	26.255
199.00	(6)>6.877	43.917	50.794
199.50	(6)>7.348	75.211	82.560
200.00	(6)>7.792	115.963	123.755

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	51.600	0.470	0.000	0.000	49.000	S	26.45	7.977
	Σ	**51.600**						**26.45**	**7.977**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	1.00	5.00	500.00	0.800	0.173
		3. Short grass pasture	1.00	5.00	500.00	0.800	0.173
		3. Short grass pasture	1.25	5.00	400.00	0.890	0.124
#1	**1**	**Time of Concentration:**					**0.470**

Alabama Sand & Gravel Meadows Site

Pond 005

1yr-24hr Event

Pipe size only

Michael B. Erp

Michael B. Erp, P.E.
116 Wildwood Drive
Somerset, KY 42503

Phone: 606-875-4271
Email: Michael.b.erp@gmail.com

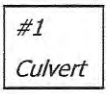
General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	2 yr - 24 hr
Rainfall Depth:	3.700 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Culvert	#1	==>	End	0.000	0.000	Pond 005 Pipe Only



Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	51.600	51.600	1.37	0.94

Structure Detail:

Structure #1 (Culvert)

Pond 005 Pipe Only

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
40.00	2.00	0.0120	1.00	0.00	0.90

Culvert Results:

Design Discharge = 1.37 cfs

Minimum pipe diameter: 1 - 10 inch pipe(s) required

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	51.600	0.433	0.000	0.000	49.000	S	1.37	0.936
	Σ	**51.600**						**1.37**	**0.936**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	2.00	10.00	500.00	1.130	0.122
		3. Short grass pasture	1.00	5.00	500.00	0.800	0.173
		3. Short grass pasture	1.00	4.00	400.00	0.800	0.138
#1	**1**	**Time of Concentration:**					**0.433**

Meadows Pond 005 (Direct ES Routing) Riprap Sizing

Material: Riprap

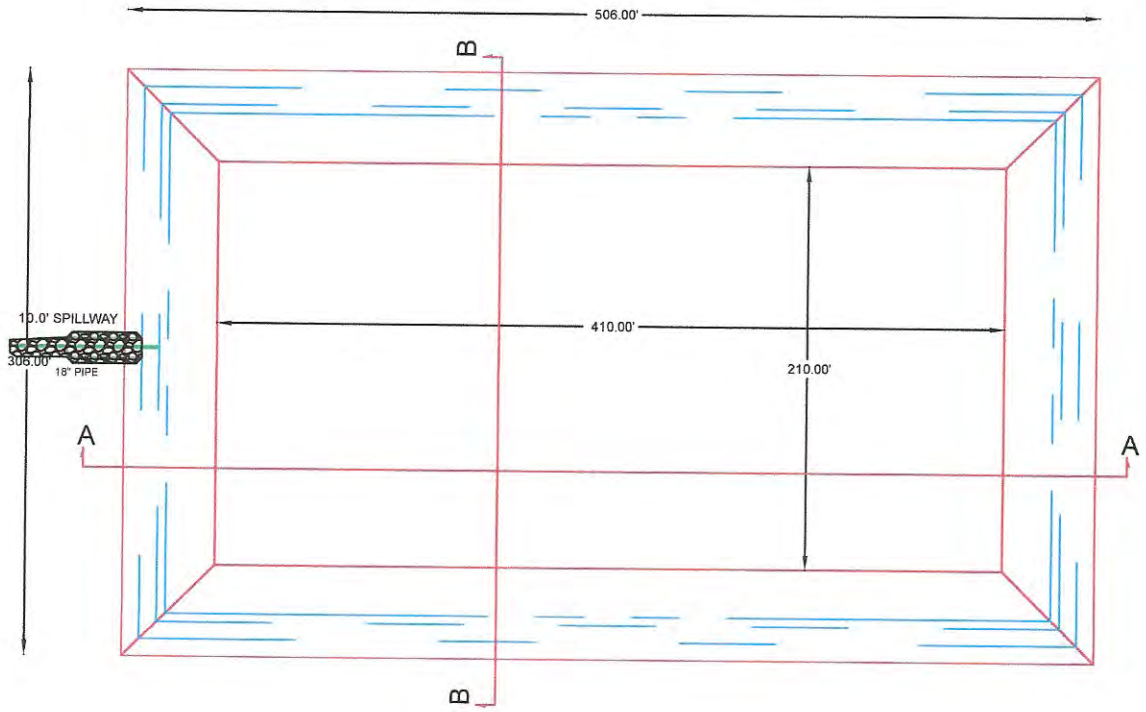
Trapezoidal Channel

Bottom Width (ft)	Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)
8.00	2.0:1	2.0:1	1.0	1.50		

PADER Method - Mild Slope Design

	w/o Freeboard	w/ Freeboard
Design Discharge:	23.00 cfs	
Depth:	0.73 ft	2.23 ft
Top Width:	10.90 ft	16.90 ft
Velocity:	3.35 fps	
X-Section Area:	6.86 sq ft	
Hydraulic Radius:	0.610 ft	
Froude Number:	0.74	
Manning's n:	0.0320	
Dmin:	1.00 in	
D50:	1.50 in	
Dmax:	3.00 in	

POND 006 Plan View



ALABAMA LICENSED
No. 35397
PROFESSIONAL
ENGINEER
MICHAEL B. ERP

February 9, 2021
Date

Signature

Prepared by;

ALABAMA SAND & GRAVEL

Engineering

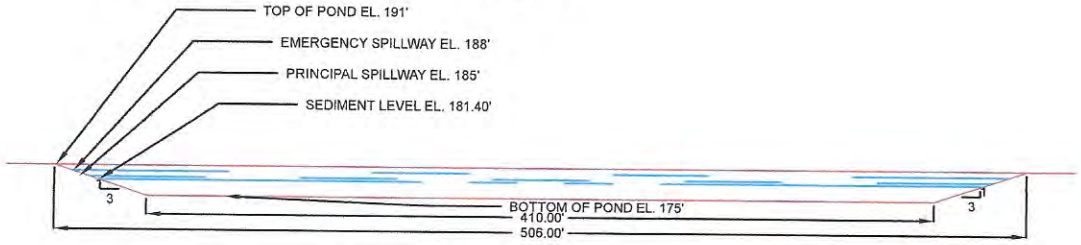
Drawings By: stech
Plot Date/Time: 02/09/21 01:36pm
File Path: C:\Users\stech\Documents\ALABAMA SAND & GRAVEL\Meadows Rev 1-12-21\
File Name: Pond Designs Mod 1-21.dwg

Scale: 1" = 100'

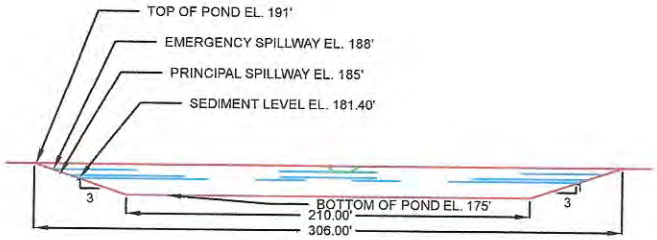
Tab: P6 Plan

Drawing Created: 06/03/16 10:06am
Last Modified: 02/09/21 11:24am

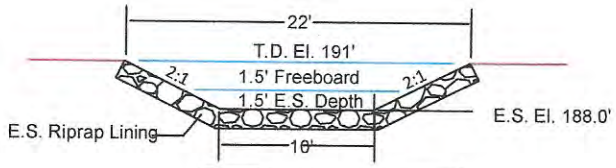
POND 006 Sections



SECTION A-A'



SECTION B-B'



OPEN SPILLWAY SECTION

ALABAMA LICENSED
No. 35397
PROFESSIONAL
ENGINEER
MICHAEL B. ERP

February 9, 2021
Date

Signature

Prepared by;

ALABAMA SAND & GRAVEL

Engineering

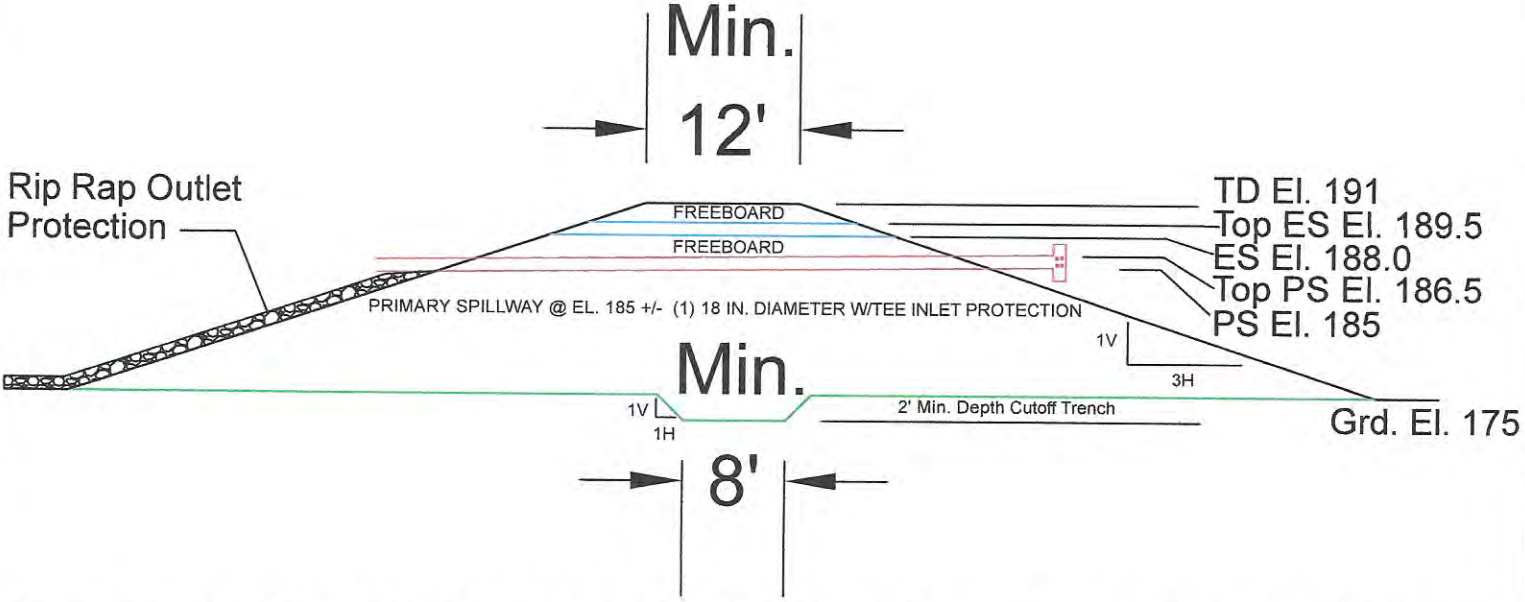
Drawings By: stech
Plot Date/Time: 02/09/21 01:37pm
File Path: C:\Users\stech\Documents\ALABAMA SAND & GRAVEL\Meadows Rev 1\12-23\
File Name: Pond Designs Mod 1-21.dwg

Scale: N.T.S.

Tab: P6 Sections

Drawing Created: 06/03/16 10:06am
Last Modified: 02/09/21 11:24am

SECTION THRU DIKE WITH SPILLWAYS ELEV. DESIGN DETAILS



Emerg. Spwy. is 10' Bottom Width by 3.0' Overall Depth Open Channel (See Design Drawings)

Meadows Pit Outfall DSN 006
NPDES Permit No. (Pending)

ALABAMA LICENSED No. 35397 PROFESSIONAL ENGINEER MICHAEL B. ERP

February 9, 2021
Date

Signature

Prepared by;

ALABAMA SAND & GRAVEL

Engineering

Drawings By: stech
Plot Date/Time: 02/09/21 01:38pm
File Path: C:\Users\stech\Documents\ALABAMA SAND & GRAVEL\Meadows Rev 1-12-21\
File Name: Pond Designs Mod 1-21.dwg

Scale: N.T.S.

Tab: P6 Elevs

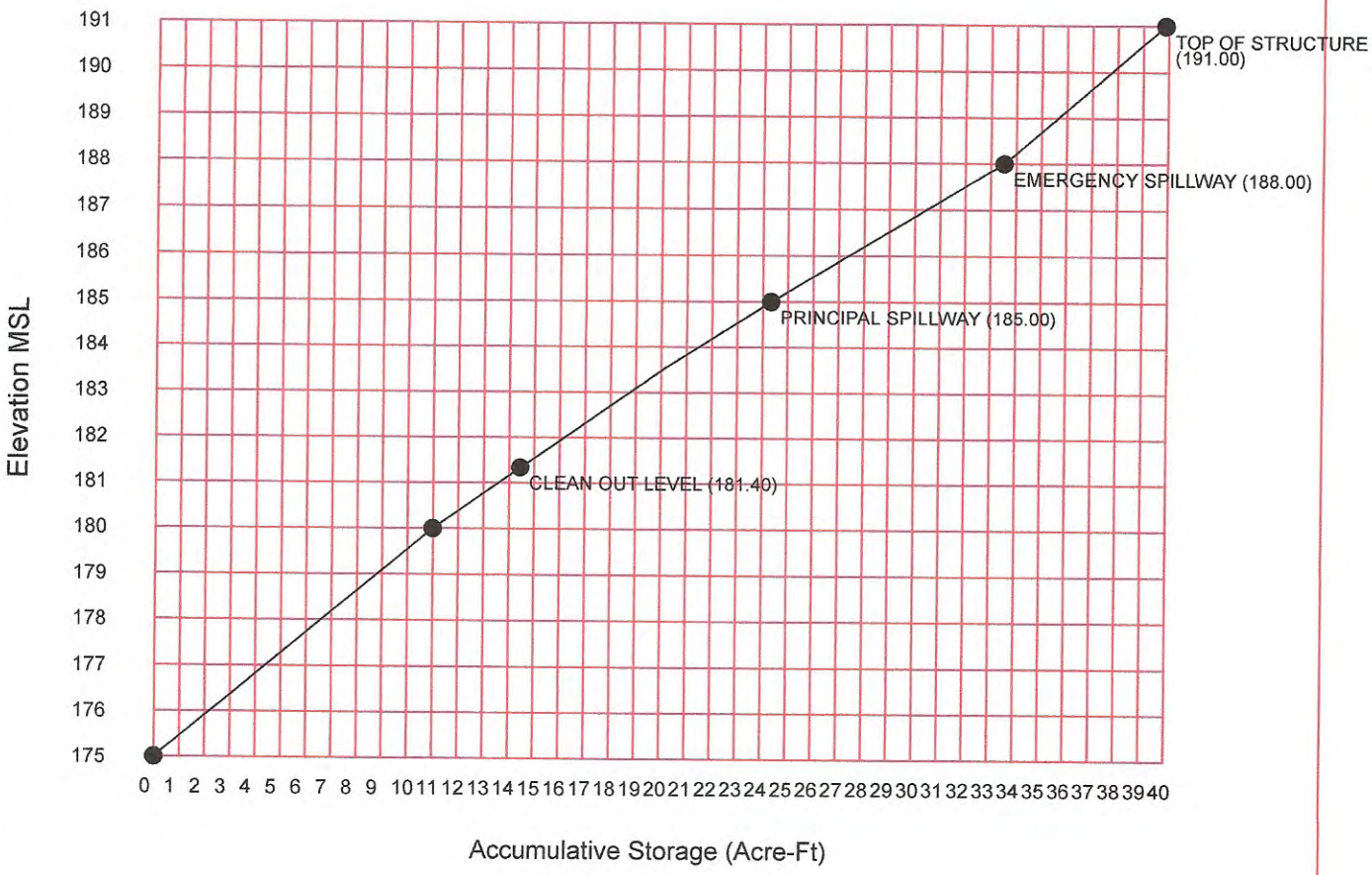
Drawing Created: 06/03/16 10:06am
Last Modified: 02/09/21 11:24am

AP. NPDES

Stage Storage Curve

Pond #006 Meadows Property

0.0



Storage volume computations

NPDES

Pond #006 Meadows Property

ELEV. (ft)	Width (ft)	LENGTH (ft)	AREA (ac)	AVG. AREA (ac)	INTERVAL (ft)	STORAGE (ac-ft)	ACC. STORAGE (ac-ft)	STAGE INTERVAL (ft)
175.00	175.00	175.00	1.9800					
180.00	180.00	180.00	2.4200	2.2000	5.00	11.0000	11.0000	5.00
183.50	N/A	N/A	2.7630	2.5915	3.50	9.0703	20.0702	8.50
185.00	185.00	185.00	2.9100	2.6650	1.50	4.2548	24.3250	10.00
188.00	N/A	N/A	3.2300	3.0700	3.00	9.2100	33.5350	13.00
191.00	191.00	191.00	3.5500	3.2300	3.00	6.3534	39.8884	16.00

Alabama Sand & Gravel
Meadows Site

Pond 006

25yr-24 hr Event

Michael B. Erp

Michael B. Erp, P.E.
116 Wildwood Drive
Somerset, KY 42503

Phone: 606-875-4271
Email: Michael.b.erp@gmail.com

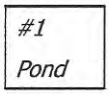
General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	7.500 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	Pond 006 Meadows



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	In	95.100	95.100	43.10	14.70
	Out			6.73	13.71

Structure Detail:

Structure #1 (Pond)

Pond 006 Meadows

Pond Inputs:

Initial Pool Elev:	185.00
Initial Pool:	24.29 ac-ft

Straight Pipe

Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev	Entrance Loss Coefficient	Tailwater Depth (ft)
18.00	40.00	1.00	0.0120	185.00	0.90	0.00

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
188.00	30.00	2.00:1	2.00:1	10.00

Pond Results:

Peak Elevation:	186.68
Dewater Time:	1.50 days

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
175.00	1.980	0.000	0.000	
175.50	2.022	1.000	0.000	
176.00	2.064	2.022	0.000	
176.50	2.107	3.065	0.000	
177.00	2.151	4.130	0.000	
177.50	2.194	5.216	0.000	
178.00	2.239	6.324	0.000	
178.50	2.283	7.455	0.000	
179.00	2.328	8.608	0.000	
179.50	2.374	9.783	0.000	

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
180.00	2.420	10.982	0.000		
180.50	2.467	12.203	0.000		
181.00	2.514	13.449	0.000		
181.50	2.562	14.718	0.000		
182.00	2.611	16.011	0.000		
182.50	2.659	17.329	0.000		
183.00	2.709	18.671	0.000		
183.50	2.758	20.037	0.000		
184.00	2.808	21.429	0.000		
184.50	2.859	22.846	0.000		
185.00	2.910	24.288	0.000		Spillway #1
185.50	2.961	25.756	1.111	15.98*	
186.00	3.012	27.249	3.142	9.25	
186.50	3.064	28.768	5.774	6.70	
186.68	3.083	29.325	6.730	3.95	Peak Stage
187.00	3.116	30.313	8.425		
187.50	3.169	31.884	10.472		
188.00	3.222	33.482	12.173		Spillway #2
188.50	3.276	35.107	25.198		
189.00	3.330	36.758	38.048		
189.50	3.384	38.436	68.107		
190.00	3.439	40.142	103.502		
190.50	3.494	41.875	149.868		
191.00	3.550	43.636	207.828		

**Designates time(s) to dewater have been extrapolated beyond the 50 hour hydrograph limit.*

Detailed Discharge Table

Elevation	Straight Pipe (cfs)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
175.00	0.000	0.000	0.000
175.50	0.000	0.000	0.000
176.00	0.000	0.000	0.000
176.50	0.000	0.000	0.000
177.00	0.000	0.000	0.000
177.50	0.000	0.000	0.000
178.00	0.000	0.000	0.000
178.50	0.000	0.000	0.000
179.00	0.000	0.000	0.000

Elevation	Straight Pipe (cfs)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
179.50	0.000	0.000	0.000
180.00	0.000	0.000	0.000
180.50	0.000	0.000	0.000
181.00	0.000	0.000	0.000
181.50	0.000	0.000	0.000
182.00	0.000	0.000	0.000
182.50	0.000	0.000	0.000
183.00	0.000	0.000	0.000
183.50	0.000	0.000	0.000
184.00	0.000	0.000	0.000
184.50	0.000	0.000	0.000
185.00	0.000	0.000	0.000
185.50	(3)>1.111	0.000	1.111
186.00	(3)>3.142	0.000	3.142
186.50	(3)>5.774	0.000	5.774
187.00	(5)>8.425	0.000	8.425
187.50	(5)>10.472	0.000	10.472
188.00	(5)>12.173	0.000	12.173
188.50	(5)>13.675	11.523	25.198
189.00	(5)>15.003	23.045	38.048
189.50	(5)>16.242	51.866	68.107
190.00	(5)>17.381	86.121	103.502
190.50	(5)>18.479	131.389	149.868
191.00	(5)>19.477	188.351	207.828

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	95.100	0.564	0.000	0.000	49.000	S	43.10	14.701
	Σ	**95.100**						**43.10**	**14.701**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	2.00	23.00	1,150.00	1.130	0.282
		3. Short grass pasture	2.00	23.00	1,150.00	1.130	0.282
#1	**1**	**Time of Concentration:**					**0.564**

Alabama Sand & Gravel Meadows Site

Pond 006

1yr-24hr Event

Pipe size only

Michael B. Erp

Michael B. Erp, P.E.
116 Wildwood Drive
Somerset, KY 42503

Phone: 606-875-4271
Email: Michael.b.erp@gmail.com

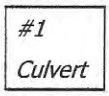
General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	2 yr - 24 hr
Rainfall Depth:	3.700 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Culvert	#1	==>	End	0.000	0.000	Pond 006 Pipe Only



Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	95.100	95.100	2.27	1.73

Structure Detail:

Structure #1 (Culvert)

Pond 006 Pipe Only

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
40.00	1.00	0.0120	1.50	0.00	0.90

Culvert Results:

Design Discharge = 2.27 cfs

Minimum pipe diameter: 1 - 10 inch pipe(s) required

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	95.100	0.564	0.000	0.000	49.000	S	2.27	1.726
	Σ	**95.100**						**2.27**	**1.726**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	2.00	10.00	500.00	1.130	0.122
		3. Short grass pasture	1.00	5.00	500.00	0.800	0.173
		3. Short grass pasture	1.00	4.00	400.00	0.800	0.138
#1	**1**	**Time of Concentration:**					**0.564**

Meadows Pond 006 (Direct ES Routing) Riprap

Material: Riprap

Trapezoidal Channel

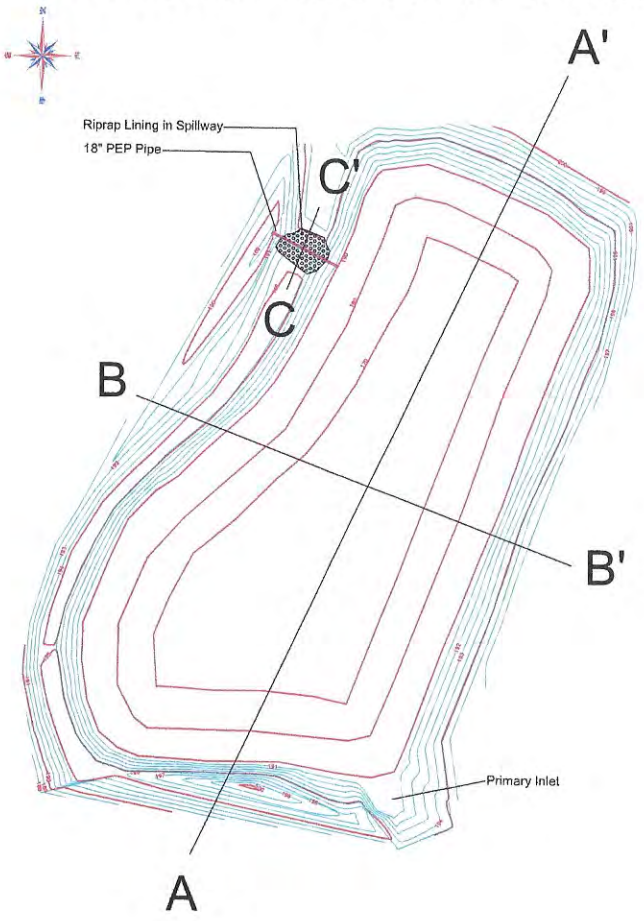
Bottom Width (ft)	Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)
10.00	2.0:1	20.0:1	1.0	1.50		

Simons/OSM Method - Mild Slope Design

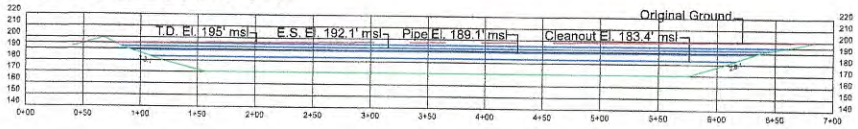
	w/o Freeboard	w/ Freeboard
Design Discharge:	43.10 cfs	
Depth:	0.83 ft	2.33 ft
Top Width:	28.34 ft	61.34 ft
Velocity:	2.70 fps	
X-Section Area:	15.98 sq ft	
Hydraulic Radius:	0.562	
Froude Number:	0.63	
Manning's n:	0.0377	
Dmin:	2.00 in	
D50:	9.00 in	
Dmax:	12.00 in	

PLAN VIEW

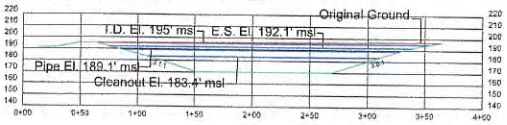
Meadows Pond #007 As Built

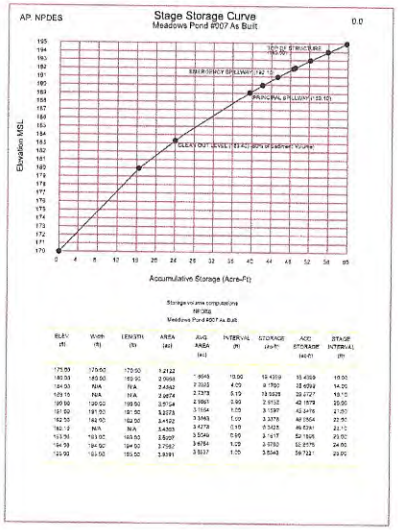


Section A-A'

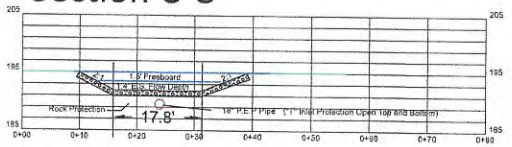


Section B-B'





Section C-C'



Scale: 1"=5'

CERTIFICATION

I hereby certify that this facility has been constructed in accordance with good engineering practices, and in good agreement with NPDES Permit #ALG850130, ADEM Regulations, and substantial agreement with the construction plans or revision accepted for the referenced NPDES permit application with minor deviations that are documented here.

February 7, 2018
Date

ALABAMA ENGINEERING
No. 32307
PROFESSIONAL
ENGINEER
MICHAEL B. ERB

Signature

Prepared for:

ALABAMA SAND & GRAVEL

Scale:

100' Layout

Alabama Sand & Gravel Meadows Site

Pond 007

25yr-24 hr Event

Michael B. Erp

Michael B. Erp, P.E.
116 Wildwood Drive
Somerset, KY 42503

Phone: 606-875-4271
Email: Michael.b.erp@gmail.com

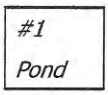
General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	7.500 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	Pond 007 Meadows



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	In	87.200	87.200	39.52	13.48
	Out			6.09	12.53

Structure Detail:

Structure #1 (Pond)

Pond 007 Meadows

Pond Inputs:

Initial Pool Elev:	185.00
Initial Pool:	24.29 ac-ft

Straight Pipe

Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev	Entrance Loss Coefficient	Tailwater Depth (ft)
18.00	40.00	1.00	0.0120	185.00	0.90	0.00

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
188.00	30.00	2.00:1	2.00:1	10.00

Pond Results:

Peak Elevation:	186.56
Dewater Time:	1.46 days

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
175.00	1.980	0.000	0.000	
175.50	2.022	1.000	0.000	
176.00	2.064	2.022	0.000	
176.50	2.107	3.065	0.000	
177.00	2.151	4.130	0.000	
177.50	2.194	5.216	0.000	
178.00	2.239	6.324	0.000	
178.50	2.283	7.455	0.000	
179.00	2.328	8.608	0.000	
179.50	2.374	9.783	0.000	

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
180.00	2.420	10.982	0.000		
180.50	2.467	12.203	0.000		
181.00	2.514	13.449	0.000		
181.50	2.562	14.718	0.000		
182.00	2.611	16.011	0.000		
182.50	2.659	17.329	0.000		
183.00	2.709	18.671	0.000		
183.50	2.758	20.037	0.000		
184.00	2.808	21.429	0.000		
184.50	2.859	22.846	0.000		
185.00	2.910	24.288	0.000		Spillway #1
185.50	2.961	25.756	1.111	15.98*	
186.00	3.012	27.249	3.142	9.30	
186.50	3.064	28.768	5.774	7.90	
186.56	3.070	28.952	6.089	1.95	Peak Stage
187.00	3.116	30.313	8.425		
187.50	3.169	31.884	10.472		
188.00	3.222	33.482	12.173		Spillway #2
188.50	3.276	35.107	25.198		
189.00	3.330	36.758	38.048		
189.50	3.384	38.436	68.107		
190.00	3.439	40.142	103.502		
190.50	3.494	41.875	149.868		
191.00	3.550	43.636	207.828		

**Designates time(s) to dewater have been extrapolated beyond the 50 hour hydrograph limit.*

Detailed Discharge Table

Elevation	Straight Pipe (cfs)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
175.00	0.000	0.000	0.000
175.50	0.000	0.000	0.000
176.00	0.000	0.000	0.000
176.50	0.000	0.000	0.000
177.00	0.000	0.000	0.000
177.50	0.000	0.000	0.000
178.00	0.000	0.000	0.000
178.50	0.000	0.000	0.000
179.00	0.000	0.000	0.000

Elevation	Straight Pipe (cfs)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
179.50	0.000	0.000	0.000
180.00	0.000	0.000	0.000
180.50	0.000	0.000	0.000
181.00	0.000	0.000	0.000
181.50	0.000	0.000	0.000
182.00	0.000	0.000	0.000
182.50	0.000	0.000	0.000
183.00	0.000	0.000	0.000
183.50	0.000	0.000	0.000
184.00	0.000	0.000	0.000
184.50	0.000	0.000	0.000
185.00	0.000	0.000	0.000
185.50	(3)>1.111	0.000	1.111
186.00	(3)>3.142	0.000	3.142
186.50	(3)>5.774	0.000	5.774
187.00	(5)>8.425	0.000	8.425
187.50	(5)>10.472	0.000	10.472
188.00	(5)>12.173	0.000	12.173
188.50	(5)>13.675	11.523	25.198
189.00	(5)>15.003	23.045	38.048
189.50	(5)>16.242	51.866	68.107
190.00	(5)>17.381	86.121	103.502
190.50	(5)>18.479	131.389	149.868
191.00	(5)>19.477	188.351	207.828

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	87.200	0.564	0.000	0.000	49.000	S	39.52	13.480
	Σ	**87.200**						**39.52**	**13.480**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	2.00	23.00	1,150.00	1.130	0.282
		3. Short grass pasture	2.00	23.00	1,150.00	1.130	0.282
#1	**1**	**Time of Concentration:**					**0.564**

Alabama Sand & Gravel Meadows Site

Pond 007

1yr-24hr Event

Pipe size only

Michael B. Erp

Michael B. Erp, P.E.
116 Wildwood Drive
Somerset, KY 42503

Phone: 606-875-4271
Email: Michael.b.erp@gmail.com

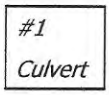
General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	2 yr - 24 hr
Rainfall Depth:	3.700 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Culvert	#1	==>	End	0.000	0.000	Pond 007 Pipe Only



Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	87.200	87.200	2.08	1.58

Structure Detail:

Structure #1 (Culvert)

Pond 007 Pipe Only

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
40.00	1.00	0.0120	1.50	0.00	0.90

Culvert Results:

Design Discharge = 2.08 cfs

Minimum pipe diameter: 1 - 10 inch pipe(s) required

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	87.200	0.564	0.000	0.000	49.000	S	2.08	1.583
	Σ	**87.200**						**2.08**	**1.583**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	2.00	15.00	750.00	1.130	0.184
		3. Short grass pasture	2.00	15.00	750.00	1.130	0.184
#1	**1**	**Time of Concentration:**					**0.564**

Meadows Pond 007 (Direct ES Routing) Riprap

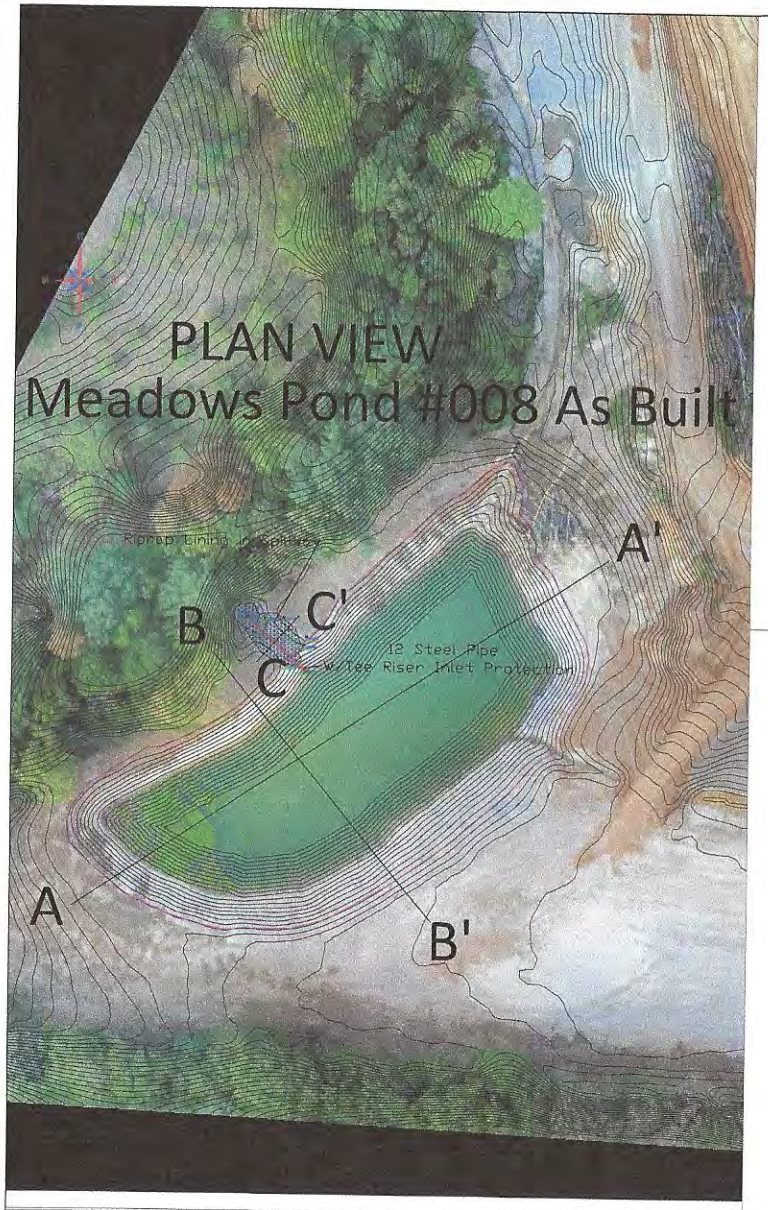
Material: Riprap

Trapezoidal Channel

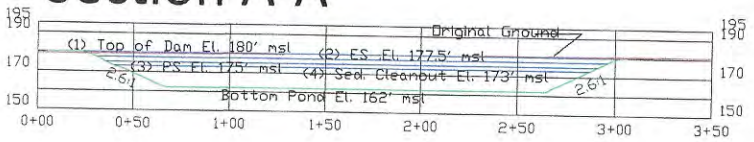
Bottom Width (ft)	Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)
10.00	2.0:1	2.0:1	1.0	1.50		

Simons/OSM Method - Mild Slope Design

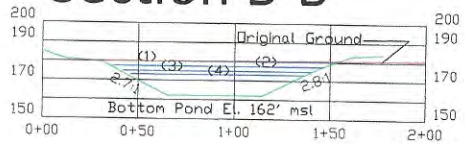
	w/o Freeboard	w/ Freeboard
Design Discharge:	39.52 cfs	
Depth:	0.97 ft	2.47 ft
Top Width:	13.87 ft	19.87 ft
Velocity:	3.43 fps	
X-Section Area:	11.54 sq ft	
Hydraulic Radius:	0.805	
Froude Number:	0.66	
Manning's n:	0.0377	
Dmin:	2.00 in	
D50:	9.00 in	
Dmax:	12.00 in	

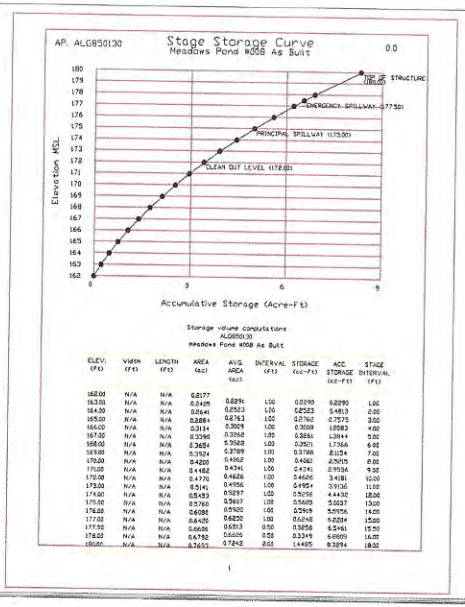


Section A-A'



Section B-B'

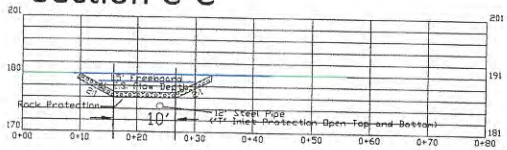




Storage volume computations
ALG850130
Meadows Pond #008 As Built

ELEV. (Ft)	Width (Ft)	LENGTH (Ft)	AREA (ac)	AVG. AREA (ac)	INTERVAL (Ft)	STORAGE (ac-Ft)	ACC STORAGE (ac-Ft)	STAGE INTERVAL (Ft)
162.00	N/A	N/A	0.2177					
163.00	N/A	N/A	0.2405	0.2291	1.00	0.2290	0.2290	1.00
164.00	N/A	N/A	0.2641	0.2523	1.00	0.2523	0.4813	2.00
165.00	N/A	N/A	0.2884	0.2763	1.00	0.2762	0.7575	3.00
166.00	N/A	N/A	0.3134	0.3009	1.00	0.3009	1.0583	4.00
167.00	N/A	N/A	0.3390	0.3262	1.00	0.3261	1.3844	5.00
168.00	N/A	N/A	0.3654	0.3522	1.00	0.3521	1.7366	6.00
169.00	N/A	N/A	0.3924	0.3789	1.00	0.3788	2.1154	7.00
170.00	N/A	N/A	0.4200	0.4062	1.00	0.4061	2.5215	8.00
171.00	N/A	N/A	0.4482	0.4341	1.00	0.4341	2.9556	9.00
172.00	N/A	N/A	0.4770	0.4626	1.00	0.4626	3.4181	10.00
173.00	N/A	N/A	0.5141	0.4956	1.00	0.4954	3.9136	11.00
174.00	N/A	N/A	0.5453	0.5297	1.00	0.5295	4.4430	12.00
175.00	N/A	N/A	0.5760	0.5607	1.00	0.5605	5.0037	13.00
176.00	N/A	N/A	0.6085	0.5920	1.00	0.5919	5.5956	14.00
177.00	N/A	N/A	0.6425	0.6255	1.00	0.6254	6.2209	15.00
177.50	N/A	N/A	0.6606	0.6515	0.50	0.3256	6.5461	15.50
178.00	N/A	N/A	0.6792	0.6699	0.50	0.3349	6.8810	16.00
180.00	N/A	N/A	0.7653	0.7242	2.00	1.4485	8.3294	18.00

Section C-C'



Scale: NTS

CERTIFICATION

I hereby certify that this facility has been constructed in accordance with good engineering practice, and in strict agreement with NPDES Permit #ALG850130, ADEM Regulations, and substantial agreement with the construction plans to revision accepted for the referenced NPDES permit application with Minor Deviations that are documented herein.

ALABAMA REGISTERED PROFESSIONAL ENGINEER MICHAEL B. ERP

October 15, 2019
Date

Michael B.Erp,P.E.
Signature

Prepared for:

ALABAMA SAND & GRAVEL

Scale: 1" = 30'

JOB: P08 AS

Alabama Sand & Gravel Meadows Site

Pond 008

25yr-24 hr Event

Michael B. Erp

Michael B. Erp, P.E.
116 Wildwood Drive
Somerset, KY 42503

Phone: 606-875-4271
Email: Michael.b.erp@gmail.com

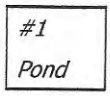
General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	25 yr - 24 hr
Rainfall Depth:	7.500 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Pond	#1	==>	End	0.000	0.000	Pond 008 Meadows



Structure Summary:

		Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	In	20.200	20.200	12.11	3.12
	Out			2.38	3.11

Structure Detail:

Structure #1 (Pond)

Pond 008 Meadows

Pond Inputs:

Initial Pool Elev:	185.00
Initial Pool:	5.07 ac-ft

Straight Pipe

Barrel Diameter (in)	Barrel Length (ft)	Barrel Slope (%)	Manning's n	Spillway Elev	Entrance Loss Coefficient	Tailwater Depth (ft)
12.00	40.00	1.00	0.0120	185.00	0.90	0.00

Emergency Spillway

Spillway Elev	Crest Length (ft)	Left Sideslope	Right Sideslope	Bottom Width (ft)
187.50	30.00	2.00:1	2.00:1	10.00

Pond Results:

Peak Elevation:	186.10
Dewater Time:	0.69 days

Dewatering time is calculated from peak stage to lowest spillway

Elevation-Capacity-Discharge Table

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)
175.00	0.320	0.000	0.000	
175.50	0.336	0.164	0.000	
176.00	0.353	0.336	0.000	
176.50	0.370	0.517	0.000	
177.00	0.387	0.706	0.000	
177.50	0.405	0.904	0.000	
178.00	0.423	1.111	0.000	
178.50	0.442	1.327	0.000	
179.00	0.461	1.553	0.000	
179.50	0.480	1.788	0.000	

Elevation	Area (ac)	Capacity (ac-ft)	Discharge (cfs)	Dewater Time (hrs)	
180.00	0.500	2.033	0.000		
180.50	0.520	2.288	0.000		
181.00	0.541	2.554	0.000		
181.50	0.562	2.829	0.000		
182.00	0.583	3.116	0.000		
182.50	0.605	3.413	0.000		
183.00	0.627	3.721	0.000		
183.50	0.650	4.040	0.000		
184.00	0.673	4.371	0.000		
184.50	0.696	4.713	0.000		
185.00	0.720	5.067	0.000		Spillway #1
185.50	0.745	5.433	0.751	5.90*	
186.00	0.771	5.812	2.094	8.50	
186.10	0.776	5.894	2.376	2.10	Peak Stage
186.50	0.797	6.204	3.443		
187.00	0.823	6.609	4.414		
187.50	0.850	7.027	5.173		Spillway #2
188.00	0.877	7.458	17.349		
188.50	0.905	7.904	29.420		
189.00	0.933	8.363	58.743		
189.50	0.961	8.836	93.469		
190.00	0.990	9.324	139.182		

**Designates time(s) to dewater have been extrapolated beyond the 50 hour hydrograph limit.*

Detailed Discharge Table

Elevation	Straight Pipe (cfs)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
175.00	0.000	0.000	0.000
175.50	0.000	0.000	0.000
176.00	0.000	0.000	0.000
176.50	0.000	0.000	0.000
177.00	0.000	0.000	0.000
177.50	0.000	0.000	0.000
178.00	0.000	0.000	0.000
178.50	0.000	0.000	0.000
179.00	0.000	0.000	0.000
179.50	0.000	0.000	0.000
180.00	0.000	0.000	0.000

Elevation	Straight Pipe (cfs)	Emergency Spillway (cfs)	Combined Total Discharge (cfs)
180.50	0.000	0.000	0.000
181.00	0.000	0.000	0.000
181.50	0.000	0.000	0.000
182.00	0.000	0.000	0.000
182.50	0.000	0.000	0.000
183.00	0.000	0.000	0.000
183.50	0.000	0.000	0.000
184.00	0.000	0.000	0.000
184.50	0.000	0.000	0.000
185.00	0.000	0.000	0.000
185.50	(3)>0.751	0.000	0.751
186.00	(3)>2.094	0.000	2.094
186.50	(5)>3.443	0.000	3.443
187.00	(5)>4.414	0.000	4.414
187.50	(6)>5.173	0.000	5.173
188.00	(6)>5.826	11.523	17.349
188.50	(6)>6.374	23.045	29.420
189.00	(6)>6.877	51.866	58.743
189.50	(6)>7.348	86.121	93.469
190.00	(6)>7.792	131.389	139.182

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	20.200	0.368	0.000	0.000	49.000	S	12.11	3.123
	Σ	**20.200**						**12.11**	**3.123**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	2.00	30.00	1,500.00	1.130	0.368
#1	**1**	**Time of Concentration:**					**0.368**

Alabama Sand & Gravel
Meadows Site

Pond 008

1yr-24hr Event

Pipe size only

Michael B. Erp

Michael B. Erp, P.E.
116 Wildwood Drive
Somerset, KY 42503

Phone: 606-875-4271
Email: Michael.b.erp@gmail.com

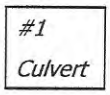
General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	2 yr - 24 hr
Rainfall Depth:	3.700 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Culvert	#1	==>	End	0.000	0.000	Pond 008 Pipe Only



Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#1	20.200	20.200	0.57	0.37

Structure Detail:

Structure #1 (Culvert)

Pond 008 Pipe Only

Culvert Inputs:

Length (ft)	Slope (%)	Manning's n	Max. Headwater (ft)	Tailwater (ft)	Entrance Loss Coef. (Ke)
40.00	1.00	0.0120	1.00	0.00	0.90

Culvert Results:

Design Discharge = 0.57 cfs

Minimum pipe diameter: 1 - 6 inch pipe(s) required

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#1	1	20.200	0.368	0.000	0.000	49.000	S	0.57	0.367
	Σ	**20.200**						**0.57**	**0.367**

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	3. Short grass pasture	2.00	15.00	750.00	1.130	0.184
		3. Short grass pasture	2.00	15.00	750.00	1.130	0.184
#1	**1**	**Time of Concentration:**					**0.368**

Meadows Pond 008 (Direct ES Routing) Riprap

Material: Riprap

Trapezoidal Channel

Bottom Width (ft)	Left Sideslope Ratio	Right Sideslope Ratio	Slope (%)	Freeboard Depth (ft)	Freeboard % of Depth	Freeboard Mult. x (VxD)
10.00	2.0:1	2.0:1	1.0	1.50		

Simons/OSM Method - Mild Slope Design

	w/o Freeboard	w/ Freeboard
Design Discharge:	12.11 cfs	
Depth:	0.48 ft	1.98 ft
Top Width:	11.94 ft	17.94 ft
Velocity:	2.28 fps	
X-Section Area:	5.31 sq ft	
Hydraulic Radius:	0.437	
Froude Number:	0.60	
Manning's n:	0.0377	
Dmin:	2.00 in	
D50:	9.00 in	
Dmax:	12.00 in	

APPENDIX C
SPCC Plan

Spill Prevention, Control and Countermeasures (SPCC) Plan

FOR

Ferroglobe USA Quartz, Inc.
NPDES permit ALG850130
Lowndesboro, Alabama

June 2025

Prepared by:
Tom Joiner & Associates, Inc.
P.O. Box 1490
Tuscaloosa, AL 35403
(205) 345-2311

ENGINEER CERTIFICATION

I hereby certify that I have visited and examined the Facility, and being familiar with the provisions of Environmental Protection Agency (EPA) Code of Federal Regulations, 40 CFR Part 112 and the Facility's NPDES permit, and attest that this SPCC Plan has been prepared in accordance with good engineering practices and the regulations, and it is adequate for the Facility.

Certifying Engineer: Jarrod Milligan, P.E.
Alabama Registration No. 31642

Signature: _____

Certification Date: 6-23-25 Engineer Seal

MANAGEMENT CERTIFICATION

I hereby certify that management of this Facility extends its full approval of this SPCC Plan and will commit the necessary resources for implementation.

Name: Chad Richards
Ferroglobe USA Quartz, Inc., Meadows Plant
Mine Manager

Signature: _____

Date: _____

Table of Contents

continued

FIGURES

APPENDICES

I. INTRODUCTION

This plan has been developed in accordance with Title 40 CFR 112.7 (Guidelines for the preparation and implementation of a Spill Prevention, Control and Countermeasure (SPCC) Plan in addition to State and Local regulations and the ADEM General National Pollutant Discharge Elimination System (NPDES) permit (ALG850130) for this Facility that requires the development and implementation of a SPCC Plan. This SPCC Plan is a facility-wide plan for the handling and storage of all fuels stored on site at the Meadows Mine operated by Ferroglobe USA Quartz, Inc. ("Facility") in Lowndesboro, Alabama. The plan also includes chemical coagulants and flocculants used at the site

This SPCC Plan provides information on all existing aboveground oil, petroleum based product or chemical storage tanks with a storage capacity exceeding 55 gallons. It also includes basic information of personnel training and steps to be taken in the event of a spill.

II. LOCATION OF SPCC PLAN

In accordance with 40 CFR 112.3, a complete copy of this SPCC Plan is maintained at the Plant office located in at the Meadows Pit mine office.

III. SPCC PLAN REVIEW

In accordance with 40 CFR 112.5, this SPCC Plan is reviewed and evaluated for changes at the Facility at least once every five years. Evidence of these reviews is recorded below:

Reviewed/Evaluated By:	Date	Details
Michael Erp, PE.	June 1, 2018	SPCC Plan
Joseph E. Patrick, PE	April 26, 2021	SPCC Plan revision/update
Joseph E. Patrick, PE	December 2021	SPCC Plan revision/update
Joseph E. Patrick	August 2022	SPCC Plan update
Joseph E. Patrick	December 2022	SPCC Plan update
Joseph E. Patrick	December, 2023	SPCC Plan (name change)
Jarrod Milligan, P.E.	June 2025	SPCC Plan Update

Action Items

In accordance with 40 CFR 112.7, action items are listed in the implementation schedule below. The Plant Manager will enter the actual date of completion of each item. Completed action items will be removed from the list at the next SPCC Plan revision.

Location	Action Item	Responsible Person	Date Completed

IV. FACILITY INFORMATION

Ferroglobe operates a sand and gravel mine in Lowndesboro, AL where they mine gravel that is used to extract silicon metals at an offsite facility. The gravel is mined using excavators and graders. Once mined it is hauled to an onsite washing plant for grading and cleanup and then it is stockpiled until it is loaded onto a truck or rail car for shipping

Site Location

The Meadows Mine is located in Sections 25, 26, 35 and 36, Township 16 North, Range 14 East in Lowndesboro, Alabama at latitude 33° 19′ 54″ and longitude 86° 37′ 15″ (See Figure 1). The street address is as follows:

Ferroglobe USA Quartz, Inc..
3714 County Road 40E
Lowndesboro, AL 36752

Fuel and Chemical Storage

A summary of the bulk fuels and chemicals handled and stored at the Facility are presented in Table 1. The containment systems are shown on Figures 2 though 5. Material Safety Data Sheets (MSDS) for these bulk fuels are included as Appendix A.

Table 1

Description of Bulk Containments for Petroleum Products

Location of Tanks *	Number of Tanks	Container and Size (gallons)	Minimum of 110% of Largest Tank	Stored Material	Secondary Containment
Fueling Area	1	10,000	Y	Diesel Fuel	Double Walled AST
	1	1,000	Y	Diesel Fuel	Double Walled AST
	1	1,000	Y	Unleaded Gasoline	Double Walled AST
	1	Varies (55)	Y	Grease/lube oils	Lined Containment
	2	330	Y	Oil (hydraulic)	Lined Containment
	2	1,000	Y	Oil (Engine and TO-4 Oil)	Lined Containment
	1	1000	Y	Used Oil	Lined Containment
	1	275	Y	Antifreeze	Lined Containment
Plant	1	275	Y	Coagulant CO310	Concrete Containment to be constructed
	1 to 2	275	Y	Flocculant	Spill Pallet(s)*
	1	Varies (275)	Y	**DEF	Lined Containment
	1	55	Y	Used oil	Spill Pallets

*** Non petroleum liquids may be handled with secondary containment or contingency plan**

****DEF: Diesel Exhaust Fluid**

Any subcontractors that bring petroleum substances on site will be required to identify them and provide Ferroglobe with the container size and containment necessary to meet the requirements of 40 CFR 112.7

Underground Storage Tanks

There are no underground or partially buried tanks at this site.

Facility Transfer Operations

It is not practical to provide secondary containment to hold at least the maximum capacity of any single compartment of truck loading and unloading where oil/chemicals are transferred from tanks to trucks or trucks to tanks.

Facility personnel will ensure that the loading and unloading procedures adhere to the following:

- Turn off vehicle engine.
- Engage vehicle hand brake or chock wheels.
- No open flames allowed.
- Measure the tank volume to determine available volume in the AST to be filled or emptied.
- Remain with the vehicle during the entire loading and unloading.
- Catch drips or clean-up any spills during the loading/unloading process.
- Prior to departing, inspect all valves/hoses of tanks and truck for leakage.

Prior to filling and departure the driver will be required to examine the lowermost drain and all outlets of the truck for leakage, and make any necessary adjustments or repairs, prior to departure. Truck drivers are warned not to depart before disconnecting transfer lines/hoses.

V. DISCHARGE PREVENTION

Discharge prevention will be accomplished using secondary containment, drainage procedures, training, and inspections as described below.

Secondary Containment

All bulk containers (including mobile or portable oil/chemical storage containers) that are 55 gallons or larger will be provided with a secondary means of containment for the entire capacity of the largest single container and sufficient freeboard to contain precipitation (110% of the volume of the largest single container). Existing and future containment areas are shown on Figures 2 through 5.

Non-petroleum chemical coagulants will either be stored with secondary containment or will be managed via a contingency plan. In the event of a spill of the chemical coagulants at the wash plant, Ferroglobe has installed a valve on the final discharge pond. If a spill event occurs and if it escapes the secondary containment, the coagulant would flow to the sediment ponds; closing the valve will prevent the discharge of any excess coagulants to the receiving stream.

Personnel Training and Briefing Guide

The Mine Manager will hold a formal briefing session at least once a year to discuss the SPCC plan and familiarize plant employees with the location and operation of the following items:

1. The location and contents of all storage tanks.
2. The correct loading and unloading procedures for all fuels and chemicals stored at the site.
3. The drainage procedures for secondary containment.
4. Inspection requirements.
5. Spill response procedures.
6. The location and use of spill cleanup materials.

In addition, Ferroglobe supervisors will be familiar with spill response actions. A form for documentation of personnel training is included in Appendix B.

Contingency Plans

Non petroleum products (coagulants, flocculants, etc.) may either be handled using spill containment or a contingency plan. Non-petroleum chemicals (coagulant and flocculant) used at the wash plant and water treatment basins may also be handled by following the following contingency plan. The storage

of these chemicals is within the drainage area of the after sedimentation ponds. In the event of a failure and release of these tanks, the discharge from the sediment pond (Outfall 007) will be closed or valved off such that the chemical is contained within the ponds and where it will either be neutralized or reused.

Security

All tanks/storage containers are located inside the fenced perimeter of the mine. Access to the mine is restricted (via a gate) to plant employees and approved contractors/vendors.

Each secondary containment drain valve is maintained in the closed position with a lock in place. The Mine Manager, or his/her designee, will have a key to open the lock in the event that the drain valve needs to be opened for the drainage of any accumulated rainwater. Loading and unloading connections to facility piping, not in service or in standby service, will be capped or blank flanged.

Drainage of Rainwater

All storage tanks are within drainage areas to an un-named tributary to Cypress Creek or an unnamed tributary to Powell Creek. Containment drainage is accomplished in accordance with the procedures outlined below.

In the event that rainwater accumulation occurs within the containment dike, drainage from the dike will be conducted using the drain valve according to the procedures outlined below. All containment drainage will be drained in general accordance with the procedures of the Containment Drainage Form (Appendix C).

1. The drain valve will be closed and locked under normal operating conditions.

2. The rainwater accumulation within the dike wall will be inspected by the employee prior to unlocking and opening the valve.

    a. If no oil or chemical is detected on accumulated waters, the drain valve may be opened and resealed/locked following drainage. The volume drained will be documented on the Containment Drainage Form (Appendix C).
    b. If spills are discovered within containment structures complete either steps 3 or 4.

3. If the spill is a small quantity, absorbent pads or material may be used to recover the substance prior to discharge; if oil is involved the discharge can proceed provided there is no oil (or sheen) in the discharge.

4. For Oil, if the spilled quantity is too large to be handled using absorbent materials, remove rainwater by draining the clear water beneath oil layer until that oil layer is within two inches of the containment drain line. The oil and associated water can then be pumped out with a portable pump or vacuum truck and will be managed in accordance with local state and federal regulations.

Inspections

Twice weekly Inspections will be conducted by Ferroglobe personnel to ensure that this Facility is equipped to avoid spills as well as to respond to spills during emergency actions. Inspections may include the following:

1. Inspection of all drums, tanks, tank supports, containment walls, dikes and all piping, pipe supports, hoses, nozzles, valves, and accessories by experienced personnel in general accordance with the Inspection Form included as See Appendix D. In addition, plant personnel will inspect oil-filled electrical, operating or manufacturing equipment for signs of leakage or spillage of oil. If any defects or leaks are noticed, they should be reported to the Mine Manager and repaired immediately.

2. Inventory of absorbent materials.

3. Inventory of fire extinguishers, spill response kits, and other safety equipment.

4. Inspection of areas around the tanks for accumulation of water, spills and contamination. Remove polluted substances and dispose of properly.

5. Inspection of field drainage systems (such as drainage ditches or road ditches), and oil traps, sumps, or skimmers, for an accumulation of oil that may have resulted from any small discharge.

Uses a coagulant that is injected at the wash plant to rinse waters before they discharge to the sediment ponds. The sediment ponds consist of several ponds constructed in series that function to treat the rinse water so that it can be reused. The final pond is equipped with an outfall that allows the final pond to discharge to an UT of Cypress Creek via Outfall 007. As a contingency, Ferroglobe will inspect these tanks/totes regularly and in the event that the tank were to experience a failure, the Mine Manager or designee will ensure that the 007 pond does not discharge (by sealing of closing the outfall pipe) and prevent any excess coagulant from leaving the pond system. Alternately, Ferroglobe may provide containment for these totes that store non-petroleum liquids.

Annual Aboveground Tank Testing

All aboveground storage tanks (ASTs) will be inspected and/or tested for structural integrity on an annual basis. Additionally, ASTs will be inspected if

the AST undergoes repair, alteration, reconstruction or change in service. Testing will consist of a visual inspection of all components of the tank, including the walls, seams, fittings, gaskets, valves, rivets, supports, foundations and piping. A person technically qualified to evaluate the structural integrity of the tank will perform this integrity testing. The form for documentation of this inspection can be found in Appendix E.

VI. DISCHARGE RESPONSE

In the event that a discharge is discovered, the following response procedure shall be followed, as outlined in Appendix F.

Discharge Response Procedure

1. Contact the Mine Manager.

2. Identify the source of the leak and take measures to secure the site and to prevent the leak or spill from posing an immediate hazard to human health or safety. For explosive/flammable petroleum products, this would involve the removal of obvious fire hazards such as electrical equipment and ignition sources. The local fire department can help and advise in this regard.

3. Take immediate action to stop the leak or spill and start clean-up using appropriate materials, equipment and containers. All spill and clean-up materials should be properly handled and recycled or disposed of.

4. Report all oil and petroleum product spills.

    a. Spills of 25 gallons or less which fall on land and are immediately contained and cleaned up, do not have to be reported.

    b. If a spill larger than 25 gallons occurs, contact the National Response Center, ADEM, and the Alabama EMA immediately by phone to report the following types of spills:

        i. Spills exceeding 25 gallons, which fall on land
        ii. Spills reaching water and causing a sheen or discoloration

The National Response Center will contact the EPA. The Mine Manager will submit a written report to ADEM reporting a NPDES Non-compliance event using ADEM Form 421.

Emergency Response Telephone Numbers

Mine Manager: Chad Richards	205-755-9995
Local Fire Department	911
Alabama EMA	205-280-2310
After Hours - State Warning Point	800-843-0699
Lowndes County EMA	334-548-2589
ADEM Ombudsman	800-533-2336
Field Operations	205-942-6168
(After Hours)	205-583-5560
US EPA, Atlanta	404-562-8700
National Response Center	800-424-8802

If >25 gallons is released, the release must be reported immediately to the National Response Center (NRC) (1-800-424-8802) as discussed in Section VI. A discharge information form is included as Appendix C.

In accordance with 40 CFR 112.7(a) (4), the following information must be reported to the NRC:

- Facility address and phone number
- Date and Time of release
- Type of material discharged
- Estimated discharge quantity
- Source of discharge
- Description of effected media
- Cause of discharge
- Damages or injuries caused by discharge
- Actions to stop discharge
- If an evacuation is necessary
- Names of organizations and/or individuals who have been contacted

In accordance with 40 CFR 112.4(a), a discharge of more than 1,000 gallons of oil in a single discharge or two discharges of more than 42 gallons each in a 12-month period will be reported to the EPA Regional Administrator within 60 days. The following information must be submitted:

- Facility name
- Name of operator/owner
- Facility address and description including maps as necessary
- Maximum storage
- Corrective action taken
- Cause of discharge
- Additional preventative measures taken to prevent reoccurrences

Potential Discharge Flow and Direction

Any potential discharge occurring as a result of major equipment failure (loading or unloading equipment, tank overflow, rupture, or leakage) would flow to the stormwater inlet and then to an un named tributary to Cypress or Powell Creek. However, in the event of a discharge, **Ferroglobe employees will contain any material using spill absorbents and dikes in an effort to prevent the material from migrating to a navigable water.** Any recovered materials will be managed in accordance with local, state and federal regulations.

Visible Discharges

Visible discharges that may result in a loss of oil from a container will be promptly corrected (included seams, gaskets, piping, pumps, valves, rivets and bolts). Additionally, any oil accumulations will be removed from diked areas as discussed in Section V of this SPCC Plan.

Recovered Material Disposal

Materials recovered will be disposed of in accordance with federal, state and local regulations.

VII. SPILL RECORD

There have been no reportable spill events at this site

Figures

R 14 E | R 15 E

T 15 N | T 16 N

NPDES PERMIT BOUNDARY

004

001

002

011

007

008

009

Revised 6/19/2025

Outfall	Latitude	Longitude
001	32.33083	-86.62192
002	32.33020	-86.61990
004	32.33670	-86.62416
007	32.32473	-86.63310
008	32.32282	-86.63445
009	32.32627	-86.62645
011	32.32590	-86.62040

FIGURE 1

VICINITY MAP

OUTFALL

NPDES PERMIT BOUNDARY

N

0 2000’

SCALE IN FEET

SOURCES: WHITE HALL 7.5’ USGS QUADRANGLE (1982) AND LOWNDESBORO 7.5’ USGS QUADRANGLE (1981)

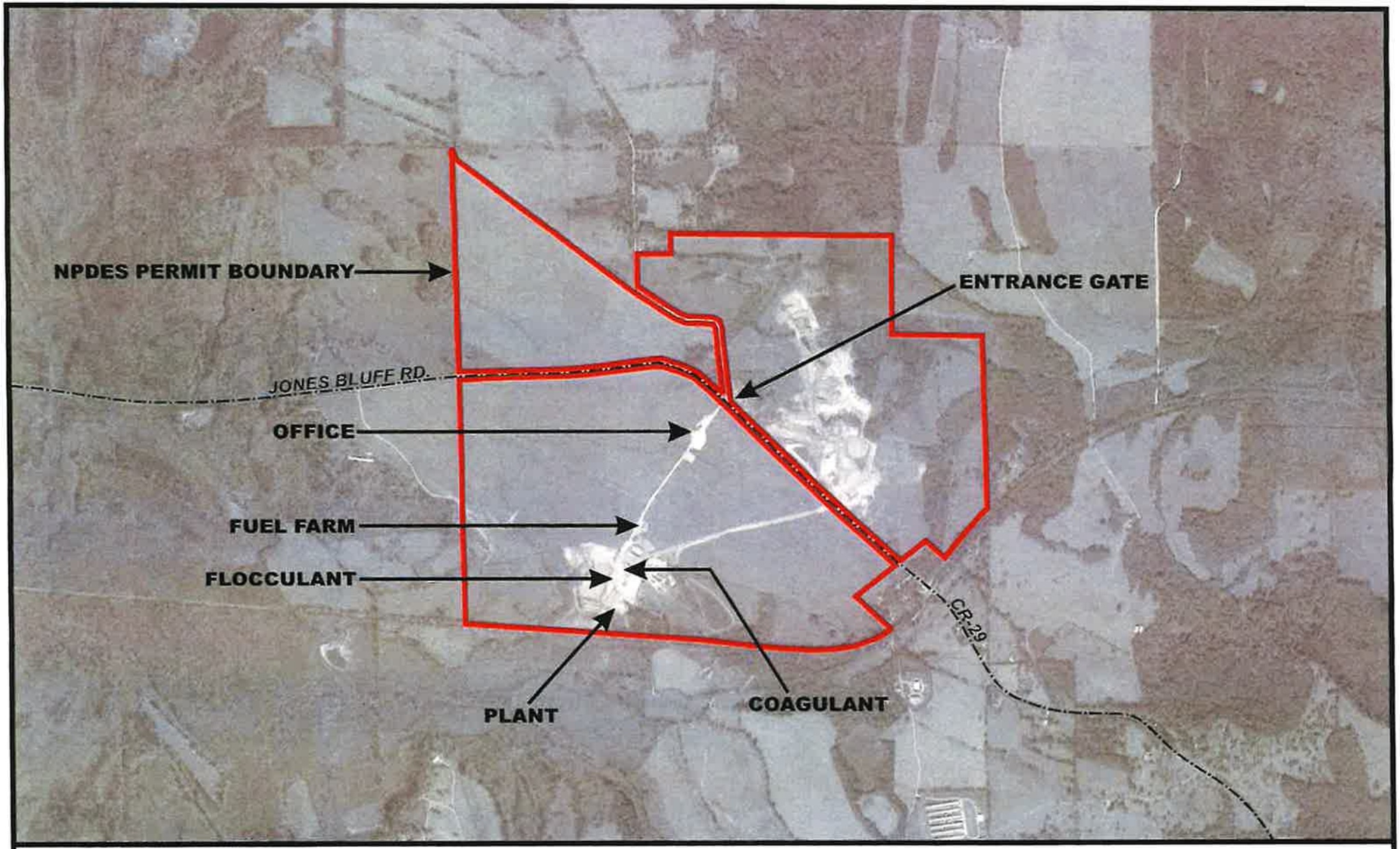


FIGURE 2

LOCATION MAP

N

0 2000'

SCALE IN FEET

SOURCE: GOOGLE EARTH IMAGERY (IMAGE DATE: 3/19/2019)

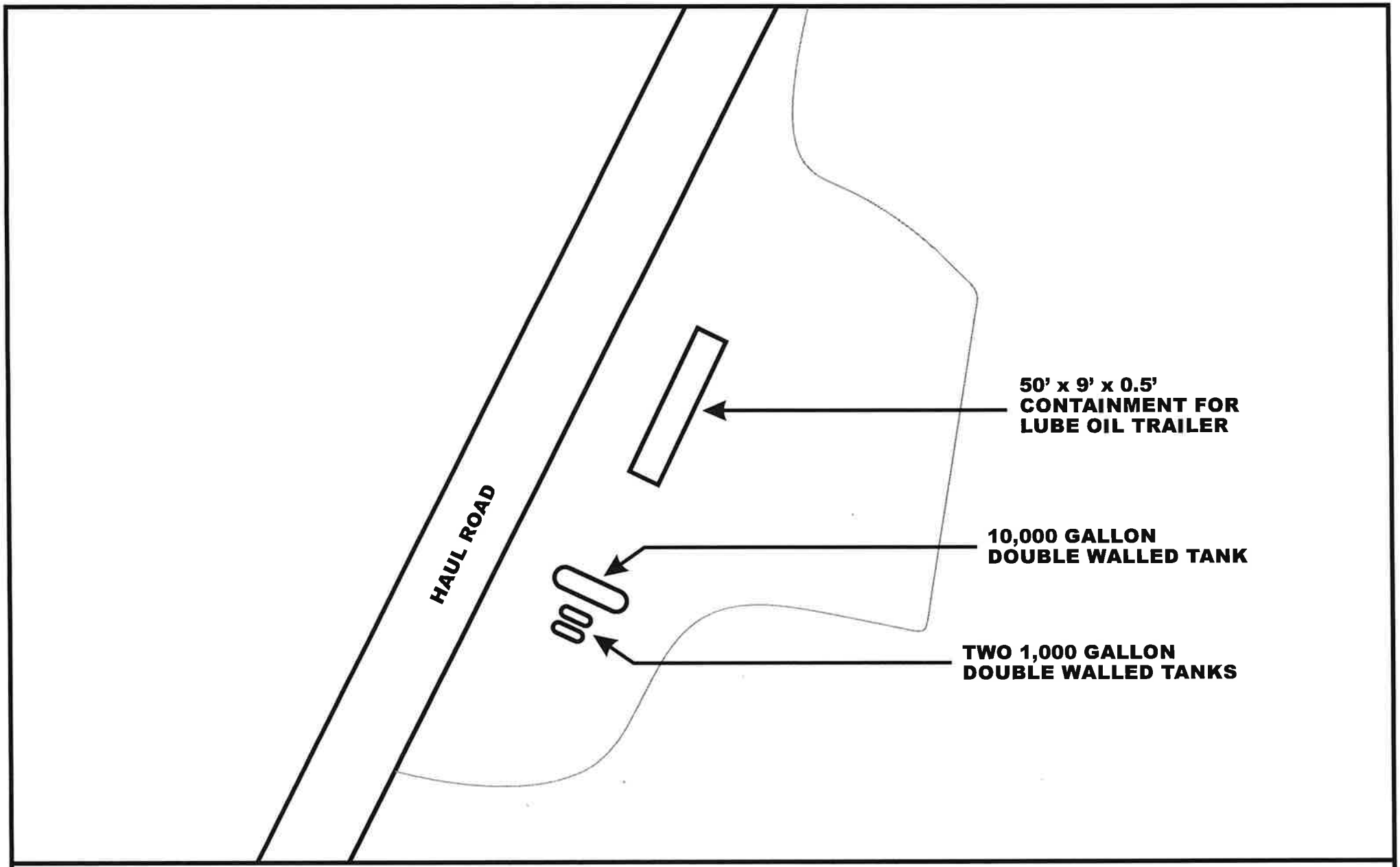
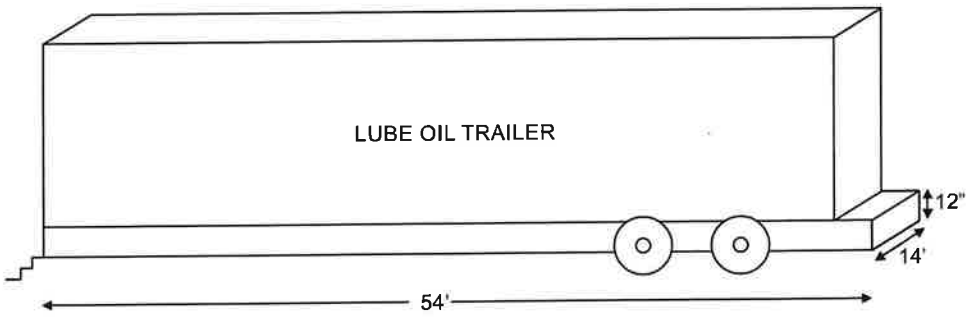


FIGURE 3

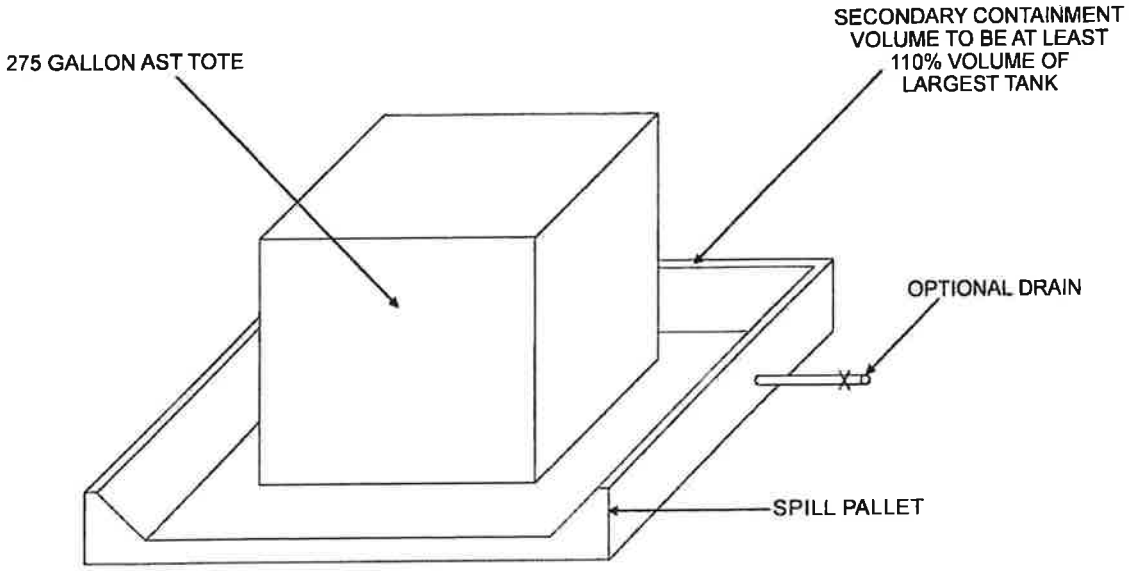
FUEL FARM
AREA SCHEMATIC



DIMENSIONS = 54' x 14' x 12"
CAPACITY = ~5,655 GAL

FIGURE 4

LUBE OIL TRAILER



SECTION VIEW

— ALL CONTAINMENT TO BE LABELED TO IDENTIFY CONTENTS

— ALL VALVES ON CONTAINMENT MUST BE OF THE MANUAL DESIGN AND MUST BE SECURED WITH A LOCK WHEN FACILITY IS NOT ATTENDED

FIGURE 5

275 GALLON FLOCCULANT STORAGE TANK

Appendices

Appendix A

SDS For Chemical Coagulant and Flocculant

MATERIAL SAFETY DATA SHEET

ZEE COMPANY
A Member of The Vincit Group

Date Issued: 08/02/2007
MSDS No: EA 17

EA 17

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: EA 17
PRODUCT DESCRIPTION: ANIONIC POLYACRYLAMIDE WASTE WATER POLYMER
PRODUCT FORMULATION NAME: EA 17
ACTIVE INGREDIENT(S): Petroleum distillate

MANUFACTURER
Zee Company, Inc.
4146 South Creek Road
Chattanooga, TN 37406
Emergency Contact: James A. Faller
Service Number: (423) 698-1401

24 HR. EMERGENCY TELEPHONE NUMBERS
CHEMTREC (800) 424-9300

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

PHYSICAL APPEARANCE: White liquid

IMMEDIATE CONCERNS: Eye irritant

POTENTIAL HEALTH EFFECTS

EYES: Irritation or burning of eyes

SKIN: May cause skin irritation.

INGESTION: May be harmful if ingested.

SIGNS AND SYMPTOMS OF OVEREXPOSURE

EYES: Severe irritation and burning

SKIN: Redness and irritation

INGESTION: Gastric pain and vomiting

INHALATION: Coughing and sneezing from extreme exposure.

CHRONIC EFFECTS: N/A

CARCINOGENICITY: N/A

MUTAGENICITY: N/A

REPRODUCTIVE TOXICITY

REPRODUCTIVE EFFECTS: N/A

TERATOGENIC EFFECTS: N/A

MEDICAL CONDITIONS AGGRAVATED: None known

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Wt.%	CAS
Petroleum distillate	20 - 35	64724-47-8

4. FIRST AID MEASURES

MATERIAL SAFETY DATA SHEET

ZEE COMPANY
A Member of The Vance Group

Date Issued: 08/02/2007
MSDS No: EA 17

EA 17

EYES: Flush eyes with running water for at least 15 minutes. Get medical attention and check for corneal damage.

SKIN: Flush exposed skin with water for at least 15 minutes and get medical attention if irritation persists.

INGESTION: DO NOT induce vomiting. If conscious, give several large glasses of water. Never give anything by mouth to an unconscious person. Call physician immediately.

5. FIRE FIGHTING MEASURES

FLASHPOINT AND METHOD: > (215°F)

FLAMMABLE LIMITS: NA to NA

AUTOIGNITION TEMPERATURE: None

EXTINGUISHING MEDIA: Use water spray, dry chemical, carbon dioxide (CO2), or alcohol foam when fighting fires involving this material.

EXPLOSION HAZARDS: NONE

FIRE FIGHTING PROCEDURES: NONE

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL: Mop up spill and flush area with water.

LARGE SPILL: Dike spill and vacuum or pump spilled material into proper storage container for hazardous waste disposal.

7. HANDLING AND STORAGE

GENERAL PROCEDURES: Keep this and all chemicals out of the reach of children.

STORAGE: Do not freeze. Keep container closed when not in use. Follow label instructions.

STORAGE TEMPERATURE: (36°F) Minimum to (90°F) Maximum

ELECTROSTATIC ACCUMULATION HAZARD: N/A

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Chemical resistant safety goggles/glasses with side shields.

SKIN: Chemical resistant gloves recommended for any prolonged or repeated contact with any chemicals.

RESPIRATORY: Not required

PROTECTIVE CLOTHING: Not required

WORK HYGIENIC PRACTICES: Always use goodhousekeeping procedures when handling chemicals.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

ODOR: Petroleum distillate

MATERIAL SAFETY DATA SHEET

ZEE COMPANY
A Member of The Vitest Group

Date Issued: 08/02/2007
MSDS No: EA 17

EA 17

APPEARANCE: Opaque liquid
COLOR: White
pH: 6 to 8
PERCENT VOLATILE: 56 - 62
VAPOR PRESSURE: Not Determined
VAPOR DENSITY: Not Established
BOILING POINT: No information
FREEZING POINT: No information
MELTING POINT: No information
FLASHPOINT AND METHOD: > (215°F)
SOLUBILITY IN WATER: Completely Miscible
EVAPORATION RATE: < 1 (Water = 1)
SPECIFIC GRAVITY: 1.030 to 1.06
VISCOSITY #1: at (80°F)
WEIGHT PER VOLUME: 8.7 lb/gal

10. STABILITY AND REACTIVITY

STABLE: Yes
HAZARDOUS POLYMERIZATION: No
POLYMERIZATION: Hazardous polymerization will not occur.
HAZARDOUS DECOMPOSITION PRODUCTS: Oxides of carbon and nitrogen on thermal decomposition
INCOMPATIBLE MATERIALS: Oxidizers

11. TOXICOLOGICAL INFORMATION

CARCINOGENICITY
IARC: Ingredients not listed.
NTP: Ingredients not listed.
OSHA: Ingredients not listed.

12. ECOLOGICAL INFORMATION

AQUATIC TOXICITY (ACUTE): Daphnia magna 48 hr. EC50 >100 mg/l. Brachydanio rerio 96 hr. LC50 >100 mg/l.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Dispose of in accordance with Federal, State and local regulations.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)

MATERIAL SAFETY DATA SHEET

ZEE COMPANY
A Member of The Vince Group

Date Issued: 08/02/2007
MSDS No: EA 17

EA 17

PROPER SHIPPING NAME: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
TECHNICAL NAME: Contains Ammonium Acetate
PRIMARY HAZARD CLASS/DIVISION: 9
UN/NA NUMBER: UN3082
PACKING GROUP: III
REPORTABLE QUANTITY (RQ) UNDER CERCLA: 50000 pounds
BULK FREIGHT CLASS: 55

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

311/312 HAZARD CATEGORIES: Reporting required for inventory above TPQ

ACUTE: Yes

313 REPORTABLE INGREDIENTS: Not required

302/304 EMERGENCY PLANNING

EMERGENCY PLAN: Section 302 reporting not required. Section 304 reporting is required for releases above the threshold amount listed.

CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)

CERCLA REGULATORY: Same as section 304

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA REGULATORY: INGREDIENTS LISTED

RCRA STATUS: N/A

16. OTHER INFORMATION

APPROVED BY: James A. Faller **TITLE:** Director of Research
PREPARED BY: James A Faller
INFORMATION CONTACT: James Faller
REVISION SUMMARY: New MSDS

HMIS RATING

HEALTH:	2
FLAMMABILITY:	1
PHYSICAL HAZARD:	0
PERSONAL PROTECTION:	B

GENERAL STATEMENTS: The information contained herein is believed to be accurate but is not warranted to be so. Users are advised to confirm in advance of need that Information is current, applicable, and suited to the circumstances of use. Vendor assumes no responsibility for injury to vendee

MATERIAL SAFETY DATA SHEET

ZEE COMPANY
A Member of The Vinca Group

Date Issued: 08/02/2007
MSDS No: EA 17

EA 17

or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed.

ZEE COMPANY®
A Member of The Vincit Group

MATERIAL SAFETY DATA SHEET

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product name	CO 310
Synonyms	None
Supplier	ZEE COMPANY, INC. 4146 South Creek Road Chattanooga, TN 37406 (423) 698-1401
NFPA Rating	Health: 1 Flammability: 0 Reactivity: 0
HMIS Rating	Health: 1 Flammability: 0 Reactivity: 0

Emergency telephone
CHEMTREC: (800) 424-9300

EMERGENCY OVERVIEW
Clear, viscous, straw colored liquid. May cause mild skin and eye irritation.

Section 2: HAZARDS IDENTIFICATION

Hazard Information
May cause mild eye and skin irritation.

Eye contact
None expected, but prolonged or repeated eye contact may result in mild irritation and redness of a short-term nature.

Skin contact
None expected, but prolonged or repeated skin contact may result in irritation of a short-term nature.

Inhalation
This product is not toxic by inhalation.

Ingestion
Effects of ingesting small amounts are negligible; ingesting large amounts may injure person slightly.

Aggravated Medical Conditions
None known

Chronic Exposure
Prolonged or repeated skin exposure may cause dermatitis.

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component name CAS Number	weight-%	OSHA - PEL's	ACGIH 2002 - TLV's
Polydimethyldiallylammonia chloride 26062-79-3	~20%	Not Established	Not Established
Water 7732-18-5	~80%	Not Established	Not Established

Section 4: FIRST AID MEASURES

Eye contact
Immediately flush with plenty of water for at least 15 minutes, holding eyelids apart to ensure flushing of the entire surface. Washing within one minute is essential to achieve maximum effectiveness. Seek medical attention if irritation should develop.

Skin contact
Immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and footwear. Wash contaminated clothing before reuse. Get medical attention if irritation develops.

Inhalation
Remove person to fresh air and watch for a delayed reaction. Give artificial respiration if breathing stops and seek medical attention.

Ingestion
Do not induce vomiting. If vomiting should occur spontaneously, keep the airway clear. Get medical attention. Never give anything by mouth to an unconscious person.

Chronic Exposure
Prolonged or repeated skin exposure may cause dermatitis.

Notes to Physician
Treat symptomatically.

Section 5: FIRE FIGHTING MEASURES

Flash point	> 100 °C / > 212 °F
Autoignition temperature	Not applicable
Flammable Limits in Air - Lower (%)	Not applicable
Flammable Limits in Air - Upper (%)	Not applicable

Suitable extinguishing media
Use extinguishing media appropriate for surrounding fire. This material is not expected to burn unless heated to dryness. Water. Foam. Carbon dioxide (CO2). Dry chemical.

Firefighting measures
Cool exposed containers with water spray after extinguishing fire.

Specific hazards during fire fighting:
Thermal decomposition (as may be experienced in a fire) may produce hydrogen chloride gas and/or may liberate oxides of nitrogen and carbon. Spills produce slippery surfaces and could present a physical hazard for firemen.

Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

Section 6: ACCIDENTAL RELEASE MEASURES

Procedure for Cleaning/Absorption
Area around spill should be diked immediately to prevent spreading. Clean up spill immediately using inert absorbent materials such as clays, sand, earth or other commercially available dry sweeping compound. Product may cause slip hazard. If slippery conditions persist, apply additional dry sweeping compound. Following containment, large spills should be pumped into salvage tanks.

Personal precautions
Wear suitable protective clothing and gloves.

Environmental precautions
Avoid runoff to waterways and sewers.

Section 7: HANDLING AND STORAGE

Advice on safe handling
Avoid contact with eyes, skin and clothing
Use with adequate ventilation and employ respiratory protection where mist or spray may be generated
Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing
Ensure that eyewash stations and safety showers are close to the workstation location
Keep container closed when not in use
Wash thoroughly after handling
Remove and wash any contaminated clothing.

Technical measures and storage conditions
Keep container closed when not in use
Store in a well-ventilated area
Store in a cool, dry place
Store between 5 - 30 °C (41 - 86 °F)
Avoid storage temperatures below freezing, since product may stratify
Changes in temperature create air pressure changes inside drums
Use proper precaution in unscrewing plug and/or opening container.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls
Local exhaust ventilation as necessary to maintain exposures to within applicable limits. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

Respiratory protection
Under most conditions, use adequate general ventilation and protective equipment since volatility and toxicity are very low. If significant vapors, mists or aerosols are present, use NIOSH approved respirator (ANSI Z882.1980) or equivalent, that is equipped with a dust/mist cartridge.

Hand protection
Gloves impervious to liquid material.

Skin and Body Protection
While there is a possibility of skin contact, rubber gloves and boots impervious to liquid material should be worn.

Eye/face protection
Chemical goggles or a face shield if splashing hazard exists.

Other Personal Protection Data
Eyewash fountains and safety showers must be easily accessible.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Color	Straw colored
Appearance	Viscous, clear
Odor	Musty amine
pH	5.0 - 8.0 (as is)
Specific gravity	1.02 - 1.06
Density	[illegible]
Bulk density	No information available
Flash point	> 100 °C / > 212 °F
Autoignition temperature	Not applicable
Boiling point / boiling range	> 100 °C / > 212 °F
Melting / freezing point	-3 to 0 °C / 26.6 to 32 °F
Vapor pressure	30 mm Hg @ 38 °C
Vapor density	> 60 mm Hg
Percent Volatile, wt.%	80 % (Water)
Evaporation rate	Equal to water
Solubility (water)	Completely; 100%
Solubility in other solvents	No information available
Volatile organic compounds (VOCs) content	No information available
Dynamic viscosity	1,000 - 3,000 cps
Kinematic viscosity	No information available
Molecular weight	No information available

Section 10: STABILITY AND REACTIVITY

Chemical stability
Stable.

Conditions to avoid
None

Materials to avoid
Strong oxidizers. Contact with copper, copper alloys, aluminum, mild steel or iron may cause corrosion/degradation.

Hazardous decomposition products
Thermal decomposition (as may be experienced in a fire) may produce hydrogen chloride gas and/or oxides of nitrogen and carbon.

Hazardous polymerization
Will not occur

Additional Guidelines:
None

Section 11: TOXICOLOGICAL INFORMATION

PRINCIPAL ROUTES OF EXPOSURE: Skin, eyes and respiratory tract.

Eye contact
None expected, but prolonged or repeated eye contact may result in mild irritation and redness of a short-term nature.

Skin contact
None expected, but prolonged or repeated skin contact may result in irritation of a short-term nature.

Inhalation
This product is not toxic by inhalation.

Ingestion
Effects of ingesting small amounts are negligible; ingesting large amounts may injure person slightly.

Carcinogenicity Status
This product does not contain any components in concentrations greater than or equal to 0.1% that are listed as known or suspected carcinogens by NTP, IARC, ACGIH, or OSHA.

Acute toxicity

Dermal LD50	No information available
Inhalation LC50	No information available

Acute Toxicity of Individual Components

Component name CAS Number	Oral LD50	Dermal LD50	Inhalation LC50
Polydimethyldiallylammonia chloride 26062-79-3	3 g/kg (Rat)	--	--

Chronic toxicity
NOEL / Oral / Rat / 90 days = 5000 mg/kg

Mutagenicity/Genotoxicity
Not teratogenic, NOEL = 175 mg/kg. Not mutagenic in AMES Test. Not mutagenic in micronucleus test on mice.

Skin corrosion/irritation
May cause skin irritation with susceptible persons.

Serious eye damage/eye irritation
Testing conducted on rabbits showed minor transient irritation that cleared within days.

Sensitization
Product is not expected to be sensitizing.

Other information
Conclusions are drawn from sources other than direct testing.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicological Information

Acute aquatic toxicity

Fish	LC50 (96 hour): > 10 mg/L - Zebra Fish (*Danio rerio*),
Crustacea	EC50 (48 hour): > 10 mg/L - Water flea (*Daphnia magna*)
Algae/aquatic plants	No information available

Mobility
No information available

Persistence and degradability
No information available

Bioaccumulative potential
This product does not bio-accumulate.

Chemical Fate Information
No information available

Effects on Aquatic Organisms
The effects of this product on aquatic organisms are rapidly and significantly reduced with the presence of 5 to 10 mg/L organic carbon as found in most surface waters.

Other information
No other ecological studies have been carried out on this product.

Section 13: DISPOSAL CONSIDERATIONS

Disposal of wastes
Recycle, if possible. If not, dispose of the waste material in accordance with all applicable federal, state and local laws and regulations regarding health and pollution. Under the Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user to determine whether a material should be classified waste at the time of the disposal. This is due to the fact that product use, transformation, synthesis, mixing, etc. may change the nature of the product.

RCRA

Is the unused product a RCRA hazardous waste if discarded? (Yes/No)	**No**
If yes, the EPA Hazardous Waste Code is:	**N/A**

Section 14: TRANSPORT INFORMATION

DOT

Status	Not regulated

ICAO/IATA

Status	Not regulated

IMDG

Status	Not regulated
Flash point	> 100 °C / > 212 °F

Section 15: REGULATORY INFORMATION

International Inventories:

TSCA (United States)
All ingredients are on the inventory or exempt from listing

Australia (AICS)
All ingredients are on the inventory or exempt from listing

Canada (DSL)
All ingredients are on the inventory or exempt from listing

Canada (NDSL)
None of the ingredients are on the Inventory.

China (IECSC)
All ingredients are on the inventory or exempt from listing

EINECS (European Inventory of Existing Chemical Substances)
All ingredients are on the inventory or exempt from listing

ELINCS (European List of Notified Chemical Substances)
All of the components of this product are not listed on ELINCS.

ENCS (Japan)
All ingredients are on the inventory or exempt from listing

South Korea (KECL)
All ingredients are on the inventory or exempt from listing

Philippines (PICCS)
All ingredients are on the inventory or exempt from listing

New Jersey Trade Secret Registry Number(s):
N/A

SARA Section 311/ 312 Hazard Class
SARA Hazard Class: None

Other information
This product does not contain any ingredients subject to the reporting requirements of SARA Title III, Section 313 (40 CFR Part 372).

Section 16: OTHER INFORMATION

Product code	WWP37A
Revision date	2013-12-09
Revision Number	1
Additional information	None
Disclaimer	The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

*****END OF MSDS*****

Appendix B

Training Form

Employee Training Record

- ☐ **1.** Location and contents of storage tanks
- ☐ **2.** Correct fuel-unloading procedure
- ☐ **3.** Containment drainage procedure
- ☐ **4.** Inspection program requirements
- ☐ **5.** Immediate spill response procedure
- ☐ **6.** Location and correct use of cleanup materials

_____ _____

Employee Signature **Date**

_____ _____

Trainer Signature **Date**

Appendix C

Containment Drainage Form

Containment Drainage Form

The _____ (*which containment basin*) containment was drained at approximately _____/_____/_____ ____:____ (*date/time*). The estimated volume of discharge was _____ gallons. The condition of the rainwater was (*reference below procedures*) _____. The Employee who made the visual inspection, authorized the discharge and then closed and locked the drain valve is _____.

Mark the appropriate Procedure used:

☐ Procedure A There was no oil film on top of the rainwater. Therefore, all the rainwater was discharged.

☐ Procedure B There was a small film on the rainwater. The oil was absorbed using oil absorbent pillows and blankets prior to rainwater being discharged.

☐ Procedure C There was a substantial amount of oil mixed with the rainwater. The mixture was pumped out and disposed of in an appropriate manner.

☐ Procedure D There was a substantial amount of oil floating on the rainwater. The rainwater was slowly discharged until the oil approached the drain line. The oil was pumped out and disposed of in an appropriate manner.

Appendix D

SPCC Inspection Forms
Monthly & Annual
Checklists

STI SP001 Monthly Inspection Checklist

General Inspection Information:

Inspection Date: _____ Prior Inspection Date: _____ Retain until date: _____

Inspector Name (print): _____ Title: _____

Inspector's Signature _____

Tank(s) inspected ID _____

Regulatory facility name and ID number (if applicable) _____

Inspection Guidance:

- This checklist is intended as a model. Locally developed checklists are acceptable as long as they are substantially equivalent (as applicable). Inspections of multiple tanks may be captured on one form as long as the tanks are substantially the same.
- For equipment not included in this Standard, follow the manufacturer recommended inspection/testing schedules and procedures.
- The periodic AST Inspection is intended for monitoring the external AST condition and its containment structure. This visual inspection does not require a Certified Inspector. It shall be performed by an owner's inspector per paragraph 4.1.2 of the standard.
- Upon discovery of water in the primary tank, secondary containment area, interstice, or spill container, remove promptly or take other corrective action. Inspect the liquid for regulated products or other contaminants and dispose of properly.
- Non-conforming items important to tank or containment integrity require evaluation by an engineer experienced in AST design, a Certified Inspector, or a tank manufacturer who will determine the corrective action. Note the non-conformance and corresponding corrective action in the comment section.
- Retain the completed checklists for at least 36 months.
- **After severe weather (snow, ice, wind storms) or maintenance (such as coating) that could affect the operation of critical components (normal and emergency vents, valves), an inspection of these components is required as soon as the equipment is safely accessible after the event.**

	ITEM	STATUS	COMMENTS / DATE CORRECTED
	Tank and Piping		
1	Is tank exterior (roof, shell, heads, bottom, connections, fittings, valves, etc.) free of visible leaks? **Note**: *If "No", identify tank and describe leak and actions taken.*	□ Yes □ No	
2	Is the tank liquid level gauge legible and in good working condition?	□ Yes □ No □ N/A	
3	Is the area around the tank (concrete surfaces, ground, containment, etc.) free of visible signs of leakage?	□ Yes □ No	

4	Is the primary tank free of water or has another preventative measure been taken? NOTE: Refer to paragraphs 6.10 and 6.11 of the standard for alternatives for Category 1 tanks. N/A is only appropriate for these alternatives.	□ Yes □ No □ N/A	
5	For double-wall or double bottom tanks or CE-ASTs, is interstitial monitoring equipment (where applicable) in good working condition?	□ Yes □ No □ N/A	
6	For double-wall tanks or double bottom tanks or CE-ASTs, is interstice free of liquid? Remove the liquid if it is found. If tank product is found, investigate possible leak.	□ Yes □ No □ N/A	
	Equipment on tank		
7	If overfill equipment has a "test" button, does it activate the audible horn or light to confirm operation? If battery operated, replace battery if needed.	□ Yes □ No □ N/A	
8	Is overfill prevention equipment in good working condition? If it is equipped with a mechanical test mechanism, actuate the mechanism to confirm operation.	□ Yes □ No □ N/A	
9	Is the spill container (spill bucket) empty, free of visible leaks and in good working condition?	□ Yes □ No □ N/A	
10	Are piping connections to the tank (valves, fittings, pumps, etc.) free of visible leaks? **Note**: *If "No", identify location and describe leak.*	□ Yes □ No	
11	Do the ladders/platforms/walkways appear to be secure with no sign of severe corrosion or damage?	□ Yes □ No □ N/A	
	Containment (Diking/Impounding)		
12	Is the containment free of excess liquid, debris, cracks, corrosion, erosion, fire hazards and other integrity issues?	□ Yes □ No □ N/A	
13	Are dike drain valves closed and in good working condition?	□ Yes □ No □ N/A	
14	Are containment egress pathways clear and any gates/doors operable?	□ Yes □ No □ N/A	
	Concrete Exterior AST (CE-AST)		
15	Inspect all sides for cracks in concrete. Are there any cracks in the concrete exterior larger than 1/16"?	□ Yes □ No □ N/A	
16	Inspect concrete exterior body of the tank for cleanliness, need of coating, or rusting where applicable. Tank exterior in acceptable condition?	□ Yes □ No □ N/A	
17	Visual inspect all tank top openings including nipples, manways, tank top overfill containers, and leak detection tubes. Is the sealant between all tank top openings and concrete intact and in good condition?	□ Yes □ No □ N/A	
	Other Conditions		
18	Is the system free of any other conditions that need to be addressed for continued safe operation?	□ Yes □ No	

Additional Comments:

STI SP001 Annual Inspection Checklist

General Inspection Information:

Inspection Date: _____ Prior Inspection Date: _____ Retain until date: _____

Inspector Name (print): _____ Title: _____

Inspector's Signature: _____

Tank(s) inspected ID _____

Regulatory facility name and ID number (if applicable) _____

Inspection Guidance:

- This checklist is intended as a model. Locally developed checklists are acceptable as long as they are substantially equivalent (as applicable).
- For equipment not included in this Standard follow the manufacturer recommended inspection/testing schedules and procedures.
- The periodic AST inspection is intended for monitoring the external AST condition and its containment structure. This visual inspection does not require a Certified Inspector. It shall be performed by an owner's inspector per paragraph 4.1.2 of the standard.
- Remove promptly standing water or liquid discovered in the primary tank, secondary containment area, interstice, or spill container. Before discharge to the environment, inspect the liquid for regulated products or other contaminants and disposed of it properly
- In order to comply with EPA SPCC (Spill Prevention, Control and Countermeasure) rules, a facility should regularly test liquid level sensing devices to ensure proper operation (40 CFR 112.8(c)(8)(v)).
- Non-conforming items important to tank or containment integrity require evaluation by an engineer experienced in AST design, a Certified Inspector, or a tank manufacturer who will determine the corrective action. Note the non-conformance and corresponding corrective action in the comment section
- Retain the completed checklists for at least 3R months
- Complete this checklist on an annual basis, supplements to the owner monthly-performed inspection checklists.
- **Note: If a change has occurred to the tank system or containment that may affect the SPCC plan, the condition should be evaluated against the current plan requirement by a Professional Engineer knowledgeable in SPCC development and implementation.**

	ITEM	STATUS	COMMENTS / DATE CORRECTED
	Tank Foundation/Supports		
1	Free of tank settlement or foundation washout?	☐Yes ☐No	
2	Concrete pad or ring wall free of cracking and spalling?	☐Yes ☐No ☐N/A	

3	Tank supports in satisfactory condition?	☐Yes ☐No ☐N/A	
4	Is water able to drain away from tank if tank is resting on a foundation or on the ground?	☐Yes ☐No ☐N/A	
5	Is the grounding strap between the tank and foundation/supports in good condition?	☐Yes ☐No ☐N/A	
	Tank Shell, Heads and Roof		
6	Free of visible signs of coating failure?	☐Yes ☐No	
7	Free of noticeable distortions, buckling, denting, or bulging?	☐Yes ☐No	
8	Free of standing water on roof?	☐Yes ☐No ☐N/A	
9	Are all labels and tags intact and legible?	☐Yes ☐No	
	Tank Manways, Piping, and Equipment		
10	Flanged connection bolts tight and fully engaged with no sign of wear or corrosion?	☐Yes ☐No ☐N/A	
	Tank Equipment		
11	Normal and emergency vents free of obstructions?	☐Yes ☐No	
12	Normal vent on tanks storing gasoline equipped with pressure/vacuum vent?	☐Yes ☐No ☐N/A	
13	Are flame arrestors free of corrosion and are air passages free of blockage?	☐Yes ☐No ☐N/A	
14	Is the emergency vent in good working condition and functional, as required by manufacturer? Consult manufacturer's requirements. Verify that components are moving freely (including long-bolt manways).	☐Yes ☐No ☐N/A	
15	Is interstitial leak detection equipment in good condition? Are windows on sight gauges clear? Are wire connections intact? If equipment has a test function, does it activate to confirm operation?"	☐Yes ☐No ☐N/A	

16	Are all valves free of leaks, corrosion and other damage? Follow manufacturers' instructions for regular maintenance of these items. Check the following and verify (as applicable): □ Anti-siphon valve □ Check valve □ Gate valve □ Pressure regulator valve □ Expansion relief valve □ Solenoid valve □ Fire valve □ Shear valve	☐Yes ☐No ☐N/A ☐Yes ☐No ☐N/A ☐Yes ☐No ☐N/A ☐Yes ☐No ☐N/A ☐Yes ☐No ☐N/A ☐Yes ☐No ☐N/A ☐Yes ☐No ☐N/A	
17	Are strainers and filters clean and in good condition?	☐Yes ☐No ☐N/A	
	Insulated Tanks		
18	Free of missing insulation? Insulation free of visible signs of damage? Insulation adequately protected from water intrusion?	☐Yes ☐No ☐N/A	
19	Insulation free of noticeable areas of moisture?	☐Yes ☐No ☐N/A	
20	Insulation free of mold?	☐Yes ☐No ☐N/A	
21	Free of visible signs of coating failure?	☐Yes ☐No ☐N/A	
	Tank / Piping Release Detection		
22	Is inventory control being performed and documented if required?	☐Yes ☐No ☐N/A	
23	Is release detection being performed and documented if required?	☐Yes ☐No ☐N/A	
	Other Equipment		
24	Are electrical wiring and boxes in good condition?	☐Yes ☐No ☐N/A	
25	Has the cathodic protection system on the tank been tested as required by the designing engineer?	☐Yes ☐No ☐N/A	

Additional Comments:

Appendix E

Annual Aboveground Storage Tank Testing Form

ABOVEGROUND STORAGE TANK
ANNUAL SPCC INSPECTION *

Inspection will be conducted by designated personnel technically qualified to evaluate the structural integrity of tank walls, seams, gaskets, rivets, fittings, supports, and foundations and to identify evidence of corrosion, erosion, leaking, weeping, or other structural deterioration.

Location	Quantity	Primary Volume	Contents	Structural Condition

Date Inspection Initiated

Date Inspection Completed

Name

Title or Designation

*Inspection/testing of underground tanks will be conducted according to accepted engineering procedures in conformance with applicable regulations.

Appendix F

Discharge Information Form

Discharge Information Form

Discharge Information	
Facility: Ferroglobe USA Quartz, Inc. Address: 1128 St. Claire Place Lowdnesboro, AL 36752 Phone:	Plant Manager: Chad Richards Office: 205-755-9995
Type of Material discharged:	Time and Date of discharge:
Estimated discharge quantity:	Source/Location of discharge:
Description of effected media:	
Cause of discharge:	
Damages or injuries caused by discharge:	
Actions taken to stop discharge:	
Is/Was an evacuation necessary?	

Organizations Contact Information		
*Report a Discharge in **any amount** to the following:*		
Contact	**Date and Time Contacted**	**Name of Individual Receiving Call**
*Report a Discharge of **more than 25 gallons** to the following:*		
Northport EMA 911		
Alabama EMA: 205-280-2310 (After Hrs) – State Warning Point 800-843-0699		
ADEM Ombudsman: 800-533-2336 Field Operations: (After Hours):		
National Response Center: 800-424-8802		

Appendix G

SPCC Plan Cross Reference

SPCC Plan Cross Reference

Regulation	Location in SPCC Plan	Page
40 CFR 112.3 (d)	Engineer Certification	ii
40 CFR 112.3 (e)	Location of SPCC Plan	1
40 CFR 112.4 (a)	Discharge Response	11
40 CFR 112.5 (b)	SPCC Plan Review	2
40 CFR 112.7	SPCC Plan Cross Reference Introduction	App. G 1
40 CFR 112.7 (a)(3)	Facility Information Figures 1 through 4 & Table 1	4 Figures 1-4
40 CFR 112.7 (a)(4)	Discharge Response Procedure Discharge Information Form Emergency Response & Telephone Numbers	12 App. F 12
40 CFR 112.7 (a)(5)	Discharge Response Procedure	11
40 CFR 112.7 (b)	Potential Discharge Flow & Direction	14
40 CFR 112.7 (c)	Secondary Containment Figure 1-4	8 1-4
40 CFR 112.7 (e)	Inspections	9
40 CFR 112.7 (f)	Personnel Training & Briefing Guide	7
40 CFR 112.7 (g)	Security	7
40 CFR 112.7 (h)	Facility Transfer Operations	6
40 CFR 112.7 (i)	Annual Aboveground Tank Testing	10
40 CFR 112.7 (j)	Introduction	1
40 CFR 112.8 (b)	Discharge Response Procedure	12
40 CFR 112.8 (c)(2)	Secondary Containment	8
40 CFR 112.8 (c)(3)	Discharge Response Procedure	12
40 CFR 112.8 (c)(6)	Inspections	9
40 CFR 112.8 (c)(10)	Visible Discharges	14
40 CFR 112.8 (c)(11)	Secondary Containment	8
40 CFR 112.8 (d) (4)	Inspections	9

This table cross-references select SPCC regulations of the Federal Register 12 CFR 40. For a listing of SPCC regulations, see a complete set of 40 CFR 112.

APPENDIX D
SDS for Chemical Coagulants/Flocculants

MATERIAL SAFETY DATA SHEET

ZEE COMPANY
A Member of The Vinci Group

Date Issued: 08/02/2007
MSDS No: EA 17

EA 17

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: EA 17
PRODUCT DESCRIPTION: ANIONIC POLYACRYLAMIDE WASTE WATER POLYMER
PRODUCT FORMULATION NAME: EA 17
ACTIVE INGREDIENT(S): Petroleum distillate

MANUFACTURER
Zee Company, Inc.
4146 South Creek Road
Chattanooga, TN 37406
Emergency Contact: James A. Faller
Service Number: (423) 698-1401

24 HR. EMERGENCY TELEPHONE NUMBERS
CHEMTREC (800) 424-9300

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

PHYSICAL APPEARANCE: White liquid

IMMEDIATE CONCERNS: Eye irritant

POTENTIAL HEALTH EFFECTS

EYES: Irritation or burning of eyes

SKIN: May cause skin irritation.

INGESTION: May be harmful if ingested.

SIGNS AND SYMPTOMS OF OVEREXPOSURE

EYES: Severe irritation and burning

SKIN: Redness and irritation

INGESTION: Gastric pain and vomiting

INHALATION: Coughing and sneezing from extreme exposure.

CHRONIC EFFECTS: N/A

CARCINOGENICITY: N/A

MUTAGENICITY: N/A

REPRODUCTIVE TOXICITY

REPRODUCTIVE EFFECTS: N/A

TERATOGENIC EFFECTS: N/A

MEDICAL CONDITIONS AGGRAVATED: None known

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Wt.%	CAS
Petroleum distillate	20 - 35	64724-47-8

4. FIRST AID MEASURES

MATERIAL SAFETY DATA SHEET

ZEE COMPANY
A Member of The Vincit Group

Date Issued: 08/02/2007
MSDS No: EA 17

EA 17

EYES: Flush eyes with running water for at least 15 minutes. Get medical attention and check for corneal damage.

SKIN: Flush exposed skin with water for at least 15 minutes and get medical attention if irritation persists.

INGESTION: DO NOT induce vomiting. If conscious, give several large glasses of water. Never give anything by mouth to an unconscious person. Call physician immediately.

5. FIRE FIGHTING MEASURES

FLASHPOINT AND METHOD: > (215°F)

FLAMMABLE LIMITS: NA to NA

AUTOIGNITION TEMPERATURE: None

EXTINGUISHING MEDIA: Use water spray, dry chemical, carbon dioxide (CO2), or alcohol foam when fighting fires involving this material.

EXPLOSION HAZARDS: NONE

FIRE FIGHTING PROCEDURES: NONE

6. ACCIDENTAL RELEASE MEASURES

SMALL SPILL: Mop up spill and flush area with water.

LARGE SPILL: Dike spill and vacuum or pump spilled material into proper storage container for hazardous waste disposal.

7. HANDLING AND STORAGE

GENERAL PROCEDURES: Keep this and all chemicals out of the reach of children.

STORAGE: Do not freeze. Keep container closed when not in use. Follow label instructions.

STORAGE TEMPERATURE: (36°F) Minimum to (90°F) Maximum

ELECTROSTATIC ACCUMULATION HAZARD: N/A

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Chemical resistant safety goggles/glasses with side shields.

SKIN: Chemical resistant gloves recommended for any prolonged or repeated contact with any chemicals.

RESPIRATORY: Not required

PROTECTIVE CLOTHING: Not required

WORK HYGIENIC PRACTICES: Always use goodhousekeeping procedures when handling chemicals.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

ODOR: Petroleum distillate

MATERIAL SAFETY DATA SHEET

ZEE COMPANY
A Member of The Vincit Group

Date Issued: 08/02/2007
MSDS No: EA 17

EA 17

APPEARANCE: Opaque liquid
COLOR: White
pH: 6 to 8
PERCENT VOLATILE: 56 - 62
VAPOR PRESSURE: Not Determined
VAPOR DENSITY: Not Established
BOILING POINT: No information
FREEZING POINT: No information
MELTING POINT: No information
FLASHPOINT AND METHOD: > (215°F)
SOLUBILITY IN WATER: Completely Miscible
EVAPORATION RATE: < 1 (Water = 1)
SPECIFIC GRAVITY: 1.030 to 1.06
VISCOSITY #1: at (80°F)
WEIGHT PER VOLUME: 8.7 lb/gal

10. STABILITY AND REACTIVITY

STABLE: Yes
HAZARDOUS POLYMERIZATION: No
POLYMERIZATION: Hazardous polymerization will not occur.
HAZARDOUS DECOMPOSITION PRODUCTS: Oxides of carbon and nitrogen on thermal decomposition
INCOMPATIBLE MATERIALS: Oxidizers

11. TOXICOLOGICAL INFORMATION

CARCINOGENICITY

IARC: Ingredients not listed.
NTP: Ingredients not listed.
OSHA: Ingredients not listed.

12. ECOLOGICAL INFORMATION

AQUATIC TOXICITY (ACUTE): Daphnia magna 48 hr. EC50 >100 mg/l. Brachydanio rerio 96 hr. LC50 >100 mg/l.

13. DISPOSAL CONSIDERATIONS

DISPOSAL METHOD: Dispose of in accordance with Federal, State and local regulations.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)

MATERIAL SAFETY DATA SHEET

ZEE COMPANY
A Member of The Vinet Group

Date Issued: 08/02/2007
MSDS No: EA 17

EA 17

PROPER SHIPPING NAME: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S.
TECHNICAL NAME: Contains Ammonium Acetate
PRIMARY HAZARD CLASS/DIVISION: 9
UN/NA NUMBER: UN3082
PACKING GROUP: III
REPORTABLE QUANTITY (RQ) UNDER CERCLA: 50000 pounds
BULK FREIGHT CLASS: 55

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

311/312 HAZARD CATEGORIES: Reporting required for inventory above TPQ

ACUTE: Yes

313 REPORTABLE INGREDIENTS: Not required

302/304 EMERGENCY PLANNING

EMERGENCY PLAN: Section 302 reporting not required. Section 304 reporting is required for releases above the threshold amount listed.

CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)

CERCLA REGULATORY: Same as section 304

TSCA (TOXIC SUBSTANCE CONTROL ACT)

TSCA REGULATORY: INGREDIENTS LISTED

RCRA STATUS: N/A

16. OTHER INFORMATION

APPROVED BY: James A. Faller **TITLE:** Director of Research
PREPARED BY: James A Faller
INFORMATION CONTACT: James Faller
REVISION SUMMARY: New MSDS

HMIS RATING

HEALTH:	2
FLAMMABILITY:	1
PHYSICAL HAZARD:	0
PERSONAL PROTECTION:	B

GENERAL STATEMENTS: The information contained herein is believed to be accurate but is not warranted to be so. Users are advised to confirm in advance of need that Information is current, applicable, and suited to the circumstances of use. Vendor assumes no responsibility for injury to vendee

MATERIAL SAFETY DATA SHEET

ZEE COMPANY
A Member of The Vinet Group

Date Issued: 08/02/2007
MSDS No: EA 17

EA 17

or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed.

ZEE COMPANY®
A Member of The Vincit Group

MATERIAL SAFETY DATA SHEET

Section 1: PRODUCT AND COMPANY IDENTIFICATION

Product name CO 310

Synonyms None

Supplier ZEE COMPANY, INC.
4146 South Creek Road
Chattanooga, TN 37406
(423) 698-1401

NFPA Rating Health: 1 Flammability: 0 Reactivity: 0
HMIS Rating Health: 1 Flammability: 0 Reactivity: 0

Emergency telephone
CHEMTREC: (800) 424-9300

EMERGENCY OVERVIEW
Clear, viscous, straw colored liquid. May cause mild skin and eye irritation.

Section 2: HAZARDS IDENTIFICATION

Hazard Information
May cause mild eye and skin irritation.

Eye contact
None expected, but prolonged or repeated eye contact may result in mild irritation and redness of a short-term nature.

Skin contact
None expected, but prolonged or repeated skin contact may result in irritation of a short-term nature.

Inhalation
This product is not toxic by inhalation.

Ingestion
Effects of ingesting small amounts are negligible; ingesting large amounts may injure person slightly.

Aggravated Medical Conditions
None known

Chronic Exposure
Prolonged or repeated skin exposure may cause dermatitis.

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component name CAS Number	weight-%	OSHA - PEL's	ACGIH 2002 - TLV's
Polydimethyldiallylammonia chloride 26062-79-3	~20%	Not Established	Not Established
Water 7732-18-5	~80%	Not Established	Not Established

Section 4: FIRST AID MEASURES

Eye contact
Immediately flush with plenty of water for at least 15 minutes, holding eyelids apart to ensure flushing of the entire surface. Washing within one minute is essential to achieve maximum effectiveness. Seek medical attention if irritation should develop.

Skin contact
Immediately flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and footwear. Wash contaminated clothing before reuse. Get medical attention if irritation develops.

Inhalation
Remove person to fresh air and watch for a delayed reaction. Give artificial respiration if breathing stops and seek medical attention.

Ingestion
Do not induce vomiting. If vomiting should occur spontaneously, keep the airway clear. Get medical attention. Never give anything by mouth to an unconscious person.

Chronic Exposure
Prolonged or repeated skin exposure may cause dermatitis.

Notes to Physician
Treat symptomatically.

Section 5: FIRE FIGHTING MEASURES

Flash point	> 100 °C / > 212 °F
Autoignition temperature	Not applicable
Flammable Limits in Air - Lower (%)	Not applicable
Flammable Limits in Air - Upper (%)	Not applicable

Suitable extinguishing media
Use extinguishing media appropriate for surrounding fire. This material is not expected to burn unless heated to dryness. Water. Foam. Carbon dioxide (CO2). Dry chemical.

Firefighting measures
Cool exposed containers with water spray after extinguishing fire.

Specific hazards during fire fighting:
Thermal decomposition (as may be experienced in a fire) may produce hydrogen chloride gas and/or may liberate oxides of nitrogen and carbon. Spills produce slippery surfaces and could present a physical hazard for firemen.

Special protective equipment for firefighters
Full protective clothing and approved self-contained breathing apparatus required for fire fighting personnel.

Section 6: ACCIDENTAL RELEASE MEASURES

Procedure for Cleaning/Absorption
Area around spill should be diked immediately to prevent spreading. Clean up spill immediately using inert absorbent materials such as clays, sand, earth or other commercially available dry sweeping compound. Product may cause slip hazard. If slippery conditions persist, apply additional dry sweeping compound. Following containment, large spills should be pumped into salvage tanks.

Personal precautions
Wear suitable protective clothing and gloves.

Environmental precautions
Avoid runoff to waterways and sewers.

Section 7: HANDLING AND STORAGE

Advice on safe handling
Avoid contact with eyes, skin and clothing
Use with adequate ventilation and employ respiratory protection where mist or spray may be generated
Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing
Ensure that eyewash stations and safety showers are close to the workstation location
Keep container closed when not in use
Wash thoroughly after handling
Remove and wash any contaminated clothing.

Technical measures and storage conditions
Keep container closed when not in use
Store in a well-ventilated area
Store in a cool, dry place
Store between 5 - 30 °C (41 - 86 °F)
Avoid storage temperatures below freezing, since product may stratify
Changes in temperature create air pressure changes inside drums
Use proper precaution in unscrewing plug and/or opening container.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering controls
Local exhaust ventilation as necessary to maintain exposures to within applicable limits. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

Respiratory protection
Under most conditions, use adequate general ventilation and protective equipment since volatility and toxicity are very low. If significant vapors, mists or aerosols are present, use NIOSH approved respirator (ANSI Z882.1980) or equivalent, that is equipped with a dust/mist cartridge.

Hand protection
Gloves impervious to liquid material.

Skin and Body Protection
While there is a possibility of skin contact, rubber gloves and boots impervious to liquid material should be worn

Eye/face protection
Chemical goggles or a face shield if splashing hazard exists.

Other Personal Protection Data
Eyewash fountains and safety showers must be easily accessible.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state	liquid
Color	Straw colored
Appearance	Viscous, clear
Odor	Musty amine
pH	5.0 - 8.0 (as is)
Specific gravity	1.02 - 1.06
Density	[illegible]
Bulk density	No information available
Flash point	> 100 °C / > 212 °F
Autoignition temperature	Not applicable
Boiling point / boiling range	> 100 °C / > 212 °F
Melting / freezing point	-3 to 0 °C / 26.6 to 32 °F
Vapor pressure	30 mm Hg @ 38 °C
Vapor density	> 60 mm Hg
Percent Volatile, wt.%	80 % (Water)
Evaporation rate	Equal to water
Solubility (water)	Completely; 100%
Solubility in other solvents	No information available
Volatile organic compounds (VOCs) content	No information available
Dynamic viscosity	1,000 - 3,000 cps
Kinematic viscosity	No information available
Molecular weight	No information available

Section 10: STABILITY AND REACTIVITY

Chemical stability
Stable.

Conditions to avoid
None

Materials to avoid
Strong oxidizers. Contact with copper, copper alloys, aluminum, mild steel or iron may cause corrosion/degradation.

Hazardous decomposition products
Thermal decomposition (as may be experienced in a fire) may produce hydrogen chloride gas and/or oxides of nitrogen and carbon.

Hazardous polymerization
Will not occur

Additional Guidelines:
None

Section 11: TOXICOLOGICAL INFORMATION

PRINCIPAL ROUTES OF EXPOSURE: Skin, eyes and respiratory tract.

Eye contact
None expected, but prolonged or repeated eye contact may result in mild irritation and redness of a short-term nature.

Skin contact
None expected, but prolonged or repeated skin contact may result in irritation of a short-term nature.

Inhalation
This product is not toxic by inhalation.

Ingestion
Effects of ingesting small amounts are negligible; Ingesting large amounts may injure person slightly.

Carcinogenicity Status
This product does not contain any components in concentrations greater than or equal to 0.1% that are listed as known or suspected carcinogens by NTP, IARC, ACGIH, or OSHA.

Acute toxicity

Dermal LD50	No information available
Inhalation LC50	No information available

Acute Toxicity of Individual Components

Component name CAS Number	Oral LD50	Dermal LD50	Inhalation LC50
Polydimethyldiallylammonia chloride 26062-79-3	3 g/kg (Rat)	–	–

Chronic toxicity
NOEL / Oral / Rat / 90 days = 5000 mg/kg

Mutagenicity/Genotoxicity
Not teratogenic, NOEL = 175 mg/kg. Not mutagenic in AMES Test. Not mutagenic in micronucleus test on mice.

Skin corrosion/irritation
May cause skin irritation with susceptible persons.

Serious eye damage/eye irritation
Testing conducted on rabbits showed minor transient irritation that cleared within days.

Sensitization
Product is not expected to be sensitizing.

Other information
Conclusions are drawn from sources other than direct testing.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicological Information

Acute aquatic toxicity

Fish	LC50 (96 hour): > 10 mg/L - Zebra Fish (*Danio rerio*),
Crustacea	EC50 (48 hour): > 10 mg/L - Water flea (*Daphnia magna*)
Algae/aquatic plants	No information available

Mobility
No information available

Persistence and degradability
No information available

Bioaccumulative potential
This product does not bio-accumulate.

Chemical Fate Information
No information available

Effects on Aquatic Organisms
The effects of this product on aquatic organisms are rapidly and significantly reduced with the presence of 5 to 10 mg/L organic carbon as found in most surface waters.

Other information
No other ecological studies have been carried out on this product.

Section 13: DISPOSAL CONSIDERATIONS

Disposal of wastes
Recycle, if possible. If not, dispose of the waste material in accordance with all applicable federal, state and local laws and regulations regarding health and pollution. Under the Resource Conservation and Recovery Act (RCRA), it is the responsibility of the user to determine whether a material should be classified waste at the time of the disposal. This is due to the fact that product use, transformation, synthesis, mixing, etc. may change the nature of the product.

RCRA

Is the unused product a RCRA hazardous waste if discarded? (Yes/No)	**No**
If yes, the EPA Hazardous Waste Code is:	**N/A**

Section 14: TRANSPORT INFORMATION

DOT

Status	Not regulated

ICAO/IATA

Status	Not regulated

IMDG

Status	Not regulated
Flash point	> 100 °C / > 212 °F

Section 15: REGULATORY INFORMATION

International Inventories:

TSCA (United States)
All ingredients are on the inventory or exempt from listing

Australia (AICS)
All ingredients are on the inventory or exempt from listing

Canada (DSL)
All ingredients are on the inventory or exempt from listing

Canada (NDSL)
None of the ingredients are on the inventory.

China (IECSC)
All ingredients are on the inventory or exempt from listing

EINECS (European Inventory of Existing Chemical Substances)
All ingredients are on the inventory or exempt from listing

ELINCS (European List of Notified Chemical Substances)
All of the components of this product are not listed on ELINCS.

ENCS (Japan)
All ingredients are on the inventory or exempt from listing

South Korea (KECL)
All ingredients are on the inventory or exempt from listing

Philippines (PICCS)
All ingredients are on the inventory or exempt from listing

New Jersey Trade Secret Registry Number(s):
N/A

SARA Section 311/ 312 Hazard Class
SARA Hazard Class: None

Other information

This product does not contain any ingredients subject to the reporting requirements of SARA Title III, Section 313 (40 CFR Part 372).

Section 16: OTHER INFORMATION

Product code	WWP37A
Revision date	2013-12-09
Revision Number	1
Additional information	None
Disclaimer	The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

*****END OF MSDS*****