

LANCE R. LEFLEUR
DIRECTOR



ROBERT J. BENTLEY
GOVERNOR

Alabama Department of Environmental Management
adem.alabama.gov

OCT 14 2016

1400 Coliseum Blvd. 36110-2400 ■ Post Office Box 301463
Montgomery, Alabama 36130-1463
(334) 271-7700 ■ FAX (334) 271-7950

Bill English
Commission Chairman
Lee County Commission
Post Office Box 1007
Opelika, AL 36803

RE: Draft Permit
CR-151 Chert Pit
NPDES Permit No. AL0077054
Lee County (081)

Dear Mr. English:

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.

The Department utilizes a web-based electronic environmental (E2) reporting system for electronic DMR submittal. Please read Part I.D of the permit carefully and visit <https://e2.adem.alabama.gov/npdes>.

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

Sincerely,

A handwritten signature in cursive script that reads "Catherine A. McNeill".

Catherine A. McNeill, Chief
Mining and Natural Resource Section
Stormwater Management Branch
Water Division

CAM/mab File: DPER/25283

Enclosure

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

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

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



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

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



NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM INDIVIDUAL PERMIT

PERMITTEE: Lee County Commission
Post Office Box 1007
Opelika, AL 36803

FACILITY LOCATION: CR-151 Chert Pit
County Road 151
Opelika, AL 36804
Lee County
T19N, R27E, S25

PERMIT NUMBER: AL0077054

DSN & RECEIVING STREAM: 001-1 Unnamed Tributary to Little Uchee Creek/Groundwater

In accordance with and subject to the provisions of the Federal Water Pollution Control Act, as amended, 33 U.S.C. §§1251-1378 (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-16, 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

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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.	-----	9.0 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

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.

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.

- 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. If required by the Director, 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 environmental (E2) 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 E2 reporting system.** The E2 reporting system Permittee Participation Package may be downloaded online at <https://e2.adem.alabama.gov/npdes>.

- c. If the electronic environmental (E2) 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 E2 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 E2 system resuming operation, the Permittee shall enter the data into the E2 reporting system unless an alternate timeframe is approved by the Department. An attachment should be included with the E2 DMR submittal verifying the original submittal date (date of the fax, copy of 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. The Permittee shall report "No Discharge During Quarterly Monitoring Period" on the appropriate DMR Form for each point source receiving pumped discharges pursuant to Part I.C.1.b. provided that no discharge has occurred at any time during the entire quarterly (three month) monitoring period.
- h. 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.
- i. 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."

- j. All DMRs, reports, and forms required to be submitted by this Permit, the AWPCA and the Department's rules and regulations, 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

- k. 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.
- l. 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. Form 401 or 421 must be submitted to the Director in accordance with Parts I.D.2.a. and b. The completed form must document the following information:
 - (1) A description of the discharge and cause of noncompliance;
 - (2) The period of noncompliance, including exact dates, times, and duration of the noncompliance. If not corrected by the due date of the written report, then the Permittee is to state the anticipated timeframe that is expected to transpire before the noncompliance is resolved; 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.i. 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

The Pollution Abatement and/or Prevention (PAP) Plan shall be prepared and certified by a registered Professional Engineer (PE), licensed to practice in the State of Alabama, and shall include at a minimum, the information indicated in ADEM Admin. Code r. 335-6-9-.03 and ADEM Admin. Code ch. 335-6-9 Appendices A and 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).

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 required by applicable state (ADEM Admin. Code r. 335-6-6-.12(r)) and federal (40 C.F.R. §§112.1-.7)

regulations. The Permittee shall implement appropriate structural and/or non-structural spill prevention, control, and/or management 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. Careful consideration should be applied for tanks or containers located near treatment ponds, water bodies, or high traffic areas. In most situations this would require construction of a containment system if the cumulative storage capacity of petroleum products or other pollutants at the facility is greater than 1320 gallons. 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 applicant shall maintain onsite or have readily available flotation booms to contain, and sufficient material to 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 an approved manner.

- 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. Except as provided in Parts II.B.2.b. and c., a discharge which results from an upset need not meet the applicable discharge limitations specified in Part I.A. of this Permit if:
- (1) No later than 24-hours after becoming aware of the occurrence of the upset, the Permittee orally reports the occurrence and circumstances of the upset to the Director; 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(g) 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(g) 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. Construction Sand and Gravel mine - means an area, on or beneath land, used or disturbed in activity related to the extraction, removal, or recovery of sand and/or gravel from natural or artificial deposits, including active mining, reclamation, and mineral storage areas.
9. Controlled Surface Mine Drainage – means any surface mine drainage that is pumped or siphoned from the active mining area.
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 ACTIVITIES 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: Lee County Commission
Facility Name: CR-151 Chert Pit
County: Lee County
Permit Number: AL0077054
Prepared by: Ange Boatwright
Date: October 11, 2016
Receiving Waters: Unnamed Tributary to Little Uchee Creek/Groundwater
Permit Coverage: Dirt and/or Chert Mine and Associated Areas
SIC Code(s): 1499

The Department has made a tentative determination that the available information is adequate to support the reissuance modification of this permit.

This proposed permit covers a dirt and/or chert mine and associated areas which discharge to ground and surface waters. The modification to the proposed permit covers the removal of Outfall 002.

This proposed permit authorizes treated discharges into a stream segment, other State Water, or local watershed that currently has the water quality classifications of Fish and Wildlife (F&W), (ADEM Admin. Code r. 335-6-11-.02). 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 stream use 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.

This proposed permit covers discharges from 1 outfall. Outfall 001 has precipitation driven discharges to Groundwater and to an unnamed tributary to Little Uchee Creek.

Technology Based Effluent Limits (TBELs) for dirt and/or chert facilities have not yet been developed by the EPA. The pollutants expected to be discharged from the facility, and therefore limited in the proposed permit, are pH and Total Suspended Solids (TSS) (40CFR401.16). The limits in the proposed permit were developed using Best Professional Judgment (BPJ) with consideration given to New Source Performance Standards (NSPS) for TSS in 40 CFR 434.35 and Best Practicable Control Technology Available (BPT) for pH in 40 CFR 436.32. They are also based on proper implementation of best management practices at the facility.

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. Still, a daily maximum pH limit of 9.0 s.u. is allowed by the Department for discharges that occur as a result of rain events due to the low discharge/stream flow ratio as is the case for the outfalls covered by the proposed permit. However, under no circumstances may the discharge from any outfall cause the in-stream pH to deviate more than 1.0 s.u. from the normal or natural pH, nor be less than 6.0 s.u. nor greater than 8.5 s.u.

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.

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.

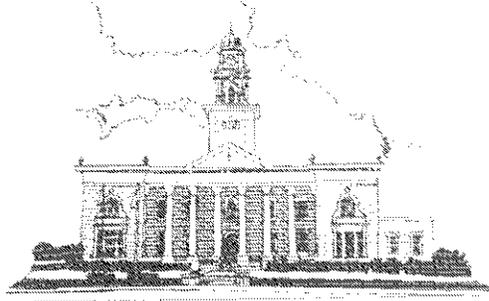
The applicant is not proposing any discharges of pollutants to an ADEM identified Tier I water.

The proposed permit does not authorize new or increased discharges of pollutants to a Tier II water. Therefore, the Antidegradation Policy (ADEM Admin. Code 335-6-10-.04) does not apply to this permit.

LEE COUNTY HIGHWAY DEPARTMENT

C. Justin Hardee, P.E.
County Engineer

Patrick L. Harvill, P.E.
Assistant County Engineer



Debra H. Brooks
Highway Administrator

Billy W. Yarbrough
Highway Superintendent

December 18, 2014

Alabama Department of Environmental Management
Mining and Natural Resource Section
Water Division
P.O. Box 301463
Montgomery, AL 36130-1463
ATT: Ms. Angie Boatwright

RE: NPDES permit Renewal Application
NPDES Permit No. AL0077054
County road 151 Chert Pit
Lee County

Dear Ms. Boatwright:

Please find enclosed one copy of Lee County's NPDES Permit Renewal Application for the NPDES Permit No. AL0077054 and a check in the amount of \$4850.00 for the renewal fee according to the letter sent to our office from ADEM July 14, 2014.

If additional information or measures are required, please do not hesitate to contact me.

Sincerely,


C. Justin Hardee, P.E.
Lee County Engineer

RECEIVED
DEC 23 2014
ADEM

Lee County Commission

215 South 9th Street
Opelika, Alabama 36801



Lee County, Alabama Est. 1866

County Road 151 Chert Pit NPDES Permit Renewal Application

NPDES Permit AL0077054

December 2014

RECEIVED
DEC 23 2014
ADEM

Prepared By:



2124 Moore's Mill Road ♦ Suite 120 ♦ Auburn, Alabama 36830

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Lee County, Alabama Est. 1866

SECTION 1

NPDES Permit Renewal Application

1. NPDES Permit Renewal Application

**ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (ADEM)
FIELD OPERATIONS DIVISION NPDES INDIVIDUAL PERMIT APPLICATION**

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, RECLAMATION, AND ASSOCIATED AREAS

R# 15-33323 A. Boatwright \$4850.00

PLEASE READ THE ACCOMPANYING INSTRUCTIONS CAREFULLY BEFORE COMPLETING THIS FORM. COMPLETE ALL QUESTIONS. RESPOND WITH "N/A" AS APPROPRIATE. INCOMPLETE OR INCORRECT ANSWERS OR MISSING SIGNATURES WILL DELAY PROCESSING. ATTACH ADDITIONAL COMMENTS OR INFORMATION AS NEEDED. IF SPACE IS INSUFFICIENT, CONTINUE ON AN ATTACHED SHEET(S) AS NECESSARY. COMMENCEMENT OF ACTIVITIES APPLIED FOR AS DETAILED IN THIS APPLICATION ARE NOT AUTHORIZED UNTIL PERMIT COVERAGE HAS BEEN ISSUED BY THE DEPARTMENT.

PLEASE TYPE OR PRINT IN INK ONLY.

I. APPLICANT INFORMATION Initial Issuance: Major Modification: Reissuance: NPDES AL 0077054
 Reissuance & Modification: Minor Modification: Transfer: Voluntary Termination:

Company Name Lee County Commission			Facility Name CR-151 Chert Pit		
Responsible Official and Title Bill English, Commission Chairman			Facility Contact and Title Justin Hardee, County Engineer		
Mailing Address of Applicant P. O. Box 1007			Facility Contact Street Address 100 Orr Avenue		
City Opelika	State AL	Zip 36803	City Opelika	State AL	Zip 36803
Business Phone Number 334-737-7011		Fax Number 334-745-9794		Facility Contact Phone Number 334-737-7011	
Responsible Official Street/Physical Address & Phone Number 100 Orr Avenue, Opelika, AL 36803 334-737-7011				Email Address jhardee@leeco.us	
Registered Agent Name, Address, & Phone Number N/A					
Identify the name, title/position, and unless waived in writing by the Department, the residence address of every officer, 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:					
Name		Title/Position		Residence Address (PO Box not acceptable)	
N/A					

II. OFFICER INFORMATION

Name of each corporation, partnership, association, and single proprietorship (other than applicant) having an Alabama NPDES permit at any time during the sixty (60) month period immediately preceding the date on which this form is signed for which any individual identified in Item I 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:		
Name of corporation, partnership, association, or single proprietorship	Name of individual (from Item I)	Title/position in corporation, partnership, association, or single proprietorship
N/A		

PERMIT/ AUTHORIZATION NUMBER	APPLICATION DATE	FACILITY/SITE NAME	STATUS OF PERMIT/AUTHORIZATION
ALR040012	2-1-11	Lee County Phase II MS4 Permit	Effective
ALR10AF16	1-7-14	Lee Road 047	Effective
ALR10AF19	1-2-14	Lee Road 208	Effective
ALR10AE43	12-18-13	Lee Road 146	Effective
ALR10AE44	12-18-13	Lee Road 158	Effective
ALR10AP02	9-8-14	Lee Road 010 Bridge	Effective
ALG340395	7-25-03	Camp 4 – Lee Road 254	Effective

VII. ACTIVITY DESCRIPTION & INFORMATION

Township(s), Range(s), Section(s) Township 19 N, Range 27 E, Section 25 County(s) Lee

Directions To Site I-85 North to Exit 60, Hwy 51 South, Left on CR 391, Right on CR 151, Site is approximately 1.22 miles on the left

- | | | | | |
|---|-------------------------------------|---|------------------------------|-------------------------------------|
| Yes | No | Is/will this facility: | Yes | No |
| (a) <input checked="" type="checkbox"/> | <input type="checkbox"/> | an existing facility which currently results in discharges to State waters | (b) <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| (c) <input type="checkbox"/> | <input checked="" type="checkbox"/> | a proposed facility which will result in a discharge to State waters? | (d) <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| (e) <input type="checkbox"/> | <input checked="" type="checkbox"/> | discharge to waters of or be located in the Coastal Zone? | (f) <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| (g) <input type="checkbox"/> | <input checked="" type="checkbox"/> | be located on Indian/ historically significant lands? | (h) <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| (i) <input type="checkbox"/> | <input checked="" type="checkbox"/> | need/have ASMC permit coverage? | (j) <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| (k) <input type="checkbox"/> | <input checked="" type="checkbox"/> | generate, treat, store, or dispose of hazardous or toxic waste ? If "yes", attach a detailed explanation. | | |
| (l) <input type="checkbox"/> | <input checked="" type="checkbox"/> | be located in or discharge to a Public Water Supply (PWS) Watershed(s) or be located within 1/2 mile of any PWS well? | | |

VIII. PROPOSED ACTIVITY TO BE CONDUCTED - Check All that apply

Type(s) of activity presently conducted at applicant's existing facility or proposed to be conducted at proposed facility (check each one that applies):

- Surface mining Underground mining Auger mining Quarrying Hydraulic mining Mineral storing
- Within-bank mining Lime production Cement production Synthetic fuel production Alternative fuels operation
- Other beneficiation/manufacturing operations Chemicals used in process or wastewater treatment (coagulant, biocide, etc.)
- Mineral loading Mineral wet preparation Mineral dry processing (crushing & screening)
- Chemical processing or leaching Solution mining Construction related temporary borrow pits/areas
- Mineral transportation rail barge truck Hydraulic mining, dredging, instream or between stream-bank mining
- Preparation plant waste recovery Onsite construction/mining waste/debris/equipment storing/disposing
- Excavation Grading, clearing, grubbing, etc. Reclamation of disturbed areas
- Pre-mining logging or land clearing Pre-construction ponded water removal Waterbody relocation or other alteration
- Adjacent/associated asphalt/concrete plant(s) Low volume sewage treatment package plant Creek/stream crossings
- Other (Describe): _____ Other (Describe): _____

Primary SIC Code 1499 Description Miscellaneous Nonmetallic Minerals, Except Fuels

Secondary SIC Code _____ Description _____

Narrative Description: Borrow pit operation for off-site utilization of dry chert used for construction, improvement and maintenance of county roads in Lee County, Alabama.

IX. MATERIAL TO BE REMOVED, PROCESSED, OR TRANSLOADED – List relative percentages for All that apply

List relative percentages of mineral(s) or mineral products presently mined, quarried, recovered, prepared, processed, handled, transloaded, or disposed at applicant's existing facility or to be mined, quarried, recovered, prepared, processed, handled, transloaded, or disposed at applicant's proposed facility. **If more than one mineral is to be mined, list the relative proportions of each mineral by tonnage for the life of the mine.**

- | | | | | |
|---|---------------------------------|---------------------------------|--|----------------------------------|
| <u>100%</u> Dirt-Chert | _____ Sand-Gravel | _____ Chalk | _____ Talc | _____ Crushed rock - other |
| _____ Bentonite | _____ Industrial Sand | _____ Coal product, coke | _____ Marble | _____ Shale & Common Clay |
| _____ Coal | _____ Lignite | _____ Fire clay | _____ Iron ore | _____ Coal fines/refuse recovery |
| _____ Slag, Red Rock | _____ Phosphate rock | _____ Granite | _____ Limestone, crushed limestone and dolomite | |
| _____ Bauxitic clay | _____ Kaolin | _____ Dimension stone | _____ Gold, other trace minerals (be specific) _____ | |
| _____ Bauxite ore (for Aluminum production) | _____ Other (be specific) _____ | _____ Other (be specific) _____ | | |

X. FUEL - CHEMICAL HANDLING, STORAGE & SPILL PREVENTION CONTROL & COUNTERMEASURES (SPCC) PLAN

Will fuels, chemicals, compounds or liquid waste be used or stored onsite? Yes No If "yes", identify and indicate amount below:

Capacity	Contents	Capacity	Contents	Capacity	Contents
_____ gallons	_____	_____ gallons	_____	_____ gallons	_____
_____ gallons	_____	_____ gallons	_____	_____ gallons	_____

If "yes", a detailed SPCC Plan with acceptable format/content, including diagrams, must be attached to application according to ADEM Admin. Code R. 335-6-6-.12(r). Unless waived in writing by the Department on a programmatic, categorical, or individual compound/chemical basis, attach Material Safety Data Sheets (MSDS) for chemicals/compounds used or proposed to be used at the facility.

XI. POLLUTION ABATEMENT & PREVENTION (PAP) PLAN

Yes No ADEM 335-6-9 PAP and Appendix A & B Checklists have been completed and are attached as part of this application.

Yes No A detailed PAP Plan with format/content acceptable to ADEM is attached to application according to ADEM Admin. Code R. 335-6-9-.03 and Appendices A & B, or has been submitted to ASMC according to submittal procedures for ASMC regulated facilities (see next response).

N/A If a coal facility, detailed mining and engineering design plan(s) are on file with or have been submitted to ASMC.
Date _____

If response is "No", or if a coal facility and an application has not been filed with ASMC, please explain:
N/A

XII. TOPOGRAPHIC MAP SUBMITTAL

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 is located. Unless approved in advance by the Department, the topographic or equivalent map(s), at a minimum, must show:

- (a) an outline of legal boundary of entire property (property lines and lease boundaries)
- (b) an outline of the facility
- (c) all existing and proposed disturbed areas
- (d) location of 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) buildings and structures, including fuel/water tanks
- (l) contour lines, township-range-section lines
- (m) drainage patterns, swales, washes
- (n) all drainage conveyance/treatment structures (ditches, berms, etc.)
- (o) Any other pertinent or significant feature

[symbols identified in Theodore D. Steger, Topographic Maps, U.S. Interior Dept., Geological Survey, 1978 (No. 0--274--961), as updated/revised]

XIII. DETAILED FACILITY MAP SUBMITTAL

Attach to this application a 1:500 scale or better, detailed auto-CAD 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 facility. The facility or equivalent map(s) must include a caption indicating the name of the facility, name of the applicant, facility name, county, and township, range, & section(s) where the facility is located. Unless approved in advance by the Department, the facility or equivalent map(s), at a minimum, must show:

- (a) Information listed in Item XII (a) – (o) above
- (b) If noncoal, detailed, planned mining progression
- (c) location of mining or pond cleanout waste storage/disposal areas
- (d) If noncoal, location of topsoil storage areas
- (e) Other information relevant to facility or operation
- (f) location of facility sign showing permittee name, facility name, and NPDES Number

XIV. PROPOSED NEW OR INCREASED DISCHARGES

Pursuant to ADEM Admin. Code Chapter 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 determine, based on the applicant's demonstration, that 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.

- Yes. New/increased discharges of pollutant(s) or discharge locations to Tier 2 waters are proposed. Complete items 1 – 6 below.
- No. New/increased discharges of pollutants(s) or discharge locations to Tier 2 waters are not proposed.

If "Yes", applicant is requesting issuance, modification, or reissuance & modification of permit coverage for new or expanded discharges of pollutant(s) not previously permitted. Complete this Item, Item XV, and Item XVI as necessary. **Attach additional sheets/documentation and supporting information as needed.**

1) What environmental or public health problem will the discharge be correcting? N/A

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

N/A

3) How much reduction in employment will the discharger be avoiding? N/A

4) How much additional state or local taxes will the discharger be paying? N/A

5) What public service to the community will the discharger be providing? N/A

6) What economic or social benefit will the discharger be providing to the community? N/A

Pursuant to ADEM Admin. Code Chapter 335-6-10, an evaluation of the discharge alternatives identified below has been completed and the following conclusions, as indicated, were reached. All proposed new or expanded discharges of pollutant(s) covered by the Individual NPDES permitting program are subject to the provisions of the antidegradation policy. As part of the permit application review process, the Department is required to determine, based on the applicant's demonstration, that 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. As a part of this demonstration, a registered professional engineer (PE) licensed to practice in the State of Alabama must complete an evaluation of the discharge alternatives, to include calculation of total annualized project costs (Item XVI) for each technically feasible alternative. Technically feasible alternatives with total annualized pollution control project costs that are less than 110% of the preferred alternative total annualized pollution control project costs for the Tier 2 new or increased discharge proposal are considered viable alternatives. **Supporting documentation is attached, referenced, or otherwise handled as appropriate.**

Alternative	Viable	Non-Viable	Reason/Rationale For Indicating Non-Viable
1) Treatment/Discharge Proposed In This Application	X		
2) Land Application		X	Incised pit allows infiltration into the ground
3) Pretreatment/Discharge to POTW By SID Permit		X	This area is not serviced by a POTW
4) Relocation of Discharge		X	Incised pit allow infiltration into the ground
5) Reuse/Recycle – Pollution Prevention		X	There are not process operations at this facility
6) Other Process/Treatment Alternatives		X	Additional treatment is not needed
7) Underground Injection By UIC Permit		X	Incised pit allows infiltration into the ground
8) Other Project Specific Alternative(s) Identified By the Applicant Or The ADEM		X	N/A
9) Other Project Specific Alternative(s) Identified By the Applicant Or The ADEM		X	N/A

COMMENTS: **The incised pit collects all stormwater runoff from mined and reclaimed areas and allows the stormwater to infiltrate into the ground.**

XVI. CALCULATION OF TOTAL ANNUALIZED PROJECT COSTS FOR PRIVATE SECTOR PROJECTS - ADEM Form 313 3/02
(ADEM Form 312 3/02 - Public Sector Project is available upon request)

This item must be completed for each technically feasible alternative evaluated in Item XV. **Copy, complete, and attach additional blocks/sheets and supporting information as needed.**

Capital Costs of pollution control project to be expended or financed by applicant (Supplied by applicant)	\$ <u>15,000</u> (1)	* While actual payback schedules may differ across projects and companies, assume equal annual payments over a 10-year period for consistency in comparing projects.
Interest Rate for Financing (Expressed as a decimal)	<u>0.065</u> (i)	
Time Period of Financing (Assume 10 years *)	<u>10 years</u> (n)	
Annualization Factor ** = $\frac{i}{(1+i)^n - 1} + i$ i = Interest Rate	<u>0.139</u> (2)	** Or refer to Appendix B (application information) for calculated annualization factors.
Annualized Capital Cost [Calculate: (1) x (2)]	\$ <u>2,085</u> (3)	
Annual Cost of Operation & Maintenance (including but not limited to monitoring, inspection, permitting fees, waste disposal charges, repair, administration & replacement) ***	\$ <u>66,200</u> (4)	*** 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).
Total Annual Cost of Pollution Control Project [(3) + (4)]	\$ <u>68,285</u> (5)	

XVII. RECEIVING WATERS

List the requested permit Action for each outfall (issue, reissue, add, delete, move, etc.), Outfall Designation including noting "E" for existing and "P" for proposed, name of receiving water(s), ADEM water use classification (WUC) for the receiving water, latitude and longitude (to seconds) of location(s) that run-off enters the receiving water, distance of receiving water from outfall in feet, number of disturbed acres, the number of drainage acres which will drain through each treatment system, outfall, or BMP, and if the outfall discharges to an ADEM listed CWA Section 303(d) waterbody segment at the time of application submittal.

Action	Outfall E/P	Receiving Water	ADEM WUC	Latitude	Longitude	Distance to Rec. Water	Disturbed Acres	Drainage Acres	303(d) Segment (Y/N)
R	E 001	UT to Little Ulchee Crk	F&W	32°36'15"N	85°17'45"W	1,380	21.94	34.36	N
D	E 002	UT to Little Ulchee Crk	F&W	32°36'11"N	85°17'45"W	760	1.09	27.73	N

XVIII. DISCHARGE CHARACTERIZATION

- Yes, pursuant to 40 CFR 122.21, the applicant requests a waiver for completion of EPA forms 2C and/or 2D and certifies that the operating facility will discharge treated stormwater only, unless waived in writing by the Department on a programmatic, categorical, or individual compound/chemical basis that chemical/compound additives are not used, and that there are no process, manufacturing, or other industrial operations or wastewaters, including but not limited to lime or cement production, synfuel operations, etc.
- No, the applicant does not request a waiver and a complete and correct EPA form 2C and/or 2D is attached.

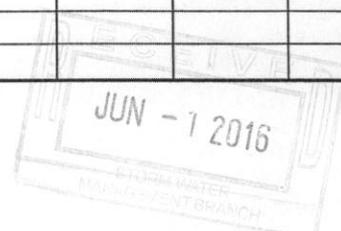
If a completed EPA form 2C and/or 2D is not attached, the applicant is required to supply the following information separately for every P or E outfall. If necessary, attach extra sheets. List expected average daily discharge flow rate in gallons/day and in cfs, frequency of discharge in hours per day and days per month, average summer and winter temperature of discharge(s) in degrees centigrade (C), average daily discharge in pounds per day of Total Iron, Total Manganese, BOD₅, Total Aluminum (if bauxite or bauxitic clay), and Total Suspended Solids:

Outfall E/P	Information Source - # of Samples	Flow cfs	Flow gpd	Frequency hours/day	Frequency days/mnth	pH s.u.	BOD ₅ lbs/day	Sum/Win Temp, C.	TSS lbs/day	Tot Fe lbs/day	Tot Mn lbs/day	Tot Al lbs/day
-------------	-----------------------------------	----------	----------	---------------------	---------------------	---------	--------------------------	------------------	-------------	----------------	----------------	----------------

See Sections 2.5 and 2.6 of this report

Please supply the following information separately for every P or E outfall. If necessary, attach extra sheets. Identify and list expected average daily discharge in pounds per day of any other pollutant(s) listed in EPA Form 2C, Item V – Intake And Effluent Characteristics, Parts A, B & C that are not referenced in XVIII above, that you know or there is reason to believe could be present in the discharge(s) at levels of concern. I/we (PE and applicant) certify that that I/we have reviewed the list of pollutants referenced in EPA Forms 2C & 2D, and the pollutants listed in EPA Form 2C and/or 2D that are not listed below are believed absent or not present at levels of concern in any proposed or existing discharge(s) from this facility:

Outfall E/P	Reason Believed Present	Information Source - # of Samples	lbs/day								
NA											



XIX. DISCHARGE STRUCTURE DESCRIPTION AND POLLUTANT SOURCE

If a completed EPA form 2C and/or 2D is not attached, the applicant is required to detail existing and proposed point source(s) covered by this permit application. Specify 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. Please check all responses which describe the discharge origin.

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	Other
E 001	Top of bank	6, 9	N/A	Yes	N/A	N/A	N/A	N/A

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: _____

XX. INFORMATION

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 and the Department grants a waiver (Item XVIII-Discharge Information). Proposed activities described in this application for this facility qualify for coverage under ADEM Admin. Code Chapter 335-6-9 including Appendices A & B, and there are no other potential pollutants, processes, process wastewaters or activities that require permit coverage.

Coverage under the Department’s NPDES Construction Stormwater Permit Program allows for short-lived, construction related, limited removal or relocation of offsite fill material, and does not provide coverage for mining activities described in ADEM Admin. Code Chapter 335-6-9 that exceeds or will exceed 5 un-reclaimed acres. 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 and Individual NPDES Permit prior to commencement of any land disturbance.

I understand by submission of this application, that I am 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 Industrial Relations (ADIR) 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, and 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.

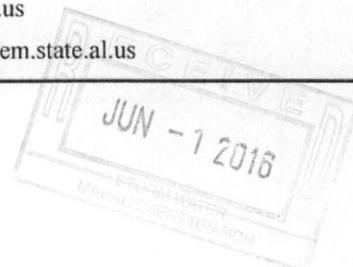
An information package, example PAP and SPCC plans, and other information are available upon request.

Complete this form, attach additional information as necessary, enclose appropriate processing fee (including Greenfield fee if applicable) and send to:

Field Operations Division – MNPS
 Alabama Department of Environmental Management
 Phone: (334) 394-4311
 Fax: (334) 394-4326
 Microsoft WORD 97

PO Box 301463
 Montgomery, AL 36130-1463
 Email: mnps@adem.state.al.us
 Internet Web Page: www.adem.state.al.us

1400 Coliseum Boulevard
 Montgomery, AL 36110-2059



XXI. POLLUTION ABATEMENT PLAN (PAP) - APPENDIX A& B INFORMATION

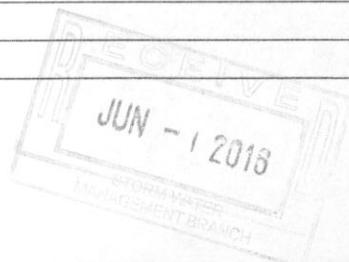
Outfall(s): E001

Y	N	N/A	
X			Runoff from all areas of disturbance is controlled
X			Drainage from pit area, stockpiles, and spoil areas directed to a sedimentation pond
X			Sedimentation basin at least 0.25 acre/feet for every acre of disturbed drainage
X			Sedimentation basin cleaned out when sediment accumulation is 60% of design capacity
X			Trees, boulders, and other obstructions removed from pond during initial construction
		X ^{*1}	Width of top of dam greater than 12'
		X ^{*1}	Side slopes of dam no steeper than 3:1
		X ^{*1}	Cutoff trench at least 8' wide
		X ^{*1}	Side slopes of cutoff trench no less than 1:1
		X ^{*1}	Cutoff trench located along the centerline of the dam
		X ^{*1}	Cutoff trench extends at least 2' into bedrock or impervious soil
		X ^{*1}	Cutoff trench filled with impervious material
		X ^{*1}	Embankments and cutoff trench 95% compaction standard proctor ASTM
		X ^{*1}	Embankment free of roots, tree debris, stones >6" diameter, etc.
		X ^{*1}	Embankment constructed in lifts no greater than 12"
		X ^{*1}	Spill pipe sized to carry peak flow from a one year storm event
		X ^{*1}	Spill pipe will not chemically react with effluent
		X ^{*1}	Subsurface withdrawal
		X ^{*1}	Anti-seep collars extend radially at least 2' from each joint in spill pipe
		X ^{*1}	Splash pad at the end of the spill pipe
		X ^{*2}	Emergency Spillway sized for peak flow from 25-yr 24-hr event if discharge not into PWS classified stream
		X ^{*2}	Emergency spillway sized for peak flow from 50-yr 24-hr event if discharge is into PWS classified stream
		X ^{*2}	Emergency overflow at least 20' long
		X ^{*2}	Side slopes of emergency spillway no steeper than 2:1
		X ^{*2}	Emergency spillway lined with riprap or concrete
X			Minimum of 1.5' of freeboard between normal overflow and emergency overflow
X			Minimum of 1.5' of freeboard between max. design flow of emergency spillway and top of dam
		X ^{*2}	All emergency overflows are sized to handle entire drainage area for ponds in series
		X ^{*1}	Dam stabilized with permanent vegetation
X			Sustained grade of haul road <10%
X			Maximum grade of haul road <15% for no more than 300'
X			Outer slopes of haul road no steeper than 2:1
X			Outer slopes of haul road vegetated or otherwise stabilized
		X ^{*3}	Detail drawings supplied for all stream crossings
X			Short-Term Stabilization/Grading And Temporary Vegetative Cover Plans
X			Long-Term Stabilization/Grading And Permanent Reclamation or Water Quality Remediation Plans

Y The applicant has completed the surface water discharge alternatives analysis and has supporting documentation, including annualized costs for each technically feasible alternative available for review upon request

IDENTIFY AND PROVIDE DETAILED EXPLANATION FOR ANY "N" OR "N/A" RESPONSE(S):

* ¹ The excavated and incised pits collect all stormwater runoff from operational areas. Therefore, sediment pond(s) are not needed and the construction of a dam or embankment is not required. Water pools in the bottom of the pits until it infiltrates into the ground under average rainfall events.
* ² The excavated and incised pits have adequate storage capacity to contain the volume of stormwater discharged from a 25-Yr 24-Hr event.
* ³ There are no stream crossings



XXII. POLLUTION ABATEMENT PLAN (PAP) REVIEW CHECKLIST

Y	N	N/A
X		
X		
X		

PE Seal with License #
 Name and Address of Operator
 Legal Description of Facility

General Information:

X		
X		
X		
X		
X		

Name of Company
 Number of Employees
 Products to be Mined
 Hours of Operation
 Water Supply and Disposition

Topographic Map:

X		
		X ^{*1}
X		
X		
X		

Mine Location
 Location of Prep Plant
 Location of Treatment Basins
 Location of Discharge Points
 Location of Adjacent Streams

1"- 500' or Equivalent Facility Map:

X		
X		
X		
X		

Drainage Patterns
 Mining Details
 All Roads, Structures Detailed
 All Treatment Structures Detailed

Detailed Design Diagrams:

X		
		X ^{*2}
		X ^{*2}

Plan Views
 Cross-section Views
 Method of Diverting Runoff to Treatment Basins

Narrative of Operations:

X		
X		
X		

Raw Materials Defined
 Processes Defined
 Products Defined

Schematic Diagram:

X		
X		
X		

Points of Waste Origin
 Collection System
 Disposal System

Post Treatment Quantity and Quality of Effluent:

X		
X		
X		
X		

Flow
 Suspended Solids
 Iron Concentration
 pH

Description of Waste Treatment Facility:

X		
		X ^{*1}
X		
X		

Pre-Treatment Measures
 Recovery System
 Expected Life of Treatment Basin
 Schedule of Cleaning and/or abandonment

Other:

X		
X		
X		
X		
		X ^{*3}
		X ^{*2}

Precipitation/Volume Calculations/Diagram Attached
 BMP Plan for Haul Roads
 Measures for Minimizing Impacts to Adjacent Stream i.e., Buffer Strips, Berms, etc.
 Methods for Minimizing Nonpoint Source Discharges
 Facility Closure Plans
 PE Rationale(s) For Alternate Standards, Designs or Plans

IDENTIFY AND PROVIDE DETAILED EXPLANATION FOR ANY "N" OR "N/A" RESPONSE(s):

* ¹ There is no material processing or prep plant.
* ² Stormwater drainage is diverted to the incised pit.
* ³ The pit is needed for Lee County construction and maintenance material. Closure of the pit is not anticipated.

XXIII. PROFESSIONAL ENGINEER (PE) CERTIFICATION

A detailed, comprehensive Pollution Abatement/Prevention Plan (PAP) must be prepared, signed, and certified by a professional engineer (PE), registered in the State of Alabama as follows:

"I certify on behalf of the applicant, that I have completed an evaluation of discharge alternatives (Item XV) 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."

Address 2124 Moore's Mill Road, Suite 120, Auburn, AL

PE Registration # 31964

Name and Title (type or print) Brian Kane, P.E. / Project Eng.

Phone Number (334) 332-8035

Signature 

Date Signed 12-12-2014

XXIV. RESPONSIBLE OFFICIAL SIGNATURE

This application must be signed 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.

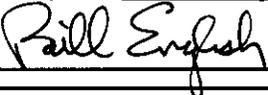
A comprehensive PAP Plan to prevent and minimize discharges of pollution to the maximum extent practicable has been prepared at my direction by a PE for this facility utilizing effective, good engineering and pollution control practices and in accordance with the provisions of ADEM Admin. Code Division 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.

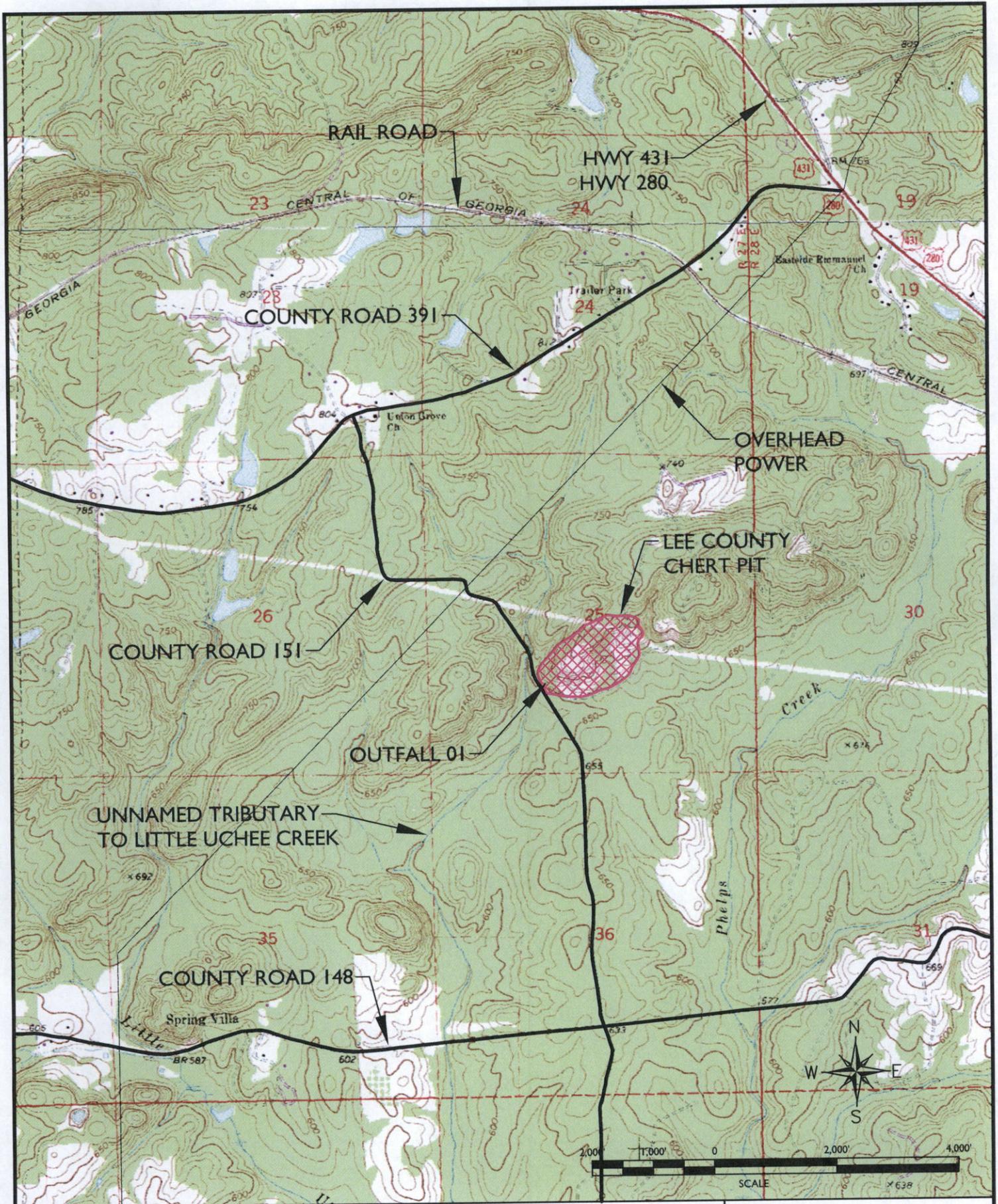
I further certify that the discharges described in this application have been tested or evaluated for the presence of non-stormwater discharges and any non-mining associated beneficiation/process pollutants and wastewaters have been fully identified."

Name (type or print) Bill English

Official Title Lee County Commission Chairman

Signature 

Date Signed 12/16/14



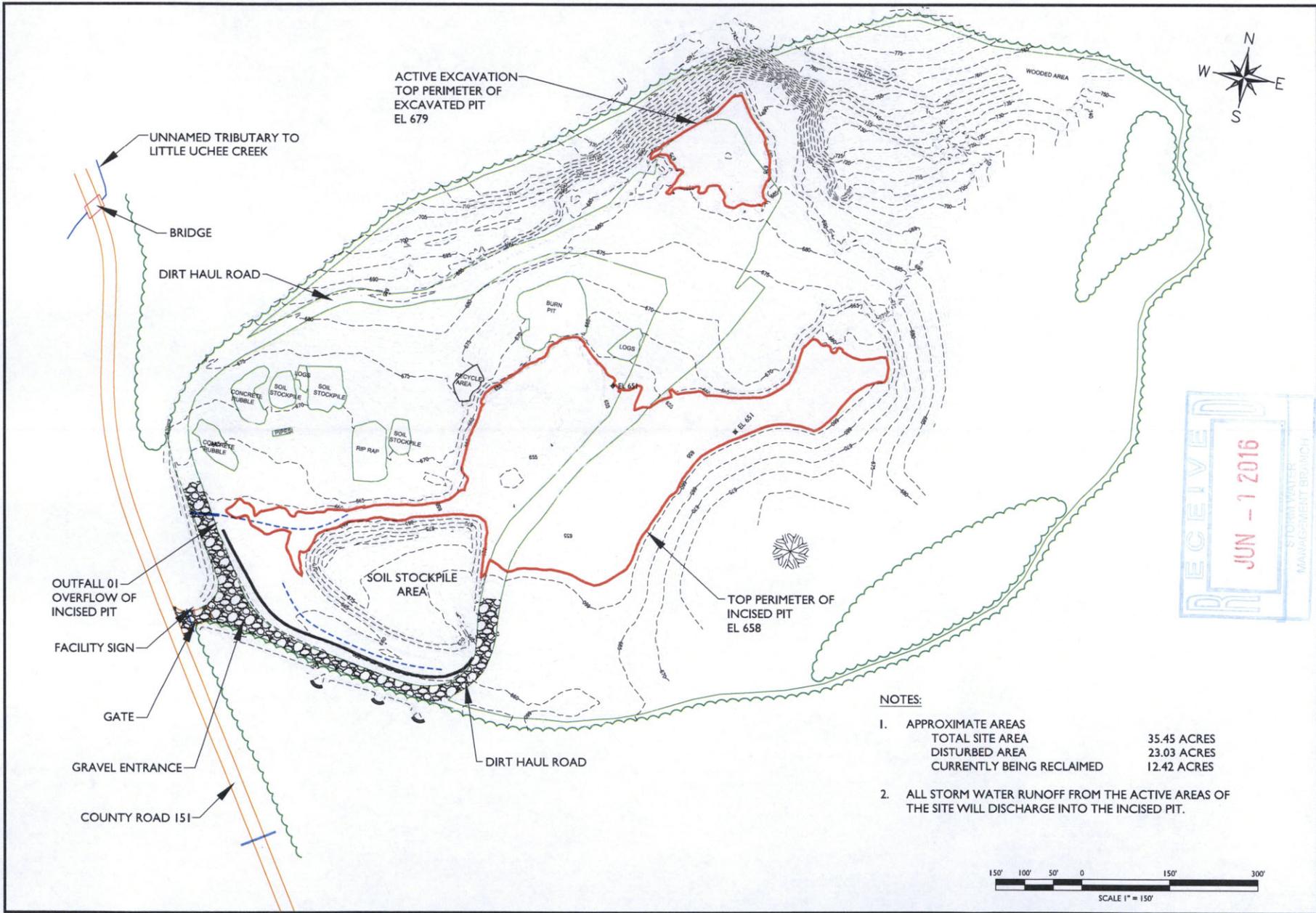
PROJECT TITLE
**COUNTY ROAD 151 CHERT PIT
 NPDES PERMIT APPLICATION
 RENEWAL**

CLIENT
**LEE COUNTY
 HIGHWAY DEPARTMENT
 OPELIKA, ALABAMA 36803**



DRAWING TITLE **FIGURE I-1 USGS 7.5 MIN QUADRANGLE - PARKER CROSS ROADS**





RECEIVED
JUN - 1 2016
STORM WATER
MANAGEMENT BRANCH

- NOTES:**
1. APPROXIMATE AREAS
 TOTAL SITE AREA 35.45 ACRES
 DISTURBED AREA 23.03 ACRES
 CURRENTLY BEING RECLAIMED 12.42 ACRES
 2. ALL STORM WATER RUNOFF FROM THE ACTIVE AREAS OF THE SITE WILL DISCHARGE INTO THE INCISED PIT.



DATE	DRAWN	CHECKED	APPROVED	SCALE	SHEET NO.	TOTAL SHEETS

LEE COUNTY
HIGHWAY DEPARTMENT
OPELIKA, ALABAMA 36803

COUNTY ROAD 151 CHERT PIT
NPDES PERMIT APPLICATION
RENEWAL

FIGURE I-2 DETAILED FACILITY MAP

PROJECT NUMBER	
SHEET NUMBER	
DATE	



Lee County, Alabama Est. 1866

SECTION 2

Discharge Characteriaztion

2. Discharge Characterization

2.1. Outfalls

The Lee County Road 151 Chert Pit has one outfall. The location of the outfall is shown on Figure 1-2. Drainage area characteristics of the outfall is presented in the following table.

Table 2-1
Outfall Drainage Area Characteristics

Outfall No.	Drainage Area (acres)	Disturbed Area (acres)	Un-Disturbed Area (acres)
001	34.36	21.94	12.42

Notes:

1. All mining operations are located within the drainage area of Outfall 001.
2. All of the drainage area of Outfall 001 discharges into the excavated pit or incised pit. The top perimeter of the excavated pit is currently set at elevation 679 mean sea level and is shown on Figure 1-2. The top perimeter of the incised pit is currently set at elevation 658 mean sea level and is shown on Figure 1-2.

2.2. Process Wastewaters

Chert is mined from the pit by excavation. There is no process wastewater generated by mining operations.

2.3. Incised Pit

ADEM Rule 335-6-9 Appendix A requires the minimum storage capacity of a sediment basin to be 0.25 acre-feet (ac-ft) per acre of disturbed area in the drainage area. This operation has approximately 22 acres of disturbed area. Therefore, the minimum capacity of a sediment basin is 5.5 ac-ft.

Using the topographic data collected during the field survey, the top of the incised pit is located at elevation 658. The volume of the incised pit at elevation



658 is approximately 11.386 ac-ft. The existing storage capacity of the incised pit is over twice the minimum storage capacity requirements.

2.4. Hydrologic Model

Stormwater runoff from the drainage area of Outfall 001 is collected in the excavated pit and incised pit where it is infiltrated back into the ground. Overflow from the excavated pit discharges over land to the incised pit.

A lump sum parameter hydrologic model was developed to estimate the volume of stormwater runoff for selected 24-hour storm events. The hydrologic model was developed using the methodology described in Technical Release 55 (TR-55) Urban Hydrology for Small Watersheds. Since the excavated and incised pits will store stormwater until it infiltrates into the ground, infiltration rates of 0.6 to 2.0 inches per hour were obtained for this area from the Lee County Soil Survey and incorporated into the hydrologic model.

A summary of the stormwater runoff volumes estimated at the outfall is presented in the following table.

**Table 2-2
Stormwater Volume Estimates**

Storm Event (years)	Rainfall (in)	Hydrograph Volume (ac-ft)
		Outfall 001
2	4.2	6.703
5	5.4	9.732
10	6.3	12.082
25	7.3	14.746
50	8.0	16.636
100	8.8	18.813

By incorporating the excavated and incised pits into the hydrologic model, the discharge hydrograph for Outfall 001 was routed through the incised pit in order to determine water surface elevations that correlate to each storm event. The



model utilized a conservative infiltration rate of 0.6 inches per hour. Results of the hydrologic model for Outfall 001 are summarized in the following table.

**Table 2-3
Outfall 001 Hydrologic Model Results**

Storm Event (years)	Hydrograph Volume (ac-ft)	Excavated Pit Storage (ac-ft) ¹	Incised Pit Storage (ac-ft)	Maximum Water Surface Elevation (ft) ²	Outfall Discharge (cfs)
2	6.703	0.667	4.550	655.61	0
5	9.732	0.992	6.832	656.53	0
10	12.082	1.249	8.678	657.18	0
25	14.746	1.543	10.751	657.82	0
50	16.636	1.753	11.775	658.11	1.45
100	18.813	1.995	12.346	658.26	5.50

¹The Excavated Pit contains runoff volumes for all events listed

²Water Surface Elevations are for the Incised Pit

The average monthly rainfall for Opelika, Alabama is provided in Table 2-4.

The hydrologic model shows that the volume of the incised pit is suitable to contain the volume of stormwater runoff generated within the drainage area of Outfall 001. Given the results from the hydrologic model along with the average monthly rainfall and field observations over the past ten years, it is very unlikely that there will be any surface water discharges from the incised pit. Supporting calculations for the hydrologic model are included in Appendix A.



**Table 2-4
Average Monthly Rainfall**

Month	Average Rainfall (in)	Month	Average Rainfall (in)
January	5.3	July	5.9
February	5.6	August	4.0
March	6.9	September	3.9
April	5.3	October	3.1
May	3.8	November	4.4
June	4.3	December	5.5

2.5. Storm Event Sampling

Grab samples of stormwater runoff were collected during the storm event that started at 3:10 pm and ended at 8:20 am on 17 November 2014. This storm event produced approximately 0.85 inches of rainfall at the Chert Pit. A hyetograph that shows 2-minute interval rainfall depths and cumulative rainfall totals is provided in Figure 2-1. The volume of stormwater runoff produced by this storm event was estimated to be approximately 0.177 ac-ft (57,675.6 gallons) with a peak discharge of 3.44 cubic feet per second (cfs) into the incised pit.

2.6. Storm Event – Pollutant Loading Estimates

Grab samples were collected for Outfall 001 at the incised pit. The analytical results for each sample and results from previous samples taken on 20 January 2010 are summarized in Table 2-5.

Results for pH at both outfalls were in compliance with the discharge limitation requirements of the existing permit. The results for total suspended solids (TSS) at Outfall 001 exceeded the discharge limitation requirements of the existing permit. This sample representing Outfall 001 was collected in the incised pit, and was not part of an offsite discharge.



Based upon comparisons of the 2010 and 2014 grab samples, it appears the BMPs implemented over the current permit term has maintained compliance within the permit requirements. Analytical data sheets are provided in Appendix B. BMPs that are currently implemented and maintained are shown in Figure 3-2.

**Table 2-5
Sample Results**

Parameter		2010 Results		2014 Results
Description	Units	Outfall 001	Outfall 002	Outfall 001
pH	NTU	6.9	8.1	7.8
BOD ₅	mg/L	2	2	18
TSS	mg/L	10,120	1,470	3,800
Total Fe	mg/L	48.1	15.5	92.6
Total Mn	mg/L	1.44	0.18	1.21
Total Al	mg/L	48.5	16.3	70.6

2.6.1. Outfall 001

Given the results from the hydrologic model along with the average monthly rainfall data and field observations over the past ten years, it is very unlikely that there will be any surface water discharges from the incised pit. Since there will be no surface water discharges, any pollutants created from facility operations will be contained within the incised pit.

There were no observed stormwater discharges from Outfall 001 resulting from the storm event that occurred on 17 November 2014. Estimates of pollutant loadings into the incised pit resulting from this storm event are summarized in the following table.

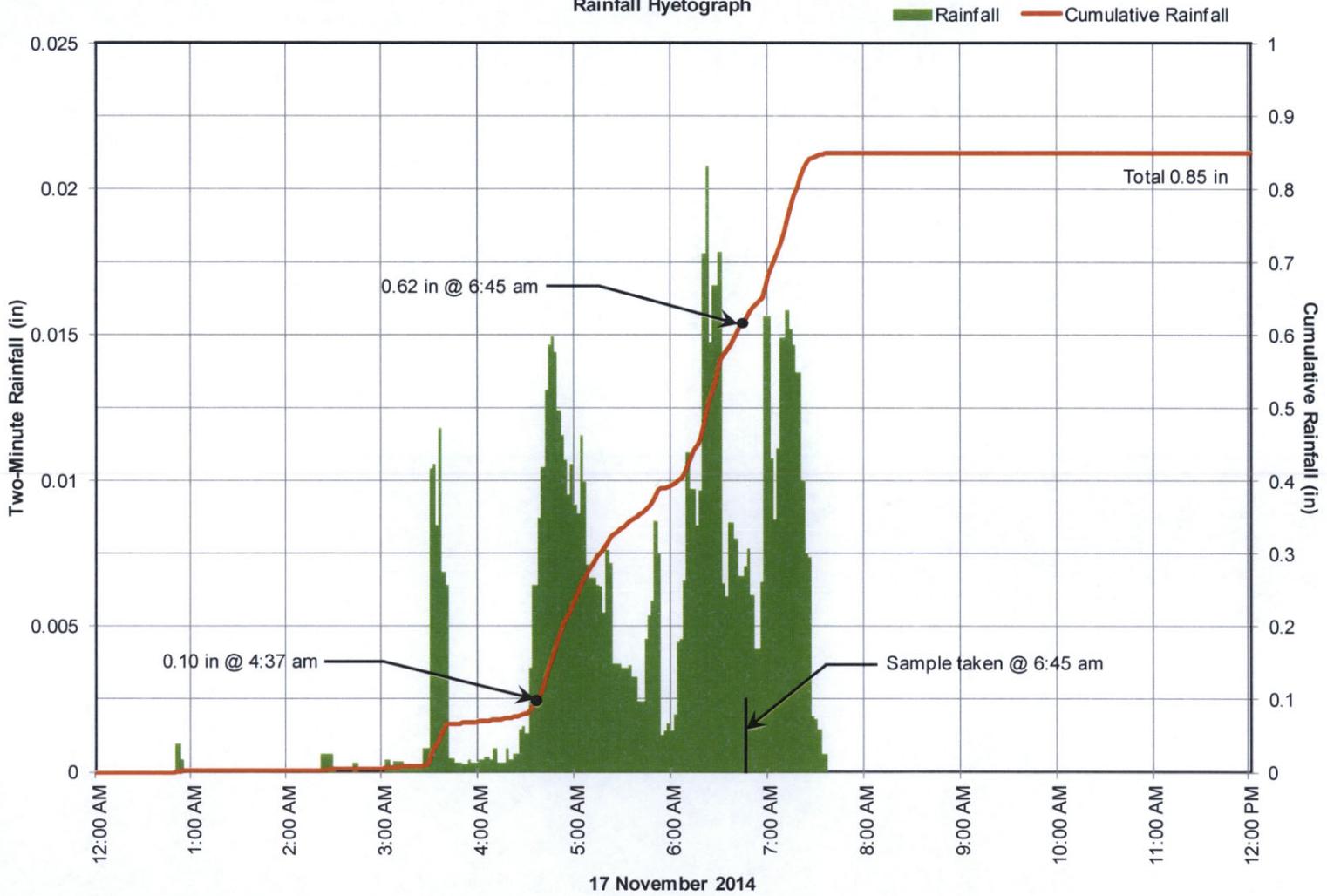


**Table 2-6
Outfall 001 – Storm Event Pollutant Load Estimate**

Parameter	Concentration					Flow	Pollutant Load
BOD	$18 \frac{\text{mg}}{\text{L}}$	$\times \frac{3.7854 \text{ L}}{1 \text{ gal}}$	$\times \frac{1 \text{ lb}}{453,592.40 \text{ mg}}$	$\times \frac{57,675.6 \text{ gal}}{1 \text{ event}}$	=	$8.6638 \frac{\text{lb}}{\text{event}}$	
TSS	$3,800 \frac{\text{mg}}{\text{L}}$	$\times \frac{3.7854 \text{ L}}{1 \text{ gal}}$	$\times \frac{1 \text{ lb}}{453,592.40 \text{ mg}}$	$\times \frac{57,675.6 \text{ gal}}{1 \text{ event}}$	=	$1,829.0323 \frac{\text{lb}}{\text{event}}$	
Al	$70.6 \frac{\text{mg}}{\text{L}}$	$\times \frac{3.7854 \text{ L}}{1 \text{ gal}}$	$\times \frac{1 \text{ lb}}{453,592.40 \text{ mg}}$	$\times \frac{57,675.6 \text{ gal}}{1 \text{ event}}$	=	$33.9815 \frac{\text{lb}}{\text{event}}$	
Fe	$92.6 \frac{\text{mg}}{\text{L}}$	$\times \frac{3.7854 \text{ L}}{1 \text{ gal}}$	$\times \frac{1 \text{ lb}}{453,592.40 \text{ mg}}$	$\times \frac{57,675.6 \text{ gal}}{1 \text{ event}}$	=	$44.5706 \frac{\text{lb}}{\text{event}}$	
Mn	$1.21 \frac{\text{mg}}{\text{L}}$	$\times \frac{3.7854 \text{ L}}{1 \text{ gal}}$	$\times \frac{1 \text{ lb}}{453,592.40 \text{ mg}}$	$\times \frac{57,675.6 \text{ gal}}{1 \text{ event}}$	=	$0.5824 \frac{\text{lb}}{\text{event}}$	

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Figure 2-1
Rainfall Hyetograph





Lee County, Alabama Est. 1866

SECTION 3

Pollution Abatement and/or Prevention Plan

3. Pollution Abatement and/or Prevention Plan

3.1. Introduction

The Lee County Road 151 Chert Pit (CR-151 Chert Pit) located in Township 19 North, Range 27 East, Section 25 in Lee County, Alabama, is in the process of renewing its individual National Pollutant Discharge Elimination Systems (NPDES) permit for mining operations. As part of the renewal process, the Pollution Abatement and/or Prevention (PAP) plan has been updated and revised to reflect current operational practices. This PAP plan has been prepared in accordance with the requirements specified in the Alabama Department of Environmental Management (ADEM) Rule 335-6-9-.03.

3.2. Operator

The operator of this pit is:

Lee County Commission
Attn: Mr. Bill English, Commission Chairman
P. O. Box 1007
Opelika, AL 36803

Phone: (334) 737-7011
Fax: (334) 745-9794

3.3. General Information

The CR-151 Chert Pit will be operated as a borrow pit for construction fill and base material. Products to be mined from the facility include dirt, chert, sand, and gravel, and will be excavated using conventional earthmoving equipment (e.g. front end loaders, trackhoes, and backhoes) and loaded onto haul trucks.

The facility is expected to be operated intermittently depending on the needs of County maintenance and construction projects. When in use, the facility will normally operate from 7:00 am to 4:00 pm, 3 to 6 days per week. During facility operations, there will generally be from one to six people working. Facility operations do not include any material preparation, screening and/or washing activities. There is no oil or fuel storage at the facility.

3.4. Topographic Map

A USGS 7.5 Minute Quadrangle Map showing topographic features and the area surrounding the facility is included as Figure 1-1. A detailed facility map that shows the following site features is included as Figure 1-2.

- Topography,
- Active areas of excavation,
- Perimeter of the excavated and incised pit,
- Haul roads, and
- Outfalls.

3.5. Surface Water Management

Topographic features of the site allow active operational areas to be graded such that surface water runoff is diverted and contained within the existing incised pit. Surface water runoff will be diverted into the incised pit by using a combination of swales, culverts and/or berms. The drainage basin of the incised pit is approximately 33.90 acres. Existing mining operations occupy approximately 21.94 acres and approximately 12.42 acres is currently being reclaimed. Surface water discharge from the incised pit is highly unlikely. Information and data supporting this assumption is presented in Section 2. The overflow of the incised pit has been designated as Outfall 001.

Some areas of the facility haul road and soil stockpile area cannot feasibly be diverted into the incised pit. These areas will have effective Best Management Practices (BMPs) fully implemented and maintained at all times for the control of non-point source pollution. Such areas shall be vegetated with annual and/or perennial grasses as soon as practical after land disturbance activities are completed.

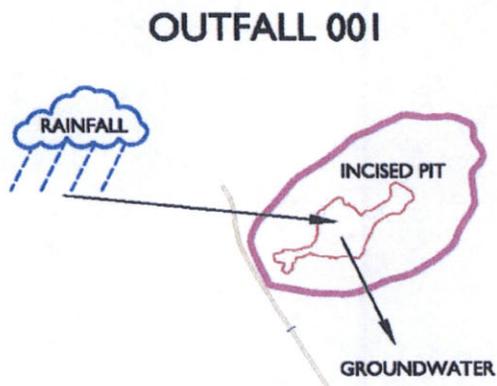
3.6. Facility Operations

The only materials to be mined shall include dirt, chert, sand, and gravel used for road construction and related activities. There are no material preparation, washing, or other processes used at the facility that will generate wastewater flows.

3.7. Schematic Diagram

There is no material preparation, washing, or other process used at the facility that will generate wastewater flows. The only discharges from the facility will be stormwater runoff. All stormwater runoff collected within the drainage basin of Outfall 001 (incised pit) will discharge back into the ground. A Schematic Diagram for the outfall is provided in Figure 3-1.

Figure 3-1
Schematic Diagram



3.8. Waste Treatment Facilities

There are no material preparation, washing, or other processes used at the facility that will generate wastewater flows. All active mining operations are located within the drainage basin of the incised pit. As a result, all stormwater runoff is collected and stored in the incised pit until it infiltrates into the ground. Natural processes of settling and infiltration provide treatment of any surface water that collects within the incised pit area. As the mining operations continue to expand, the storage volume of the incised pit will continue to increase. Life expectancy of the incised pit operations is on the order of 15 to 20 years.

3.9. Haul Roads

The sole access road to the facility enters the property from County Road 151. In order to minimize sediment from haul roads, the haul roads will be constructed in accordance with ADEM Rule 335-6-9, Appendix B as described below:

- No Sustained grade shall exceed 10 percent,
- The maximum grade shall not exceed 15 percent for 300 feet,
- There shall be no more than 300 feet of 15 percent maximum grade for each 1,000 feet of haul road constructed,
- Where feasible, haul roads will be graded to direct stormwater runoff into the incised pit,
- Outer slopes for haul roads shall not be steeper than 2:1, and
- Vegetative buffers and other effective BMPs shall be implemented and maintained.

3.10. Streams

The USGS 7.5 Minute Quadrangle Map include as Figure 1-1 shows the streams, water bodies and topography within a one mile radius of the facility. The facility is located more than 1,380 feet from the un-named tributary to Little Uchee Creek. A 50-foot buffer zone between mining operations and existing streams shall be maintained.

3.11. Non-Point Source Pollution

All active mining operations are located within the drainage basin of the incised pit. As a result, all stormwater runoff is collected and stored in the incised pit until it infiltrates into the ground. Non-point sources of pollution are not expected from the active areas of the facility. For the small areas of the facility that do not drain into the incised pit, appropriate BMPs will be implemented and maintained to control any potential non-point sources of pollution.

3.12. Public Water Supply

This facility will not discharge to and is not located within a watershed which drains to a stream segment classified as Public Water Supply.

3.13. Fuel Storage

No bulk storage tanks for petroleum products will be permitted at this facility.

3.14. Reclamation

As mining is completed in an area, the area shall be dressed to minimize piles of dirt and intermediate low areas that would be difficult to establish vegetation. Surfaces will be graded, with terraces as necessary, to facilitate erosion control and to continue direct drainage to infiltration sumps, which will remain until reclamation is completed. Final reclamation will include establishment of permanent vegetation as needed for erosion and sediment control.

During operation and reclamation, erosion and sediment control measures such as wattles, hay bales, riprap, cleared trees, and other acceptable BMPs will be utilized as needed.

The reclamation procedures will meet requirements of the Alabama Surface Mining Commission Administrative Code. Reclamation procedures will commence contemporaneously with ongoing mining activities, once all mining activities are completed in a portion of the total area to be mined.

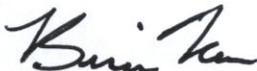
3.15. Best Management Practices

BMPs used at this facility for erosion and sediment control will be selected from the Alabama Handbook for Erosion Control, Sediment Control and Stormwater

Management on Construction Sites and Urban Areas (Alabama Handbook). The latest version of the Alabama Handbook is incorporated by reference.

3.16. Professional Engineer Certification

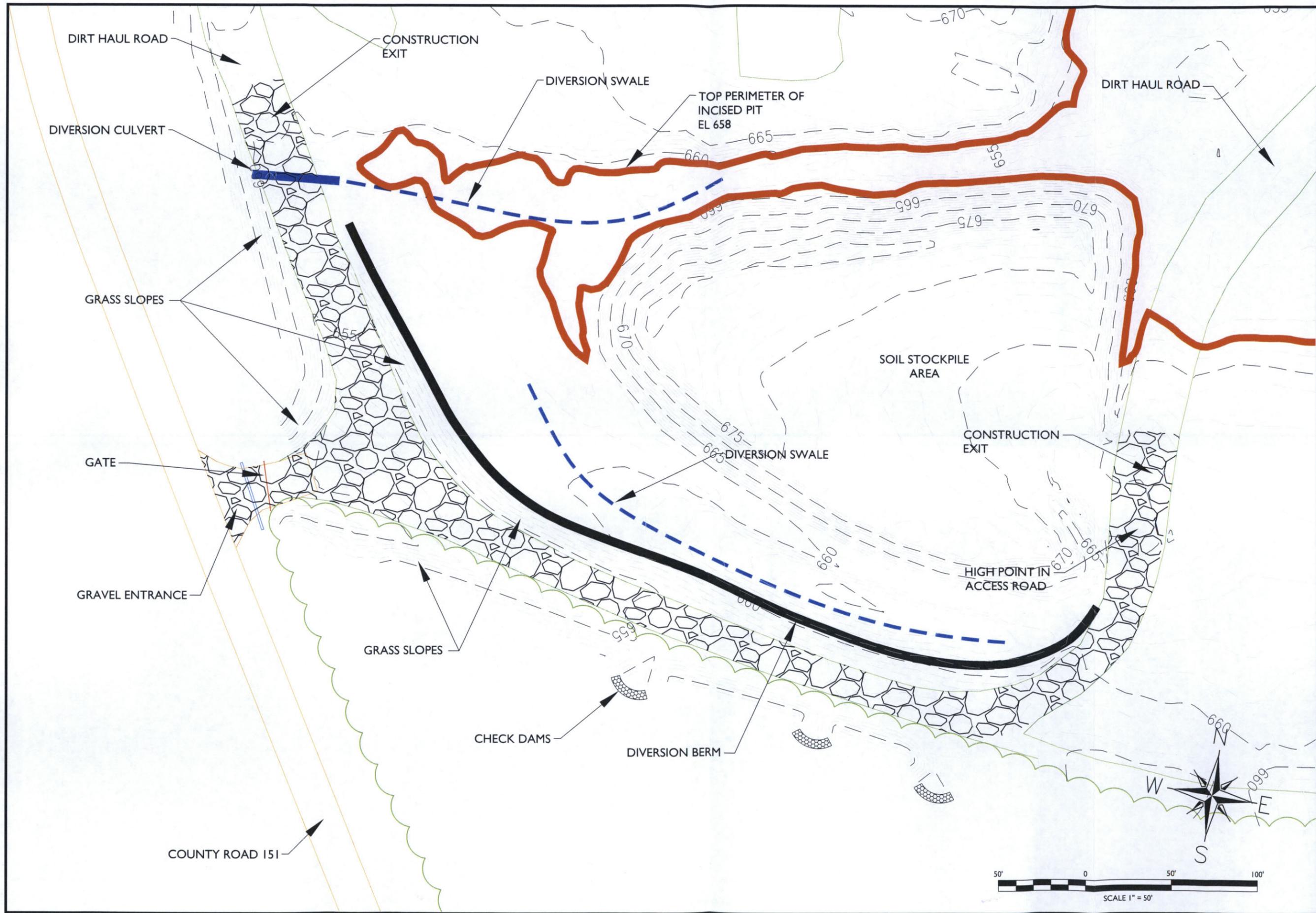
Trimble Navigation, Ltd.
2124 Moore's Mill Road
Suite 120
Auburn, AL 36830



Brian Kane, P.E.
AL Registration No. 31964



12-12-2014
Date



REVISION FOR	DATE

LEE COUNTY
HIGHWAY DEPARTMENT
OPELIKA, ALABAMA 36803

COUNTY ROAD 151 CHERT PIT
NPDES PERMIT APPLICATION
RENEWAL

PROJECT NUMBER	---
DWG. NUMBER	---
SHEET	1 OF 1

FIGURE 3-2 POLLUTION ABATEMENT AND/OR PREVENTION PLAN - BMPS

APPENDIX A

Hydrologic Model Supporting Calculations

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Type.... Master Network Summary
 Name.... watershed
 File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

MASTER DESIGN STORM SUMMARY

Network Storm Collection: Lee Chert Pit

Return Event	Total Depth in	Rainfall Type	RNF ID
B.. 1	.8500	Synthetic Curve	Chert Storm
B.. 2	4.2000	Synthetic Curve	TypeIII 24hr
B.. 5	5.4000	Synthetic Curve	TypeIII 24hr
B.. 10	6.3000	Synthetic Curve	TypeIII 24hr
B.. 25	7.3000	Synthetic Curve	TypeIII 24hr
B.. 50	8.0000	Synthetic Curve	TypeIII 24hr
B..100	8.8000	Synthetic Curve	TypeIII 24hr

MASTER NETWORK SUMMARY
 SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
 (Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
CHERT PIT	IN POND	1	.135		7.3600	2.80		
CHERT PIT	IN POND	2	5.805		12.1400	64.22		
CHERT PIT	IN POND	5	8.467		12.1400	93.36		
CHERT PIT	IN POND	10	10.537		12.1400	115.57		
CHERT PIT	IN POND	25	12.885		12.1400	140.38		
CHERT PIT	IN POND	50	14.552		12.1400	157.76		
CHERT PIT	IN POND	100	16.473		12.1400	177.61		
CHERT PIT	OUT POND	1	.000		6.3300	.00	651.51	.120
CHERT PIT	OUT POND	2	.000		7.9800	.00	655.61	4.550
CHERT PIT	OUT POND	5	.000		6.9000	.00	656.53	6.832
CHERT PIT	OUT POND	10	.000		6.2200	.00	657.18	8.678
CHERT PIT	OUT POND	25	.000		5.5800	.00	657.82	10.751
CHERT PIT	OUT POND	50	.732		18.2000	1.45	658.11	11.775
CHERT PIT	OUT POND	100	2.504		15.7200	5.50	658.26	12.346

Type.... Master Network Summary
 Name.... watershed
 File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

Page 1.02

MASTER NETWORK SUMMARY
 SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
 (Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG Vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
CHERT PIT WS	AREA	1	.135		7.3600	2.80		
CHERT PIT WS	AREA	2	5.805		12.1400	64.22		
CHERT PIT WS	AREA	5	8.467		12.1400	93.36		
CHERT PIT WS	AREA	10	10.537		12.1400	115.57		
CHERT PIT WS	AREA	25	12.885		12.1400	140.38		
CHERT PIT WS	AREA	50	14.552		12.1400	157.76		
CHERT PIT WS	AREA	100	16.473		12.1400	177.61		
EXC PIT POND IN	POND	1	.042		7.3600	.64		
EXC PIT POND IN	POND	2	.898		12.1500	9.71		
EXC PIT POND IN	POND	5	1.265		12.1500	13.52		
EXC PIT POND IN	POND	10	1.545		12.1500	16.37		
EXC PIT POND IN	POND	25	1.861		12.1500	19.54		
EXC PIT POND IN	POND	50	2.084		12.1500	21.75		
EXC PIT POND IN	POND	100	2.340		12.1500	24.26		
EXC PIT POND OUT	POND	1	.000		5.5100	.00	672.62	.037
EXC PIT POND OUT	POND	2	.000		6.5000	.00	675.13	.667
EXC PIT POND OUT	POND	5	.000		5.4000	.00	675.89	.992
EXC PIT POND OUT	POND	10	.000		4.7900	.00	676.47	1.249
EXC PIT POND OUT	POND	25	.000		4.2600	.00	677.12	1.543
EXC PIT POND OUT	POND	50	.000		3.9600	.00	677.56	1.753
EXC PIT POND OUT	POND	100	.000		3.6600	.00	678.07	1.995
EXC PIT WS	AREA	1	.042		7.3600	.64		
EXC PIT WS	AREA	2	.898		12.1500	9.71		
EXC PIT WS	AREA	5	1.265		12.1500	13.52		
EXC PIT WS	AREA	10	1.545		12.1500	16.37		
EXC PIT WS	AREA	25	1.861		12.1500	19.54		
EXC PIT WS	AREA	50	2.084		12.1500	21.75		
EXC PIT WS	AREA	100	2.340		12.1500	24.26		

Type.... Master Network Summary
 Name.... watershed
 File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

MASTER NETWORK SUMMARY
 SCS Unit Hydrograph Method

(*Node=Outfall; +Node=Diversion;)
 (Trun= HYG Truncation: Blank=None; L=Left; R=Rt; LR=Left&Rt)

Node ID	Type	Return Event	HYG vol ac-ft	Trun	Qpeak hrs	Qpeak cfs	Max WSEL ft	Max Pond Storage ac-ft
J 10	JCT	1	.000		.0100	.00		
J 10	JCT	2	.000		.0100	.00		
J 10	JCT	5	.000		.0100	.00		
J 10	JCT	10	.000		.0100	.00		
J 10	JCT	25	.000		.0100	.00		
J 10	JCT	50	.000		.0100	.00		
J 10	JCT	100	.000		.0100	.00		
*OUTFALL 01	JCT	1	.000		.0100	.00		
*OUTFALL 01	JCT	2	.000		.0100	.00		
*OUTFALL 01	JCT	5	.000		.0100	.00		
*OUTFALL 01	JCT	10	.000		.0100	.00		
*OUTFALL 01	JCT	25	.000		.0100	.00		
*OUTFALL 01	JCT	50	.732		18.2000	1.45		
*OUTFALL 01	JCT	100	2.504		15.7200	5.50		



Type.... Design Storms
Name.... Lee Chert Pit

Page 2.01

File.... C:\Heastad\
Title... Project Date: 12/2/2014
Project Engineer: Brian Kane
Project Title: Lee County Chert Pit
Project Comments:

DESIGN STORMS SUMMARY

Design Storm File, ID = Lee Chert Pit

Storm Tag Name = B.. 1

Data Type, File, ID = Synthetic Storm Chert Storm
Storm Frequency = 1 yr
Total Rainfall Depth= .8500 in
Duration Multiplier = 1
Resulting Duration = 24.0093 hrs
Resulting Start Time= .0000 hrs Step= .0333 hrs End= 24.0093 hrs

Storm Tag Name = B.. 2

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 2 yr
Total Rainfall Depth= 4.2000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = B.. 5

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 5 yr
Total Rainfall Depth= 5.4000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = B.. 10

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 10 yr
Total Rainfall Depth= 6.3000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = B.. 25

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 25 yr
Total Rainfall Depth= 7.3000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Type.... Design Storms
Name.... Lee Chert Pit

Page 2.02

File.... C:\Heastad\
Title... Project Date: 12/2/2014
Project Engineer: Brian Kane
Project Title: Lee County Chert Pit
Project Comments:

DESIGN STORMS SUMMARY

Design Storm File, ID = Lee Chert Pit

Storm Tag Name = B.. 50

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 50 yr
Total Rainfall Depth= 8.0000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Storm Tag Name = B..100

Data Type, File, ID = Synthetic Storm TypeIII 24hr
Storm Frequency = 100 yr
Total Rainfall Depth= 8.8000 in
Duration Multiplier = 1
Resulting Duration = 24.0000 hrs
Resulting Start Time= .0000 hrs Step= .1000 hrs End= 24.0000 hrs

Type.... Tc Calcs
Name.... CHERT PIT WS

Page 3.01

File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

.....
TIME OF CONCENTRATION CALCULATOR
.....

Segment #1: Tc: TR-55 Sheet

Mannings n .4000
Hydraulic Length 100.00 ft
2yr, 24hr P 4.2000 in
Slope .100000 ft/ft

Avg.velocity .17 ft/sec

Segment #1 Time: .1641 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length 582.00 ft
Slope .192440 ft/ft
Unpaved

Avg.velocity 7.08 ft/sec

Segment #2 Time: .0228 hrs

Total Tc: .1869 hrs
=====

Type.... Tc Calcs
Name.... CHERT PIT WS

Page 3.02

File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

Tc Equations used...

==== SCS TR-55 Sheet Flow =====

$$Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (Sf**.4))$$

where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
Sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow =====

Unpaved surface:

$$V = 16.1345 * (Sf**0.5)$$

Paved surface:

$$V = 20.3282 * (Sf**0.5)$$

$$Tc = (Lf / V) / (3600sec/hr)$$

where: V = velocity, ft/sec
Sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

Type.... Tc Calcs
Name.... EXC PIT WS

Page 3.03

File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

.....
TIME OF CONCENTRATION CALCULATOR
.....

Segment #1: Tc: TR-55 Sheet

Mannings n .4000
Hydraulic Length 100.00 ft
2yr, 24hr P 4.2000 in
Slope .100000 ft/ft

Avg.Velocity .17 ft/sec

Segment #1 Time: .1641 hrs

Segment #2: Tc: TR-55 Shallow

Hydraulic Length 470.00 ft
Slope .048936 ft/ft
Unpaved

Avg.Velocity 3.57 ft/sec

Segment #2 Time: .0366 hrs

=====
Total Tc: .2007 hrs
=====

Type.... Tc Calcs
Name.... EXC PIT WS

Page 3.04

File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

Tc Equations used...

==== SCS TR-55 Sheet Flow =====

$$Tc = (.007 * ((n * Lf)**0.8)) / ((P**.5) * (sf**.4))$$

where: Tc = Time of concentration, hrs
n = Mannings n
Lf = Flow length, ft
P = 2yr, 24hr Rain depth, inches
sf = Slope, %

==== SCS TR-55 Shallow Concentrated Flow =====

Unpaved surface:
 $V = 16.1345 * (sf**0.5)$

Paved surface:
 $V = 20.3282 * (sf**0.5)$

$$Tc = (Lf / V) / (3600sec/hr)$$

where: V = velocity, ft/sec
sf = Slope, ft/ft
Tc = Time of concentration, hrs
Lf = Flow length, ft

Type.... Tc Calcs
Name.... ROAD WS

File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

.....
TIME OF CONCENTRATION CALCULATOR
.....

Segment #1: Tc: User Defined

Segment #1 Time: .1000 hrs

=====
Total Tc: .1000 hrs
=====

Type.... Tc Calcs
Name.... ROAD WS

File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

Tc Equations used...

==== User Defined =====

Tc = value entered by user
where: Tc = Time of concentration

Type.... Runoff CN-Area
Name.... CHERT PIT WS

Page 4.01

File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

RUNOFF CURVE NUMBER DATA

.....

Soil/Surface Description	CN	Area acres	Impervious Adjustment		Adjusted CN
			%C	%UC	
Disturbed Area	86	17.990			86.00
Wooded Area	73	12.420			73.00
COMPOSITE AREA & WEIGHTED CN --->		30.410			80.69 (81)

Type.... Runoff CN-Area
Name.... EXC PIT WS

Page 4.02

File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

RUNOFF CURVE NUMBER DATA

.....

Soil/Surface Description	CN	Area acres	Impervious Adjustment		Adjusted CN
			%C	%UC	
Disturbed	86	3.950			86.00
COMPOSITE AREA & WEIGHTED CN --->		3.950			86.00 (86)

.....

Type.... Runoff CN-Area
Name.... ROAD WS

Page 4.03

File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

RUNOFF CURVE NUMBER DATA

.....

Soil/Surface Description	CN	Area acres	Impervious Adjustment		Adjusted CN
			%C	%UC	
Disturbed	86	1.090			86.00
COMPOSITE AREA & WEIGHTED CN ---->		1.090			86.00 (86)

.....

Type.... Vol: Elev-Area
Name.... CHERT PIT

Page 5.01

File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sqrt(A1*A2) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
651.00	-----	.1671	.0000	.000	.000
652.00	-----	.5024	.9592	.320	.320
653.00	-----	.7925	1.9259	.642	.962
654.00	-----	1.1409	2.8843	.961	1.923
655.00	-----	1.7437	4.2951	1.432	3.355
656.00	-----	2.4723	6.2923	2.097	5.452
657.00	-----	2.9136	8.0698	2.690	8.142
658.00	-----	3.5849	9.7304	3.243	11.386
659.00	-----	3.9816	11.3446	3.782	15.167
660.00	-----	4.4889	12.6982	4.233	19.400

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

$$\text{Volume} = (1/3) * (\text{EL2}-\text{EL1}) * (\text{Area1} + \text{Area2} + \text{sq.rt.}(\text{Area1}*\text{Area2}))$$

where: EL1, EL2 = Lower and upper elevations of the increment
 Area1, Area2 = Areas computed for EL1, EL2, respectively
 Volume = Incremental volume between EL1 and EL2

Type.... Vol: Elev-Area
Name.... EXC PIT POND

Page 5.02

File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

Elevation (ft)	Planimeter (sq.in)	Area (acres)	A1+A2+sq(r(A1*A2)) (acres)	Volume (ac-ft)	Volume Sum (ac-ft)
672.00	-----	.0451	.0000	.000	.000
673.00	-----	.1011	.2137	.071	.071
674.00	-----	.2932	.5665	.189	.260
675.00	-----	.4132	1.0545	.351	.612
676.00	-----	.4402	1.2799	.427	1.038
677.00	-----	.4625	1.3539	.451	1.489
678.00	-----	.4857	1.4222	.474	1.964
679.00	-----	.5120	1.4964	.499	2.462
680.00	-----	.5120	1.5360	.512	2.974

POND VOLUME EQUATIONS

* Incremental volume computed by the Conic Method for Reservoir Volumes.

$$\text{Volume} = (1/3) * (\text{EL2}-\text{EL1}) * (\text{Area1} + \text{Area2} + \text{sq.r.t.}(\text{Area1}*\text{Area2}))$$

where: EL1, EL2 = Lower and upper elevations of the increment
 Area1, Area2 = Areas computed for EL1, EL2, respectively
 Volume = Incremental volume between EL1 and EL2

Type.... Outlet Input Data
Name.... Ex Pit Weir

Page 6.01

File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

REQUESTED POND WS ELEVATIONS:

Min. Elev.= 672.00 ft
Increment = .10 ft
Max. Elev.= 680.00 ft

OUTLET CONNECTIVITY

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.	Outfall	E1, ft	E2, ft
weir-Rectangular TW SETUP, DS Channel	EW	---> TW	679.000	680.000

Type.... Outlet Input Data
Name.... Ex Pit Weir

Page 6.02

File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

OUTLET STRUCTURE INPUT DATA

Structure ID = EW
Structure Type = Weir-Rectangular

of Openings = 1
Crest Elev. = 679.00 ft
weir Length = 50.00 ft
weir Coeff. = .500000

weir TW effects (Use adjustment equation)

Structure ID = TW
Structure Type = TW SETUP, DS Channel

FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...
Maximum Iterations= 30
Min. TW tolerance = .01 ft
Max. TW tolerance = .01 ft
Min. HW tolerance = .01 ft
Max. HW tolerance = .01 ft
Min. Q tolerance = .10 cfs
Max. Q tolerance = .10 cfs

Type.... Individual Outlet Curves
Name.... Ex Pit Weir

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File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = EW (weir-Rectangular)

Upstream ID = (Pond water Surface)

DNstream ID = TW (Pond Outfall)

WS Elev, Device Q		Tail water		Notes
WS Elev.	Q	TW Elev	Converge	Computation Messages
ft	cfs	ft	+/-ft	
672.00	.00	Free Outfall		HW & TW below Inv.El.=679.000
672.10	.00	Free Outfall		HW & TW below Inv.El.=679.000
672.20	.00	Free Outfall		HW & TW below Inv.El.=679.000
672.30	.00	Free Outfall		HW & TW below Inv.El.=679.000
672.40	.00	Free Outfall		HW & TW below Inv.El.=679.000
672.50	.00	Free Outfall		HW & TW below Inv.El.=679.000
672.60	.00	Free Outfall		HW & TW below Inv.El.=679.000
672.70	.00	Free Outfall		HW & TW below Inv.El.=679.000
672.80	.00	Free Outfall		HW & TW below Inv.El.=679.000
672.90	.00	Free Outfall		HW & TW below Inv.El.=679.000
673.00	.00	Free Outfall		HW & TW below Inv.El.=679.000
673.10	.00	Free Outfall		HW & TW below Inv.El.=679.000
673.20	.00	Free Outfall		HW & TW below Inv.El.=679.000
673.30	.00	Free Outfall		HW & TW below Inv.El.=679.000
673.40	.00	Free Outfall		HW & TW below Inv.El.=679.000
673.50	.00	Free Outfall		HW & TW below Inv.El.=679.000
673.60	.00	Free Outfall		HW & TW below Inv.El.=679.000
673.70	.00	Free Outfall		HW & TW below Inv.El.=679.000
673.80	.00	Free Outfall		HW & TW below Inv.El.=679.000
673.90	.00	Free Outfall		HW & TW below Inv.El.=679.000
674.00	.00	Free Outfall		HW & TW below Inv.El.=679.000
674.10	.00	Free Outfall		HW & TW below Inv.El.=679.000
674.20	.00	Free Outfall		HW & TW below Inv.El.=679.000
674.30	.00	Free Outfall		HW & TW below Inv.El.=679.000
674.40	.00	Free Outfall		HW & TW below Inv.El.=679.000
674.50	.00	Free Outfall		HW & TW below Inv.El.=679.000
674.60	.00	Free Outfall		HW & TW below Inv.El.=679.000
674.70	.00	Free Outfall		HW & TW below Inv.El.=679.000
674.80	.00	Free Outfall		HW & TW below Inv.El.=679.000
674.90	.00	Free Outfall		HW & TW below Inv.El.=679.000
675.00	.00	Free Outfall		HW & TW below Inv.El.=679.000
675.10	.00	Free Outfall		HW & TW below Inv.El.=679.000
675.20	.00	Free Outfall		HW & TW below Inv.El.=679.000
675.30	.00	Free Outfall		HW & TW below Inv.El.=679.000

Type.... Individual Outlet Curves
Name.... Ex Pit Weir

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File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = EW (Weir-Rectangular)

Upstream ID = (Pond Water Surface)

DNstream ID = TW (Pond Outfall)

WS Elev, Device Q		Tail Water		Notes
WS Elev. ft	Q cfs	TW Elev ft	Converge +/-ft	Computation Messages
675.40	.00	Free	Outfall	HW & TW below Inv.El.=679.000
675.50	.00	Free	Outfall	HW & TW below Inv.El.=679.000
675.60	.00	Free	Outfall	HW & TW below Inv.El.=679.000
675.70	.00	Free	Outfall	HW & TW below Inv.El.=679.000
675.80	.00	Free	Outfall	HW & TW below Inv.El.=679.000
675.90	.00	Free	Outfall	HW & TW below Inv.El.=679.000
676.00	.00	Free	Outfall	HW & TW below Inv.El.=679.000
676.10	.00	Free	Outfall	HW & TW below Inv.El.=679.000
676.20	.00	Free	Outfall	HW & TW below Inv.El.=679.000
676.30	.00	Free	Outfall	HW & TW below Inv.El.=679.000
676.40	.00	Free	Outfall	HW & TW below Inv.El.=679.000
676.50	.00	Free	Outfall	HW & TW below Inv.El.=679.000
676.60	.00	Free	Outfall	HW & TW below Inv.El.=679.000
676.70	.00	Free	Outfall	HW & TW below Inv.El.=679.000
676.80	.00	Free	Outfall	HW & TW below Inv.El.=679.000
676.90	.00	Free	Outfall	HW & TW below Inv.El.=679.000
677.00	.00	Free	Outfall	HW & TW below Inv.El.=679.000
677.10	.00	Free	Outfall	HW & TW below Inv.El.=679.000
677.20	.00	Free	Outfall	HW & TW below Inv.El.=679.000
677.30	.00	Free	Outfall	HW & TW below Inv.El.=679.000
677.40	.00	Free	Outfall	HW & TW below Inv.El.=679.000
677.50	.00	Free	Outfall	HW & TW below Inv.El.=679.000
677.60	.00	Free	Outfall	HW & TW below Inv.El.=679.000
677.70	.00	Free	Outfall	HW & TW below Inv.El.=679.000
677.80	.00	Free	Outfall	HW & TW below Inv.El.=679.000
677.90	.00	Free	Outfall	HW & TW below Inv.El.=679.000
678.00	.00	Free	Outfall	HW & TW below Inv.El.=679.000
678.10	.00	Free	Outfall	HW & TW below Inv.El.=679.000
678.20	.00	Free	Outfall	HW & TW below Inv.El.=679.000
678.30	.00	Free	Outfall	HW & TW below Inv.El.=679.000
678.40	.00	Free	Outfall	HW & TW below Inv.El.=679.000
678.50	.00	Free	Outfall	HW & TW below Inv.El.=679.000
678.60	.00	Free	Outfall	HW & TW below Inv.El.=679.000
678.70	.00	Free	Outfall	HW & TW below Inv.El.=679.000

Type.... Individual Outlet Curves
Name.... Ex Pit Weir

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File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = EW (Weir-Rectangular)

Upstream ID = (Pond Water Surface)

DNstream ID = TW (Pond Outfall)

WS Elev, Device Q		Tail water		Notes
WS Elev. ft	Q cfs	TW Elev ft	Converge +/-ft	Computation Messages
678.80	.00	Free Outfall		HW & TW below Inv.El.=679.000
678.90	.00	Free Outfall		HW & TW below Inv.El.=679.000
679.00	.00	Free Outfall		H=.00; Htw=.00; Qfree=.00;
679.10	.79	Free Outfall		H=.10; Htw=.00; Qfree=.79;
679.20	2.24	Free Outfall		H=.20; Htw=.00; Qfree=2.24;
679.30	4.11	Free Outfall		H=.30; Htw=.00; Qfree=4.11;
679.40	6.33	Free Outfall		H=.40; Htw=.00; Qfree=6.33;
679.50	8.84	Free Outfall		H=.50; Htw=.00; Qfree=8.84;
679.60	11.62	Free Outfall		H=.60; Htw=.00; Qfree=11.62;
679.70	14.64	Free Outfall		H=.70; Htw=.00; Qfree=14.64;
679.80	17.89	Free Outfall		H=.80; Htw=.00; Qfree=17.89;
679.90	21.35	Free Outfall		H=.90; Htw=.00; Qfree=21.35;
680.00	25.00	Free Outfall		H=1.00; Htw=.00; Qfree=25.00;

Type.... Composite Rating Curve
Name.... Ex Pit Weir

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File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

***** COMPOSITE OUTFLOW SUMMARY *****

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
672.00	.00	Free	Outfall	None contributing
672.10	.00	Free	Outfall	None contributing
672.20	.00	Free	Outfall	None contributing
672.30	.00	Free	Outfall	None contributing
672.40	.00	Free	Outfall	None contributing
672.50	.00	Free	Outfall	None contributing
672.60	.00	Free	Outfall	None contributing
672.70	.00	Free	Outfall	None contributing
672.80	.00	Free	Outfall	None contributing
672.90	.00	Free	Outfall	None contributing
673.00	.00	Free	Outfall	None contributing
673.10	.00	Free	Outfall	None contributing
673.20	.00	Free	Outfall	None contributing
673.30	.00	Free	Outfall	None contributing
673.40	.00	Free	Outfall	None contributing
673.50	.00	Free	Outfall	None contributing
673.60	.00	Free	Outfall	None contributing
673.70	.00	Free	Outfall	None contributing
673.80	.00	Free	Outfall	None contributing
673.90	.00	Free	Outfall	None contributing
674.00	.00	Free	Outfall	None contributing
674.10	.00	Free	Outfall	None contributing
674.20	.00	Free	Outfall	None contributing
674.30	.00	Free	Outfall	None contributing
674.40	.00	Free	Outfall	None contributing
674.50	.00	Free	Outfall	None contributing
674.60	.00	Free	Outfall	None contributing
674.70	.00	Free	Outfall	None contributing
674.80	.00	Free	Outfall	None contributing
674.90	.00	Free	Outfall	None contributing
675.00	.00	Free	Outfall	None contributing
675.10	.00	Free	Outfall	None contributing
675.20	.00	Free	Outfall	None contributing
675.30	.00	Free	Outfall	None contributing
675.40	.00	Free	Outfall	None contributing
675.50	.00	Free	Outfall	None contributing
675.60	.00	Free	Outfall	None contributing
675.70	.00	Free	Outfall	None contributing

Type.... Composite Rating Curve
Name.... Ex Pit Weir

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***** COMPOSITE OUTFLOW SUMMARY *****

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
675.80	.00	Free	Outfall	None contributing
675.90	.00	Free	Outfall	None contributing
676.00	.00	Free	Outfall	None contributing
676.10	.00	Free	Outfall	None contributing
676.20	.00	Free	Outfall	None contributing
676.30	.00	Free	Outfall	None contributing
676.40	.00	Free	Outfall	None contributing
676.50	.00	Free	Outfall	None contributing
676.60	.00	Free	Outfall	None contributing
676.70	.00	Free	Outfall	None contributing
676.80	.00	Free	Outfall	None contributing
676.90	.00	Free	Outfall	None contributing
677.00	.00	Free	Outfall	None contributing
677.10	.00	Free	Outfall	None contributing
677.20	.00	Free	Outfall	None contributing
677.30	.00	Free	Outfall	None contributing
677.40	.00	Free	Outfall	None contributing
677.50	.00	Free	Outfall	None contributing
677.60	.00	Free	Outfall	None contributing
677.70	.00	Free	Outfall	None contributing
677.80	.00	Free	Outfall	None contributing
677.90	.00	Free	Outfall	None contributing
678.00	.00	Free	Outfall	None contributing
678.10	.00	Free	Outfall	None contributing
678.20	.00	Free	Outfall	None contributing
678.30	.00	Free	Outfall	None contributing
678.40	.00	Free	Outfall	None contributing
678.50	.00	Free	Outfall	None contributing
678.60	.00	Free	Outfall	None contributing
678.70	.00	Free	Outfall	None contributing
678.80	.00	Free	Outfall	None contributing
678.90	.00	Free	Outfall	None contributing
679.00	.00	Free	Outfall	EW
679.10	.79	Free	Outfall	EW
679.20	2.24	Free	Outfall	EW
679.30	4.11	Free	Outfall	EW
679.40	6.33	Free	Outfall	EW
679.50	8.84	Free	Outfall	EW

Type.... Composite Rating Curve
Name.... Ex Pit Weir

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File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

***** COMPOSITE OUTFLOW SUMMARY *****

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
679.60	11.62	Free Outfall		EW
679.70	14.64	Free Outfall		EW
679.80	17.89	Free Outfall		EW
679.90	21.35	Free Outfall		EW
680.00	25.00	Free Outfall		EW

Type.... Outlet Input Data
Name.... Inc Pit Weir

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File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

REQUESTED POND WS ELEVATIONS:

Min. Elev.= 651.00 ft
Increment = .10 ft
Max. Elev.= 660.00 ft

OUTLET CONNECTIVITY

---> Forward Flow Only (UpStream to DnStream)
<--- Reverse Flow Only (DnStream to UpStream)
<---> Forward and Reverse Both Allowed

Structure	No.	Outfall	E1, ft	E2, ft
Weir-Rectangular TW SETUP, DS Channel	UW	---> TW	658.000	660.000

Type.... Outlet Input Data
Name.... Inc Pit Weir

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File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

OUTLET STRUCTURE INPUT DATA

Structure ID = UW
Structure Type = Weir-Rectangular

of Openings = 1
Crest Elev. = 658.00 ft
Weir Length = 80.00 ft
Weir Coeff. = .500000

weir TW effects (Use adjustment equation)

Structure ID = TW
Structure Type = TW SETUP, DS Channel

FREE OUTFALL CONDITIONS SPECIFIED

CONVERGENCE TOLERANCES...
Maximum Iterations= 30
Min. TW tolerance = .01 ft
Max. TW tolerance = .01 ft
Min. HW tolerance = .01 ft
Max. HW tolerance = .01 ft
Min. Q tolerance = .10 cfs
Max. Q tolerance = .10 cfs

Type.... Individual Outlet Curves
Name.... Inc Pit Weir

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File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = UW (weir-Rectangular)

Upstream ID = (Pond water Surface)

DNstream ID = TW (Pond Outfall)

WS Elev, Device Q		Tail water		Notes
WS Elev.	Q	TW Elev	Converge	Computation Messages
ft	cfs	ft	+/-ft	
651.00	.00	Free	Outfall	HW & TW below Inv.El.=658.000
651.10	.00	Free	Outfall	HW & TW below Inv.El.=658.000
651.20	.00	Free	Outfall	HW & TW below Inv.El.=658.000
651.30	.00	Free	Outfall	HW & TW below Inv.El.=658.000
651.40	.00	Free	Outfall	HW & TW below Inv.El.=658.000
651.50	.00	Free	Outfall	HW & TW below Inv.El.=658.000
651.60	.00	Free	Outfall	HW & TW below Inv.El.=658.000
651.70	.00	Free	Outfall	HW & TW below Inv.El.=658.000
651.80	.00	Free	Outfall	HW & TW below Inv.El.=658.000
651.90	.00	Free	Outfall	HW & TW below Inv.El.=658.000
652.00	.00	Free	Outfall	HW & TW below Inv.El.=658.000
652.10	.00	Free	Outfall	HW & TW below Inv.El.=658.000
652.20	.00	Free	Outfall	HW & TW below Inv.El.=658.000
652.30	.00	Free	Outfall	HW & TW below Inv.El.=658.000
652.40	.00	Free	Outfall	HW & TW below Inv.El.=658.000
652.50	.00	Free	Outfall	HW & TW below Inv.El.=658.000
652.60	.00	Free	Outfall	HW & TW below Inv.El.=658.000
652.70	.00	Free	Outfall	HW & TW below Inv.El.=658.000
652.80	.00	Free	Outfall	HW & TW below Inv.El.=658.000
652.90	.00	Free	Outfall	HW & TW below Inv.El.=658.000
653.00	.00	Free	Outfall	HW & TW below Inv.El.=658.000
653.10	.00	Free	Outfall	HW & TW below Inv.El.=658.000
653.20	.00	Free	Outfall	HW & TW below Inv.El.=658.000
653.30	.00	Free	Outfall	HW & TW below Inv.El.=658.000
653.40	.00	Free	Outfall	HW & TW below Inv.El.=658.000
653.50	.00	Free	Outfall	HW & TW below Inv.El.=658.000
653.60	.00	Free	Outfall	HW & TW below Inv.El.=658.000
653.70	.00	Free	Outfall	HW & TW below Inv.El.=658.000
653.80	.00	Free	Outfall	HW & TW below Inv.El.=658.000
653.90	.00	Free	Outfall	HW & TW below Inv.El.=658.000
654.00	.00	Free	Outfall	HW & TW below Inv.El.=658.000
654.10	.00	Free	Outfall	HW & TW below Inv.El.=658.000
654.20	.00	Free	Outfall	HW & TW below Inv.El.=658.000
654.30	.00	Free	Outfall	HW & TW below Inv.El.=658.000

Type... Individual Outlet Curves
Name... Inc Pit weir

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File... C:\Heastad\2014 POND PACK USE (BDS).PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = UW (Weir-Rectangular)

Upstream ID = (Pond water surface)
DNstream ID = TW (Pond Outfall)

WS Elev, Device Q		Tail water		Notes
WS Elev. ft	Q cfs	TW Elev ft	Converge +/-ft	Computation Messages
654.40	.00	Free Outfall		HW & TW below Inv.El.=658.000
654.50	.00	Free Outfall		HW & TW below Inv.El.=658.000
654.60	.00	Free Outfall		HW & TW below Inv.El.=658.000
654.70	.00	Free Outfall		HW & TW below Inv.El.=658.000
654.80	.00	Free Outfall		HW & TW below Inv.El.=658.000
654.90	.00	Free Outfall		HW & TW below Inv.El.=658.000
655.00	.00	Free Outfall		HW & TW below Inv.El.=658.000
655.10	.00	Free Outfall		HW & TW below Inv.El.=658.000
655.20	.00	Free Outfall		HW & TW below Inv.El.=658.000
655.30	.00	Free Outfall		HW & TW below Inv.El.=658.000
655.40	.00	Free Outfall		HW & TW below Inv.El.=658.000
655.50	.00	Free Outfall		HW & TW below Inv.El.=658.000
655.60	.00	Free Outfall		HW & TW below Inv.El.=658.000
655.70	.00	Free Outfall		HW & TW below Inv.El.=658.000
655.80	.00	Free Outfall		HW & TW below Inv.El.=658.000
655.90	.00	Free Outfall		HW & TW below Inv.El.=658.000
656.00	.00	Free Outfall		HW & TW below Inv.El.=658.000
656.10	.00	Free Outfall		HW & TW below Inv.El.=658.000
656.20	.00	Free Outfall		HW & TW below Inv.El.=658.000
656.30	.00	Free Outfall		HW & TW below Inv.El.=658.000
656.40	.00	Free Outfall		HW & TW below Inv.El.=658.000
656.50	.00	Free Outfall		HW & TW below Inv.El.=658.000
656.60	.00	Free Outfall		HW & TW below Inv.El.=658.000
656.70	.00	Free Outfall		HW & TW below Inv.El.=658.000
656.80	.00	Free Outfall		HW & TW below Inv.El.=658.000
656.90	.00	Free Outfall		HW & TW below Inv.El.=658.000
657.00	.00	Free Outfall		HW & TW below Inv.El.=658.000
657.10	.00	Free Outfall		HW & TW below Inv.El.=658.000
657.20	.00	Free Outfall		HW & TW below Inv.El.=658.000
657.30	.00	Free Outfall		HW & TW below Inv.El.=658.000
657.40	.00	Free Outfall		HW & TW below Inv.El.=658.000
657.50	.00	Free Outfall		HW & TW below Inv.El.=658.000
657.60	.00	Free Outfall		HW & TW below Inv.El.=658.000
657.70	.00	Free Outfall		HW & TW below Inv.El.=658.000

Type.... Individual Outlet Curves
Name.... Inc Pit Weir

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File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

RATING TABLE FOR ONE OUTLET TYPE

Structure ID = UW (weir-Rectangular)

Upstream ID = (Pond Water Surface)

DNstream ID = TW (Pond Outfall)

WS Elev, Device Q		Tail water		Notes
WS Elev. ft	Q cfs	TW Elev ft	Converge +/-ft	Computation Messages
657.80	.00	Free	Outfall	HW & TW below Inv.El.=658.000
657.90	.00	Free	Outfall	HW & TW below Inv.El.=658.000
658.00	.00	Free	Outfall	H=.00; Htw=.00; Qfree=.00;
658.10	1.26	Free	Outfall	H=.10; Htw=.00; Qfree=1.26;
658.20	3.58	Free	Outfall	H=.20; Htw=.00; Qfree=3.58;
658.30	6.57	Free	Outfall	H=.30; Htw=.00; Qfree=6.57;
658.40	10.12	Free	Outfall	H=.40; Htw=.00; Qfree=10.12;
658.50	14.14	Free	Outfall	H=.50; Htw=.00; Qfree=14.14;
658.60	18.59	Free	Outfall	H=.60; Htw=.00; Qfree=18.59;
658.70	23.43	Free	Outfall	H=.70; Htw=.00; Qfree=23.43;
658.80	28.62	Free	Outfall	H=.80; Htw=.00; Qfree=28.62;
658.90	34.15	Free	Outfall	H=.90; Htw=.00; Qfree=34.15;
659.00	40.00	Free	Outfall	H=1.00; Htw=.00; Qfree=40.00;
659.10	46.15	Free	Outfall	H=1.10; Htw=.00; Qfree=46.15;
659.20	52.58	Free	Outfall	H=1.20; Htw=.00; Qfree=52.58;
659.30	59.29	Free	Outfall	H=1.30; Htw=.00; Qfree=59.29;
659.40	66.26	Free	Outfall	H=1.40; Htw=.00; Qfree=66.26;
659.50	73.48	Free	Outfall	H=1.50; Htw=.00; Qfree=73.48;
659.60	80.95	Free	Outfall	H=1.60; Htw=.00; Qfree=80.95;
659.70	88.66	Free	Outfall	H=1.70; Htw=.00; Qfree=88.66;
659.80	96.60	Free	Outfall	H=1.80; Htw=.00; Qfree=96.60;
659.90	104.76	Free	Outfall	H=1.90; Htw=.00; Qfree=104.76;
660.00	113.14	Free	Outfall	H=2.00; Htw=.00; Qfree=113.14;

Type.... Composite Rating Curve
Name.... Inc Pit Weir

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File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

***** COMPOSITE OUTFLOW SUMMARY *****

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
651.00	.00	Free	Outfall	None contributing
651.10	.00	Free	Outfall	None contributing
651.20	.00	Free	Outfall	None contributing
651.30	.00	Free	Outfall	None contributing
651.40	.00	Free	Outfall	None contributing
651.50	.00	Free	Outfall	None contributing
651.60	.00	Free	Outfall	None contributing
651.70	.00	Free	Outfall	None contributing
651.80	.00	Free	Outfall	None contributing
651.90	.00	Free	Outfall	None contributing
652.00	.00	Free	Outfall	None contributing
652.10	.00	Free	Outfall	None contributing
652.20	.00	Free	Outfall	None contributing
652.30	.00	Free	Outfall	None contributing
652.40	.00	Free	Outfall	None contributing
652.50	.00	Free	Outfall	None contributing
652.60	.00	Free	Outfall	None contributing
652.70	.00	Free	Outfall	None contributing
652.80	.00	Free	Outfall	None contributing
652.90	.00	Free	Outfall	None contributing
653.00	.00	Free	Outfall	None contributing
653.10	.00	Free	Outfall	None contributing
653.20	.00	Free	Outfall	None contributing
653.30	.00	Free	Outfall	None contributing
653.40	.00	Free	Outfall	None contributing
653.50	.00	Free	Outfall	None contributing
653.60	.00	Free	Outfall	None contributing
653.70	.00	Free	Outfall	None contributing
653.80	.00	Free	Outfall	None contributing
653.90	.00	Free	Outfall	None contributing
654.00	.00	Free	Outfall	None contributing
654.10	.00	Free	Outfall	None contributing
654.20	.00	Free	Outfall	None contributing
654.30	.00	Free	Outfall	None contributing
654.40	.00	Free	Outfall	None contributing
654.50	.00	Free	Outfall	None contributing
654.60	.00	Free	Outfall	None contributing
654.70	.00	Free	Outfall	None contributing

Type.... Composite Rating Curve
Name.... Inc Pit Weir

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File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

***** COMPOSITE OUTFLOW SUMMARY *****

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
654.80	.00	Free	Outfall	None contributing
654.90	.00	Free	Outfall	None contributing
655.00	.00	Free	Outfall	None contributing
655.10	.00	Free	Outfall	None contributing
655.20	.00	Free	Outfall	None contributing
655.30	.00	Free	Outfall	None contributing
655.40	.00	Free	Outfall	None contributing
655.50	.00	Free	Outfall	None contributing
655.60	.00	Free	Outfall	None contributing
655.70	.00	Free	Outfall	None contributing
655.80	.00	Free	Outfall	None contributing
655.90	.00	Free	Outfall	None contributing
656.00	.00	Free	Outfall	None contributing
656.10	.00	Free	Outfall	None contributing
656.20	.00	Free	Outfall	None contributing
656.30	.00	Free	Outfall	None contributing
656.40	.00	Free	Outfall	None contributing
656.50	.00	Free	Outfall	None contributing
656.60	.00	Free	Outfall	None contributing
656.70	.00	Free	Outfall	None contributing
656.80	.00	Free	Outfall	None contributing
656.90	.00	Free	Outfall	None contributing
657.00	.00	Free	Outfall	None contributing
657.10	.00	Free	Outfall	None contributing
657.20	.00	Free	Outfall	None contributing
657.30	.00	Free	Outfall	None contributing
657.40	.00	Free	Outfall	None contributing
657.50	.00	Free	Outfall	None contributing
657.60	.00	Free	Outfall	None contributing
657.70	.00	Free	Outfall	None contributing
657.80	.00	Free	Outfall	None contributing
657.90	.00	Free	Outfall	None contributing
658.00	.00	Free	Outfall	UW
658.10	1.26	Free	Outfall	UW
658.20	3.58	Free	Outfall	UW
658.30	6.57	Free	Outfall	UW
658.40	10.12	Free	Outfall	UW
658.50	14.14	Free	Outfall	UW

Type.... Composite Rating Curve
Name.... Inc Pit Weir

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File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

***** COMPOSITE OUTFLOW SUMMARY *****

WS Elev, Total Q		Converge		Notes
Elev. ft	Q cfs	TW Elev ft	Error +/-ft	Contributing Structures
658.60	18.59	Free	Outfall	UW
658.70	23.43	Free	Outfall	UW
658.80	28.62	Free	Outfall	UW
658.90	34.15	Free	Outfall	UW
659.00	40.00	Free	Outfall	UW
659.10	46.15	Free	Outfall	UW
659.20	52.58	Free	Outfall	UW
659.30	59.29	Free	Outfall	UW
659.40	66.26	Free	Outfall	UW
659.50	73.48	Free	Outfall	UW
659.60	80.95	Free	Outfall	UW
659.70	88.66	Free	Outfall	UW
659.80	96.60	Free	Outfall	UW
659.90	104.76	Free	Outfall	UW
660.00	113.14	Free	Outfall	UW

Type.... Pond Infiltration Calcs
 Name.... CHERT PIT
 File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

Page 7.01

INFILTRATION RATING TABLE CALCULATIONS

Infilt.(cfs) = (.6000 (in/hr) * Area) * Ku
 where: Ku = units conversion factor

	w.S.Elev ft	Total Area acres	Infilt. cfs
	-----	-----	-----
No storage at this elevation... infiltration set to zero.			
	651.00	.1671	.00
	651.10	.1925	.12
	651.20	.2198	.13
	651.30	.2488	.15
	651.40	.2796	.17
	651.50	.3122	.19
	651.60	.3467	.21
	651.70	.3829	.23
	651.80	.4209	.25
	651.90	.4608	.28
	652.00	.5024	.30
	652.10	.5284	.32
	652.20	.5552	.34
	652.30	.5825	.35
	652.40	.6105	.37
	652.50	.6392	.39
	652.60	.6686	.40
	652.70	.6986	.42
	652.80	.7292	.44
	652.90	.7605	.46
	653.00	.7925	.48
	653.10	.8245	.50
	653.20	.8571	.52
	653.30	.8904	.54
	653.40	.9243	.56
	653.50	.9588	.58
	653.60	.9939	.60
	653.70	1.0297	.62
	653.80	1.0662	.65
	653.90	1.1032	.67
	654.00	1.1409	.69
	654.10	1.1954	.72
	654.20	1.2513	.76
	654.30	1.3084	.79
	654.40	1.3668	.83
	654.50	1.4264	.86
	654.60	1.4873	.90
	654.70	1.5495	.94
	654.80	1.6129	.98
	654.90	1.6777	1.02
	655.00	1.7437	1.05
	655.10	1.8108	1.10

Type.... Pond Infiltration Calcs
 Name.... CHERT PIT
 File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

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INFILTRATION RATING TABLE CALCULATIONS

Infilt.(cfs) = (.6000 (in/hr) * Area) * Ku
 where: Ku = units conversion factor

w.S.Elev ft	Total Area acres	Infilt. cfs
-----	-----	-----
655.20	1.8793	1.14
655.30	1.9490	1.18
655.40	2.0199	1.22
655.50	2.0921	1.27
655.60	2.1656	1.31
655.70	2.2404	1.36
655.80	2.3164	1.40
655.90	2.3938	1.45
656.00	2.4723	1.50
656.10	2.5148	1.52
656.20	2.5577	1.55
656.30	2.6009	1.57
656.40	2.6445	1.60
656.50	2.6884	1.63
656.60	2.7327	1.65
656.70	2.7774	1.68
656.80	2.8224	1.71
656.90	2.8679	1.74
657.00	2.9136	1.76
657.10	2.9776	1.80
657.20	3.0423	1.84
657.30	3.1077	1.88
657.40	3.1738	1.92
657.50	3.2406	1.96
657.60	3.3080	2.00
657.70	3.3762	2.04
657.80	3.4451	2.08
657.90	3.5147	2.13
658.00	3.5849	2.17
658.10	3.6236	2.19
658.20	3.6626	2.22
658.30	3.7017	2.24
658.40	3.7411	2.26
658.50	3.7806	2.29
658.60	3.8204	2.31
658.70	3.8604	2.34
658.80	3.9006	2.36
658.90	3.9410	2.38
659.00	3.9816	2.41
659.10	4.0310	2.44
659.20	4.0806	2.47
659.30	4.1306	2.50
659.40	4.1809	2.53

Type.... Pond Infiltration Calcs
 Name.... CHERT PIT
 File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

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INFILTRATION RATING TABLE CALCULATIONS

Infilt.(cfs) = (.6000 (in/hr) * Area) * Ku
 where: Ku = units conversion factor

w.s.Elev ft	Total Area acres	Infilt. cfs
-----	-----	-----
659.50	4.2314	2.56
659.60	4.2823	2.59
659.70	4.3335	2.62
659.80	4.3850	2.65
659.90	4.4368	2.68
660.00	4.4889	2.72

Type.... Pond E-V-Q Table
 Name.... CHERT PIT
 File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

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LEVEL POOL ROUTING DATA

HYG Dir = C:\Heastad\
 Inflow HYG file = NONE STORED - CHERT PIT IN B.. 1
 Outflow HYG file = NONE STORED - CHERT PIT OUT B.. 1

Pond Node Data = CHERT PIT
 Pond Volume Data = CHERT PIT
 Pond Outlet Data = Inc Pit Weir

Infiltration = .6000 in/hr

INITIAL CONDITIONS

 Starting WS Elev = 651.00 ft
 Starting Volume = .000 ac-ft
 Starting Outflow = .00 cfs
 Starting Infiltr. = .00 cfs
 Starting Total Qout = .00 cfs
 Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infiltr. cfs	Q Total cfs	2S/t + 0 cfs
651.00	.00	.000	.1671	.00	.00	.00
651.10	.00	.018	.1925	.12	.12	43.58
651.20	.00	.039	.2198	.13	.13	93.47
651.30	.00	.062	.2488	.15	.15	150.13
651.40	.00	.088	.2796	.17	.17	214.07
651.50	.00	.118	.3122	.19	.19	285.66
651.60	.00	.151	.3467	.21	.21	365.35
651.70	.00	.187	.3829	.23	.23	453.65
651.80	.00	.228	.4209	.25	.25	550.87
651.90	.00	.272	.4608	.28	.28	657.59
652.00	.00	.320	.5024	.30	.30	774.09
652.10	.00	.371	.5284	.32	.32	898.80
652.20	.00	.425	.5552	.34	.34	1029.96
652.30	.00	.482	.5825	.35	.35	1167.59
652.40	.00	.542	.6105	.37	.37	1312.01
652.50	.00	.604	.6392	.39	.39	1463.20
652.60	.00	.670	.6686	.40	.40	1621.40
652.70	.00	.738	.6986	.42	.42	1786.89
652.80	.00	.810	.7292	.44	.44	1959.61
652.90	.00	.884	.7605	.46	.46	2139.95

Type.... Pond E-V-Q Table
 Name.... CHERT PIT
 File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

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LEVEL POOL ROUTING DATA

HYG Dir = C:\Heastad\
 Inflow HYG file = NONE STORED - CHERT PIT IN B.. 1
 Outflow HYG file = NONE STORED - CHERT PIT OUT B.. 1

Pond Node Data = CHERT PIT
 Pond Volume Data = CHERT PIT
 Pond Outlet Data = Inc Pit Weir

Infiltration = .6000 in/hr

INITIAL CONDITIONS

 Starting WS Elev = 651.00 ft
 Starting Volume = .000 ac-ft
 Starting Outflow = .00 cfs
 Starting Infiltr. = .00 cfs
 Starting Total Qout= .00 cfs
 Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + 0 cfs
653.00	.00	.962	.7925	.48	.48	2327.82
653.10	.00	1.043	.8245	.50	.50	2523.44
653.20	.00	1.127	.8571	.52	.52	2726.99
653.30	.00	1.214	.8904	.54	.54	2938.39
653.40	.00	1.305	.9243	.56	.56	3158.05
653.50	.00	1.399	.9588	.58	.58	3385.86
653.60	.00	1.496	.9939	.60	.60	3622.09
653.70	.00	1.598	1.0297	.62	.62	3867.05
653.80	.00	1.702	1.0662	.65	.65	4120.60
653.90	.00	1.811	1.1032	.67	.67	4383.20
654.00	.00	1.923	1.1409	.69	.69	4654.68
654.10	.00	2.040	1.1954	.72	.72	4937.32
654.20	.00	2.162	1.2513	.76	.76	5233.49
654.30	.00	2.290	1.3084	.79	.79	5543.13
654.40	.00	2.424	1.3668	.83	.83	5866.95
654.50	.00	2.564	1.4264	.86	.86	6204.85
654.60	.00	2.709	1.4873	.90	.90	6557.33
654.70	.00	2.861	1.5495	.94	.94	6924.92
654.80	.00	3.019	1.6129	.98	.98	7307.50
654.90	.00	3.184	1.6777	1.02	1.02	7705.82

Type.... Pond E-V-Q Table
 Name.... CHERT PIT
 File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

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LEVEL POOL ROUTING DATA

HYG Dir = C:\Heastad\
 Inflow HYG file = NONE STORED - CHERT PIT IN B.. 1
 Outflow HYG file = NONE STORED - CHERT PIT OUT B.. 1

Pond Node Data = CHERT PIT
 Pond Volume Data = CHERT PIT
 Pond Outlet Data = Inc Pit Weir

Infiltration = .6000 in/hr

INITIAL CONDITIONS

 Starting WS Elev = 651.00 ft
 Starting Volume = .000 ac-ft
 Starting Outflow = .00 cfs
 Starting Infiltr. = .00 cfs
 Starting Total Qout= .00 cfs
 Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + 0 cfs
655.00	.00	3.355	1.7437	1.05	1.05	8119.73
655.10	.00	3.532	1.8108	1.10	1.10	8549.73
655.20	.00	3.717	1.8793	1.14	1.14	8996.42
655.30	.00	3.908	1.9490	1.18	1.18	9459.54
655.40	.00	4.107	2.0199	1.22	1.22	9939.96
655.50	.00	4.312	2.0921	1.27	1.27	10437.42
655.60	.00	4.525	2.1656	1.31	1.31	10952.50
655.70	.00	4.746	2.2404	1.36	1.36	11485.85
655.80	.00	4.973	2.3164	1.40	1.40	12037.11
655.90	.00	5.209	2.3938	1.45	1.45	12607.27
656.00	.00	5.452	2.4723	1.50	1.50	13195.94
656.10	.00	5.702	2.5148	1.52	1.52	13799.25
656.20	.00	5.955	2.5577	1.55	1.55	14413.26
656.30	.00	6.213	2.6009	1.57	1.57	15037.31
656.40	.00	6.475	2.6445	1.60	1.60	15672.25
656.50	.00	6.742	2.6884	1.63	1.63	16317.40
656.60	.00	7.013	2.7327	1.65	1.65	16973.21
656.70	.00	7.289	2.7774	1.68	1.68	17640.20
656.80	.00	7.569	2.8224	1.71	1.71	18317.64
656.90	.00	7.853	2.8679	1.74	1.74	19006.44

Type.... Pond E-V-Q Table
 Name.... CHERT PIT
 File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

LEVEL POOL ROUTING DATA

HYG Dir = C:\Heastad\
 Inflow HYG file = NONE STORED - CHERT PIT IN B.. 1
 Outflow HYG file = NONE STORED - CHERT PIT OUT B.. 1

Pond Node Data = CHERT PIT
 Pond Volume Data = CHERT PIT
 Pond Outlet Data = Inc Pit weir

Infiltration = .6000 in/hr

INITIAL CONDITIONS

 Starting ws Elev = 651.00 ft
 Starting Volume = .000 ac-ft
 Starting Outflow = .00 cfs
 Starting Infiltr. = .00 cfs
 Starting Total Qout= .00 cfs
 Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infiltr. cfs	Q Total cfs	2S/t + O cfs
657.00	.00	8.142	2.9136	1.76	1.76	19705.84
657.10	.00	8.437	2.9776	1.80	1.80	20418.53
657.20	.00	8.738	3.0423	1.84	1.84	21147.22
657.30	.00	9.045	3.1077	1.88	1.88	21891.22
657.40	.00	9.359	3.1738	1.92	1.92	22651.58
657.50	.00	9.680	3.2406	1.96	1.96	23427.55
657.60	.00	10.007	3.3080	2.00	2.00	24219.76
657.70	.00	10.342	3.3762	2.04	2.04	25028.88
657.80	.00	10.683	3.4451	2.08	2.08	25854.08
657.90	.00	11.031	3.5147	2.13	2.13	26696.55
658.00	.00	11.386	3.5849	2.17	2.17	27555.41
658.10	1.26	11.746	3.6236	2.19	3.46	28428.71
658.20	3.58	12.110	3.6626	2.22	5.79	29312.99
658.30	6.57	12.479	3.7017	2.24	8.81	30206.88
658.40	10.12	12.851	3.7411	2.26	12.38	31111.35
658.50	14.14	13.227	3.7806	2.29	16.43	32025.30
658.60	18.59	13.607	3.8204	2.31	20.90	32949.27
658.70	23.43	13.991	3.8604	2.34	25.76	33883.85
658.80	28.62	14.379	3.9006	2.36	30.98	34827.91
658.90	34.15	14.771	3.9410	2.38	36.54	35782.65

Type.... Pond E-V-Q Table
 Name.... CHERT PIT
 File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

LEVEL POOL ROUTING DATA

HYG Dir = C:\Heastad\
 Inflow HYG file = NONE STORED - CHERT PIT IN B.. 1
 Outflow HYG file = NONE STORED - CHERT PIT OUT B.. 1

Pond Node Data = CHERT PIT
 Pond Volume Data = CHERT PIT
 Pond Outlet Data = Inc Pit Weir

Infiltration = .6000 in/hr

INITIAL CONDITIONS

 Starting WS Elev = 651.00 ft
 Starting Volume = .000 ac-ft
 Starting Outflow = .00 cfs
 Starting Infiltr. = .00 cfs
 Starting Total Qout= .00 cfs
 Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infiltr. cfs	Q Total cfs	2S/t + 0 cfs
659.00	40.00	15.167	3.9816	2.41	42.41	36746.92
659.10	46.15	15.568	4.0310	2.44	48.58	37722.37
659.20	52.58	15.973	4.0806	2.47	55.05	38710.69
659.30	59.29	16.384	4.1306	2.50	61.79	39710.74
659.40	66.26	16.800	4.1809	2.53	68.79	40723.79
659.50	73.48	17.220	4.2314	2.56	76.04	41748.68
659.60	80.95	17.646	4.2823	2.59	83.54	42786.09
659.70	88.66	18.077	4.3335	2.62	91.28	43836.72
659.80	96.60	18.512	4.3850	2.65	99.25	44899.37
659.90	104.76	18.954	4.4368	2.68	107.45	45975.38
660.00	113.14	19.400	4.4889	2.72	115.85	47063.53

Type.... Pond Infiltration Calcs
 Name.... EXC PIT POND
 File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

Page 7.09

INFILTRATION RATING TABLE CALCULATIONS

Infilt.(cfs) = (.6000 (in/hr) * Area) * Ku
 where: Ku = units conversion factor

	W.S.Elev ft	Total Area acres	Infilt. cfs
	-----	-----	-----
No storage at this elevation... infiltration set to zero.			
	672.00	.0451	.00
	672.10	.0497	.03
	672.20	.0545	.03
	672.30	.0596	.04
	672.40	.0648	.04
	672.50	.0703	.04
	672.60	.0760	.05
	672.70	.0820	.05
	672.80	.0881	.05
	672.90	.0945	.06
	673.00	.1011	.06
	673.10	.1158	.07
	673.20	.1315	.08
	673.30	.1482	.09
	673.40	.1660	.10
	673.50	.1847	.11
	673.60	.2044	.12
	673.70	.2251	.14
	673.80	.2468	.15
	673.90	.2695	.16
	674.00	.2932	.18
	674.10	.3043	.18
	674.20	.3156	.19
	674.30	.3270	.20
	674.40	.3387	.20
	674.50	.3506	.21
	674.60	.3627	.22
	674.70	.3750	.23
	674.80	.3876	.23
	674.90	.4003	.24
	675.00	.4132	.25
	675.10	.4159	.25
	675.20	.4185	.25
	675.30	.4212	.25
	675.40	.4239	.26
	675.50	.4266	.26
	675.60	.4293	.26
	675.70	.4320	.26
	675.80	.4347	.26
	675.90	.4375	.26
	676.00	.4402	.27
	676.10	.4424	.27

Type.... Pond Infiltration Calcs
 Name.... EXC PIT POND
 File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

Page 7.10

INFILTRATION RATING TABLE CALCULATIONS

Infilt.(cfs) = (.6000 (in/hr) * Area) * Ku
 where: Ku = units conversion factor

w.S.Elev ft	Total Area acres	Infilt. cfs
-----	-----	-----
676.20	.4446	.27
676.30	.4468	.27
676.40	.4491	.27
676.50	.4513	.27
676.60	.4535	.27
676.70	.4558	.28
676.80	.4580	.28
676.90	.4602	.28
677.00	.4625	.28
677.10	.4648	.28
677.20	.4671	.28
677.30	.4694	.28
677.40	.4717	.29
677.50	.4740	.29
677.60	.4764	.29
677.70	.4787	.29
677.80	.4810	.29
677.90	.4834	.29
678.00	.4857	.29
678.10	.4883	.30
678.20	.4909	.30
678.30	.4935	.30
678.40	.4961	.30
678.50	.4988	.30
678.60	.5014	.30
678.70	.5040	.30
678.80	.5067	.31
678.90	.5093	.31
679.00	.5120	.31
679.10	.5120	.31
679.20	.5120	.31
679.30	.5120	.31
679.40	.5120	.31
679.50	.5120	.31
679.60	.5120	.31
679.70	.5120	.31
679.80	.5120	.31
679.90	.5120	.31
680.00	.5120	.31

Type.... Pond E-V-Q Table
 Name.... EXC PIT POND
 File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

Page 7.11

LEVEL POOL ROUTING DATA

HYG Dir = C:\Heastad\
 Inflow HYG file = NONE STORED - EXC PIT POND IN B.. 1
 Outflow HYG file = NONE STORED - EXC PIT POND OUT B.. 1

Pond Node Data = EXC PIT POND
 Pond Volume Data = EXC PIT POND
 Pond Outlet Data = Ex Pit weir

Infiltration = .6000 in/hr

INITIAL CONDITIONS

 Starting WS Elev = 672.00 ft
 Starting Volume = .000 ac-ft
 Starting Outflow = .00 cfs
 Starting Infiltr. = .00 cfs
 Starting Total Qout= .00 cfs
 Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + 0 cfs
672.00	.00	.000	.0451	.00	.00	.00
672.10	.00	.005	.0497	.03	.03	11.49
672.20	.00	.010	.0545	.03	.03	24.11
672.30	.00	.016	.0596	.04	.04	37.90
672.40	.00	.022	.0648	.04	.04	52.96
672.50	.00	.029	.0703	.04	.04	69.30
672.60	.00	.036	.0760	.05	.05	87.01
672.70	.00	.044	.0820	.05	.05	106.13
672.80	.00	.052	.0881	.05	.05	126.70
672.90	.00	.061	.0945	.06	.06	148.80
673.00	.00	.071	.1011	.06	.06	172.47
673.10	.00	.082	.1158	.07	.07	198.69
673.20	.00	.094	.1315	.08	.08	228.62
673.30	.00	.108	.1482	.09	.09	262.46
673.40	.00	.124	.1660	.10	.10	300.48
673.50	.00	.142	.1847	.11	.11	342.88
673.60	.00	.161	.2044	.12	.12	389.93
673.70	.00	.183	.2251	.14	.14	441.91
673.80	.00	.206	.2468	.15	.15	498.98
673.90	.00	.232	.2695	.16	.16	561.47

Type.... Pond E-V-Q Table
 Name.... EXC PIT POND
 File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

LEVEL POOL ROUTING DATA

HYG Dir = C:\Heastad\
 Inflow HYG file = NONE STORED - EXC PIT POND IN B.. 1
 Outflow HYG file = NONE STORED - EXC PIT POND OUT B.. 1

Pond Node Data = EXC PIT POND
 Pond Volume Data = EXC PIT POND
 Pond Outlet Data = Ex Pit weir

Infiltration = .6000 in/hr

INITIAL CONDITIONS

 Starting WS Elev = 672.00 ft
 Starting volume = .000 ac-ft
 Starting Outflow = .00 cfs
 Starting Infiltr. = .00 cfs
 Starting Total Qout= .00 cfs
 Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infiltr. cfs	Q Total cfs	2S/t + O cfs
674.00	.00	.260	.2932	.18	.18	629.53
674.10	.00	.290	.3043	.18	.18	701.81
674.20	.00	.321	.3156	.19	.19	776.84
674.30	.00	.353	.3270	.20	.20	854.58
674.40	.00	.386	.3387	.20	.20	935.17
674.50	.00	.421	.3506	.21	.21	1018.57
674.60	.00	.456	.3627	.22	.22	1104.87
674.70	.00	.493	.3750	.23	.23	1194.18
674.80	.00	.531	.3876	.23	.23	1286.43
674.90	.00	.571	.4003	.24	.24	1381.80
675.00	.00	.612	.4132	.25	.25	1480.21
675.10	.00	.653	.4159	.25	.25	1580.50
675.20	.00	.695	.4185	.25	.25	1681.50
675.30	.00	.737	.4212	.25	.25	1783.09
675.40	.00	.779	.4239	.26	.26	1885.39
675.50	.00	.821	.4266	.26	.26	1988.27
675.60	.00	.864	.4293	.26	.26	2091.81
675.70	.00	.907	.4320	.26	.26	2196.07
675.80	.00	.951	.4347	.26	.26	2300.92
675.90	.00	.994	.4375	.26	.26	2406.50

Type.... Pond E-V-Q Table
 Name.... EXC PIT POND
 File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

Page 7.13

LEVEL POOL ROUTING DATA

HYG Dir = C:\Heastad\
 Inflow HYG file = NONE STORED - EXC PIT POND IN B.. 1
 Outflow HYG file = NONE STORED - EXC PIT POND OUT B.. 1

Pond Node Data = EXC PIT POND
 Pond Volume Data = EXC PIT POND
 Pond Outlet Data = EX Pit weir

Infiltration = .6000 in/hr

INITIAL CONDITIONS

 Starting WS Elev = 672.00 ft
 Starting Volume = .000 ac-ft
 Starting Outflow = .00 cfs
 Starting Infiltr. = .00 cfs
 Starting Total Qout= .00 cfs
 Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infilt. cfs	Q Total cfs	2S/t + 0 cfs
676.00	.00	1.038	.4402	.27	.27	2512.67
676.10	.00	1.082	.4424	.27	.27	2619.44
676.20	.00	1.127	.4446	.27	.27	2726.81
676.30	.00	1.171	.4468	.27	.27	2834.65
676.40	.00	1.216	.4491	.27	.27	2943.09
676.50	.00	1.261	.4513	.27	.27	3052.01
676.60	.00	1.306	.4535	.27	.27	3161.46
676.70	.00	1.352	.4558	.28	.28	3271.52
676.80	.00	1.397	.4580	.28	.28	3382.06
676.90	.00	1.443	.4602	.28	.28	3493.21
677.00	.00	1.489	.4625	.28	.28	3604.84
677.10	.00	1.536	.4648	.28	.28	3717.01
677.20	.00	1.582	.4671	.28	.28	3829.82
677.30	.00	1.629	.4694	.28	.28	3943.10
677.40	.00	1.676	.4717	.29	.29	4057.02
677.50	.00	1.724	.4740	.29	.29	4171.43
677.60	.00	1.771	.4764	.29	.29	4286.40
677.70	.00	1.819	.4787	.29	.29	4402.00
677.80	.00	1.867	.4810	.29	.29	4518.10
677.90	.00	1.915	.4834	.29	.29	4634.83

Type.... Pond E-V-Q Table
 Name.... EXC PIT POND
 File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

LEVEL POOL ROUTING DATA

HYG Dir = C:\Heastad\
 Inflow HYG file = NONE STORED - EXC PIT POND IN B.. 1
 Outflow HYG file = NONE STORED - EXC PIT POND OUT B.. 1

Pond Node Data = EXC PIT POND
 Pond Volume Data = EXC PIT POND
 Pond Outlet Data = EX Pit weir

Infiltration = .6000 in/hr

INITIAL CONDITIONS

 Starting WS Elev = 672.00 ft
 Starting Volume = .000 ac-ft
 Starting Outflow = .00 cfs
 Starting Infiltr. = .00 cfs
 Starting Total Qout= .00 cfs
 Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infiltr. cfs	Q Total cfs	2S/t + O cfs
678.00	.00	1.964	.4857	.29	.29	4752.06
678.10	.00	2.012	.4883	.30	.30	4869.89
678.20	.00	2.061	.4909	.30	.30	4988.41
678.30	.00	2.110	.4935	.30	.30	5107.50
678.40	.00	2.160	.4961	.30	.30	5227.29
678.50	.00	2.210	.4988	.30	.30	5347.65
678.60	.00	2.260	.5014	.30	.30	5468.64
678.70	.00	2.310	.5040	.30	.30	5590.34
678.80	.00	2.360	.5067	.31	.31	5712.61
678.90	.00	2.411	.5093	.31	.31	5835.60
679.00	.00	2.462	.5120	.31	.31	5959.15
679.10	.79	2.514	.5120	.31	1.10	6083.82
679.20	2.24	2.565	.5120	.31	2.55	6209.21
679.30	4.11	2.616	.5120	.31	4.42	6334.96
679.40	6.33	2.667	.5120	.31	6.63	6461.12
679.50	8.84	2.718	.5120	.31	9.15	6587.51
679.60	11.62	2.770	.5120	.31	11.93	6714.16
679.70	14.64	2.821	.5120	.31	14.95	6841.14
679.80	17.89	2.872	.5120	.31	18.20	6968.26
679.90	21.35	2.923	.5120	.31	21.66	7095.66

Type.... Pond E-V-Q Table
 Name.... EXC PIT POND
 File.... C:\Heastad\2014 POND PACK USE (BDS).PPW

Page 7.15

LEVEL POOL ROUTING DATA

HYG Dir = C:\Heastad\
 Inflow HYG file = NONE STORED - EXC PIT POND IN B.. 1
 Outflow HYG file = NONE STORED - EXC PIT POND OUT B.. 1

Pond Node Data = EXC PIT POND
 Pond Volume Data = EXC PIT POND
 Pond Outlet Data = Ex Pit weir

Infiltration = .6000 in/hr

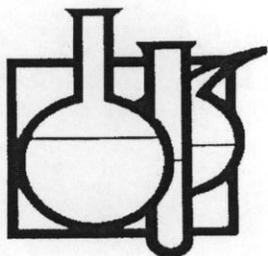
INITIAL CONDITIONS

 Starting WS Elev = 672.00 ft
 Starting Volume = .000 ac-ft
 Starting Outflow = .00 cfs
 Starting Infiltr. = .00 cfs
 Starting Total Qout= .00 cfs
 Time Increment = .0100 hrs

Elevation ft	Outflow cfs	Storage ac-ft	Area acres	Infiltr. cfs	Q Total cfs	2S/t + 0 cfs
680.00	25.00	2.974	.5120	.31	25.31	7223.19

APPENDIX B

Analytical Data Sheets



GUARDIAN SYSTEMS, INC.

1108 Ashville Road
P.O. Box 190
Leeds, Alabama 35094

Telephone (205) 699-6647
Toll Free (866) 729-7211
Fax (205) 699-3882

Page 1 of 2

Hydro-Engineering Solutions
2124 Moore's Mill Road
Suite 120
Auburn, AL 36830
Attention: Mr. Dewayne Smith

Report Date: 11/25/2014
Receive Date: 11/17/2014
Receive Time: 12:00

Control No : 1411-00195 Sample # 001
Sampler : BK/DS
Sample ID: Incised Pit

Sample Date: 11/17/2014
Sample Time: 6:45

Laboratory Certificate

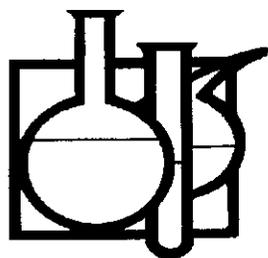
PARAMETER	RESULTS	UNITS	ANALYST	DATE	TIME	METHOD	REF
pH	7.8	SU	LSC	11/17/2014	15:00	150.1	(1)
Solids, Total Suspended	3,800.	mg/L	LSC	11/18/2014	16:00	SM-2540D	(2)
Biochemical Oxygen Demand	18.	mg/L	LSC	11/23/2014	16:00	SM 5210B	(2)
BOD, Initial Set-up			LSC	11/18/2014	16:00		
BOD, Final Read Back			LSC	11/23/2014	16:00		
Aluminum mg/L	70.6	mg/L	DRH	11/19/2014	10:00	200.7	(1)
Iron	92.6	mg/L	DRH	11/19/2014	10:00	200.7	(1)
Manganese	1.21	mg/L	DRH	11/19/2014	10:00	200.7	(1)



This Certificate is Continued On Next Page.

METHOD REFERENCES

1. Methods for Chemical Analysis of Water and Wastes. EPA-600/4-79-20, revised March 1983, August 1993 May 1994
2. Standard Methods for the Examination of Water and Waste Water, 18th, 19th, 20th, and 22nd Edition, 2012
3. Test Methods for Evaluating Solid Wastes Physical Chemical Method SW-846, 3rd Edition, Updated IV December 1996
4. 1987 ASTM Annual Standards
5. Code of Federal Regulations, Title 40, Part 136, Appendix A, Revised July 1995
6. Methods for the Determination of Organic Compounds in Drinking Water, EPA-600/4-88/039, Revised July 1991, August 1995
7. NIOSH Manual of Analytical Methods, 4th Edition, May 1996



GUARDIAN SYSTEMS, INC.

1108 Ashville Road
P.O. Box 190
Leeds, Alabama 35094

Telephone (205) 699-6647
Toll Free (866) 729-7211
Fax (205) 699-3882

Page 2 of 2

Hydro-Engineering Solutions
2124 Moore's Mill Road
Suite 120
Auburn, AL 36830
Attention: Mr. Dewayne Smith

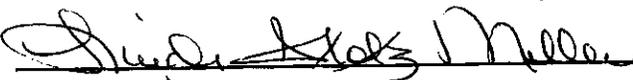
Report Date: 11/25/2014
Receive Date: 11/17/2014
Receive Time: 12:00

Control No : 1411-00195 Sample # 002
Sampler : BK/DS
Sample ID: Near 24" Culvert

Sample Date: 11/17/2014
Sample Time: 6:40

Laboratory Certificate

PARAMETER	RESULTS	UNITS	ANALYST	DATE	TIME	METHOD	REF
pH	7.7	SU	LSC	11/17/2014	15:00	150.1	(1)
Solids, Total Suspended	8.	mg/L	LSC	11/18/2014	16:00	SM-2540D	(2)
Biochemical Oxygen Demand	5.	mg/L	LSC	11/23/2014	16:00	SM 5210B	(2)
BOD, Initial Set-up			LSC	11/18/2014	16:00		
BOD, Final Read Back			LSC	11/23/2014	16:00		
Aluminum mg/L	0.25	mg/L	DRH	11/19/2014	10:00	200.7	(1)
Iron	0.17	mg/L	DRH	11/19/2014	10:00	200.7	(1)
Manganese	<0.02	mg/L	DRH	11/19/2014	10:00	200.7	(1)

Approved By: 
m

METHOD REFERENCES

1. Methods for Chemical Analysis of Water and Wastes. EPA-600/4-79-20, revised March 1983, August 1993 May 1994
2. Standard Methods for the Examination of Water and Waste Water, 18th, 19th, 20th, and 22nd Edition, 2012
3. Test Methods for Evaluating Solid Wastes Physical Chemical Method SW-846, 3rd Edition, Updated IV December 1996
4. 1987 ASTM Annual Standards
5. Code of Federal Regulations, Title 40, Part 136, Appendix A, Revised July 1995
6. Methods for the Determination of Organic Compounds in Drinking Water, EPA-600/4-88/039, Revised July 1991, August 1995
7. NIOSH Manual of Analytical Methods, 4th Edition, May 1996

