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Kay Ivey
Governor

November 5, 2025

Mr. Jeffrey Smith
Health, Environmental, and Safety Manager
Urban Oil and Gas, LLC
1000 E 14th Street, Suite 300
Plano, TX 75074

RE: Draft Permit
White Oak Creek CBM Project
NPDES Permit Number AL0068390
Tuscaloosa & Walker County (125 & 127)

Dear Mr. Smith:

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

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

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

Should you have any questions concerning this matter, please contact Robert Glover at (334) 271-7975 or robert.glover@adem.alabama.gov.

Sincerely,

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

WDM/rlg File: DPER/11223

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

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ADEM
Alabama Department of Environmental Management

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PERMIT

PERMITTEE: Urban Oil and Gas Group, LLC
1000 E 14th Street, Suite 300
Plano, TX 75074

FACILITY LOCATION: White Oak Creek CBM Project
58 Tiger Mine Road
Oakman, AL 35579
Tuscaloosa / Walker Counties
T17S, R9W, Sections 10-15, 22-27, & 34-36
T18S, R9W, Sections 1-3, & 10-12
T17S, R8W, Sections 4, 5, & 7-36
T18S, R8W, Sections 1-15
T16S, R8W, Sections 25-27 & 33-36
T17S, R8W, Sections 1-3
T18S, R8W, Sections 12-14
T16S, R7W, Sections 29-33
T17S, R7W, Sections 1-35
T18S, R7W, Sections 3, 8-10, & 17
T17S, R6W, Sections 6, 7, 17-20 & 30

PERMIT NUMBER: AL0068390

DSN & RECEIVING STREAM: 001 - 1 Black Warrior River
003 - 1 Black Warrior River

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

ISSUANCE DATE:

EFFECTIVE DATE:

EXPIRATION DATE:

Draft

Alabama Department of Environmental Management

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT

Coalbed Methane Exploration, Production, and Associate Areas

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PART I DISCHARGE LIMITATIONS, CONDITIONS, AND REQUIREMENTS

A. DISCHARGE LIMITATIONS AND MONITORING REQUIREMENTS

Produced and/or Process Wastewater Discharge Limitations and Monitoring Requirements

During the period beginning on the effective date of this Permit and lasting through the expiration date of this Permit, the Permittee is authorized to discharge from each point source 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
Oil & Grease 00556	-------	-------	15.0 mg/L	Grab	2/Month
Chloride, Dissolved in Water 00941	-------	Report mg/L	Report mg/L	Grab	2/Month
Iron, Total (As Fe) 01045	-------	3.0 mg/L	6.0 mg/L	Grab	1/Month
Manganese, Total (As Mn) 01055	-------	2.0 mg/L	4.0 mg/L	Grab	1/Month
Flow, In Conduit or Thru Treatment Plant[2] 50050	-------	Report MGD	Report MGD	Totalizer	1/Day
Toxicity, Ceriodaphnia Acute[3] 61425	-------	-------	0 pass(0)/fail(1)	24 hour Composite	1/Quarter[4]
Toxicity, Pimephales Acute[3] 61427	-------	-------	0 pass(0)/fail(1)	24 hour Composite	1/Quarter[4]

[1] See Part I.F.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.
[3] See Part IV.B. for Effluent Toxicity Limitations and Biomonitoring Requirements for Acute Toxicity.
[4] See Part IV.B.2.d. regarding Effluent Toxicity monitoring frequency reduction.

B. REQUIREMENTS TO ACTIVATE A PROPOSED 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.

2. Certification required by Part I.B.1. shall be submitted on a completed ADEM Form 433. 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 Parts I.F. and I.G. 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. RECEIVING STREAM MONITORING REQUIREMENTS

During the period beginning on the effective date of this Permit and lasting through the expiration date of this Permit, the Permittee is required to monitor the receiving stream for each point source identified on Page 1 of this Permit and described more fully in the Permittee's application, if the outfalls have been constructed and certified. The receiving stream shall be monitored by the Permittee downstream of the discharge at the edge of the Zone of Initial Dilution (ZID) as specified below:

Parameter	Discharge Limitations			Monitoring Requirements	
	Daily Minimum	Monthly Average	Daily Maximum	Sample Type	Measurement Frequency[5]
Specific Conductance 00095	-------	Report µS/cm	Report µS/cm	Grab	1/Quarter
pH 00400	Report s.u.	-------	Report s.u.	Grab	1/Quarter
Chloride, Dissolved in Water 00941	-------	Report mg/L	Report mg/L	Grab	1/Quarter

D. STORMWATER DISCHARGE MONITORING AND INSPECTION REQUIREMENTS

1. Stormwater Discharge Monitoring Requirements

During the period beginning on the effective date of this Permit and lasting through the expiration date of this Permit, the Permittee is authorized to discharge stormwater associated with the construction and operation of the facility provided that:

a. The Permittee prepares, implements, and maintains a Spill Prevention, Control and Countermeasures (SPCC) Plan in accordance with 40 CFR 112 and Part II.A.2.d. of this Permit.

[5] See Part I.F.2. for further measurement frequency requirements.

b. Best Management Practices (BMPs) be used to prevent pollution of stormwater from construction and operation of the facility. The BMPs shall, at a minimum, meet the requirements of Part II.A.2.b.

c. Stormwater discharge(s) shall have no sheen, and there shall be no discharge of visible oil, floating solids, or visible foam in other than trace amounts.

2. Stormwater Inspection Requirements

a. Complete and comprehensive inspections of a minimum of four percent (4%) of all wellpads, pipeline right-of-ways, treatment ponds, compressor stations, other facilities and related appurtenances, etc. covered by this Permit, including all BMPs implemented, by a professional engineer, registered in the State of Alabama or personnel under his direct supervision shall be performed every month until expiration of coverage under this Permit. The Permittee shall inspect different or additional 4% increments until all facilities (100%) have been inspected prior to repeating inspections.

b. Inspections shall be performed as often as is necessary to determine if, and ensure that, appropriate BMPs have been fully implemented and properly maintained and that stormwater runoff from the facility complies with limitations pursuant to Part I.D. of this Permit.

3. Recording of Results

For each inspection taken pursuant to the requirements of Part I.D.2. of this Permit, the Permittee shall record on a Department approved form the following information:

a. The NPDES#, facility name, and location, source identifier (wellpad, compressor station, pipeline, etc.), and source location;

b. The name(s) of person(s) who performed the inspection;

c. The date and time the inspection was performed;

d. Any deficiencies noted during the inspection, any corrective action or mitigation needed to correct the deficiencies, and a proposed compliance schedule for deficiencies noted as requiring significant maintenance not to exceed 14 days, unless approved in writing by the Department.

4. Reporting of Inspection and Monitoring Requirements

a. Inspection Summary Reports (Form 343) for stormwater discharges shall be submitted to the Director or his designee:

(1) By July 28 of each year for all inspections and monitoring performed during the preceding 12 month period ending on the last day of the month of June.

(2) With any Noncompliance Notification Form submitted pursuant to Part I.G.2. of this Permit.

b. Results of all inspections and monitoring shall be summarized on an appropriate form approved by the Department, and shall be available for inspection no later than 21 days following the date of the inspection or monitoring. Reports must be legible and bear original signature(s). Photo and electronic copies of the signature are not acceptable and shall not satisfy the reporting requirements of this Permit.

E. LAND APPLICATION OF TEMPORARY PIT WASTEWATERS

1. Administrative and Reporting Requirements

a. Notwithstanding any other provisions of this Permit, one-time land application of temporary pit wastewater in conjunction with pit closure from any pit which is associated with any drilling, wellpad construction, well stimulation, collecting, land application, transport, treatment, storage, discharge, or other facility(s) and associated appurtenances for each development or production field or permitted area whose waste stream or produced water is authorized by this Permit is prohibited unless conducted or operated in accordance with all provisions of this Permit, Departmental regulations and good engineering practices.

With the exception of a one-time land application of pit wastewater in conjunction with pit closure, land application of produced water and other wastewaters generated during drilling, well stimulation, well completion, and well development is not authorized.

b. The Permittee shall prepare and submit to the Department a comprehensive, detailed operations management plan for **ONE-TIME** land application of pit wastewater in conjunction with pit closure. As a minimum, this plan must address the types of equipment utilized, application rates and procedures, and site preparation and revegetation. Application of wastewater for dust suppression or other purposes on private or public roadways, access roads, trails, or other areas must also be addressed.

c. The plan shall be prepared and certified by a professional engineer, registered in the State of Alabama.

d. The Permittee shall notify the Department at least **48 hours** prior to beginning land application. The Permittee shall re-notify the Department if land application operations are not completed within **7 days** of the initial 48 hour notification. The Permittee must report the field name, county name, wellpad number, township-range-section, nearest surface stream, and the anticipated time of application.

e. The Permittee shall complete and make available for inspection at the facility office, or at a Department-approved alternate location, the appropriate Department-approved **Land Application Certification**. The Permittee shall submit such certification(s) as required to the Department - Attn. Chief, Mining and Natural Resource Section, Water Division - within **14** days of completion of land application operations for each pit which is associated with any drilling, well stimulation, construction, collecting, transport, treatment, storage, discharge, or other facility(s) and associated appurtenances for each development or production field or permitted area whose waste stream or produced water discharge is authorized by this Permit.

(1) The certification form must be complete and correct. Forms that contain missing or incomplete responses are not acceptable. The certification must be signed by a registered professional engineer, registered in the State of Alabama, along with the registration number and stamped with the professional seal. In addition, the certification must be signed by a Responsible Corporate Official (RCO) of the level of vice-president or above with the authority to prevent and abate possible violations. The RCO may designate an employee such as a project manager with environmental experience who is familiar with the plan to sign the certification

form as an agent of the RCO. The RCO must notify the ADEM in writing with the name of the designated employee.

(2) The certification shall contain at a minimum the name of the Permittee, field name, NPDES number, county, wellpad name and number, latitude and longitude, township-range-section to the nearest 1/4 section, nearest surface receiving stream, pH (s.u.), TDS (mg/l), and the date and the name of the Department representative that was notified.

(3) In addition the certification shall contain the following statement:

"Based upon the inspections of (dates and times) _____ performed prior to and during land application of pit wastewater from the pit(s) located at the site referenced above, which I or personnel under my direct supervision (list:_____) conducted, I certify that each land application site and all application equipment was in accordance with the land application procedures plan filed with the Department, that the pumped pit wastewater did not contain visible, floating material or oil & grease, and that all application procedures and operations were conducted in accordance with the above-referenced NPDES permit and ADEM regulations.

I further certify that no unauthorized discharge to surface or ground waters has occurred as a result of these activities."

f. The Permittee shall **IMMEDIATELY** notify the Department upon learning of any possible or probable discharge to State waters resulting from land application or any other activities associated with coalbed methane operations.

2. Technical Requirements

a. Approval of a land application plan assumes that a relatively small volume of wastewater will be disposed of and, due to the small quantity involved, groundwater quality will be unaffected. Land application of pit sludge, solids or other wastes is prohibited.

b. Only wastewater having a total dissolved solids concentration (TDS) of 2,000 mg/l or less and a pH between 6.0 and 9.0 standard units may be land applied. Wastewater must be free of visible, floating solids or oil and grease. The Permittee must ensure that **ONLY** wastewater is land applied and that all solids and sediments remain in the pit. It may be necessary to filter the wastewater during land application to ensure compliance. Land application **MUST** cease immediately if at any time the applied effluent does not comply or will not comply, if application continues, with the minimum standards as stated above.

c. Wastewater must be uniformly applied over an area of sufficient expanse and at such a rate to prevent runoff of applied wastewater. Wastewater may be land applied **ONLY** to areas that wastewater has not previously been applied, unless re-application is specifically authorized in writing by the Department.

d. Application of wastewater is prohibited during rain events or when the soil is saturated or sufficiently moist as to prevent percolation of all wastewater applied.

e. Wastewater shall not be applied in such a manner that natural vegetation is discolored, killed, or otherwise adversely impacted. If the natural vegetation is adversely impacted, the Permittee shall ensure that the application area is revegetated to pre-spray conditions.

f. Wastewater shall not be applied on severe slopes, near sink holes, near natural drainage courses, near streams or other water bodies, nor in any other manner that will allow runoff of the wastewater from the application area.

g. The Permittee shall maintain a record of the results of the tests performed prior to land application to include the date the sample was collected, the name of the person performing the analysis, method of analysis, the date that the analysis was performed, the last date on which any substance was placed in the pit, the date that the wastewater was land applied, the amount of wastewater applied, and the location of the area on which the pit wastewater was land applied. This record shall be signed by the appropriate representative of the Permittee and retained for a period of at least three years after pit closure. Land application records shall be made available on request to the Department.

h. In recognition that land application is site specific in nature the Department reserves the right to require the operator to provide additional information or implement added measures in addition to the above described minimum standards to ensure compliance with this Permit, State law, and Departmental regulations.

3. Prohibitions

Unless specifically authorized elsewhere in this Permit, Part I.E. of this Permit does not authorize the Permittee to land apply produced water from coalbed methane production operations.

F. DISCHARGE MONITORING AND RECORD KEEPING REQUIREMENTS

1. Sampling Schedule and Frequency

a. The Permittee shall collect samples of the discharge from each constructed and certified point source identified on Page 1 of this Permit and described more fully in the Permittee's application, at the frequency specified in Part I.A. Analysis of the samples shall be conducted for the parameters specified in Part I.A.

b. The Permittee may increase the frequency of sampling listed in Parts I.F.1.a; 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 Parts I.A. and I.C. 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, and are no less than seven days apart. However, if discharges occur only during one seven-day period in a month, then two days per month shall mean sample collection on any two days during that seven-day period.

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 Parts I.A. and I.C. 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 twelve (12) month period following the effective date of this Permit and is then required to monitor once during each calendar 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.F.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 certified 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.A. 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, 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 in accordance with Part I.F.9.a. 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.

G. DISCHARGE REPORTING REQUIREMENTS

1. Requirements for Reporting of Monitoring

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

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

c. If the electronic reporting system is down (i.e. electronic submittal of DMR data is unable to be completed due to technical problems originating with the Department's system; this could include entry/submittal issues with an entire set of DMRs or individual parameters), permittees are not relieved of their obligation to submit DMR data to the Department by the required submittal date. However, if the electronic reporting system is down on the 28th day of the month or is down for an extended period of time as determined by the Department when a DMR is required to be submitted, the facility may submit the data in an alternate manner and format acceptable to the Department. Preapproved alternate acceptable methods include faxing, e-mailing, mailing, or hand-delivery of data such that they are received by the required reporting date. Within five calendar days of the electronic reporting system resuming operation, the Permittee shall enter the data into the reporting system unless an alternate timeframe is approved by the Department. An attachment should be included with the electronic DMR submittal verifying the original submittal date (date of the fax, copy of dated e-mail, or hand-delivery stamped date).

d. The permittee may submit a request to the Department for a temporary electronic reporting waiver for DMR submittals. The waiver request should include the permit number; permittee name; facility/site name; facility address; name, address, and contact information for the responsible official or duly authorized representative; a detailed statement regarding the basis for requesting such a waiver; and the duration for which the waiver is requested. Approved electronic reporting waivers are not transferrable. Permittees with an approved electronic reporting waiver for DMRs may submit hard copy DMRs for the period that the approved electronic reporting waiver request is effective. The Permittee shall submit the Department-approved DMR forms to the address listed in Part I.G.1.i.

e. If the Permittee, using approved analytical methods as specified in Part I.F.6., monitors any discharge from a point source identified on Page 1 of this Permit and describe more fully in the Permittee's application more frequently than required by this Permit; the results of such monitoring shall be included in the calculation and reporting of values on the DMR Form, and the increased frequency shall be indicated on the DMR Form.

f. In the event no discharge from a point source identified on Page 1 of this Permit and described more fully in the Permittee's application occurs during a monitoring period, the Permittee shall report "No Discharge" for such period on the appropriate DMR Form.

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

h. All reports and forms required to be submitted by this Permit, the AWPCA, and the Department's rules and regulations, shall be signed by a "responsible official" of the Permittee as defined in ADEM Admin. Code r. 335-6-6-.09 or a "duly authorized representative" of such official as defined in ADEM Admin. Code r. 335-6-6-.09 and shall bear the following certification:

> "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

i. All DMRs, reports, and forms required to be submitted by this Permit, the AWPCA and the Department's rules and regulations, shall be submitted through the Department's electronic reporting system, AEPACS, or, if in hardcopy, shall be addressed to:

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

Certified and Registered Mail shall be addressed to:

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

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

modification, or denial of a permit renewal application, or result in other enforcement action.

k. If this Permit is a reissuance, then the Permittee shall continue to submit DMRs in accordance with the requirements of their previous permit until such time as DMRs are due as discussed in Part I.G.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 or contributes to an exceedance of an in-stream water quality standard or causes or contributes to an exceedance of the EPA suggested chronic criteria for total chlorides of 230 mg/L at the downstream edge of the regulatory mixing zone and, when the discharge is mixed with the receiving stream by a high rate diffuser, the EPA suggested acute criteria for total chlorides of 860 mg/L at the downstream edge of the zone of initial dilution;

(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.G.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.G.2.c. This report must be submitted with the next Discharge Monitoring Report required to be submitted by Part I.G.1. of this Permit after becoming aware of the occurrence of such noncompliance.

c. Any written report required to be submitted to the Director in accordance with Parts I.G.2.a. and b. shall be submitted using a Noncompliance Notification Form (ADEM Form 421) available on the Department's website (http://adem.alabama.gov/DeptForms/Form421.pddf) and include the following information:

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

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

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

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

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 modify, reduce, suspend, or terminate the monitoring and/or reporting required by this Permit upon the submission of a written request for such modification, reduction, suspension, or termination by the Permittee, supported by sufficient data as provided in applicable sections of this Permit.

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

H. OTHER REPORTING AND NOTIFICATION REQUIREMENTS

1. Well Drilling Notification Requirements

Notification shall be provided to the Department at least seven days prior to the commencement of the well drilling phase of construction of each well.

2. 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.

3. 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. This notification shall serve as sufficient cause for instituting procedures for termination of the Permit.

4. 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.

5. 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.

I. 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.

2. Best Management Practices (BMPs)

a. 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.

b. No later than ninety (90) days after the issuance date of this Permit, the Permittee shall prepare, submit to the Department, and implement a Best Management Practices (BMPs) Plan that addresses the control of all nonpoint source pollution that is or may be associated with the Permittee's operations. These BMP plans should be based on best available technology, and include, but not be limited to, containment of any or all process liquids or solids in a manner such that these materials do not present a potential for discharge; stormwater runoff associated with wellpad construction and maintenance, roads, borrow pits less than 5 acres in size, and dirt or other material stockpiles; and water, wastewater, and other fluids acquisition operations that is or may be associated with the Permittee's operations. Protection and preservation of all surface waters onsite should be discussed, including (but not limited to) stream crossing(s), access roads, and other construction activities adjacent to waters of the State. When submitted, the BMP Plan shall become a part of this Permit and all requirements of the BMP Plan shall become requirements of this Permit. The BMPs shall include at a minimum:

(1) Plans to prevent or control pollution of stormwater by soil particles to the degree required to maintain compliance with this Permit and water quality standards;

(2) Plans to prevent the spillage or loss of any fluids, oil, grease, etc. and thereby prevent the contamination of stormwater from these substances;

(3) Plans to provide for the disposal of all used oils, hydraulic fluids, solvent degreasing materials, etc. in accordance with good management practices and any applicable state or federal regulations;

(4) Plans to prevent or minimize stormwater contact with any pollutants present at the facility;

(5) Descriptions of stormwater volume and velocity controls within the site to minimize soil erosion;

(6) Plans to minimize the amount of soil exposed during construction activity through the use of project phasing or other appropriate techniques;

(7) Plans to minimize the disturbance of steep slopes, unless infeasible;

(8) Plans to minimize sediment discharges from the site;
(9) Plans to minimize the generation of dust;

(10) Descriptions of construction entrance and exit stabilization to minimize off-site tracking of sediment from vehicles;

(11) Plans to minimize soil compaction and, unless infeasible, preserve topsoil;

(12) If applicable, the location and description of each borrow pit, a description of the stormwater discharge controls, and how the borrow pits will be reclaimed or closed in order to remediate any potential adverse impacts on water quality;

(13) If applicable, the exact location of each water, wastewater, and other fluids acquisition site and the method of withdrawal;

(14) If applicable, plans for the protection and preservation of all surface waters at all fluids acquisition sites or other waters which might be impacted, including, but not limited to, rivers, perennial and intermittent streams, lakes or impoundments, ponded areas, old treatment lagoons and sedimentation basins, dry hollows, subsurface wells, and all areas adjacent to waters of the State that are disturbed during water acquisition.

c. All borrow pits authorized by this permit must at all times total less than five unreclaimed acres, and must be used exclusively by the Permittee for the permitted facility. In addition to the inspections conducted by the Permittee referenced in Part I.D.2., of this Permit, the Permittee must conduct, at a minimum, monthly inspections of the borrow pits. The inspections of the borrow pits may not be used when calculating the monthly 4% increments of the Permitted facility.

3. 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 preveut 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.

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:

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

(2) 96-hour median tolerance limit data for organisms representative of the biota of the water(s) which the discharge(s) enter(s);

(3) Quantities to be used;

(4) Frequencies of use;

(5) Proposed discharge concentrations; and

(6) 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(s).

6. Removed Substances

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

7. Loss or Failure of Treatment Facilities

Upon the loss or failure of any treatment facility, including but not limited to the loss or failure of the primary source of power of the treatment facility, the Permittee shall, where necessary to

maintain compliance with the discharge limitations specified in Part I.A. of this Permit or any other terms or conditions of this Permit, cease, reduce, or otherwise control production and/or discharges until treatment is restored.

8. **Duty to Mitigate**

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

B. BYPASS AND UPSET

1. Bypass

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

b. A bypass is not prohibited if:

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

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

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

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

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

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

(2) There are no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if the Permittee could have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

(3) The Permittee submits a written request for authorization to bypass to the Director at least ten (10) days, if possible, prior to the anticipated bypass or within 24 hours of an unanticipated bypass, the Permittee is granted such authorization, and Permittee complies with any conditions imposed by the Director to minimize any adverse impact to waters resulting from the bypass.

d. The Permittee has the burden of establishing that each of the conditions of Parts II.B.1.b. or c. have been met to qualify for an exception to the general prohibition against bypassing

contained in Part II.B.1.a. and an exemption, where applicable, from the discharge limitations specified in Part I.A. of this Permit.

2. Upset

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

b. If the Permittee wishes to establish the affirmative defense of an upset for technology-based effluent limit noncompliance, the Permittee must demonstrate through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An upset occurred and that the Permittee can identify the specific cause(s) of the upset;

(2) The wastewater treatment facility was at the time being properly operated in accordance with Part II.B.d.

(3) The Permittee submitted notice of the noncompliance during the upset as required by Part II.B.2.c; and

(4) The Permittee complied with any remedial measures required under Part II.A.7. of this Permit.

c. If the Permittee wishes to establish the affirmative defense of an upset for technology-based effluent limit noncompliance, the Permittee shall:

(1) No later than 24-hours after becoming aware of the occurrence of the upset, orally report the occurrence and circumstances of the upset to the Director in accordance with Part I.G.2.; and

(2) No later than five (5) days after becoming aware of the occurrence of the upset, furnish 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.

d. 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 eligible to be considered as a result of an upset 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.

e. The Permittee has the burden of proof in defense of any enforcement action as a result of noncompliance of technology-based effluent limits the Permittee proposes to attribute to an upset.

C. PERMIT CONDITIONS AND RESTRICTIONS

1. Prohibition against Discharge from Facilities Not Certified

Notwithstanding any other provisions of this Permit, any discharge(s) from any point source(s) from the permitted facility which was not certified to the Department by a professional engineer, registered in the State of Alabama, as being designed, constructed, and able to be operated in accordance with design plans reviewed by the Department, terms and conditions of this Permit, Departmental regulations and good engineering practices, is prohibited until the Permittee submits to the Department, on a form approved by the Department, a certification by a professional engineer certifying that all such facility(s) have been constructed and are able to be operated in accordance with design plans reviewed by the Department, terms and conditions of this Permit, Departmental regulations and good engineering practices.

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, 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 point 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 is known or there is reason to believe:

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

a. one hundred micrograms per liter;

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

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

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

a. five hundred micrograms per liter;

b. one milligram per liter for antimony;

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

c. 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 of 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.D.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. **Applications must be submitted electronically via the Department's current electronic permitting system. The Department's current online permitting system, Alabama Environmental Permitting and Compliance System (AEPACS), can be found online at https://aepacs.adem.alabama.gov/nviro/ncore/external/home.**

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 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 as 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 subject to penalties and/or imprisonment as provided by the AWPCA and/or the AEMA.

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

6. 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.

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

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

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

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

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

12. 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).

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

14. 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.

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

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

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

18. 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.

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

20. MGD - means million gallons per day.

21. Mixing Zone - that portion of the receiving waters where mixture of effluents and natural waters take place. Mixing zones must meet the requirements of ADEM Admin. Code r. 335-6-6-.15(10).

22. 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.)

23. New Source - means any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced:

    a. After promulgation of standards of performance under Section 306 of FWPCA which are applicable to such source; or

    b. 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.

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

25. 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).

26. 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.

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

28. Process Wastewater – means any discharge(s) of water other than stormwater discharges.

29. Produced Water – means all water produced from the dewatering of coal and related seams, not to include flowback from fracturing and cement returns.

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

31. 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.

32. Stimulation - means any process used to clean a well bore, enlarge channels, increase permeability or increase pore spaces in a formation, thus making it possible for formation fluids to move more rapidly and greater distances through the formation, and may include surging, jetting, acidizing, or fracturing.

33. Stimulation fluids - means all fluids used for and associated with the stimulation of coal seams.

34. Stormwater discharges - means any discharges related to storm events or snow melt.

35. Treatment facility and treatment system - means all structures which contain, convey, and as necessary, chemically or physically treat coalbed methane extraction operations process wastewater, produced wastewater, or drainage from associated areas, 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.

36. 24 Hour Composite - means a 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.

37. 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.

38. 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.

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

40. Weekly (7-day and calendar week) Average - 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.

41. Zone of Initial Dilution (ZID) - the area extending from the port openings of a high rate diffuser to the initial edge of the mixing zone where, due to great turbulence, a constant instream waste concentration (IWC) cannot be determined. A ZID must meet the requirements of ADEM Admin. Code r. 335-6-6-.02(ggg)

E. SEVERABILITY

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

F. PROHIBITIONS AND ACTIVIES NOT AUTHORIZED

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

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

3. 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.

4. Discharges of stormwater, process water, produced water, other wastewaters, or other pollutants from exploration, development, production, closure, and associated activities, of hydrocarbons from sources other than coal seams (e.g., conventional oil and natural gas operations) are not authorized by this Permit unless specifically approved in writing by the Director. The Permittee shall submit documentation and must receive approval from the Department prior to inclusion, under this Permit discharges of stormwater, process water, and other wastewaters from any well that has been, or will be converted from conventional oil and gas exploration or other hydrocarbon development, or production operations to coalbed methane operations

PART IV SPECIAL REQUIREMENTS, RESTRICTIONS, AND LIMITATIONS

A. 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. 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.

B. EFFLUENT TOXICITY LIMITATIONS AND BIOMONITORING REQUIREMENTS FOR ACUTE TOXICITY

Except as provided below, the Permittee shall perform 48-hour acute toxicity screening tests on the discharges required to be tested for acute toxicity in Part I.A. of this Permit.

In addition to the frequency specified in Part I.A. of this Permit, acute toxicity screening tests shall be performed in conjunction with the discharge of each new formulation of stimulation fluid that is discharged through any outfall(s). The testing in conjunction with the discharge of stimulation fluid may coincide with the regularly required testing.

1. Test Requirements

a. The tests shall be performed using effluent diluted, using appropriate control water, to the Instream Waste Concentration (IWC) which is **16%** effluent for Outfall 001and 10% effluent for Outfall 003.

b. Any test where survival in the effluent concentration is less than 90% and statistically lower than the control indicates acute toxicity and constitutes noncompliance with this Permit.

2. General Test Requirements

a. A 24 hour composite sample shall be obtained for use in the above biomonitoring tests. The holding time for each sample shall not exceed 36 hours. The control water shall be a water prepared in the laboratory in accordance with the EPA procedure described in EPA

821-R-02-012 or most current edition or another control water selected by the Permittee and approved by the Department.

b. Effluent toxicity tests in which the control survival is less than 90% or in which the other requirements of the EPA Test Procedure are not met shall be unacceptable and the Permittee shall rerun the tests as soon as practical within the monitoring period.

c. In the event of an invalid test, upon subsequent completion of a valid test, the results of all tests, valid and invalid, are reported with an explanation of the tests performed and results.

d. Should results from four consecutive testing periods indicate that effluent from a point source identified on Page 1 of this Permit does not exhibit acute toxicity, the Permittee may request that the toxicity testing frequency be reduced to semiannual. A reduction in toxicity testing frequency will be allowed only if approved by the Department in writing. The required toxicity testing frequency will revert back to once per quarter under the following conditions:

(1) If effluent from a point source identified on Page 1 of this Permit continues to exhibit acute toxicity in any of the four (4) additional acute toxicity tests following the initial indication of acute toxicity as specified in Part IV.B.4., unless waived in writing by the Department; and

(2) If the characteristics of the effluent from a point source identified on Page 1 of this Permit changes significantly from the effluent which was discharging when the reduction in frequency was approved. Such changes in characteristics may include, but are not limited to, changes in stimulation fluids.

3. Reporting Requirements

a. The Permittee shall notify the Department in writing within 48 hours after toxicity has been demonstrated by the scheduled test(s).

b. Biomonitoring test results obtained during each monitoring period shall be summarized and reported using the appropriate Discharge Monitoring Report (DMR) form approved by the Department. An effluent toxicity report containing the information in Part IV.B.6. shall be included with the DMR. Two copies of the test results must be submitted to the Department no later than 28 days after the month in which the tests were performed.

4. Additional Testing Requirements

a. If acute toxicity is indicated (noncompliance with permit limit), the Permittee shall perform four (4) additional valid acute toxicity tests in accordance with these procedures. The toxicity tests shall be performed once per week and shall be performed during the first four calendar weeks after becoming aware of the acute toxicity. The results of these tests shall be submitted no later than 28 days following the month in which the tests were performed. Additional testing sample collection and analysis timeframes may be extended, as necessary, to obtain the samples during discharges.

b. After evaluation of the results of the additional tests, the Department will determine if additional action is appropriate and may require additional testing and/or toxicity reduction measures. The Permittee may be required to perform a Toxicity Identification Evaluation (TIE) and/or a Toxicity Reduction Evaluation (TRE). The TIE/TRE shall be performed in accordance with the most recent protocols/guidance outlined by EPA (e.g., EPA/600/2-88/062, EPA/600/R-92/080, EPA/600/R-92/081, EPA/833/B-99/022 and/or EPA/600/6-91/005F, etc.).

5. Test Methods

The tests shall be performed in accordance with the latest edition of the "EPA Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms" and shall be performed using the fathead minnow (*Pimephales promelas*) and the cladoceran (*Ceriodaphnia dubia*).

6. Effluent Toxicity Testing Reports

The following information shall be submitted with each discharge monitoring report unless otherwise directed by the Department. The Department may at any time suspend or reinstate this requirement or may increase or decrease the frequency of submittals.

a. Introduction

(1) Facility Name, location and county

(2) Permit number

(3) Toxicity testing requirements of permit

(4) Name of receiving water body

(5) Contract laboratory information (if tests are performed under contract)

(i) Name of firm

(ii) Telephone number

(iii) Address

(6) Objective of test

b. Plant Operations

(1) Discharge operating schedule (if other than continuous)

(2) Volume of discharge during sample collection to include Mean daily discharge on sample collection date (MGD, CFS, GPM)

c. Source of Effluent and Dilution Water

(1) Effluent samples

(i) Sampling point

(ii) Sample collection date(s) and time(s)

(iii) Sample collection method

(iv) Physical and chemical data of undiluted effluent samples (water temperature, pH, alkalinity, hardness, specific conductance, total residual chlorine (if applicable), etc.)

(v) Sample temperature when received at the laboratory

(vi) Lapsed time from sample collection to delivery

(vii) Lapsed time from sample collection to test initiation

(2) Dilution Water samples

(i) Source

(ii) Collection date(s) and time(s) (where applicable)

(iii) Pretreatment (if applicable)

(iv) Physical and chemical characteristics (pH, hardness, water temperature, alkalinity, specific conductivity, etc.)

d. Test Conditions

(1) Toxicity test method utilized

(2) End point(s) of test

(3) Deviations from referenced method, if any, and reason(s)

(4) Date and time test started

(5) Date and time test terminated

(6) Type and volume of test chambers

(7) Volume of solution per chamber

(8) Number of organisms per test chamber

(9) Number of replicate test chambers per treatment

(10) Test temperature, pH and dissolved oxygen as recommended by the method (to include ranges)

(11) Feeding frequency, and amount and type of food

(12) Light intensity (mean)

e. Test Organisms

(1) Scientific name

(2) Life stage and age

(3) Source

(4) Disease treatment (if applicable)

f. Quality Assurance

(1) Reference toxicant utilized and source

(2) Date and time of most recent acute reference toxicant test(s), raw data, and current cusum chart(s)

(3) Dilution water utilized in reference toxicant test

(4) Results of reference toxicant test(s) (LC50, etc.), report concentration-response relationship and evaluate test sensitivity. The most recent reference toxicant test shall be conducted within 30-days of the routine.

(5) Physical and chemical methods utilized

g. Results

(1) Provide raw toxicity data in tabular form, including daily records of affected organisms in each concentration (including controls) and replicate

(2) Provide table of endpoints: LC50, NOAEC, Pass/Fail (as required in the applicable NPDES permit)

(3) Indicate statistical methods used to calculate endpoints

(4) Provide all physical and chemical data required by method

(5) Results of test(s) (LC50, NOAEC, Pass/Fail, etc.), report concentration-response relationship (definitive test only), report percent minimum significant difference (PMSD)

h. Conclusions and Recommendations

(1) Relationship between test endpoints and permit limits

(2) Action to be taken

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
WATER DIVISION

NPDES INDIVIDUAL PERMIT RATIONALE

Company Name:	Urban Oil and Gas Group, LLC
Facility Name:	White Oak Creek CBM Project
County:	Walker & Tuscaloosa
Permit Number:	AL0068390
Prepared by:	Robert Glover
Date:	November 5, 2025
Receiving Waters:	Black Warrior River
Permit Coverage:	Coalbed Methane Exploration, Production, and Associate Areas
SIC Code:	1311

The Department has made a tentative determination that the available information is adequate to support reissuance and modification of this permit. The modification covers the change of the diffuser configuration for Outfall 001 that was modeled and proposed in the CORMIX report that was submitted with the application, the deletion of Outfall 002, and the addition of wells from Permit AL0077763 (Lost Creek Coalbed Methane Project). Previous permits for AL0068390 have included receiving the produced and process water from AL0077763 for treatment and discharge via the State Indirect Discharge Permit No. IU 39-64-00601, therefore there are no new or increased flows with this permit reissuance.

This proposed permit covers produced water and stormwater discharges from coalbed methane exploration, production, and associated areas which discharge to surface waters of the state.

This proposed permit authorizes treated discharges into the Black Warrior River that currently has a water quality classification of Public Water Supply (PWS), Swimming and Other Whole Body Water-Contact Sports (S), and Fish and Wildlife (F&W) per (ADEM Admin. Code r. 335-6-10-.09). If the requirements of the proposed permit are fully implemented, the facility will not discharge pollutants at a level that will cause or contribute to a violation of the 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.

The instream water quality standards for pH in streams classified as F&W is 6.0 – 8.5 s.u. per ADEM Admin. Code r. 335-6-10-.09. A discharge limitation for pH of 9.0 s.u. is imposed in this permit because the IWC indicates that enough dilution is considered to be available in-stream to allow for a discharge at 9.0 s.u. without endangering water quality. However, the discharge shall not be allowed to 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.

The Instream Waste Concentration (IWC) at the Zone of Initial Dilution (ZID) is 15.7% for Outfall 001-1. This IWC was calculated through a CORMIX model conducted by Lynn Sisk of Jacobs on behalf of the Permittee and reviewed by the Department's Water Quality Branch July 2021. The Instream Waste Concentration (IWC) at the Zone of Initial Dilution (ZID) is 10% for Outfall 003-1, which was taken from the previous 2018 permit reissuance. The Department only requires a CORMIX for every other permit cycle.

Total iron and total manganese limitations are based on Best Professional Judgment (BPJ). These limitations have been used in previous permits and are believed to be adequate to protect water quality. The oil and grease daily maximum limit of 15 mg/L has been shown to provide a reasonable assurance of compliance with ADEM Admin. Code r. 335-6-10-.06(b) which says "State waters shall be free from floating debris, oil...."

The Department's experience with existing discharges on receiving streams with greater than 100:1 dilution has shown that acute toxicity requirements are more stringent than chronic requirements. This permit proposes discharges from Outfall 001-1 with a flow rate of 0.09985 cfs to a receiving stream with a 7Q10 of 157.7 cfs, resulting in greater than 100:1 dilution. Therefore, acute toxicity testing with two species (Ceriodaphnia dubia and Pimephales promelas) is required using effluent diluted to the IWC at the perimeter of the ZID (ADEM Admin. Code r. 335-6-6-.15(10)(a)), or 16% (rounded from 15.7) for Outfall 001-1 and 10%(rounded from 9.6) for Outfall 003-1. The acute toxicity testing is required once per quarter. In addition, Part IV.B. of the permit requires the Permittee to conduct toxicity testing in conjunction with the discharge of any new stimulation fluids into the waste stream.

Effluent and instream monitoring for dissolved chlorides and instream monitoring for specific conductance will be required in order to develop permit limitations in the future if needed to protect water quality.

The applicant has submitted, in accordance with 40 CFR Part 122.21 and their NPDES permit application, a complete EPA Form 2C for Outfall 001-1 as part of this application. The Department completed a reasonable potential analysis (RPA) of the discharge to determine whether or not pollutants in the treated effluent have the potential to contribute to excursions of Alabama's in-stream water quality standards, based on the analytical data submitted by the Permittee for Outfall 001. The RPA indicates that there was no reasonable potential for in-stream water quality standards to be exceeded. The Department has also reviewed available data in ALAWADR, ADEM's water quality database, and found nothing to contradict the data submitted by the applicant.

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 §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 prepare, implement, and maintain 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.

A Best Management Practices (BMP) Plan is required for the control of all nonpoint sources of pollution from all areas that are or may be associated with the Permittee's operations. This plan must be based on best available technology and include, but not be limited to, containment of process liquids and solids such that these do not present a potential for discharge; stormwater runoff associated with well pad construction and maintenance; roads, borrow pits, and dirt or other material stockpiles; and water, wastewater, and other fluids acquisition operations that

may be associated with the Permittee's operations. The Permittee is required to inspect a minimum of 4% of its facilities each month to ensure that their BMPs are effective in minimizing pollutants in stormwater runoff and are adequate for compliance with State water quality standards.

The applicant is not proposing discharges of pollutants to 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 new discharges of pollutant(s) 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.

NPDES Individual Permit - Modification/Reissuance - Mining (Form 315)

version 4.4

(Submission #: HPN-8DBK-H39M7, version 1)

Details

Submission ID HPN-8DBK-H39M7

Form Input

General Instructions

NPDES Individual Application - Mining and Coalbed Methane Operations - Mod/Reissuance (Form 315/549)

PLEASE CONTACT YOUR ASSIGNED PERMIT CONTACT TO DISCUSS THE TYPE OF MODIFICATION YOU SHOULD APPLY FOR BEFORE COMPLETING THIS FORM.

This form should be used to submit the following permit requests for individually permitted Mining and Coalbed Methane Operations:

Modifications/Reissuances that include Permit Transfers and/or Permittee/Facility Name Changes
Minor Modifications
Major Modifications
Reissuances
Reissuance of a permit on or after the current permit's expiration date
Revocation and Reissuance before the current permit's expiration date

Please complete all questions and attach all necessary documentation as prompted throughout the application process. Incomplete or incorrect information will delay processing.

Applicable Fees:
Minor Modifications
$3,400 (Mineral/Resource Extraction Mining, Storage Transloading, Dry Processing)
$3.940 (Wet Preparation, Processing, Beneficiation)
$3,940 (Coalbed Methane Operations)
Major Modifications
$5,820 (Mineral/Resource Extraction Mining, Storage Transloading, Dry Processing)
$6,860 (Wet Preparation, Processing, Beneficiation)
$6,860 (Coalbed Methane Operations)
Reissuances
$5,820 (Mineral/Resource Extraction Mining, Storage Transloading, Dry Processing)
$6,860 (Wet Preparation, Processing, Beneficiation)
$6,860 (Coalbed Methane Operations)
Potential Add-on Fees for Major Modifications and Reissuances
$1,015 (Biomonitoring & Toxicity Limits)
$2,705 (Review of Model Performed by Others)
$4,855 (Modeling desktop)
For assistance, please click here to determine the permit staff responsible for the site or call (334) 394-4372.

Processing Information

Purpose of Application
Reissuance and Modification of Permit Due to Approaching Expiration

Please indicate if the Permittee is applying for a permit transfer and/or name change in addition to permit modification or reissuance:
None

Action Type
Reissuance with Modification

Briefly describe any planned changes at the facility that are included in this reissuance application:
Newly obtained wells along the Northern portion of the field have been added to the permitted area. Outfall 002-1 was never constructed and will be deleted from the Permit.

Is this a coalbed methane operation?
Yes

Permit Information

Permit Number
AL0068390

Current Permittee Name
Urban Oil and Gas Group, LLC

Permittee

Permittee Name
Urban Oil and Gas Group, LLC

Mailing Address

1000 E 14th Street, Suite 300

Plano, TX 75074

Responsible Official

Prefix
Mr.

First Name	Last Name
Jeffrey	*Smith*

Title
Health, Environmental, and Safety Manager

Organization Name
Urban Oil and Gas, LLC

Phone Type	Number	Extension
Business	9725438823	

Email
jeff.smith@urbanoilandgas.com

Mailing Address

1000 E 14th Street, Suite 300

Plano, TX 75074

Existing Permit Contacts

Affiliation Type	Contact Information	Remove?
Responsible Official,Notification Recipient	Brent Kirby, Urban Oil and Gas Group, LLC	Remove
DMR Contact	Scott White, Urban Oil and Gas Group, LLC	Keep
Permittee	Urban Oil and Gas Group, LLC	Keep

Facility/Operations Information

Facility/Operations Name
White Oak Creek CBM Project

Permittee Organization Type
LLC

Parent Corporation and Subsidiary Corporations of Applicant, if any:
Not Applicable

Landowner(s) Name, Address and Phone Number:
Individual landowner information available to the department upon request.

Sub-contractor(s)/Operator(s), if known:
Not Applicable

Is the ﷺCompany/Permitteeﷺ properly registered and in good standing with the Alabama Secretary of Stateﷺs office?
Yes

Facility/Operations Address or Location Description

> 58 TIGER MINE RD
>
> Southwest corner of the Bruner Hill Rd and Theron Wilcut Rd intersection
>
> OAKMAN, AL 35579

Facility/Operations County (Front Gate)
Walker

Do the operations span multiple counties?
Yes

Additional Counties
Tuscaloosa

Detailed Directions to the Facility/Operations
From the intersection of AL Hwy 69 and McFarland Blvd/US Hwy 82, proceed North along AL Hwy 69 30.3 miles to Wallace Ferry Road. Turn right and continue East along Wallace Ferry Road 0.6 miles to a "Y" intersection. Proceed to the right, which becomes Blackburn Road, and continue 5.1 miles to Theron Wilcut Road. Turn left and continue North along Theron Wilcut Road 1.6 miles to the field office entrance on the left.

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

Facility/Operations Front Gate Latitude and Longitude
33.567868,-87.314930

Township(s), Range(s), Section(s) (Note: If you are submitting multiple TRSs, please separate each TRS by a semicolon. Example: T19S,R1E,S15; T20S,R2E,S16)
See Additional Attachment

SIC Code(s) [Please select your primary SIC code first]:
1311-Crude Petroleum and Natural Gas

NAICS Code(s) [Please select your primary NAICS code first]:
211130-Natural Gas Extraction

Facility/Operations Contact

Prefix
Mr.

First Name **Last Name**
Scott *White*

Title
Operations Superintendent

Organization Name
Urban Oil and Gas, LLC

Phone Type **Number** **Extension**
Business 2053302877

Email
swhite@urbanoilandgas.com

Member Information

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

List of Names/Titles/Addresses will be entered by:
Manually Entering in Table

Name	Title/Position	Physical Address of Residence
Bonnie C. Shea	Member	1000 E 14th Street, Ste300; Plano, TX 75074
Fred N. Diem	Member	1000 E 14th Street, Ste300; Plano, TX 75074
Matthew T. Kirby	Member	1000 E 14th Street, Ste300; Plano, TX 75074
Michael L. Mercer	Member	1000 E 14th Street, Ste300; Plano, TX 75074

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

List of Corporations/Partnerships/etc, Names and Titles will be entered by:
Manually Entering in Table

Name of Corporation, Partnership, Association, or Single Proprietorship	Name of Individual	Title/Position in Corporation, Partnership, Association, or Single Proprietorship
None	None	None

Additional Contacts (1 of 1)

ADDITIONAL CONTACTS:

Contact Type
NONE PROVIDED

Contact

First Name
NONE PROVIDED

Last Name
NONE PROVIDED

Title
NONE PROVIDED

Organization Name
NONE PROVIDED

Phone Type **Number** **Extension**

NONE PROVIDED

Email
NONE PROVIDED

Address

[NO STREET ADDRESS SPECIFIED]

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

Compliance History

Has the applicant ever had any of the following:

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

Has the applicant, parent corporation, subsidiary, general partner, LLP partner, or LLC Member had any Warning Letters, Notice of Violations (NOVs), Administrative Actions, or litigation filed by ADEM or EPA during the three year (36 month) period preceding the date on which this form is signed?
No

For this facility, list any other NPDES or other environmental permits (including permit numbers), authorizations, or certifications that have been applied for or issued within the State by ADEM, EPA, Alabama Department of Labor (ADOL), US Army Corp of Engineers (USACE), or other agency, to the applicant, parent corporation, subsidiary, or LLC member whether presently effective, expired, suspended, revoked, or terminated:
Oil and Gas Board Permits for wells will be provided upon request.
Radioactive Material License Nos. 1344 and 1567.

For other facilities, list any other NPDES or other ADEM permits (including permit numbers), authorizations, or certifications that have been applied for or issued within the State by ADEM, EPA, ASMC, ADOL, or USACE, to the applicant, parent corporation, subsidiary, or LLC member whether presently effective, expired, suspended, revoked, or terminated:
Blue Creek Field NPDES Permit No. AL0060267
River Road Facility NPDES Permit No. AL0060755
Maxwell Crossing Facility NPDES Permit No. AL0060216
Dorroh Facility NPDES Permit No. AL0057363
The Narrows Facility NPDES Permit No. AL0066621
Cahaba Coalbed Methane Project NPDES Permit No. AL0076252
Radioactive Material License No. 1606

Anti-Degradation Evaluation

Pursuant to ADEM Admin. Code ch. 335-6-10-.12(9), responses to the following questions must be provided by the applicant requesting NPDES permit coverage for new or expanded discharges of pollutant(s) to Tier 2 waters (except discharges eligible for coverage under general permits). As part of the permit application review process, the Department is required to consider, based on the applicant's demonstration, whether the proposed new or increased discharge to Tier 2 waters is necessary for important economic or social development in the area in which the waters are located. Does this modification/reissuance include new or expanded discharges to Tier II water(s)?
No

Activity Description & Information

Narrative description of activity(s):
Coalbed methane exploration, production, operation, and associated activities.

Total Facility/Operations Area (acres)
86360.00

Total Disturbed Area (acres)
5.00

Anticipated Commencement Date
01/05/1998

Anticipated Completion Date
12/31/2032

Please identify which of the following apply to this operation:

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

Does your facility/operation use cooling water?
No

Proposed Activity Related to Coalbed Methane

Type(s) of activity presently conducted at applicant's existing facility or proposed to be conducted at facility:

Activity	Apply?
CBM exploration/production (drilling, fracturing, etc.)	Yes
Chemicals used in process or wastewater treatment (coagulant, biocide, etc.)	No
Construction Excavation	Yes
Construction related temporary borrow pits/areas	Yes

Activity	Apply?
Conventional Oil & Gas exploration	No
Creek/stream pipeline or road crossings	Yes
Gob well development	Yes
Grading, clearing, grubbing, etc.	No
Land application of temporary pit waters	Yes
Onsite construction debris or equipment storage/disposal	No
Other beneficiation and manufacturing operations	No
Reclamation of disturbed areas	Yes
Surface water withdrawal	No
Waterbody relocation or other alteration	No

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

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

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

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

Volume (gallons)	Contents
0	See Attached SPCC

SPCC Plan
URBAN-WOC-SPCC_Fr042420.pdf - 01/23/2023 08:01 AM
Comment
NONE PROVIDED

Topographic Map Submittal

Topographic Map Related to Coalbed Methane

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, operations name, county, and township, range, & section(s) where the operations are 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 operations (property lines and lease boundaries) (b) Compressor stations (c) All existing and proposed disturbed areas (d) Operations gas and water pipelines (e) Proposed and existing discharge points (f) Perennial, intermittent, and ephemeral streams (g) Lakes, springs, water wells, and wetlands (h) All known dirt/improved access roads for operations (i) Wellpads and service roads (j) Other information relevant to operations (k) All surrounding unimproved/improved roads (l) High-tension power lines and railroad tracks (m) Buildings and structures, including fuel/water tanks (n) Contour lines, township-range-section lines (o) Drainage patterns, swales, washes (p) All drainage conveyance/treatment structures (ditches, berms, etc.) (q) Any other pertinent or significant structure/feature (r) Location of any waste storage/disposal areas (s) Location of operations sign showing Permittee name, operations name, and NPDES Number.

Topographic Map
URBAN-WOC-2023-TOPO_r.pdf - 01/19/2023 11:33 AM
Comment
NONE PROVIDED

Outfalls (1 of 3)

Outfall Identifier: 001

Feature Type
Outfall (External)

Outfall Identifier
001

Outfall Status
Existing

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

Permit Action
Reissue

Receiving Water
Black Warrior River

Check below if the discharge enters the receiving water via an unnamed tributary.
NONE PROVIDED

Location of Outfall
33.48844400000000, -87.30180600000000

Are the location coordinates above still correct for this outfall?
No

New/Corrected Lat/Long Coordinates
33.487778, -87.313889

Distance to Receiving Water (ft)
0

Disturbed Area (acres)
0

Drainage Area (acres)
0

303(d) Segment?
No

TMDL Segment?
No

Please do not add a new outfall unless you are requesting a modification that includes a new outfall. All of the currently permitted outfalls are already included in this form. If you add an outfall in error, please choose ﷺDeleteﷺ under ﷺPermit Actionﷺ for the outfall. If you have any questions, please contact your permit engineer BEFORE proceeding.

Outfalls (2 of 3)

Outfall Identifier: 002

Feature Type
Outfall (External)

Outfall Identifier
002

Outfall Status
Existing

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

Permit Action
Delete

Please do not add a new outfall unless you are requesting a modification that includes a new outfall. All of the currently permitted outfalls are already included in this form. If you add an outfall in error, please choose "Delete" under "Permit Action" for the outfall. If you have any questions, please contact your permit engineer BEFORE proceeding.

Outfalls (3 of 3)

Outfall Identifier: 003

Feature Type
Outfall (External)

Outfall Identifier
003

Outfall Status
Existing

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

Permit Action
Reissue

Receiving Water
Black Warrior River

Check below if the discharge enters the receiving water via an unnamed tributary.
NONE PROVIDED

Location of Outfall
33.53163900000000, -87.26938900000000

Are the location coordinates above still correct for this outfall?
Yes

Distance to Receiving Water (ft)
0

Disturbed Area (acres)
0

Drainage Area (acres)
0

303(d) Segment?
No

TMDL Segment?
No

Please do not add a new outfall unless you are requesting a modification that includes a new outfall. All of the currently permitted outfalls are already included in this form. If you add an outfall in error, please choose "Delete" under "Permit Action" for the outfall. If you have any questions, please contact your permit engineer BEFORE proceeding.

Discharge Characterization Related to Coalbed Methane

EPA Form 2C/2D Submittal
Yes

Variance Request

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

Professional Engineer (PE)

Registration License Number
30097-E

Professional Engineer

Prefix
Mr.

First Name	Last Name
Quinn	*Stewart*

Title
Professional Engineer

Organization Name
McGiffert and Associates, LLC

Phone Type	Number	Extension
Business	2057591521	

Email
hstewart@mcgiffert.com

Address
2814 Stillman Boulevard
Tuscaloosa, Alabama 35401

Information for the Applicant Related to Coalbed Methane

Please read the following information and acknowledge below:
Contact the Department prior to submittal with any questions or to request acceptable alternate content/format.

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

EPA Form(s) 1 and 2F need not be submitted unless specifically required by the Department. EPA Form(s) 2C and/or 2D are required to be submitted. The applicant should ensure that other than those proposed activities described in this application, there are no other potential pollutants, processes, process wastewaters or activities that require NPDES permit coverage. Permit coverage will allow for use of captive borrow areas used solely for the permitted operation. Coverage under the Department's NPDES Construction Stormwater Permit Program allows for short-lived, construction related, limited removal or relocation of fill material offsite, and does not provide coverage for coalbed methane operations.

The applicant should understand by submission of this application, that they are advised to contact:
1) The Alabama State Oil & Gas Board;
2) The Alabama Historical Commission for requirements related to any potential historic or culturally significant sites;
3) The Alabama Department of Conservation and Natural Resources (ADCNR) for requirements related to potential presence of

threatened/endangered species; and
4) The US Army Corps of Engineers, Mobile or Nashville Districts, if this project could cause fill to be placed in federal waters/wetlands or could interfere with navigation.

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

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

Additional Attachments

Additional Attachments

Urban-WOC-Form315-STR Attachment.pdf - 01/19/2023 02:12 PM
Urban-WOC-AL0068390-Cormix and Review_070821.pdf - 01/19/2023 02:20 PM
Urban-WOC-EPA Form 3510-2C_F022723.pdf - 02/27/2023 02:34 PM

Comment
DSN001 is being modified in accordance with the previously approved CORMIX model on July 6, 2021. Attached is a copy of the ADEM rationale and associated CORMIX engineering report. These approved diffuser modifications will be constructed prior to any discharges from this outfall.

Application Preparer

Application Preparer

Prefix
Mr.

First Name	Last Name
Quinn	*Stewart*

Title
Professional Engineer

Organization Name
McGiffert and Associates, LLC

Phone Type	Number	Extension
Business	2057591521	

Email
hstewart@mcgiffert.com

Address
2814 Stillman Boulevard
Tuscaloosa, Alabama 35401

Fees Assessed

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

If the correct fees are not displayed, please contact your permit engineer PRIOR to submitting the form. Do NOT answer questions erroneously in order to have the correct fee assessed.

Coalbed Methane:
6860

Biomonitoring & Toxicity Limits:
1015

Please be aware that a CORMIX model may be required for this application. If so, additional fees will be required.

Fee

Fee
7875

Please be aware that a CORMIX model may be required for this application. If so, additional fees will be required.

Agreements and Signature(s)

SUBMISSION AGREEMENTS

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

Professional Engineer (PE)

A detailed, comprehensive Pollution Abatement & Prevention (PAP) Plan must be prepared, signed, and certified by a professional engineer (PE), registered in the State of Alabama, and the PE must certify as follows: I certify under penalty of lawthat the technical information and data contained in this application, and a comprehensive Pollution Abatement & Prevention (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 this Permit, and ADEM Admin. Code Division 335-6, including Chapter 335-6-9 and Appendices A & B. If the PAP Plan is properly implemented and maintained by the Permittee, discharges of pollutants can reasonably be expected to be effectively minimized to the maximum extent practicable and according to permit discharge limitations and other permit requirements. The applicant has been advised that appropriate pollution abatement/prevention facilities and structural & nonstructural management practices or Department approved equivalent management practices as detailed in the PAP Plan must be fully implemented and regularly maintained as needed at the facility in accordance with good sediment, erosion, and other pollution control practices, permit requirements, and other ADEM requirements to ensure protection of groundwater and surface water quality.

Signed By Quinn Stewart on 02/27/2023 at 3:04 PM

Responsible Official

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

Signed By Jeffrey Smith on 02/27/2023 at 3:05 PM

ATTACHMENT
URBAN OIL & GAS GROUP, LLC
WHITE OAK CREEK CBM PROJECT
ADEM FORM 315
NPDES PERMIT NO. AL0068390
TUSCALOOSA & WALKER COUNTIES, ALABAMA

Item VII. ACTIVITY DESCRIPTION & INFORMATION

Townships(s), Range(s), Sections(s):

- T17S, R9W Tuscaloosa County, AL
  Sections 10-15, 22-27, & 34-36
- T18S, R9W Tuscaloosa County, AL
  Sections 1-3, & 10-12
- T17S, R8W Tuscaloosa County, AL
  Sections 4, 5, & 7-36
- T18S, R8W Tuscaloosa County, AL
  Sections 1-15
- T16S, R8W Walker County, AL
  Sections 25-27 & 33-36
- T17S, R8W Walker County, AL
  Sections 1-3
- T18S, R8W Walker County, AL
  Sections 12-14
- T16S, R7W Walker County, AL
  Sections 29-33
- T17S, R7W Walker County, AL
  Sections 1-35
- T18S, R7W Walker County, AL
  Sections 3, 8-10, & 17
- T17S, R6W Walker County, AL
  Sections 6, 7, 17-20 & 30

Mixing Zone Analysis Summary

REQUEST INFORMATION

request number: 3785

From: (Responsible Engineer) David Hearn | In Branch/Section: Other

Date Submitted: 12/21/2020 | **Date Required:** 4/30/2021 | **FUND Code:** 210

Date Permit application received by NPDES program:

Receiving Waterbody: Black Warrior River (Bankhead Lake)

Previous Stream Name: Bankhead Lock and Dam Pool

Facility Name: White Oak Creek Coalbed Methane Project (Name of Discharger-WQ will use to file)

Previous Discharger Name:

River Basin: Black Warrior | **Outfall Latitude:** 33.487778 (decimal degrees)

***County:** Tuscaloosa | **Outfall Longitude:** -87.313889 (decimal degrees)

Permit Number: AL0068390 | **Permit Type:**

Permit Status: Active

Type of Discharger: MINING

Do other discharges exist that may impact the model? ☐ Yes ☑ No

If yes, impacting dischargers names.

Impacting dischargers permit numbers.

Existing Discharge Design Flow: MGD

Proposed Discharge Design Flow: 0.09985 MGD

Note: The flow rates given should be those requested for modeling.

Seasonal limits requested? ☐ Yes ☑ No

If not seasonal, only the summer sections will be used

Comments included ☑ Yes ☐ No

Information Verified By:

Year File Was Started:

12 Digit HUC Code: 031601120203

Use Classification: PWS/S/F&W

Site Visit Completed? ☑ Yes ☐ No

Date of MZ Response: 7/8/2021

Date of Site Visit: 6/10/2021

Hydrology

			Method Used to Calculate
Drainage Area	3904	sq mi	
Stream 7Q10	157.7	cfs	ADEM Estimate w/USGS Gage Data
Stream 1Q10	118.3	cfs	ADEM Estimate w/USGS Gage Data
Stream 7Q2	484.6	cfs	ADEM Estimate w/USGS Gage Data
Annual Average	6637	cfs	ADEM Estimate w/USGS Gage Data

Date of MZ Analysis: 7/6/2020

Model Completed by: Jacobs

Pollutant Category

Whole Effluent Toxicity (WET) ☑ **Thermal** ☐ **Pathogens** ☐

Mixing Zone Analysis Summary

WET Parameters

Summer

Acute

Ambient Streamflow	118.3	cfs
ZID Length	6.048	Meters
ZID IWC	15.7	%

Chronic

Ambient Streamflow		cfs
Mixing Zone Length		Meters
Mixing Zone IWC		%

Winter

Acute

Ambient Streamflow		cfs
ZID Length	6.048	Meters
ZID IWC		%

Chronic

Ambient Streamflow		cfs
Mixing Zone Length		Meters
Mixing Zone IWC		%

Thermal Parameters

Summer

Ambient Streamflow		cfs
Mixing Zone Length		Meters
Max. Effluent Temp		°C

Winter

Ambient Streamflow		cfs
Mixing Zone Length		Meters
Max. Effluent Temp		°C

Pathogen Parameters

Summer

Ambient Streamflow		cfs
ZID Length		Meters
Max. Effluent Fecal Conc		Cols/100 mls
Max. Effluent E. coli Conc		Cols/100 mls
Monthly Average Effluent E. coli Conc		Cols/100 mls
Max. Effluent Enterococci Conc (for coastal waters)		Cols/100 mls

Winter

Ambient Streamflow		cfs
ZID Length		Meters
Max. Effluent Fecal Conc		Cols/100 mls
Max. Effluent E. coli Conc		Cols/100 mls
Monthly Average Effluent E. coli Conc		Cols/100 mls
Max. Effluent Enterococci Conc (for coastal waters)		Cols/100 mls

Comments and/or Notations	The modeling conducted for this mixing zone was for DSN001E.

LANCE R. LEFLEUR
DIRECTOR

KAY IVEY
GOVERNOR

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

July 6, 2021

MEMORANDUM:

To: White Oak Creek Coalbed Methane Project Mixing Zone File
Facility: White Oak Creek Coalbed Methane
Receiving Waterbody: Black Warrior River (Bankhead Lake)
Basin: Black Warrior

A CORMIX review was requested by David Hearn of the Mining and Natural Resources Section on March 30, 2021, for the White Oak Creek Coalbed Methane Project discharge to the Black Warrior River (Bankhead Lake). The CORMIX modeling was conducted by Lynn Sisk of Jacobs. The facility discharges to the Black Warrior River (Bankhead Lake) with an average effluent flow of 0.09985 MGD.

The diffuser previously modeled for this discharge consisted of ten two-inch nozzles spaced at ten feet; however, it has been indicated that the pipe became buried and none of the existing nozzles could be located. The new proposed discharge structure is a single six-inch pipe extending nearly perpendicular from the right bank of the river.

A limiting dilution of 1022:1 was calculated using the annual average effluent flow rate of 0.09985 MGD (0.1545 cfs) and a 7Q10 value of 157.7 cfs; therefore, based upon the established ADEM protocol for whole effluent toxicity determination, acute toxicity using the 1Q10 flow applicable at the edge of the ZID will be employed. The applicable distance to the edge of the ZID is 6.048 meters, based upon the criterion stating the ZID is equal to *50 times the discharge length scale (DLS) in any spatial direction, where the DLS is the square root of the cross-sectional area of any discharge outlet."*

CORMIX1 was utilized to evaluate the proposed discharge structure. An IWC of 15.7% was predicted at the edge of the ZID.

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
4171 Commanders Drive
Mobile, AL 36615-1421
(251) 432-6533
(251) 432-6598 (FAX)

CORMIX Mixing Zone Review Rationale

FACILITY: White Oak Creek Coalbed Methane Project – NPDES Permit No. AL0068390 (DSN001E)

DISCHARGE LOCATION: 33.48778, -87.313889

RECEIVING WATERBODY: Black Warrior River (Bankhead Lake)

EFFLUENT FLOW RATE: 0.09985 MGD

DATE: June 25, 2021

BACKGROUND:

A CORMIX review was requested by David Hearn of the Mining and Natural Resources Section on March 30, 2021, for the White Oak Creek Coalbed Methane Project discharge to the Black Warrior River (Bankhead Lake). The CORMIX modeling was conducted by Lynn Sisk of Jacobs. The purpose of the mixing zone evaluation was to determine the applicable instream waste concentration (IWC) for use in whole effluent toxicity testing. The diffuser previously modeled for this discharge consisted of ten two-inch nozzles spaced at ten feet; however, it has been indicated that the pipe became buried and none of the existing nozzles could be located. The new proposed discharge structure is a single six-inch pipe extending nearly perpendicular from the right bank of the river. An average effluent flow of 0.09985 MGD (0.1545 cfs) was utilized in this CORMIX model.

AMBIENT CONDITIONS

The use classification for the Black Warrior River (Bankhead Lake) at the point of discharge is Public Water Supply/Swimming/Fish & Wildlife (PWS/S/F&W). The 7Q10 (157.7 cfs) and 1Q10 (118.3 cfs) low flow conditions implemented in this CORMIX review were based on USGS data from gauge 02465000. The receiving waterbody width, local depth, and average depth utilized in the model were 328.57 meters, 13.72 meters, and 17.68 meters, respectively.

MIXING ZONE CRITERIA:

A limiting dilution of 1022:1 was calculated using the average effluent flow of 0.09985 MGD (0.1545 cfs) and a 7Q10 value of 157.7 cfs; therefore, based upon the established ADEM protocol for Whole Effluent Toxicity (WET) determination, acute toxicity using the 1Q10 flow applicable at the edge of the ZID (Zone of Initial Dilution) will be employed. The ZID shall not exceed the more stringent of the following requirements in any spatial direction (see ADEM Admin code r. 335-6-6-.02-ggg):

a) Fifty times the discharge length scale (DLS)
b) Five times the local water depth
c) No more than 10% of the distance from the edge of the outfall structure to the leading edge of the mixing zone

The leading edge of the mixing zone was determined from the following mixing zone criteria (see "Mixing Zone Prohibitions" in Departmental Regulations 335-6-6-.15):

a) Mixing Zones shall not exceed a width of 50 percent of the stream width.
b) Mixing Zones shall not exceed a length of five times the width of the mixing zone.
c) Mixing Zones shall not exceed an area of 25 percent of the stream cross-sectional area.

The applicable distance to the edge of the ZID is 6.048 meters, based upon the criterion stating the ZID is equal to *50 times the discharge length scale (DLS) in any spatial direction, where the DLS is the square root of the cross-sectional area of any discharge outlet."*

DISCHARGE CONFIGURATION:

As noted previously, the new proposed discharge structure is a single six-inch pipe that extends nearly perpendicular from the right bank of the river. The pipe was modeled as horizontally level and perpendicular to downstream flow.

CORMIX OUTPUT EVALUATION:

The discharge structure is a single port; therefore, CORMIX1 was utilized to model the plume and predict the IWC. The effluent density is 1008 kg/m^3, which is higher than the ambient receiving water density of 996.2338 kg/m^3; therefore, the plume is negatively buoyant, and as expected CORMIX1 predicts the plume to sink towards the river bottom. Upon review of the outputs, CORMIX1 predicts the IWC at the edge of the ZID to be 15.7%.

Site Visit Information

Project:	White Oak Creek Coalbed Methane CORMIX Review
Facility Name:	White Oak Creek Coalbed Methane Project
Permit #:	NPDES# AL0068390
Discharge Location:	Latitude: 33.487778 Longitude: -87.313889
Contact:	Hansel Stewart (205) 759 - 1521
Basin:	Black Warrior
County:	Tuscaloosa
Receiving Stream:	Black Warrior River (Bankhead Lake)
Existing Flow (MGD):	0.09985 MGD

Site Visit Field Form

Date of Visit:	June 10, 2021
Time of Visit:	11:08 AM ☒ PM ☐
Weather Summary:	71° and rainy
Flow Stage:	Flood ☐ Above Normal ☐ Normal ☒ Low ☐ Dry ☐
Velocity:	Swift(>3ft/s) ☒ Moderate(1.5-3ft/s) ☐ Slow(<1.5ft/s) ☐
Wadeable:	Yes ☐ No ☒ Unknown ☐ (At Outfall)
Recent Rain Event:	Yes ☒ No ☐ Unknown ☐
Surface Oils:	Yes ☐ No ☒
Substrate:	Sand/Silt
Upstream Conditions:	Free Flowing
Downstream Conditions:	Free Flowing
Significant Odors:	None Observed
Land Use:	Forested/Mining
Biological Indicators:	None Observed
Canopy:	Open
GPS Coordinates:	Latitude: 33.487778 Longitude: -87.313889

SUMMARY:

On Thursday, June 10, 2021, I (Nicholas Caraway) conducted a site visit to the discharge location of the White Oak Creek Coalbed Methane Project – DSN001E, located south of Oakman, AL in Tuscaloosa County. I was accompanied to the site by Dewayne Wallace of Urban Oil & Gas Group, LLC. It was indicated that this side of the mining operation had been idle for the past year and was not currently in service and discharging.

Figure 1. Discharge Location

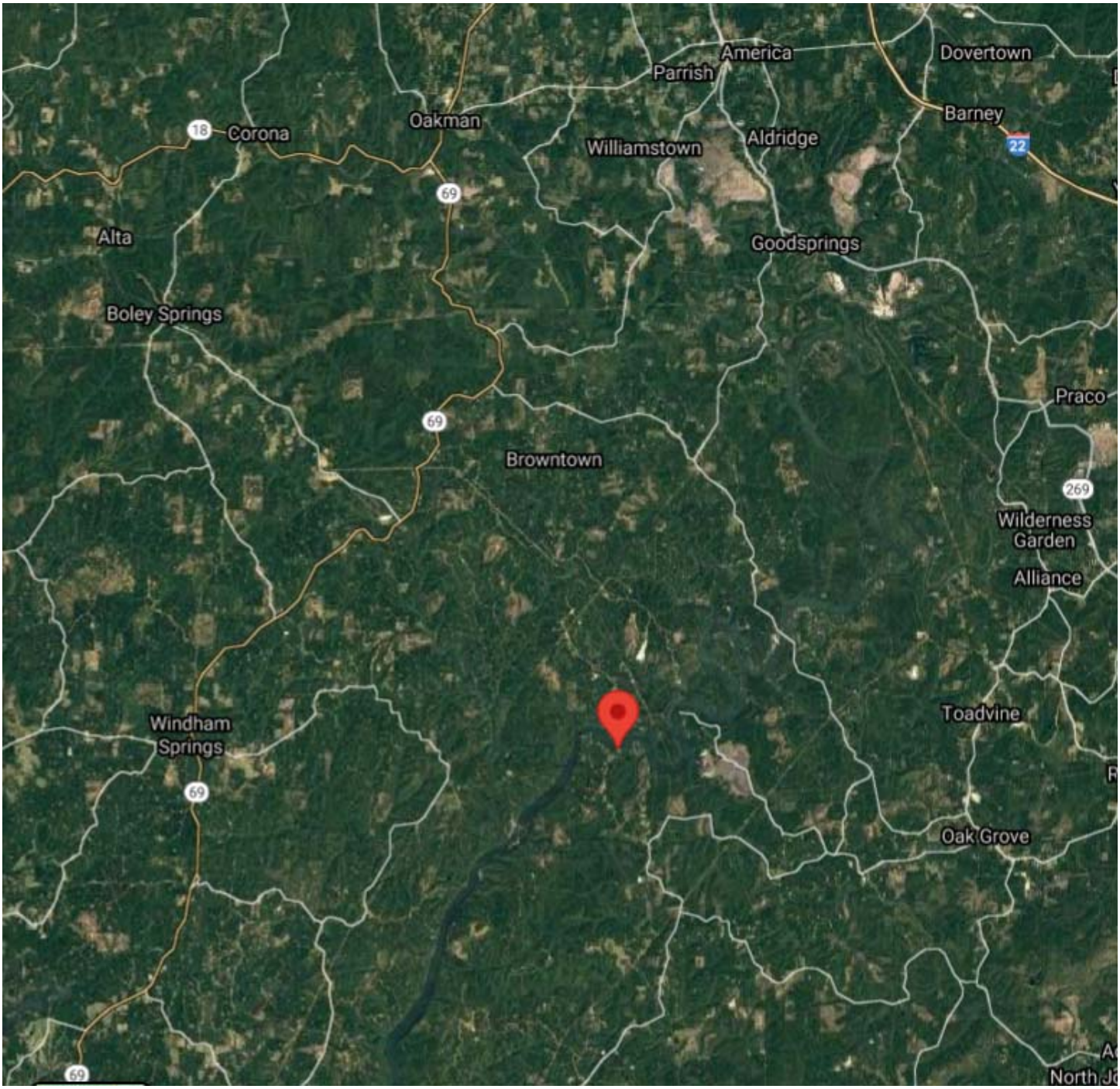

Figure 2. Black Warrior River (Bankhead Lake) @ Discharge Location

```
CORMIX SESSION REPORT:
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
                      CORMIX MIXING ZONE EXPERT SYSTEM
                          CORMIX Version 12.0GTD
                       HYDRO1:Version-12.0.0.0  December,2020
SITE NAME/LABEL:                White Oak Creek Coalbed Methane Project
  DESIGN CASE:
  FILE NAME:                    C:\Users
caraway\Desktop\Nic Caraway\WLA\White Oak Creek Coalbed Methane\White Oak Creek Coalbed Methane Project.prd
  Using subsystem CORMIX1:     Single Port Discharges
  Start of session:             07/06/2021--22:49:53
*****************************************************************************
SUMMARY OF INPUT DATA:
-----------------------------------------------------------------------------
AMBIENT PARAMETERS:
  Cross-section                           = bounded
  Width                         BS     = 328.57 m
  Channel regularity            ICHREG = 1
  Ambient flowrate              QA     = 3.35 m^3/s
  Average depth                 HA     = 17.68 m
  Depth at discharge            HD     = 13.72 m
  Ambient velocity              UA     = 0.0006 m/s
  Darcy-Weisbach friction factor  F      = 0.0271
    Calculated from Manning's n          = 0.03
  Wind velocity                 UW     = 2 m/s
  Stratification Type           STRCND = U
  Surface temperature                  = 28 degC
  Bottom temperature                   = 28 degC
  Calculated FRESH-WATER DENSITY values:
  Surface density               RHOAS  = 996.2338 kg/m^3
  Bottom density                RHOAB  = 996.2338 kg/m^3
-----------------------------------------------------------------------------
DISCHARGE PARAMETERS:           Single Port Discharge
  Nearest bank                         = right
  Distance to bank              DISTB  = 28.65 m
  Port diameter                 D0     = 0.1365 m
  Port cross-sectional area     A0     = 0.0146 m^2
  Discharge velocity            U0     = 0.30 m/s
  Discharge flowrate            Q0     = 0.004375 m^3/s
  Discharge port height         H0     = 0.61 m
  Vertical discharge angle      THETA  = 0 deg
  Horizontal discharge angle    SIGMA  = 90 deg
  Discharge density             RHO0   = 1008 kg/m^3
  Density difference            DRHO   = -11.7662 kg/m^3
  Buoyant acceleration          GP0    = -0.1158 m/s^2
  Discharge concentration       C0     = 100 %
  Surface heat exchange coeff.  KS     = 0 m/s
  Coefficient of decay          KD     = 0 /s
-----------------------------------------------------------------------------
DISCHARGE/ENVIRONMENT LENGTH SCALES:
  LQ  = 0.12 m        Lm  = 62.72 m        Lb  = 99999 m
  LM  = 0.31 m        Lm' = 99999 m        Lb' = 99999 m
-----------------------------------------------------------------------------
NON-DIMENSIONAL PARAMETERS:
  Port densimetric Froude number  FR0    = 2.38
  Velocity ratio                R      = 518.44
-----------------------------------------------------------------------------
MIXING ZONE / TOXIC DILUTION ZONE / AREA OF INTEREST PARAMETERS:
  Toxic discharge                      = no
  Water quality standard specified     = no
  Regulatory mixing zone               = yes
  Regulatory mixing zone specification  = trajectory
  Regulatory mixing zone value         = 6.05 m (m^2 if area)
  Region of interest                   = 5000 m
*****************************************************************************
HYDRODYNAMIC CLASSIFICATION:
  *------------------------*
  | FLOW CLASS   = NH3A5 |
  *------------------------*
  This flow configuration applies to a layer corresponding to the full water
  depth at the discharge site.
  Applicable layer depth = water depth = 13.72 m

  Limiting Dilution S = (QA/Q0)+ 1.0 = 766.7

*****************************************************************************
MIXING ZONE EVALUATION (hydrodynamic and regulatory summary):

-----------------------------------------------------------------------------
X-Y-Z Coordinate system:
  Origin is located at the BOTTOM below the port/diffuser center:
    28.65 m from the right bank/shore.
  Number of display steps NSTEP = 50 per module.
-----------------------------------------------------------------------------
NEAR-FIELD REGION (NFR) CONDITIONS :
Note: The NFR is the zone of strong initial mixing.  It has no regulatory
  implication.  However, this information may be useful for the discharge
  designer because the mixing in the NFR is usually sensitive to the
  discharge design conditions.
  Pollutant concentration at NFR edge  c = 4.815 %
  Dilution at edge of NFR              s = 20.8
  NFR Location:                        x = 3.06 m
    (centerline coordinates)           y = 47.51 m
                                       z = 0 m
  NFR plume dimensions:  half-width (bh) = 8.88 m
                          thickness (bv) = 8.88 m
  Cumulative travel time:       5117.8638 sec.
-----------------------------------------------------------------------------
Buoyancy assessment:
  The effluent density is greater than the surrounding ambient water
  density at the discharge level.
  Therefore, the effluent is NEGATIVELY BUOYANT and will tend to sink towards
  the bottom.
IMPORTANT NOTE:
Since the effluent is NEGATIVELY BUOYANT, it is recommended that you consider using the Brine or Sediment options for Effluent specification for a more detailed
analysis, particularly for coastal discharges over a sloping bottom where density currents are important.

CORMIX will however continue with the current simulation.
-----------------------------------------------------------------------------
Benthic attachment:
  For the present combination of discharge and ambient conditions, the
  discharge plume becomes attached to the channel bottom within the NFR
```

```
  immediately following the efflux.  High benthic concentrations may occur.
-------------------------------------------------------------------------------
FAR-FIELD MIXING SUMMARY:
  Plume becomes laterally fully mixed at 9.73 m downstream.
-------------------------------------------------------------------------------
PLUME BANK CONTACT SUMMARY:
  Plume in bounded section contacts nearest bank at 3.68 m downstream.
  Plume contacts second bank at 9.73 m downstream.
************************ TOXIC DILUTION ZONE SUMMARY ************************
No TDZ was specified for this simulation.
********************** REGULATORY MIXING ZONE SUMMARY ***********************
The plume conditions at the boundary of the specified RMZ are as follows:
  Pollutant concentration              c = 15.683629  %
  Corresponding dilution               s = 6.4
  Plume location:                      x = 0.06 m
    (centerline coordinates)           y = 6.05 m
                                       z = 0 m
  Plume dimensions:      half-width (bh) = 0.74 m
                          thickness (bv) = 0.74 m
  Cumulative travel time < 5117.8638 sec. (RMZ is within NFR)

Note:
Plume concentration c and dilution s values are reported based on prediction
file values - assuming linear interpolation between predicted points just
before and just after the RMZ boundary has been detected.

Please ensure a small step size is used in the prediction file to account
for this linear interpolation. Step size can be controlled by increasing
(reduces the prediction step size) or decreasing (increases the prediction
step size) the - Output Steps per Module - in CORMIX input.

-------------------------------------------------------------------------------
Regulatory Mixing Zone Analysis:
The specified RMZ occurs within the near-field region (NFR).  This RMZ
  specification may be highly restrictive.

********************* FINAL DESIGN ADVICE AND COMMENTS **********************
REMINDER:  The user must take note that HYDRODYNAMIC MODELING by any known
  technique is NOT AN EXACT SCIENCE.
Extensive comparison with field and laboratory data has shown that the
  CORMIX predictions on dilutions and concentrations (with associated
  plume geometries) are reliable for the majority of cases and are accurate
  to within about +-50% (standard deviation).
As a further safeguard, CORMIX will not give predictions whenever it judges
  the design configuration as highly complex and uncertain for prediction.
```

```
CORMIX1 PREDICTION FILE:
1111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111
                        CORMIX MIXING ZONE EXPERT SYSTEM
                    Subsystem CORMIX1: Single Port Discharges
                             CORMIX Version 12.0GTD
                      HYDRO1 Version 12.0.0.0 December 2020
-------------------------------------------------------------------------------------------------------
-------------------------------------------------------------------------------------------------------
CASE DESCRIPTION
 Site name/label:   White Oak Creek Coalbed Methane Project
 Design case:
 FILE NAME:         C:\...thane\White Oak Creek Coalbed Methane Project.prd
 Time stamp:        07/06/2021--22:49:53

ENVIRONMENT PARAMETERS (metric units)
 Bounded section
 BS    =    328.57  AS    =   5809.12  QA    =      3.35  ICHREG= 1
 HA    =     17.68  HD    =     13.72
 UA    =      0.001 F     =      0.027 USTAR =0.3358E-04
 UW    =      2.000 UWSTAR=0.2198E-02
 Uniform density environment
 STRCND=  U         RHOAM =  996.2338

DISCHARGE PARAMETERS (metric units)
 BANK  =  RIGHT     DISTB =     28.65
 D0    =      0.137 A0    =      0.015 H0    =      0.61  SUB0  =     13.11
 THETA =      0.00  SIGMA =     90.00
 U0    =      0.299 Q0    =      0.004       =0.4375E-02
 RHO0  = 1008.0000  DRHO0 =-.1177E+02  GP0   =-.1158E+00
 C0    =0.1000E+03  CUNITS=  %
 IPOLL =  1         KS    =0.0000E+00  KD    =0.0000E+00

FLUX VARIABLES (metric units)
 Q0    =0.4375E-02  M0    =0.1308E-02  J0    =-.5067E-03  SIGNJ0=     -1.0
 Associated length scales (meters)
 LQ    =      0.12  LM    =      0.31  Lm    =     62.72  Lb    =  99999.00
                                       Lmp   =  99999.00  Lbp   =  99999.00

NON-DIMENSIONAL PARAMETERS
 FR0   =      2.38  R     =    518.44

FLOW CLASSIFICATION
 11111111111111111111111111111111111111111111111111
 1  Flow class (CORMIX1)      =    NH3A5        1
 1  Applicable layer depth HS =   13.72         1
 1  Limiting Dilution S=QA/Q0 + 1=   766.70     1
 11111111111111111111111111111111111111111111111111

MIXING ZONE / TOXIC DILUTION / REGION OF INTEREST PARAMETERS
 C0    =0.1000E+03  CUNITS=  %
 NTOX  =  0
 NSTD  =  0
 REGMZ =  1
 REGSPC=  4         XREG  =      6.05  WREG  =      0.00  AREG  =      0.00
 XINT  =   5000.00  XMAX  =   5000.00

X-Y-Z COORDINATE SYSTEM:
    ORIGIN is located at the bottom and below the center of the port:
        28.65 m  from the RIGHT bank/shore.
    X-axis points downstream, Y-axis points to left, Z-axis points upward.
NSTEP =  50 display intervals per module
-------------------------------------------------------------------------------------------------------
-------------------------------------------------------------------------------------------------------
BEGIN MOD101: DISCHARGE MODULE

 COANDA ATTACHMENT immediately following the discharge.

       X        Y       Z        S       C       B        Uc        TT
      0.00     0.00    0.00     1.0 0.100E+03   0.10    0.299   .00000E+00

END OF MOD101: DISCHARGE MODULE
-------------------------------------------------------------------------------------------------------
-------------------------------------------------------------------------------------------------------
BEGIN CORJET (MOD110): JET/PLUME NEAR-FIELD MIXING REGION

 Jet-like motion in weak crossflow.
 Bottom-attached jet motion.

 Profile definitions:
   B = Gaussian 1/e (37%) half-width, normal to trajectory
            Half wall jet, attached to bottom.
   S = hydrodynamic centerline dilution
   C = centerline concentration (includes reaction effects, if any)
  Uc = Local centerline excess velocity (above ambient)
  TT = Cumulative travel time

       X        Y       Z        S       C       B        Uc        TT
      0.00     0.00    0.00     1.0 0.100E+03   0.07    0.299   .53615E-01
      0.00     0.21    0.00     1.0 0.100E+03   0.10    0.299   .49938E+00
      0.00     0.46    0.00     1.1 0.948E+02   0.12    0.299   .11598E+01
      0.00     0.70    0.00     1.3 0.777E+02   0.15    0.274   .19813E+01
      0.00     0.95    0.00     1.5 0.658E+02   0.18    0.232   .29638E+01
      0.00     1.19    0.00     1.8 0.571E+02   0.20    0.201   .41074E+01
      0.00     1.44    0.00     2.0 0.504E+02   0.23    0.178   .54120E+01
      0.00     1.68    0.00     2.2 0.451E+02   0.26    0.159   .68777E+01
      0.01     1.92    0.00     2.5 0.408E+02   0.28    0.144   .85045E+01
      0.01     2.17    0.00     2.7 0.373E+02   0.31    0.132   .10292E+02
      0.01     2.41    0.00     2.9 0.343E+02   0.34    0.121   .12241E+02
      0.01     2.66    0.00     3.1 0.318E+02   0.36    0.112   .14351E+02
      0.01     2.90    0.00     3.4 0.296E+02   0.39    0.104   .16622E+02
      0.02     3.15    0.00     3.6 0.277E+02   0.42    0.098   .19055E+02
      0.02     3.39    0.00     3.8 0.260E+02   0.44    0.092   .21648E+02
      0.02     3.64    0.00     4.1 0.245E+02   0.47    0.087   .24403E+02
      0.02     3.88    0.00     4.3 0.232E+02   0.50    0.082   .27318E+02
      0.03     4.12    0.00     4.5 0.220E+02   0.53    0.078   .30395E+02
      0.03     4.37    0.00     4.8 0.209E+02   0.55    0.074   .33633E+02
      0.03     4.61    0.00     5.0 0.200E+02   0.58    0.070   .37032E+02
      0.04     4.86    0.00     5.2 0.191E+02   0.61    0.067   .40593E+02
      0.04     5.10    0.00     5.5 0.183E+02   0.63    0.064   .44314E+02
      0.05     5.35    0.00     5.7 0.175E+02   0.66    0.062   .48197E+02
      0.05     5.59    0.00     5.9 0.168E+02   0.69    0.059   .52242E+02
      0.05     5.84    0.00     6.2 0.162E+02   0.71    0.057   .56447E+02
```

```
 ** REGULATORY MIXING ZONE BOUNDARY is within the Near-Field Region **
 In this prediction interval the plume TRAJECTORY distance meets or exceeds
 the regulatory value =     6.05 m.
 This is the extent of the REGULATORY MIXING ZONE.
      0.06     6.08    0.00      6.4 0.156E+02   0.74     0.055   .60814E+02
      0.06     6.32    0.00      6.6 0.151E+02   0.77     0.053   .65342E+02
      0.07     6.57    0.00      6.9 0.146E+02   0.79     0.051   .70031E+02
      0.07     6.81    0.00      7.1 0.141E+02   0.82     0.050   .74882E+02
      0.08     7.06    0.00      7.3 0.136E+02   0.85     0.048   .79895E+02
      0.09     7.30    0.00      7.6 0.132E+02   0.88     0.047   .85068E+02
      0.09     7.55    0.00      7.8 0.128E+02   0.90     0.045   .90403E+02
      0.10     7.79    0.00      8.0 0.124E+02   0.93     0.044   .95900E+02
      0.10     8.03    0.00      8.3 0.121E+02   0.96     0.043   .10156E+03
      0.11     8.28    0.00      8.5 0.118E+02   0.98     0.041   .10738E+03
      0.12     8.52    0.00      8.7 0.114E+02   1.01     0.040   .11336E+03
      0.12     8.77    0.00      9.0 0.111E+02   1.04     0.039   .11950E+03
      0.13     9.01    0.00      9.2 0.109E+02   1.06     0.038   .12581E+03
      0.14     9.26    0.00      9.4 0.106E+02   1.09     0.037   .13227E+03
      0.14     9.50    0.00      9.7 0.103E+02   1.12     0.036   .13890E+03
      0.15     9.74    0.00      9.9 0.101E+02   1.15     0.036   .14569E+03
      0.16     9.99    0.00     10.1 0.986E+01   1.17     0.035   .15264E+03
      0.17    10.23    0.00     10.4 0.964E+01   1.20     0.034   .15975E+03
      0.18    10.48    0.00     10.6 0.943E+01   1.23     0.033   .16703E+03
      0.19    10.72    0.00     10.8 0.922E+01   1.25     0.033   .17447E+03
      0.19    10.97    0.00     11.1 0.903E+01   1.28     0.032   .18206E+03
      0.20    11.21    0.00     11.3 0.884E+01   1.31     0.031   .18983E+03
      0.21    11.45    0.00     11.5 0.866E+01   1.33     0.031   .19775E+03
      0.22    11.70    0.00     11.8 0.849E+01   1.36     0.030   .20583E+03
      0.23    11.94    0.00     12.0 0.833E+01   1.39     0.029   .21408E+03
      0.24    12.16    0.00     12.2 0.819E+01   1.41     0.029   .22143E+03
 Cumulative travel time =         221.4290 sec  (    0.06 hrs)

END OF CORJET (MOD110): JET/PLUME NEAR-FIELD MIXING REGION
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-------------------------------------------------------------------------------------------------------
BEGIN MOD131: LAYER BOUNDARY/TERMINAL LAYER APPROACH

  Control volume inflow:
       X        Y       Z        S       C       B        TT
      0.24    12.16    0.00     12.2 0.819E+01   1.41 .22143E+03

 Profile definitions:
   BV = top-hat thickness, measured vertically
   BH = top-hat half-width, measured horizontally in Y-direction
   ZU = upper plume boundary (Z-coordinate)
   ZL = lower plume boundary (Z-coordinate)
   S  = hydrodynamic average (bulk) dilution
   C  = average (bulk) concentration (includes reaction effects, if any)
   TT = Cumulative travel time

       X        Y       Z        S       C       BV       BH      ZU      ZL       TT
      0.18    11.45    0.00     12.2 0.819E+01   0.00     0.00    0.00    0.00 .22143E+03
      0.47    15.06    0.00     12.4 0.804E+01   5.58     2.81    5.58    0.00 .62315E+03
      0.76    18.66    0.00     13.3 0.752E+01   6.62     3.97    6.62    0.00 .11226E+04
      1.05    22.27    0.00     14.6 0.685E+01   7.29     4.86    7.29    0.00 .16220E+04
      1.33    25.88    0.00     16.1 0.622E+01   7.77     5.61    7.77    0.00 .21214E+04
      1.62    29.48    0.00     17.5 0.572E+01   8.14     6.28    8.14    0.00 .26208E+04
      1.91    33.09    0.00     18.7 0.536E+01   8.42     6.88    8.42    0.00 .31202E+04
      2.20    36.69    0.00     19.5 0.512E+01   8.62     7.43    8.62    0.00 .36196E+04
      2.49    40.30    0.00     20.1 0.498E+01   8.77     7.94    8.77    0.00 .41190E+04
      2.77    43.90    0.00     20.4 0.490E+01   8.85     8.42    8.85    0.00 .46185E+04
      3.06    47.51    0.00     20.8 0.482E+01   8.88     8.88    8.88    0.00 .51179E+04
 Cumulative travel time =        5117.8633 sec  (    1.42 hrs)

END OF MOD131: LAYER BOUNDARY/TERMINAL LAYER APPROACH
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** End of NEAR-FIELD REGION (NFR) **
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BEGIN MOD141: BUOYANT AMBIENT SPREADING

 Profile definitions:
   BV = top-hat thickness, measured vertically
   BH = top-hat half-width, measured horizontally in Y-direction
   ZU = upper plume boundary (Z-coordinate)
   ZL = lower plume boundary (Z-coordinate)
   S  = hydrodynamic average (bulk) dilution
   C  = average (bulk) concentration (includes reaction effects, if any)
   TT = Cumulative travel time

 Plume Stage 1 (not bank attached):
       X        Y       Z        S       C       BV       BH      ZU      ZL       TT
      3.06    47.51    0.00     20.8 0.482E+01   8.88     8.88    8.88    0.00 .51179E+04
      3.07    47.51    0.00     22.3 0.447E+01   7.15    11.84    7.15    0.00 .51392E+04
      3.09    47.51    0.00     23.5 0.425E+01   6.10    14.63    6.10    0.00 .51605E+04
      3.10    47.51    0.00     24.4 0.409E+01   5.45    17.02    5.45    0.00 .51818E+04
      3.11    47.51    0.00     25.2 0.396E+01   4.95    19.34    4.95    0.00 .52031E+04
      3.12    47.51    0.00     25.9 0.386E+01   4.58    21.47    4.58    0.00 .52244E+04
      3.14    47.51    0.00     26.5 0.377E+01   4.28    23.49    4.28    0.00 .52458E+04
      3.15    47.51    0.00     27.0 0.370E+01   4.03    25.40    4.03    0.00 .52671E+04
      3.16    47.51    0.00     27.5 0.364E+01   3.83    27.24    3.83    0.00 .52884E+04
      3.17    47.51    0.00     27.9 0.358E+01   3.65    29.00    3.65    0.00 .53097E+04
      3.19    47.51    0.00     28.3 0.353E+01   3.50    30.70    3.50    0.00 .53310E+04
      3.20    47.51    0.00     28.7 0.348E+01   3.37    32.35    3.37    0.00 .53523E+04
      3.21    47.51    0.00     29.1 0.344E+01   3.25    33.94    3.25    0.00 .53737E+04
      3.22    47.51    0.00     29.4 0.340E+01   3.14    35.48    3.14    0.00 .53950E+04
      3.23    47.51    0.00     29.7 0.337E+01   3.04    36.99    3.04    0.00 .54163E+04
      3.25    47.51    0.00     30.0 0.334E+01   2.96    38.45    2.96    0.00 .54376E+04
      3.26    47.51    0.00     30.2 0.331E+01   2.88    39.88    2.88    0.00 .54589E+04
      3.27    47.51    0.00     30.5 0.328E+01   2.80    41.27    2.80    0.00 .54802E+04
      3.28    47.51    0.00     30.8 0.325E+01   2.74    42.63    2.74    0.00 .55016E+04
      3.30    47.51    0.00     31.0 0.323E+01   2.67    43.96    2.67    0.00 .55229E+04
      3.31    47.51    0.00     31.2 0.320E+01   2.62    45.27    2.62    0.00 .55442E+04
      3.32    47.51    0.00     31.4 0.318E+01   2.56    46.54    2.56    0.00 .55655E+04
      3.33    47.51    0.00     31.7 0.316E+01   2.51    47.80    2.51    0.00 .55868E+04
      3.35    47.51    0.00     31.9 0.314E+01   2.46    49.03    2.46    0.00 .56081E+04
      3.36    47.51    0.00     32.0 0.312E+01   2.42    50.23    2.42    0.00 .56295E+04
      3.37    47.51    0.00     32.2 0.310E+01   2.38    51.42    2.38    0.00 .56508E+04
      3.38    47.51    0.00     32.4 0.308E+01   2.34    52.58    2.34    0.00 .56721E+04
      3.39    47.51    0.00     32.6 0.307E+01   2.30    53.73    2.30    0.00 .56934E+04
      3.41    47.51    0.00     32.8 0.305E+01   2.27    54.86    2.27    0.00 .57147E+04
      3.42    47.51    0.00     32.9 0.304E+01   2.23    55.97    2.23    0.00 .57360E+04
      3.43    47.51    0.00     33.1 0.302E+01   2.20    57.06    2.20    0.00 .57574E+04
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      3.44    47.51    0.00     33.2 0.301E+01   2.17    58.14    2.17    0.00 .57787E+04
      3.46    47.51    0.00     33.4 0.299E+01   2.14    59.20    2.14    0.00 .58000E+04
      3.47    47.51    0.00     33.5 0.298E+01   2.11    60.24    2.11    0.00 .58213E+04
      3.48    47.51    0.00     33.7 0.297E+01   2.09    61.28    2.09    0.00 .58426E+04
      3.49    47.51    0.00     33.8 0.296E+01   2.06    62.29    2.06    0.00 .58639E+04
      3.51    47.51    0.00     34.0 0.294E+01   2.04    63.30    2.04    0.00 .58853E+04
      3.52    47.51    0.00     34.1 0.293E+01   2.01    64.29    2.01    0.00 .59066E+04
      3.53    47.51    0.00     34.2 0.292E+01   1.99    65.27    1.99    0.00 .59279E+04
      3.54    47.51    0.00     34.4 0.291E+01   1.97    66.24    1.97    0.00 .59492E+04
      3.55    47.51    0.00     34.5 0.290E+01   1.95    67.16    1.95    0.00 .59705E+04
      3.57    47.51    0.00     34.6 0.289E+01   1.93    68.14    1.93    0.00 .59918E+04
      3.58    47.51    0.00     34.7 0.288E+01   1.91    69.04    1.91    0.00 .60132E+04
      3.59    47.51    0.00     34.8 0.287E+01   1.89    69.99    1.89    0.00 .60345E+04
      3.60    47.51    0.00     34.9 0.286E+01   1.87    70.90    1.87    0.00 .60558E+04
      3.62    47.51    0.00     35.1 0.285E+01   1.85    71.81    1.85    0.00 .60771E+04
      3.63    47.51    0.00     35.2 0.284E+01   1.84    72.67    1.84    0.00 .60984E+04
      3.64    47.51    0.00     35.3 0.284E+01   1.82    73.58    1.82    0.00 .61197E+04
      3.65    47.51    0.00     35.4 0.283E+01   1.80    74.45    1.80    0.00 .61411E+04
      3.67    47.51    0.00     35.5 0.282E+01   1.79    75.32    1.79    0.00 .61624E+04
      3.68    47.51    0.00     35.6 0.281E+01   1.77    76.14    1.77    0.00 .61837E+04
 Cumulative travel time =        6183.6865 sec  (    1.72 hrs)

-------------------------------------------------------------------------------------------------
 Plume is ATTACHED to RIGHT bank/shore.
   Plume width is now determined from RIGHT bank/shore.

 Plume Stage 2 (bank attached):
       X        Y        Z        S        C        BV       BH      ZU      ZL       TT
      3.68   -28.65    0.00     35.6 0.281E+01   1.77   152.32    1.77    0.00 .61837E+04
      3.80   -28.65    0.00     35.9 0.278E+01   1.72   158.30    1.72    0.00 .63932E+04
      3.92   -28.65    0.00     36.2 0.276E+01   1.68   164.04    1.68    0.00 .66027E+04
      4.04   -28.65    0.00     36.6 0.274E+01   1.64   169.56    1.64    0.00 .68122E+04
      4.16   -28.65    0.00     36.8 0.271E+01   1.60   174.87    1.60    0.00 .70217E+04
      4.28   -28.65    0.00     37.1 0.269E+01   1.56   180.01    1.56    0.00 .72312E+04
      4.40   -28.65    0.00     37.4 0.268E+01   1.53   184.98    1.53    0.00 .74407E+04
      4.52   -28.65    0.00     37.6 0.266E+01   1.50   189.80    1.50    0.00 .76502E+04
      4.65   -28.65    0.00     37.8 0.264E+01   1.48   194.48    1.48    0.00 .78597E+04
      4.77   -28.65    0.00     38.1 0.263E+01   1.45   199.03    1.45    0.00 .80692E+04
      4.89   -28.65    0.00     38.3 0.261E+01   1.43   203.46    1.43    0.00 .82787E+04
      5.01   -28.65    0.00     38.5 0.260E+01   1.41   207.77    1.41    0.00 .84882E+04
      5.13   -28.65    0.00     38.7 0.259E+01   1.38   211.98    1.38    0.00 .86977E+04
      5.25   -28.65    0.00     38.9 0.257E+01   1.36   216.10    1.36    0.00 .89072E+04
      5.37   -28.65    0.00     39.1 0.256E+01   1.35   220.12    1.35    0.00 .91166E+04
      5.49   -28.65    0.00     39.2 0.255E+01   1.33   224.05    1.33    0.00 .93261E+04
      5.61   -28.65    0.00     39.4 0.254E+01   1.31   227.90    1.31    0.00 .95356E+04
      5.73   -28.65    0.00     39.6 0.253E+01   1.30   231.67    1.30    0.00 .97451E+04
      5.86   -28.65    0.00     39.7 0.252E+01   1.28   235.37    1.28    0.00 .99546E+04
      5.98   -28.65    0.00     39.9 0.251E+01   1.27   239.00    1.27    0.00 .10164E+05
      6.10   -28.65    0.00     40.0 0.250E+01   1.25   242.56    1.25    0.00 .10374E+05
      6.22   -28.65    0.00     40.2 0.249E+01   1.24   246.06    1.24    0.00 .10583E+05
      6.34   -28.65    0.00     40.3 0.248E+01   1.23   249.50    1.23    0.00 .10793E+05
      6.46   -28.65    0.00     40.5 0.247E+01   1.21   252.88    1.21    0.00 .11002E+05
      6.58   -28.65    0.00     40.6 0.246E+01   1.20   256.20    1.20    0.00 .11212E+05
      6.70   -28.65    0.00     40.7 0.245E+01   1.19   259.47    1.19    0.00 .11421E+05
      6.82   -28.65    0.00     40.9 0.245E+01   1.18   262.70    1.18    0.00 .11631E+05
      6.94   -28.65    0.00     41.0 0.244E+01   1.17   265.87    1.17    0.00 .11840E+05
      7.06   -28.65    0.00     41.1 0.243E+01   1.16   268.99    1.16    0.00 .12050E+05
      7.19   -28.65    0.00     41.3 0.242E+01   1.15   272.08    1.15    0.00 .12259E+05
      7.31   -28.65    0.00     41.4 0.242E+01   1.14   275.11    1.14    0.00 .12469E+05
      7.43   -28.65    0.00     41.5 0.241E+01   1.13   278.11    1.13    0.00 .12678E+05
      7.55   -28.65    0.00     41.6 0.240E+01   1.12   281.07    1.12    0.00 .12888E+05
      7.67   -28.65    0.00     41.7 0.240E+01   1.11   283.99    1.11    0.00 .13097E+05
      7.79   -28.65    0.00     41.8 0.239E+01   1.11   286.87    1.11    0.00 .13307E+05
      7.91   -28.65    0.00     41.9 0.238E+01   1.10   289.71    1.10    0.00 .13516E+05
      8.03   -28.65    0.00     42.1 0.238E+01   1.09   292.52    1.09    0.00 .13726E+05
      8.15   -28.65    0.00     42.2 0.237E+01   1.08   295.30    1.08    0.00 .13935E+05
      8.27   -28.65    0.00     42.3 0.237E+01   1.08   298.04    1.08    0.00 .14145E+05
      8.40   -28.65    0.00     42.4 0.236E+01   1.07   300.75    1.07    0.00 .14354E+05
      8.52   -28.65    0.00     42.5 0.235E+01   1.06   303.43    1.06    0.00 .14564E+05
      8.64   -28.65    0.00     42.6 0.235E+01   1.06   306.08    1.06    0.00 .14773E+05
      8.76   -28.65    0.00     42.7 0.234E+01   1.05   308.71    1.05    0.00 .14983E+05
      8.88   -28.65    0.00     42.8 0.234E+01   1.04   311.30    1.04    0.00 .15192E+05
      9.00   -28.65    0.00     42.9 0.233E+01   1.04   313.87    1.04    0.00 .15402E+05
      9.12   -28.65    0.00     42.9 0.233E+01   1.03   316.41    1.03    0.00 .15611E+05
      9.24   -28.65    0.00     43.0 0.232E+01   1.02   318.92    1.02    0.00 .15821E+05
      9.36   -28.65    0.00     43.1 0.232E+01   1.02   321.42    1.02    0.00 .16030E+05
      9.48   -28.65    0.00     43.2 0.231E+01   1.01   323.88    1.01    0.00 .16240E+05
      9.61   -28.65    0.00     43.3 0.231E+01   1.01   326.32    1.01    0.00 .16449E+05
      9.73   -28.65    0.00     43.4 0.230E+01   1.00   328.57    1.00    0.00 .16659E+05
 Cumulative travel time =       16658.5625 sec  (    4.63 hrs)
 Plume is LATERALLY FULLY MIXED at the end of the buoyant spreading regime.

END OF MOD141: BUOYANT AMBIENT SPREADING
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 Due to the attachment or proximity of the plume to the bottom, the bottom
   coordinate for the FAR-FIELD differs from the ambient depth, ZFB = 0 m.
 In a subsequent analysis set "depth at discharge" equal to "ambient depth".
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BEGIN MOD161: PASSIVE AMBIENT MIXING IN UNIFORM AMBIENT

  Vertical diffusivity (initial value)   = 0.603E-02 m^2/s
  Horizontal diffusivity (initial value) = 0.754E-02 m^2/s

 Profile definitions:
   BV = Gaussian s.d.*sqrt(pi/2) (46%) thickness, measured vertically
      = or equal to layer depth, if fully mixed
   BH = Gaussian s.d.*sqrt(pi/2) (46%) half-width,
        measured horizontally in Y-direction
   ZU = upper plume boundary (Z-coordinate)
   ZL = lower plume boundary (Z-coordinate)
   S  = hydrodynamic centerline dilution
   C  = centerline concentration (includes reaction effects, if any)
   TT = Cumulative travel time

 Plume Stage 2 (bank attached):
       X        Y        Z        S        C        BV       BH      ZU      ZL       TT
      9.73   -28.65    0.00     43.4 0.230E+01   1.00   328.57    1.00    0.00 .16659E+05
    109.53   -28.65    0.00     43.4 0.230E+01   1.00   328.57    1.00    0.00 .18951E+06
    209.34   -28.65    0.00     43.4 0.230E+01   1.00   328.57    1.00    0.00 .36236E+06
    309.14   -28.65    0.00     43.4 0.230E+01   1.00   328.57    1.00    0.00 .53521E+06
    408.95   -28.65    0.00     43.4 0.230E+01   1.00   328.57    1.00    0.00 .70806E+06
    508.75   -28.65    0.00     43.4 0.230E+01   1.00   328.57    1.00    0.00 .88091E+06
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    608.56   -28.65    0.00    43.4 0.230E+01   1.00   328.57    1.00    0.00 .10538E+07
    708.36   -28.65    0.00    43.4 0.230E+01   1.00   328.57    1.00    0.00 .12266E+07
    808.17   -28.65    0.00    43.4 0.230E+01   1.00   328.57    1.00    0.00 .13995E+07
    907.98   -28.65    0.00    43.4 0.230E+01   1.00   328.57    1.00    0.00 .15723E+07
   1007.78   -28.65    0.00    43.4 0.230E+01   1.00   328.57    1.00    0.00 .17452E+07
   1107.59   -28.65    0.00    43.4 0.230E+01   1.00   328.57    1.00    0.00 .19180E+07
   1207.39   -28.65    0.00    43.4 0.230E+01   1.00   328.57    1.00    0.00 .20909E+07
   1307.20   -28.65    0.00    43.4 0.230E+01   1.00   328.57    1.00    0.00 .22637E+07
   1407.00   -28.65    0.00    43.4 0.230E+01   1.00   328.57    1.00    0.00 .24366E+07
   1506.81   -28.65    0.00    43.4 0.230E+01   1.00   328.57    1.00    0.00 .26094E+07
   1606.61   -28.65    0.00    43.4 0.230E+01   1.00   328.57    1.00    0.00 .27822E+07
   1706.42   -28.65    0.00    43.4 0.230E+01   1.00   328.57    1.00    0.00 .29551E+07
   1806.22   -28.65    0.00    43.4 0.230E+01   1.00   328.57    1.00    0.00 .31279E+07
   1906.03   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .33008E+07
   2005.84   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .34736E+07
   2105.64   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .36465E+07
   2205.45   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .38193E+07
   2305.25   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .39922E+07
   2405.06   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .41650E+07
   2504.86   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .43379E+07
   2604.67   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .45107E+07
   2704.47   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .46836E+07
   2804.28   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .48564E+07
   2904.08   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .50293E+07
   3003.89   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .52021E+07
   3103.69   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .53750E+07
   3203.50   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .55478E+07
   3303.31   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .57207E+07
   3403.11   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .58935E+07
   3502.92   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .60664E+07
   3602.72   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .62392E+07
   3702.53   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .64121E+07
   3802.33   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .65849E+07
   3902.14   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .67578E+07
   4001.94   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .69306E+07
   4101.75   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .71035E+07
   4201.55   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .72763E+07
   4301.36   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .74492E+07
   4401.17   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .76220E+07
   4500.97   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .77949E+07
   4600.78   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .79677E+07
   4700.58   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .81406E+07
   4800.39   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .83134E+07
   4900.19   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .84863E+07
   5000.00   -28.65    0.00    43.5 0.230E+01   1.00   328.57    1.00    0.00 .86591E+07
 Cumulative travel time =     8659133.0000 sec  ( 2405.31 hrs)

Note:
CORMIX is a steady state model and assumes discharge and ambient conditions do not vary
 over time. The predicted plume cumulative travel time exceeds 48 hours at this trajectory
 distance. Keep in mind that ambient and discharge conditions are likely to vary over
 large space and time scales. Predictions at such large space and time scales may be
 inconsistent with CORMIX modeling assumptions.

Please carefully evaluate your simulation results and limit model interpretation to space
 and time scales consistent with steady state assumptions and ambient schematization.

 Simulation limit based on maximum specified distance =   5000.00 m.
   This is the REGION OF INTEREST limitation.

END OF MOD161: PASSIVE AMBIENT MIXING IN UNIFORM AMBIENT
-------------------------------------------------------------------------------------------------
-------------------------------------------------------------------------------------------------
CORMIX1: Single Port Discharges              End of Prediction File
11111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111
```

Waste Load Allocation/MZ Request Form

MEMORANDUM

request number: 3785

To: **Chief, Technical Support Section**

From: (Responsible Engineer) David Hearn | In Branch/Section: Other

Date Submitted: 12/21/2020 | **4/30/2021** Date Required | FUND Code: 210

General Information

Receiving Waterbody: Black Warrior River | **River Basin:** Black Warrior

Previous Stream Name: Bankhead Lock and Dam Pool

***County:** Tuscaloosa | **Outfall Latitude:** 33.487778 (decimal degrees)

Outfall Longitude: -87.313889 (decimal degrees)

Modeling Information

Facility Name: White Oak Creek Coalbed Methane Project (Name of Discharger-WQ will use to file)

Applicant Name: Urban Oil & Gas Group, LLC

Previous Discharger Name

MasterID: 11223

Contact Name: Hansel Stewart

Phone Number: 205-759-1521

Permit Number: **AL0068390**

Model request submitted as part of permit application? ☐ Yes ☑ No

Date Permit application received by NPDES program:

Date Permit Expires: 8/31/2023

Permit Type:

Permit Status: Active

Type of Discharger: MINING

Type of Modeling being requested:

- Modeling with Data Collection (10 stations) ☐
- Modeling with Data Collection (5 stations) ☐
- WLA Modeling Review Only (per season) ☐
- MZ CORMIX Modeling Review Only ☑
- Desktop Model ☐
- Mixing Zone Model (CORMIX) ☐
- HCR Model Analysis ☐
- Additional Season (Desktop and/or/CORMIX Mod ☐

Current Permit Limits (mg/L)

CBOD5 summer:		CBOD5 winter:	
BOD5 summer:		BOD5 winter:	
NH3-N summer:		NH3-N winter:	
TON summer:		TON winter:	
TKN summer:		TKN winter:	
MinDO summer:		MinDO winter:	

Seasonal limits requested? ☐ Yes ☑ No

Number of Seasons Requested:

Existing Discharge Design Flow: MGD

Proposed Discharge Design Flow: **0.08314748** MGD

Note: The flow rates given should be those requested for modeling.

Waste Load Allocation/MZ Request Form (Cont)

Do other discharges exist that may impact the model? ☐ Yes ☑ No

If yes, impacting dischargers names.		**Impacting dischargers permit numbers.**	

Note: ADEM form 455 must be submitted with all mixing zone requests. This information is usually furnished by the applicant and/or consultant. The form can be printed using the link below. It can also be found on the ADEM web site under the "ADEM Forms" link.

http://www.adem.state.al.us/DeptForms/Form455.pdf

Attachments:

Photocopy of 7.5 minute series topographic map included with (discharge location marked)? ☑ Yes ☐ No

Comments

URBAN OIL & GAS GROUP, LLC

WHITE OAK CREEK
COALBED METHANE PROJECT - DSN001E

NPDES PERMIT NO. AL0068390

NPDES POINT SOURCE DISCHARGE STRUCTURE RIVER MODELING ENGINEERING REPORT

OCTOBER 2020

PREPARED BY

McGiffert
and Associates, LLC
SINCE 1949
CIVIL ENGINEERS

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NPDES POINT SOURCE DISCHARGE STRUCTURE
RIVER MODELING ENGINEERING REPORT

SECTION 1: INTRODUCTION

Urban Oil & Gas Group, LLC (URBAN) owns and operates coalbed methane wells in Tuscaloosa County, Alabama that require the disposal of produced water in accordance with a point source discharge to the Black Warrior River, a water of the State of Alabama. This discharge is permitted via an existing National Pollutant Discharge Elimination System (NPDES) permit issued by the Alabama Department of Environmental Management (ADEM) which protects water quality. ADEM worked with the coalbed methane industry to develop an NPDES permit with updated methodology and a new sound rationale to meet current water quality requirements and the Environmental Protection Agency's (EPA) standards.

ADEM has worked with the industry to develop a NPDES permit basis for all coalbed methane operations in the state of Alabama. The *National Pollutant Discharge Elimination System Permit Basis: Water Quality-based Limitations for the Coalbed Methane Industry* report (CBM basis report) was prepared by CH2M HILL for the Coalbed Methane Association of Alabama, and following review and input from various stakeholders including ADEM, the report was finalized in May 2012 and approved by ADEM. This report provides guidance and information concerning the permitting requirements for all coalbed methane facilities, and has established new water quality based permitting requirements to protect the receiving waters from high Chlorides and whole effluent toxicity (WET).

1.1 Coalbed Methane NPDES Approach

Historical Background

The NPDES permit for the coalbed methane (CBM) industry that was developed during the late 1980s and early 1990s has changed very little over the first 20 years. Several of the past permit requirements have provided invaluable data to aid in the current rationale utilized in the CBM permit basis report. The previous approach of protecting water quality was accomplished by developing and maintaining a real-time instream water monitoring system to detect for high levels of chlorides in the receiving water downstream of the mixing zone. Real-time conductivity monitoring was performed continuously during discharge and was correlated to instream chloride values. In addition, weekly downstream samples were taken to provide lab tested instream chloride values just downstream of the mixing zone. This data has been utilized in providing the supporting rationale as discussed later in this report.

The industry has also performed toxicity testing on a quarterly frequency for each existing discharge point permitted. This toxicity testing has been performed at an instream waste concentration (IWC) that was calculated based on provisions in the previous NPDES permit. The calculation of the IWC utilized in the toxicity testing varied between each point of discharge and was inversely affected by the effluent chloride concentration.

New Permitting Requirements

As noted in the CBM permit basis report, ADEM confirmed that the effluent parameter total chloride has a reasonable potential to exceed water quality standards. The EPA requires water quality models be performed during the permitting process to evaluate that pollutant parameters of concern are within acceptable levels instream at distances specified by regulations just beyond dilution and where mixing has occurred. The EPA's approved water quality modeling system known as Cornell Mixing Zone Expert System (CORMIX) is required as part of the current CBM

permitting process to simulate the site-specific discharge plume geometry and dilution in relation to regulatory mixing zone requirements. All CBM operators discharging to a river are required to model the point of discharge utilizing CORMIX and demonstrate that the instream concentration of total chlorides is less than 860 milligrams per liter (mg/L) for acute toxicity criterion and 230 mg/L for chronic toxicity criterion.

In addition, ADEM and EPA are required to implement the Clean Water Act's prohibition of the discharge of toxic pollutants in toxic amounts. Whole effluent toxicity testing measures the effluent water's effects on specific test organisms' ability to survive, grow, and reproduce. While toxicity testing has historically been performed as required by past CBM industry permits, the method by which to calculate the instream waste concentration (IWC) is now calculated by utilizing CORMIX modeling. This requirement develops a hydrodynamic mixing zone model and provides the site specific IWC that will be used in the biomonitoring toxicity testing to demonstrate compliance with WET.

1.2 Facility Information

Permittee Information

Legal Business Name: Urban Oil & Gas Group, LLC

Responsible Official: Brent Kirby Phone: (972) 543-8823

Title: Director of Land/Legal Fax: NA

Address: 1000 E. 14th Street, Suite 300

Plano, TX 75074

Permittee Name: Urban Oil & Gas Group, LLC

Facility/Discharge Name: White Oak Creek Coalbed Methane Project / DSN001E

NPDES Permit No.: AL0068390

Receiving Water: Black Warrior River

County: Tuscaloosa & Walker Counties

Facility Location: Section 7, Township 18 South, Range 7 West

Latitude/Longitude of Discharge Point: N 33°29'16.33"; W 87°18'50.44"
Method for determining latitude/longitude: Field Survey

Discharge Information

URBAN has two permitted points of discharge in the White Oak Creek Coalbed Methane Project NPDES permit. This discharge is DSN-001E and is located upstream of the Bankhead Lock and Dam in the Bankhead Pool of the Black Warrior River. This facility includes water treatment ponds that are used to treat the produced water prior to being discharged through an outfall pipe that is weighted on the bottom of the Black Warrior River. A facility area map has been provided in *Appendix B.*

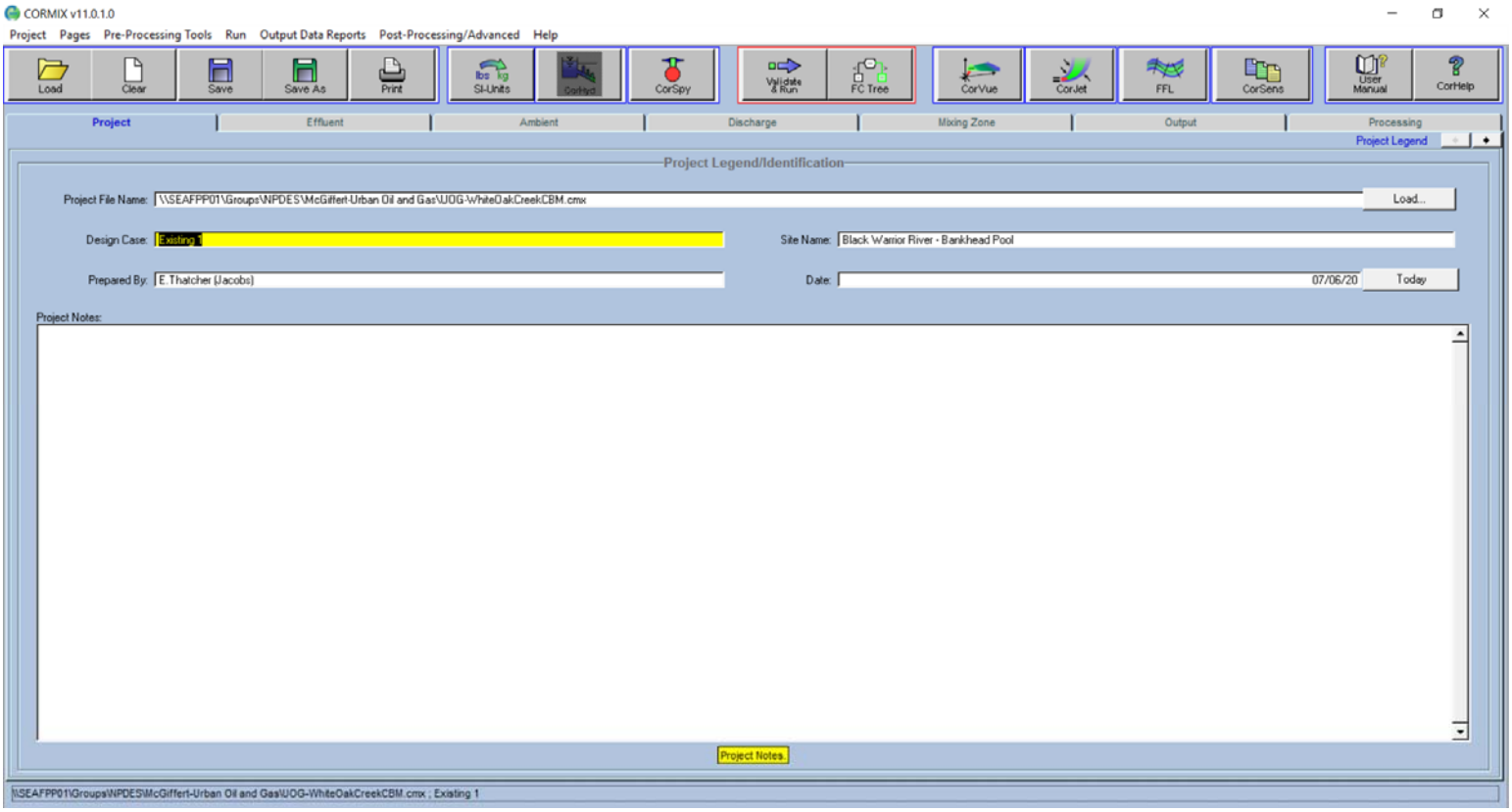
1.3 CORMIX Modeling Software

ADEM requires the modeling of the subsurface discharge of produced water within the river to assess water quality impacts by simulating the movement of effluent pollutants by predicting plume geometry and boundary interaction during instream mixing. The EPA approved water quality modeling software CORMIX includes three major subsystems that are used to predict the instream dilution at the acute or chronic mixing zone. The software modeling options include:

- CORMIX1 – used to predict environmental impacts of submerged single port discharges
- CORMIX2 – used to predict plume characteristics of submerged multiport discharges
- CORMIX3 – used to analyze positively and neutrally buoyant surface discharges

This discharge structure is submerged in the river and CORMIX1 was used during the analysis and engineering redesign of the discharge structure and new port. The CORMIX software modeling uses empirically derived curve fit equations to make the dilution predictions at the required distances from the discharge as specified by ADEM and EPA mixing regulations.

The following is a screen shot from the CORMIX *Project* tab:



SECTION 2: MODELING APPROACH AND INPUTS

The modeling of a discharge in the river requires numerous site-specific information as detailed in the CBM basis report in section 2.3. The existing river conditions are required as CORMIX model inputs that include low flow river data and any background pollutants of similar concern to those found in the effluent. Specific input values for the discharged effluent are also needed to run the model and significantly affect the plume model and dilution when analyzing the mixing within the river. The discharge structure configuration, size, and location within the river geometry provides very important input data to the model and in many cases provides the only variables available for adjustment when a redesign of the point of discharge is required to achieve acceptable IWC levels. The ADEM form 455 that is required by ADEM to perform or review CORMIX models is attached in *Appendix C*.

2.1 Ambient River Conditions

River Steady State Low Flow

This outfall DSN-001E discharges to the Black Warrior River in the Bankhead Pool and the low flow river conditions used in the modeling are consistent with standard ADEM modeling procedures. The Black Warrior River's low flow rates were provided by ADEM for the outfall location which were calculated based on various methods. This model was run using the provided 1Q10 low flow data which is the lowest flow occurring during any 1 day over a 10-year period and calculated by ADEM as 75% of the 7Q10 flow as provided by ADEM personnel. The use of 1Q10 flow data in the model is required as determined based on the applicable toxicity criterion.

The EPA's *Technical Support Document for Water Quality Based Toxicity Limitations* indicates that acute or chronic toxicity guidelines should be followed during modeling based on the limiting dilution of the effluent within the receiving water. Rivers that provide a dilution of greater than 100:1 are considered "stream dominated" and acute toxicity criterion applies. The following equation was used to calculate the dilution ratio for all CBM river discharges:

$$\frac{\text{7Q10(flow)} + \text{Effluent(flow)}}{\text{Effluent (flow)}} = \textit{Dilution Ratio}$$

Thus, all of the CBM points of discharge within the river are required to comply with the acute toxicity criterion which means the model must utilize the 1Q10 flow and the IWC will be defined at the zone of initial dilution (ZID).

Instream Background Chlorides

Over the past 20 plus years, CBM operators have been discharging produced water in accordance with their NPDES permits which required weekly downstream total chloride sampling. This historical data was taken from previously submitted discharge monitoring reports (DMRs) and provided to ADEM in a summary for review. The data analyzed was from 2016 to 2019 for the existing CBM point of discharge. The data provided valuable historical information concerning the background chloride levels for the river upgradient of the POD. As noted in the CBM basis report, ADEM defined the 90th percentile of this historical instream chloride concentration measured by the upstream POD as the background chloride concentration for the next operating downstream POD. The 90th percentile background or upstream value for this existing POD was calculated in accordance with the process developed in the CBM basis report.

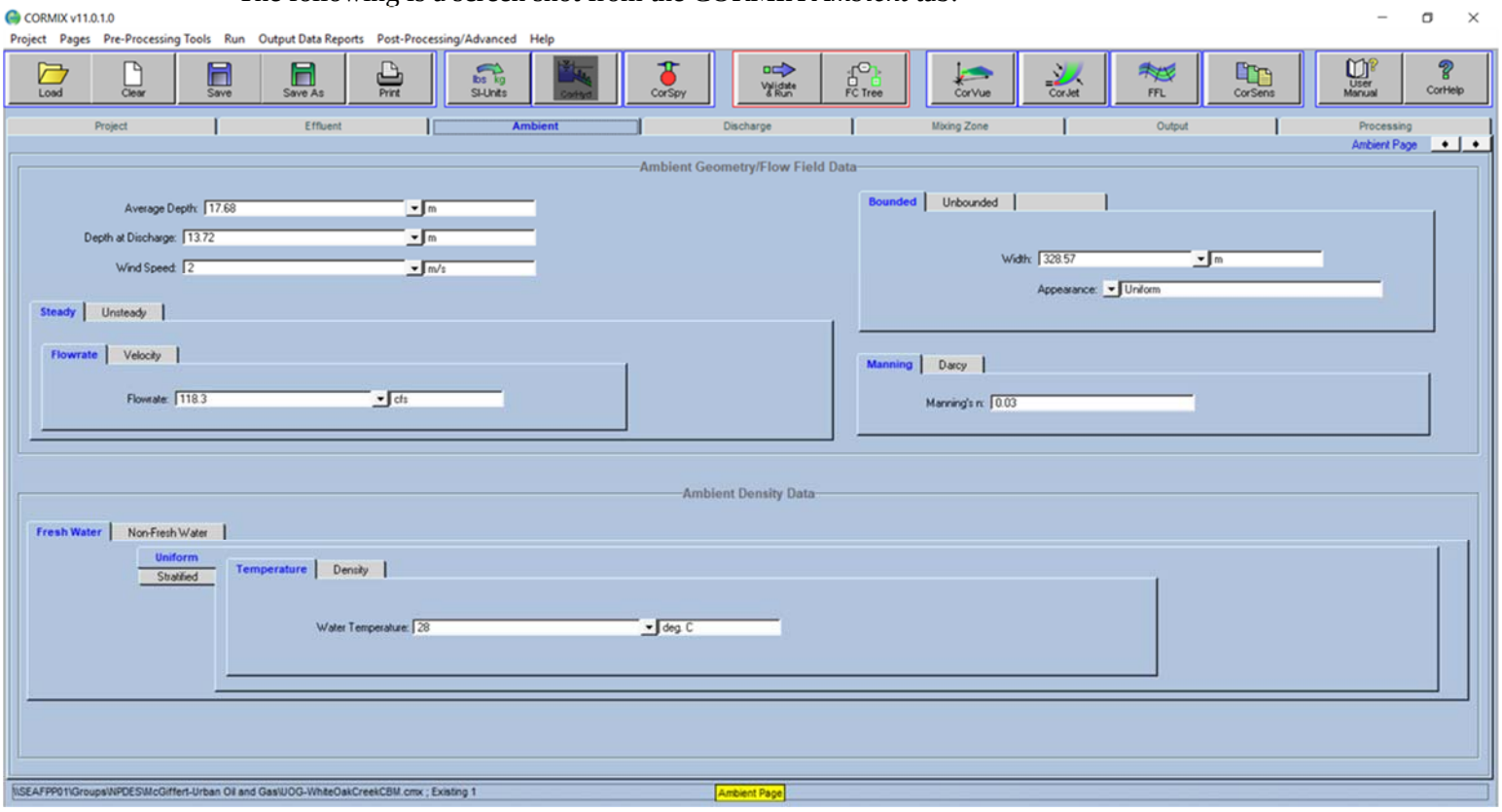
2.2 River Geometry/Surveyed Inputs

Although the existing POD was installed many years prior to this required modeling, some drawings and plans were available from the original design and previously submitted re-design. However, attempts to construct the required permitted diffuser modifications identified significant discrepancies from the submitted plans that prohibited the ability to perform the improvements as designed. This information provided limited location data and poor accuracy of the outfall along the river bottom. Thus, the existing POD was located by a diver and field surveyed to create accurate drawings that were used in the modeling and modification/design process.

The White Oak Creek facility DSN001E point of discharge was field surveyed on April 5th 2019 by McGiffert And Associates, LLC (MAA) personnel. A boat with surveying equipment was used to physically record the location of the outfall structure on the bottom of the river with the assistance of Southern Underwater Construction diver and personnel. Existing subsurface river bottom elevation information was also obtained along the outfall structure. The water elevation and existing bank location were also field surveyed.

U.S. Corps of Engineers (USACE) river bottom bathymetric survey information was obtained for the full cross-sectional width of the Black Warrior River at the location of POD. The USACE river bottom sounding data was married with the actual field survey data to provide the additional information required to create the POD discharge structure plan and profile drawing that is attached in *Appendix D*.

The following is a screen shot from the CORMIX *Ambient* tab:



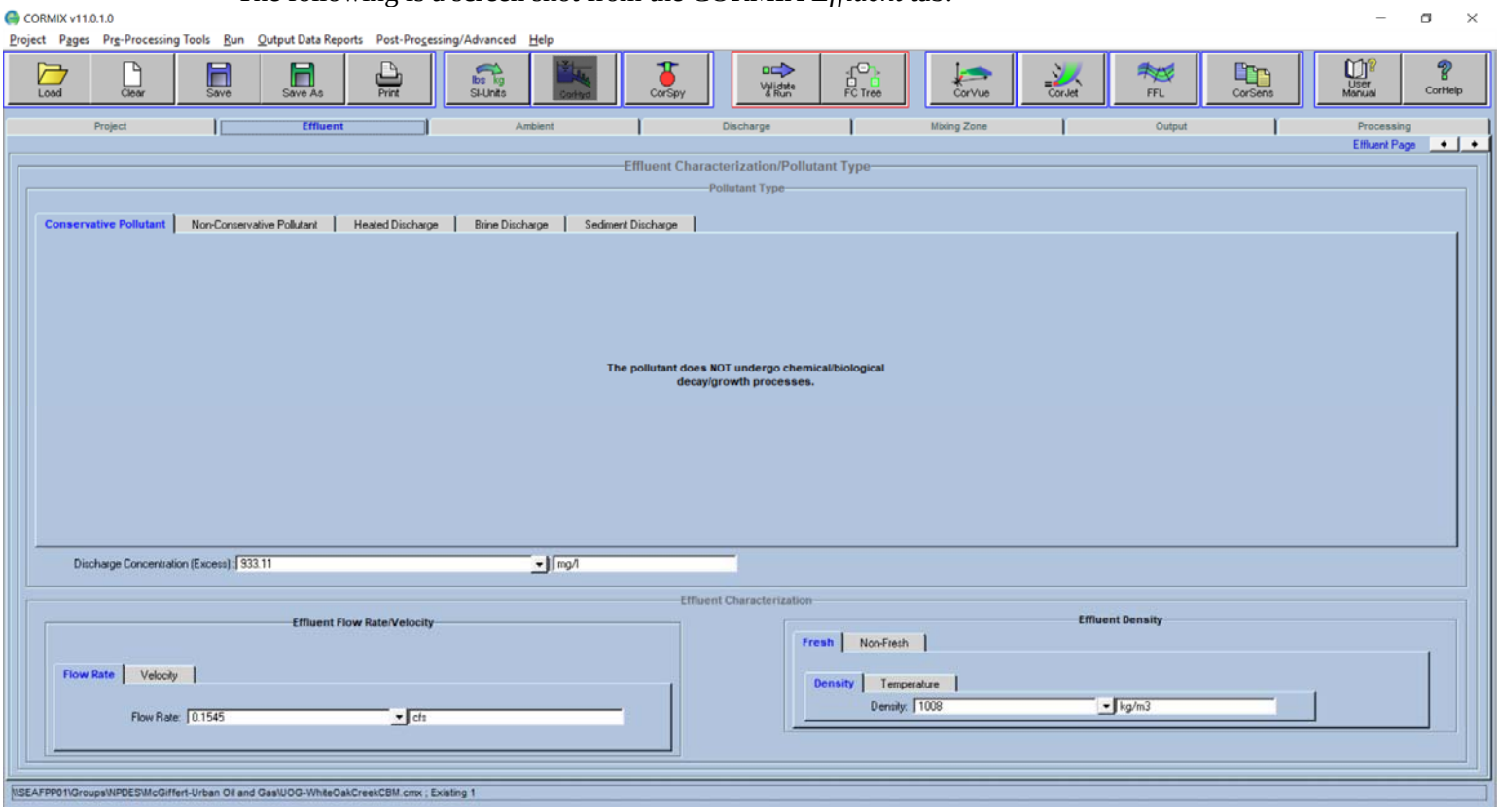
2.3 Effluent Characteristic Inputs

The produced water that is discharged to the river at the existing POD is continuous and has been historically recorded and submitted on the DMRs as required by the past NPDES permit requirements. Data from 2016 to 2019 was analyzed by MAA during the analysis and preparation of the discharge structure evaluation and design. The average flow was calculated for this discharge point and submitted to ADEM for review to use in the CORMIX modeling. ADEM has approved the 90th percentile average over the last three years to closely represent the current and future anticipated discharge rate.

Similarly, the existing POD historical discharge data for effluent total chloride concentration was evaluated. The CBM basis report that ADEM approved for guidelines to follow during CBM discharge modeling, requires that the 90th percentile of the historical DMR weekly total chloride concentration in the effluent be utilized in the CORMIX modeling. Data was obtained and submitted to ADEM for approval that included the last three years from 2016 to 2019.

A sample of the effluent discharge water was taken following treatment in the ponds and just prior to entering the discharge pipe that flows to the river. The sample was taken during typical operating conditions. The sample was tested by TTL, Inc. in accordance with EPA standard test methods.

The following is a screen shot from the CORMIX *Effluent* tab:



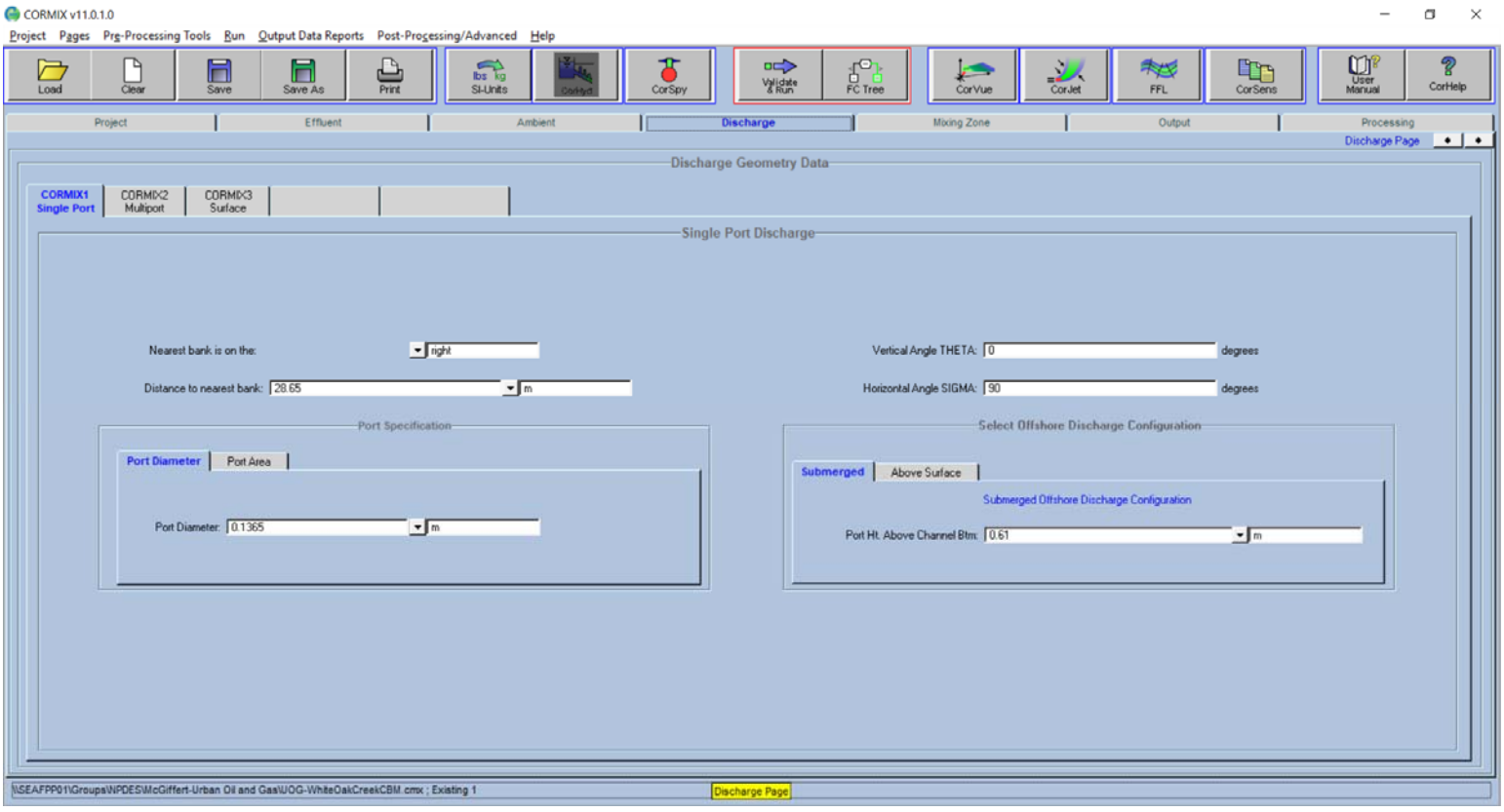
2.4 Discharge Structure Inputs

The existing point of discharge consists of a submerged pipe that is weighted and lies along the river bottom. The structure configuration and location within the river has a significant impact on the mixing performance within the river. This information is a vital part of the modeling inputs and impacts the CORMIX results. Observations by a diver from Southern Underwater Construction observed the diffuser supply pipeline and recorded information concerning the condition, location, and depth. The actual diffuser discharge structure configuration including the number, size, and location of any ports or nozzles. The previous diffuser design submitted by the past permittee and their engineer noted that there were 10 each 2" nozzles along the diffuser spaced at ten feet. However, the diver indicated that the supply pipe became buried and none of the existing nozzles could be located. This resulted in the new re-design developed and detailed in this engineering report.

The new proposed discharge structure extends nearly perpendicular from the northern bank of the river with a single discharge nozzle located at the end of the discharge pipe is proposed and has been evaluated. The CORMIX 1 modeling was performed utilizing the proposed configuration to evaluate compliance with the water quality criteria discussed in this report. This new modeling design yielded results that meet the engineering recommendations and client established factor of safety and target IWC.

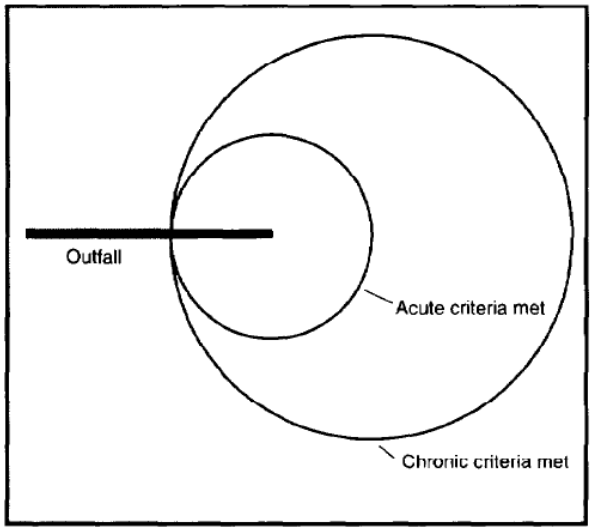
The drawings located in *Appendix D* show the existing diffuser pipeline location and the proposed required modification based on the new single port discharge structure configuration.

The following is a screen shot from the CORMIX *Discharge* tab:



SECTION 3: MIXING ZONE REQUIREMENTS

The mixing zone calculations for this facility are required to follow the acute toxicity guidelines because the dilution ratio is greater than 100 as previously discussed in section 2.1. The EPA's Technical Support Document for Water Quality-Based Toxics Control (EPA/505/2-90-001) discusses the two parts of the mixing zone. These are known as the zone of initial dilution (ZID) and the mixing zone (MZ) as shown in the following figure:



The ZID is shown above as the first area immediately around the point of discharge at the outfall. The acute criteria must be met at the edge of the ZID as required by ADEM's General Guidance for Writing Water Quality Based Toxicity Permits. The instream chloride concentration at this ZID distance in all spatial directions must be less than 860 mg/L. If the dilution ratio was less than 100 then the chronic toxicity criteria must be met at the edge of the second zone above known as the MZ.

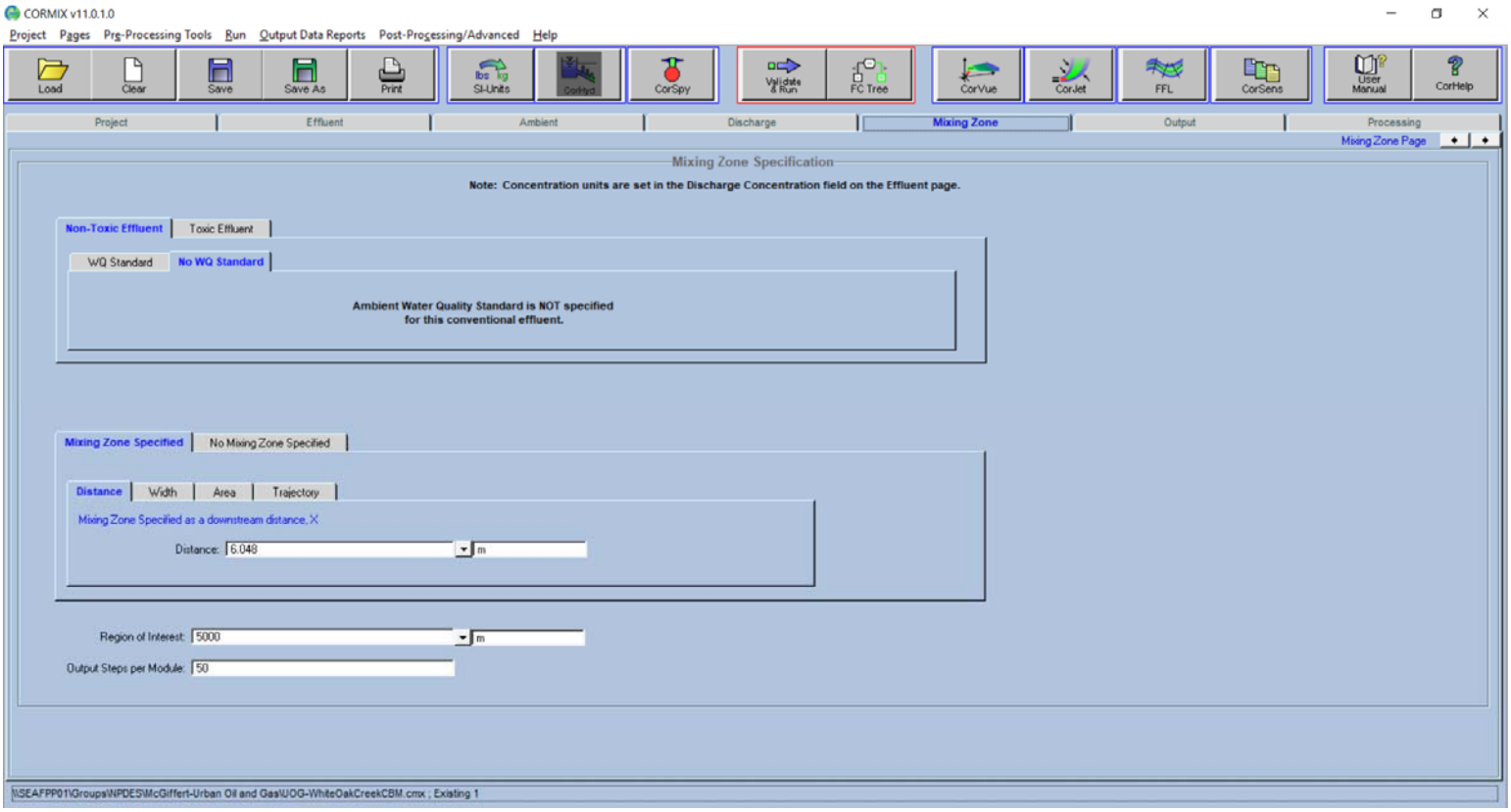
3.1 Mixing Zone Criteria

The size or distance from the end of the outfall or nozzle to the edge of the MZ is defined by the following criteria as required by regulations in ADEM Admin. Code r. 335-6-6-.15. The smallest distance determined by each of the following three criteria establishes the MZ distance:

1. MZ shall not exceed a width of 50 percent of the stream width
2. MZ shall not exceed a length of five times the width defined above
3. MZ shall not exceed an area of 25 percent of the stream cross-sectional area

Calculations for each of the above criteria were performed, and due to the large cross-sectional area of the Black Warrior River the limiting distance of the MZ was 50 percent of the stream width. While acute toxicity criteria apply for this facility as previously discussed, the MZ was evaluated and used during the calculation of the ZID distance in section 3.2.

The following is a screen shot from the CORMIX *Mixing Zone* tab:



CORMIX was utilized as a whole effluent model and the MZ was specified as a downstream distance X as shown above.

3.2 Zone of Initial Dilution Criteria

The size or distance from the end of the outfall or nozzles to the edge of the ZID is defined by the following criteria as required by regulations in ADEM Admin. Code r. 335-6-6-.03. The smallest distance determined by each of the following three criteria establishes the ZID distance:

1. Fifty times the discharge length scale (DLS) in any spatial direction, where the DLS is the square root of the cross-sectional area of any discharge outlet
2. Five times the water depth in any horizontal direction from the discharge outlet
3. No more than ten percent of the distance from the edge of the outfall structure to the leading edge of the mixing zone in any spatial direction

This discharge structure was modeled in CORMIX utilizing various discharge outlet sizes ranging 6" and with varying outlet spacing, number of outlets, and horizontal/vertical direction. In every scenario analyzed, the DLS was the controlling factor for establishing the ZID distance in all spatial directions. This is again due to the natural geometry of the river having a large width and depth. The calculated ZID distance for the proposed designed modification is 6.048 meters as shown in the CORMIX modeling output results in *Appendix E*.

3.3 Target Instream Waste Concentration

The CORMIX modeling was performed as required for the whole effluent toxicity requirement acute criterion. Therefore, the discharge concentration (excess) input for the model was set to 933.11 mg/l, which is the 90^{th} percentile chloride effluent concentration minus the instream upgradient concentration. This modeled the total volume of the effluent to analyze the type of plume that is expected to develop in the river and then predict concentration at the ZID. The resulting highest instream concentration of the total effluent at this ZID distance in all spatial directions is defined as the IWC and will be utilized in the permit required toxicity testing to be performed quarterly.

A target IWC was established by performing a definitive acute toxicity test on the discharge effluent. A sample was taken during normal operating conditions to effectively determine the concentration of the total effluent that will create toxic conditions for living organisms in the river. The test method used was in accordance with standard ADEM and EPA requirements and the two species used for the test were Pimephales promelas and Ceriodaphnia dubia. While the results varied somewhat between the two samples, the lowest concentration of effluent created toxic effects to the Ceriodaphnia for both samples.

Following discussions with URBAN, a target value less than the lowest reported toxic percentage was established to provide an additional factor of safety during the redesign and modification of the discharge structure.

SECTION 4: MODELING RESULTS AND CONCLUSIONS

The initial modeling, performed by the previous permittee and design engineer, for this discharge structure utilized CORMIX 1 to evaluate the performance and mixing ability of the existing diffuser conditions. Old drawings indicated an original design that, installed over 20 years ago, consisted of 10 individual 2" HDPE nozzles alternating up/down-stream at 45 degrees. While this design showed an unacceptable IWC based on CORMIX 1 modeling, a new design was developed by the previous permittee to include removing all the upstream ports. During planned modifications, the instream diver observations indicated that all of these potential existing ports were completely covered with natural river bottom sedimentation. The location of these nozzles couldn't be verified or found at a depth of 88' below the water surface where the main pipe manifold was last located prior to being covered with sediment. Based on the diffuser's existing condition, several alternatives and modifications were analyzed based on constructability and cost. A final option was evaluated in the CORMIX model presented in this report which achieves compliance with the model boundary conditions and an acceptable IWC below the target concentration.

A new discharge structure configuration consisting of one 6-inch nozzle utilizing the end of the existing 6" discharge pipe was eventually modeled. The proposed single 6" nozzle was modeled horizontally level and perpendicular to downstream flow. This nozzle alignment allows for mixing within the low velocity river. In addition, the single larger outlet diameter increased the DLS and resulted in a greater ZID distance. Based on the effluent discharge flow and the exit velocity, adequate mixing was able to occur within the acute criterion zone and the resulting IWC at the edge of the ZID determined by the CORMIX 1 modeling of the single port was 15.7 percent and below the target value of 30 percent.

The EPA suggested water quality acute criterion limit for the instream total chloride concentration at the edge of the ZID is 860 mg/L. The upstream or background chloride concentration of the river at this discharge structure is defined as 36.4 mg/L, while the effluent chloride concentration is 8096 mg/L. The resulting instream chloride concentration at the ZID is calculated by the following formula:

$$ZID\ Chloride\ Conc = (Chloride\ Eff \times IWC) + Chloride\ Up$$

The following chart shows the modeling results for the proposed discharge structure modifications:

NPDES Permit	Outfall	Facility Name	River Mile	$7Q_{10}$ (cfs)	$1Q_{10}$ (cfs)	90th %ile Upstream Chlorides (mg/L)	Average Effluent Flow (cfs)	90th %ile Cl Effluent (mg/L)	CORMIX IWC (%)	Resulting Chloride Conc. at ZID (mg/L)
AL0068390	DSN001	White Oak Creek	377.6	157.7	118.3	9.09	0.1545	942.2	15.71%	146.6

A full report of the CORMIX output file is attached in *Appendix E* that gives all the model input details as well as the resulting layer boundary/terminal layer approach and the jet/plume near-field mixing region used to interpolate the IWC at the ZID distance. The proposed redesign and associated discharge structure modifications are shown on the plan and profile drawing in *Appendix D*. The other two existing discharge pipes with nozzles are shown but noted as inoperable and no discharge will occur at these locations.

SECTION 5: PREPARATION AND CERTIFICATION

MAA has developed this engineering report to summarize the performed field survey gathering, with the necessary sample testing, and the CORMIX modeling and discharge structure analysis. Engineering support and CORMIX modeling processing was performed by JACOBS personnel. The information gathered and provided within this report was performed in accordance with standard engineering practices and is intended to meet the requirements of ADEM and the guidelines developed and approved in the CBM basis report.

Prepared by:

McGIFFERT AND ASSOCIATES, LLC

Q. Hansel Stewart
Registered Professional Engineer
AL. Reg. No. 30097

Date: 12/18/20

CORMIX Modeling and Consulting Performed by:

Jacobs

Lynn Sisk, PE
Registered Professional Engineer
AL. Reg. No. 17316

APPENDIX A
References

REFERENCES:

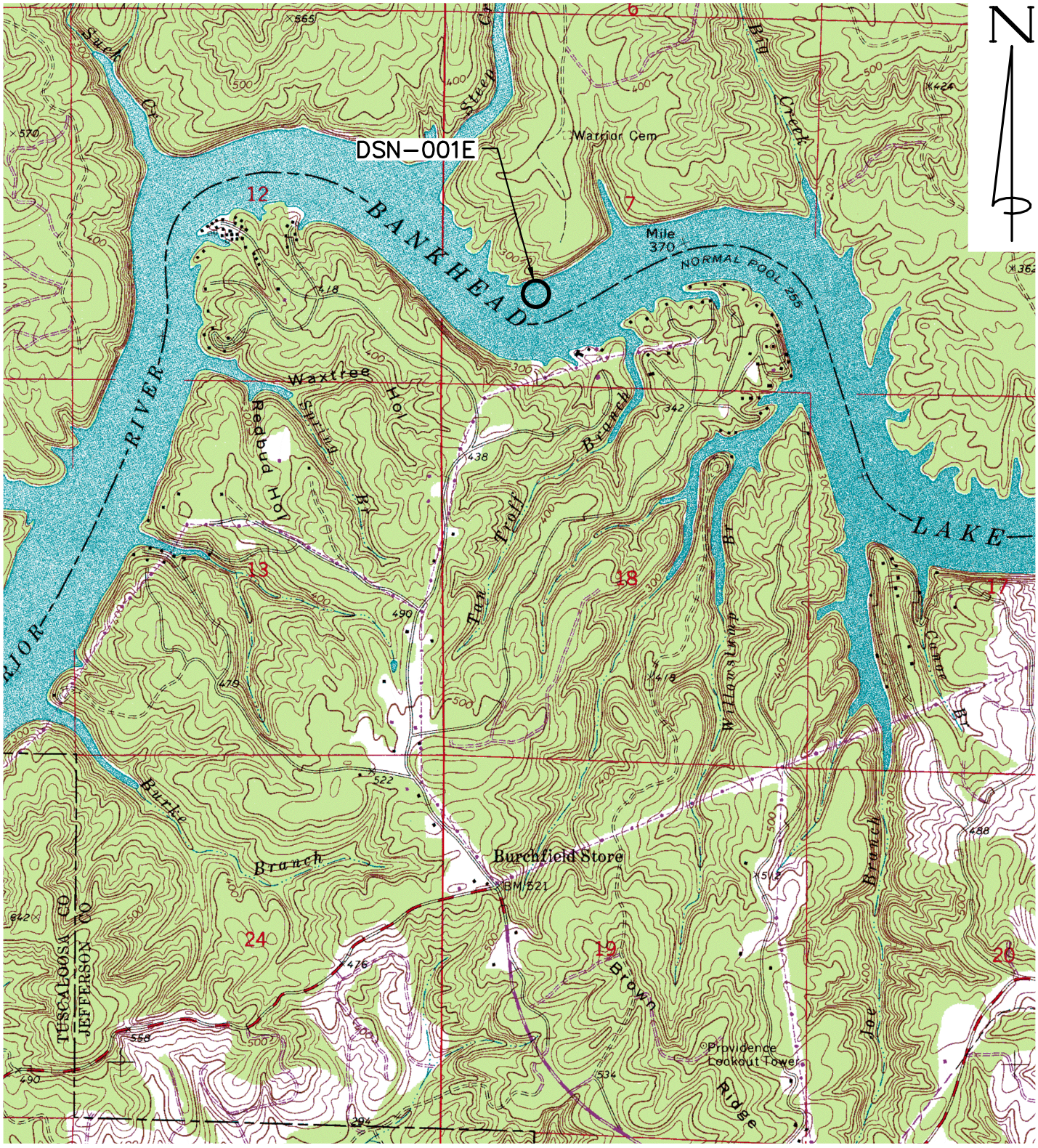
Alabama Department of Environmental Management. Revised 2007. *General Guidance for Writing Water Quality Based Toxicity Permits*

Alabama Department of Environmental Management. Not Published. *Diffuser Model Protocol to Determine Whole Effluent Toxicity (Wet) Requirements. ZID/Mixing Zone Criteria*

Coalbed Methane Association of Alabama. May2012. *National Pollutant Discharge Elimination System Permit Basis: Water Quality-based Limitations for the Coalbed Methane Industry*

U.S. Environmental Protection Agency. 1991. *Technical Support Document for Water Quality-Based Toxics Control (EPA/505/2-90-001)*

APPENDIX B
Facility Area Map



REPRODUCTION OF A PORTION OF US GEOLOGICAL SURVEY QUADRANGLE SHEET BIRCHFIELD STORE, ALABAMA

McGiffert and Associates, LLC
SINCE 1949
CIVIL ENGINEERS
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URBAN OIL & GAS GROUP, LLC

WHITE OAK CREEK – CMP
POINT OF DISCHARGE DSN–001E

NPDES PERMIT NO.: AL0068390

TUSCALOOSA COUNTY SEC. 7, T 18 S, R 7 W ALABAMA

AREA MAP

REVISION

DATE	DESCRIPTION	BY

SCALE: 1"=2000'
DATE OF FIELD SURVEY: N/A
FB. N/A PG. N/A
DRAWN BY: D D H
JOB No. 15–3037
FILE NAME: URBAN–WOC_001–AM
SHEET No. 1 of 1
CHECKED BY: QHS
DWG. No. 465–20

APPENDIX C
ADEM Form 455

REQUIRED INFORMATION FOR MIXING ZONE MODELING

GENERAL INFORMATION

1. Applicant Name: Urban Oil & Gas Group, LLC
2. Permit No.: AL0068390
3. Project Name (if different from applicant): White Oak Creek CBM Project
4. Contact name and phone number: Hansel Stewart (205) 759-1521
5. Date submitted: 10/29/2020
5. Facility type (new, existing or upgrade): Existing

AMBIENT CONDITIONS

1. Receiving waterbody: Black Warrior River (Bankhead Pool)
2. Width of waterbody at discharge point (m): 328.57 m
3. Depth of waterbody at discharge point (m): 13.72 m
4. Average depth of waterbody at discharge point (m): 17.68 m

DISCHARGE TYPE:

Submerged endpipe or submerged multiport diffuser? submerged endpipe

Effluent Density (kg/m^3): 1008 kg/m^3

Note: Fill out box A below for endpipe discharges; box B for diffuser discharges.

A. DISCHARGE CONDITIONS FOR SUBMERGED ENDPIPE DISCHARGES

1. Nearest bank (right or left) to the outfall looking downstream: right
2. Distance from nearest bank to discharge (m): 28.65 m
3. Endpipe diameter (m): 0.1365 m
4. Contraction ratio (if known): N/A
5. Height of discharge above stream bottom (m): 0.61 m
6. Effluent flow rate (mgd): 0.09985 mgd (0.1545 cfs) (Average from July 2016 thru July 2019)

B. DISCHARGE CONDITIONS FOR SUBMERGED MULTIPORT DIFFUSERS

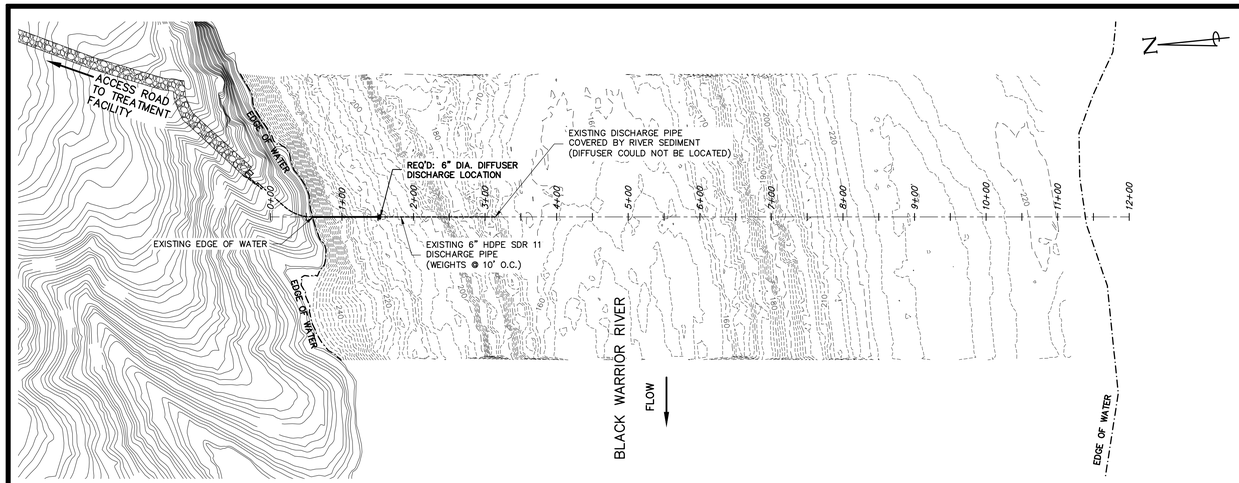
NOTE:
Diffuser length is defined as the distance between the first and last diffuser ports.

1. Diffuser length (m): _____
2. Nearest bank (right or left) to the outfall looking downstream: _____
3. Distance from nearest bank to first diffuser port (m): _____
4. Total number of ports: _____
5. Diameter of a single port (m): _____
6. Distance between adjacent ports (i.e., port spacing, m): _____
7. Height of ports above stream bottom (m): _____
8. Port contraction ratio (if known): _____
9. Diameter of diffuser manifold (m): _____
10. Effluent flow rate (mgd): _____

SPECIAL REQUIREMENTS

1. Please submit a map displaying the outfall location along with the appropriate latitude/longitude coordinates.
2. Please submit the appropriate engineering plans that depict the outfall configuration.

APPENDIX D
Discharge Structure Plan and Profile Drawing



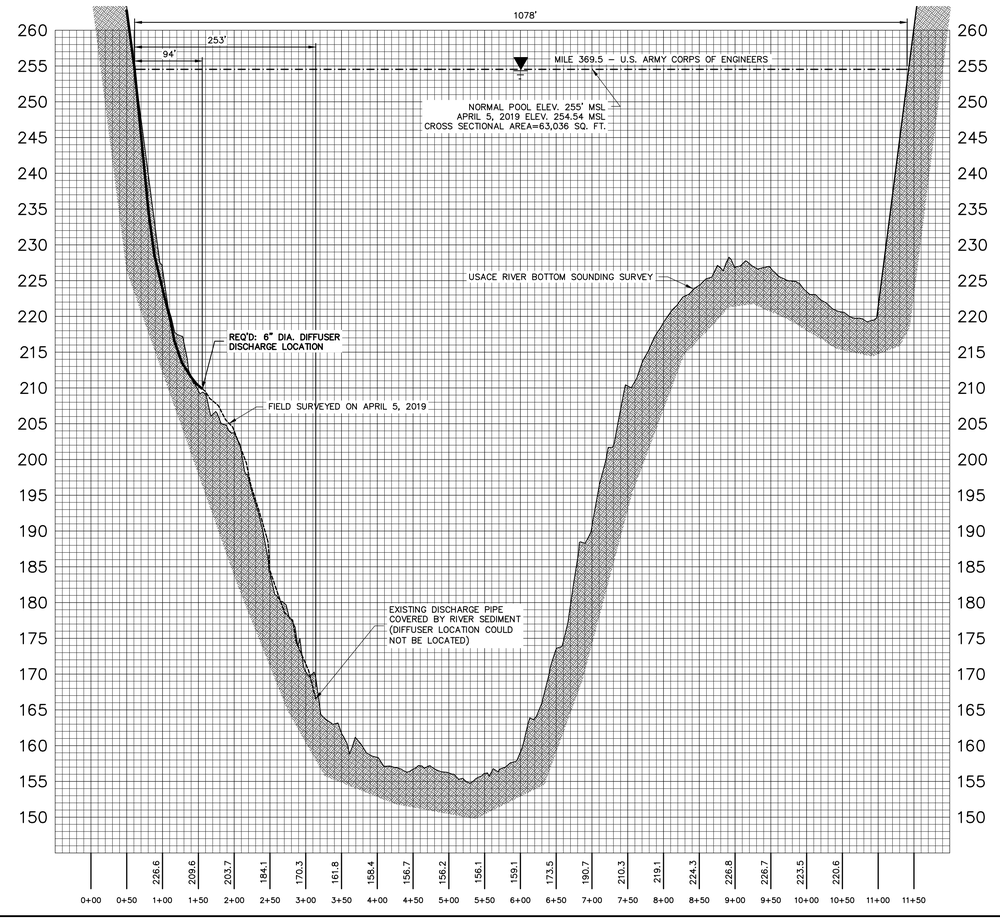
SURFACE MAP

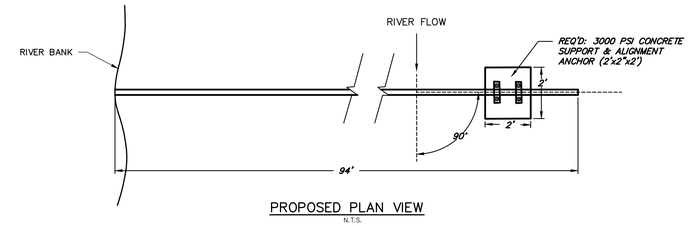
SCALE: 1"=100'
LATITUDE: 33°29'18.66"N
LONGITUDE: 87°18'50.37"W
RIVER MILE: 369.5

AERIAL VIEW MAP

SCALE: 1"=200'

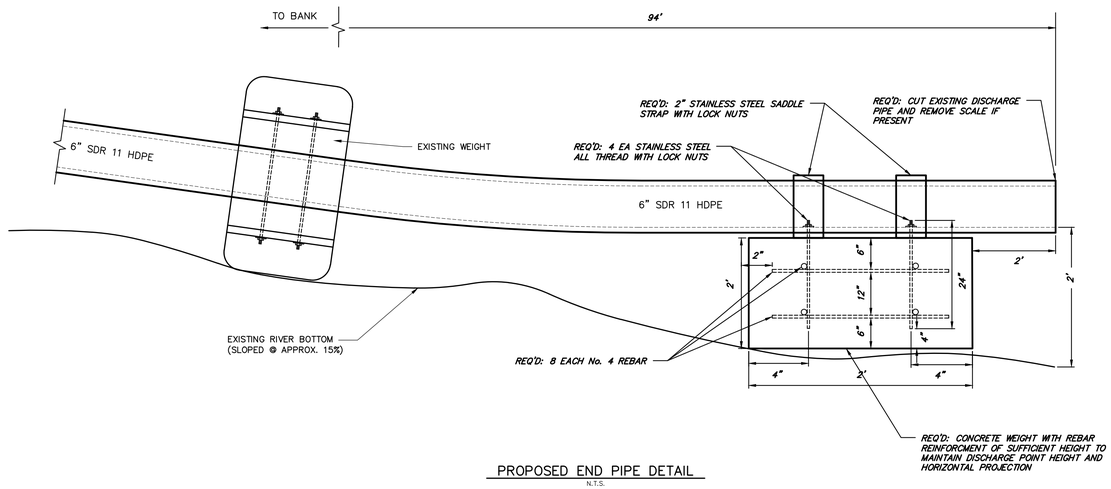
SCALE
HORIZONTAL: 1"=100'
VERTICAL: 1"=10'





PROPOSED PLAN VIEW

N.T.S.



PROPOSED END PIPE DETAIL

N.T.S.

NOTE:
THE DISCHARGE STRUCTURE LOCATION, SIZE, CONFIGURATION, AND SHOWN DIMENSIONS WERE OBTAINED FROM THE FIELD WITH THE ASSISTANCE OF A DIVER AND STANDARD ENGINEERING PRACTICES.

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REVISION		
DATE	DESCRIPTION	BY

URBAN OIL AND GAS GROUP, LLC

NPDES PERMIT NO. AL0068390–WHITE OAK CREEK CBM PROJECT

WESTERN TREATMENT FACILITY DIFFUSER-DSN-001E

TUSCALOOSA COUNTY Sec. 7 T.18.S R.7.W ALABAMA

FILE NAME: Urban–WOC–WTF–Diffuser	JOB No. 19–3019	SHEET No. 1 of 1	
DATE OF FIELD SURVEY: 4–5–19	DRAWN BY: W T B	CHECKED BY: QHS	DWG. No. 322–19
FIELD BOOK: 1318–4	SCALE: HOR. 1" = 100' VERT. 1" = 10'		
PAGE: 8			

APPENDIX E
CORMIX Modeling Results

```
CORMIX SESSION REPORT:
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
                      CORMIX MIXING ZONE EXPERT SYSTEM
                          CORMIX Version 11.0GTS
                       HYDRO1:Version-11.0.1.0  August,2019
SITE NAME/LABEL:                Black Warrior River - Bankhead Pool
  DESIGN CASE:                  Existing 1
  FILE NAME:                    \\SEAFPP01\Groups\NPDES\McGiffert-Urban Oil and Gas\UOG-WhiteOakCreekCBM.prd
  Using subsystem CORMIX1:     Single Port Discharges
  Start of session:             07/06/2020--14:19:27
*****************************************************************************
SUMMARY OF INPUT DATA:
-----------------------------------------------------------------------------
AMBIENT PARAMETERS:
  Cross-section                          = bounded
  Width                         BS     = 328.57 m
  Channel regularity            ICHREG = 1
  Ambient flowrate              QA     = 3.35 m^3/s
  Average depth                 HA     = 17.68 m
  Depth at discharge            HD     = 13.72 m
  Ambient velocity              UA     = 0.0006 m/s
  Darcy-Weisbach friction factor  F      = 0.0271
    Calculated from Manning's n          = 0.03
  Wind velocity                 UW     = 2 m/s
  Stratification Type           STRCND = U
  Surface temperature                  = 28 degC
  Bottom temperature                   = 28 degC
  Calculated FRESH-WATER DENSITY values:
  Surface density               RHOAS  = 996.2338 kg/m^3
  Bottom density                RHOAB  = 996.2338 kg/m^3
-----------------------------------------------------------------------------
DISCHARGE PARAMETERS:           Single Port Discharge
  Nearest bank                         = right
  Distance to bank              DISTB  = 28.65 m
  Port diameter                 D0     = 0.1365 m
  Port cross-sectional area     A0     = 0.0146 m^2
  Discharge velocity            U0     = 0.30 m/s
  Discharge flowrate            Q0     = 0.004375 m^3/s
  Discharge port height         H0     = 0.61 m
  Vertical discharge angle      THETA  = 0 deg
  Horizontal discharge angle    SIGMA  = 90 deg
  Discharge density             RHO0   = 1008 kg/m^3
  Density difference            DRHO   = -11.7662 kg/m^3
  Buoyant acceleration          GP0    = -0.1158 m/s^2
  Discharge concentration       C0     = 933.110000 mg/l
  Surface heat exchange coeff.  KS     = 0 m/s
  Coefficient of decay          KD     = 0 /s
-----------------------------------------------------------------------------
DISCHARGE/ENVIRONMENT LENGTH SCALES:
  LQ  = 0.12 m        Lm  = 62.72 m        Lb  = 99999 m
  LM  = 0.31 m        Lm' = 99999 m        Lb' = 99999 m
-----------------------------------------------------------------------------
NON-DIMENSIONAL PARAMETERS:
  Port densimetric Froude number  FR0    = 2.38
  Velocity ratio                R      = 518.44
-----------------------------------------------------------------------------
MIXING ZONE / TOXIC DILUTION ZONE / AREA OF INTEREST PARAMETERS:
  Toxic discharge                        = no
  Water quality standard specified       = no
  Regulatory mixing zone                 = yes
  Regulatory mixing zone specification   = distance
  Regulatory mixing zone value           = 6.05 m (m^2 if area)
  Region of interest                     = 5000 m
*****************************************************************************
HYDRODYNAMIC CLASSIFICATION:
  *------------------------*
  | FLOW CLASS   = NH3A5 |
  *------------------------*
  This flow configuration applies to a layer corresponding to the full water
  depth at the discharge site.
  Applicable layer depth = water depth = 13.72 m

  Limiting Dilution S = (QA/Q0)+ 1.0 = 766.7

*****************************************************************************
MIXING ZONE EVALUATION (hydrodynamic and regulatory summary):

-----------------------------------------------------------------------------
X-Y-Z Coordinate system:
  Origin is located at the BOTTOM below the port/diffuser center:
    28.65 m from the right bank/shore.
  Number of display steps NSTEP = 50 per module.
-----------------------------------------------------------------------------
NEAR-FIELD REGION (NFR) CONDITIONS :
Note: The NFR is the zone of strong initial mixing.  It has no regulatory
  implication.  However, this information may be useful for the discharge
  designer because the mixing in the NFR is usually sensitive to the
  discharge design conditions.
  Pollutant concentration at NFR edge  c = 44.929300 mg/l
  Dilution at edge of NFR              s = 20.8
```

```
  NFR Location:                        x = 3.06 m
    (centerline coordinates)           y = 47.51 m
                                       z = 0 m
  NFR plume dimensions:  half-width (bh) = 8.88 m
                          thickness (bv) = 8.88 m
  Cumulative travel time:       5117.8638 sec.
--------------------------------------------------------------------------------
Buoyancy assessment:
  The effluent density is greater than the surrounding ambient water
  density at the discharge level.
  Therefore, the effluent is NEGATIVELY BUOYANT and will tend to sink towards
  the bottom.
IMPORTANT NOTE:
Since the effluent is NEGATIVELY BUOYANT, it is recommended that you consider using the Brine or Sediment options for Effluent
specification for a more detailed analysis, particularly for coastal discharges over a sloping bottom where density currents are
important.

CORMIX will however continue with the current simulation.
--------------------------------------------------------------------------------
Benthic attachment:
  For the present combination of discharge and ambient conditions, the
  discharge plume becomes attached to the channel bottom within the NFR
  immediately following the efflux.  High benthic concentrations may occur.
--------------------------------------------------------------------------------
FAR-FIELD MIXING SUMMARY:
  Plume becomes laterally fully mixed at 9.72 m downstream.
--------------------------------------------------------------------------------
PLUME BANK CONTACT SUMMARY:
  Plume in bounded section contacts nearest bank at 3.68 m downstream.
  Plume contacts second bank at 9.72 m downstream.
************************ TOXIC DILUTION ZONE SUMMARY ************************
No TDZ was specified for this simulation.
********************** REGULATORY MIXING ZONE SUMMARY ************************
The plume conditions at the boundary of the specified RMZ are as follows:
  Pollutant concentration              c = 23.339228  mg/l
  Corresponding dilution               s = 40.0
  Plume location:                      x = 6.05 m
    (centerline coordinates)           y = -28.65 m
                                       z = 0 m
  Plume dimensions:      half-width (bh) = 241.09 m
                          thickness (bv) = 1.26 m
  Cumulative travel time:       10288.3672 sec.

Note:
Plume concentration c and dilution s values are reported based on prediction
file values - assuming linear interpolation between predicted points just
before and just after the RMZ boundary has been detected.

Please ensure a small step size is used in the prediction file to account
for this linear interpolation. Step size can be controlled by increasing
(reduces the prediction step size) or decreasing (increases the prediction
step size) the - Output Steps per Module - in CORMIX input.

********************** FINAL DESIGN ADVICE AND COMMENTS **********************
REMINDER:  The user must take note that HYDRODYNAMIC MODELING by any known
  technique is NOT AN EXACT SCIENCE.
Extensive comparison with field and laboratory data has shown that the
  CORMIX predictions on dilutions and concentrations (with associated
  plume geometries) are reliable for the majority of cases and are accurate
  to within about +-50% (standard deviation).
As a further safeguard, CORMIX will not give predictions whenever it judges
  the design configuration as highly complex and uncertain for prediction.
```

```
CORMIX1 PREDICTION FILE:
1111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111
                      CORMIX MIXING ZONE EXPERT SYSTEM
                  Subsystem CORMIX1: Single Port Discharges
                            CORMIX Version 11.0GTS
                     HYDRO1 Version 11.0.1.0 August 2019
-------------------------------------------------------------------------------------------------
-------------------------------------------------------------------------------------------------
CASE DESCRIPTION
 Site name/label:   Black Warrior River - Bankhead Pool
 Design case:       Existing 1
 FILE NAME:         \\S...iffert-Urban Oil and Gas\UOG-WhiteOakCreekCBM.prd
 Time stamp:        07/06/2020--14:19:27

ENVIRONMENT PARAMETERS (metric units)
 Bounded section
 BS    =    328.57  AS    =   5809.12  QA    =      3.35  ICHREG= 1
 HA    =     17.68  HD    =     13.72
 UA    =     0.001 F     =      0.027 USTAR =0.3358E-04
 UW    =     2.000 UWSTAR=0.2198E-02
 Uniform density environment
 STRCND=  U         RHOAM =  996.2338

DISCHARGE PARAMETERS (metric units)
 BANK  =  RIGHT     DISTB =     28.65
 D0    =     0.137 A0    =      0.015 H0    =      0.61  SUB0  =     13.11
 THETA =      0.00  SIGMA =     90.00
 U0    =     0.299 Q0    =      0.004       =0.4375E-02
 RHO0  = 1008.0000  DRHO0 =-.1177E+02  GP0   =-.1158E+00
 C0    =0.9331E+03  CUNITS=  mg/l
 IPOLL =  1         KS    =0.0000E+00  KD    =0.0000E+00

FLUX VARIABLES (metric units)
 Q0    =0.4375E-02  M0    =0.1308E-02  J0    =-.5067E-03  SIGNJ0=     -1.0
 Associated length scales (meters)
 LQ    =      0.12  LM    =      0.31  Lm    =     62.72  Lb    =  99999.00
                                       Lmp   =  99999.00  Lbp   =  99999.00

NON-DIMENSIONAL PARAMETERS
 FR0   =      2.38  R     =    518.44

FLOW CLASSIFICATION
 11111111111111111111111111111111111111111111111111
 1  Flow class (CORMIX1)      =    NH3A5        1
 1  Applicable layer depth HS =   13.72         1
 1  Limiting Dilution S =QA/Q0=   766.70        1
 11111111111111111111111111111111111111111111111111

MIXING ZONE / TOXIC DILUTION / REGION OF INTEREST PARAMETERS
 C0    =0.9331E+03  CUNITS=  mg/l
 NTOX  =  0
 NSTD  =  0
 REGMZ =  1
 REGSPC=  1         XREG  =      6.05  WREG  =      0.00  AREG  =      0.00
 XINT  =   5000.00  XMAX  =   5000.00

X-Y-Z COORDINATE SYSTEM:
    ORIGIN is located at the bottom and below the center of the port:
        28.65 m  from the RIGHT bank/shore.
    X-axis points downstream, Y-axis points to left, Z-axis points upward.
NSTEP =  50 display intervals per module
-------------------------------------------------------------------------------------------------
-------------------------------------------------------------------------------------------------
BEGIN MOD101: DISCHARGE MODULE

 COANDA ATTACHMENT immediately following the discharge.

       X        Y       Z        S       C       B        Uc        TT
      0.00     0.00    0.00     1.0 0.933E+03   0.10    0.299   .00000E+00

END OF MOD101: DISCHARGE MODULE
-------------------------------------------------------------------------------------------------
-------------------------------------------------------------------------------------------------
BEGIN CORJET (MOD110): JET/PLUME NEAR-FIELD MIXING REGION

 Jet-like motion in weak crossflow.
 Bottom-attached jet motion.

 Profile definitions:
   B = Gaussian 1/e (37%) half-width, normal to trajectory
           Half wall jet, attached to bottom.
   S = hydrodynamic centerline dilution
   C = centerline concentration (includes reaction effects, if any)
  Uc = Local centerline excess velocity (above ambient)
  TT = Cumulative travel time

       X        Y       Z        S       C       B        Uc        TT
      0.00     0.00    0.00     1.0 0.933E+03   0.07    0.299   .53615E-01
      0.00     0.21    0.00     1.0 0.933E+03   0.10    0.299   .49938E+00
      0.00     0.46    0.00     1.1 0.884E+03   0.12    0.299   .11598E+01
```

```
      0.00     0.70    0.00     1.3 0.725E+03   0.15    0.274   .19813E+01
      0.00     0.95    0.00     1.5 0.614E+03   0.18    0.232   .29638E+01
      0.00     1.19    0.00     1.8 0.532E+03   0.20    0.201   .41074E+01
      0.00     1.44    0.00     2.0 0.470E+03   0.23    0.178   .54120E+01
      0.00     1.68    0.00     2.2 0.421E+03   0.26    0.159   .68777E+01
      0.01     1.92    0.00     2.5 0.381E+03   0.28    0.144   .85045E+01
      0.01     2.17    0.00     2.7 0.348E+03   0.31    0.132   .10292E+02
      0.01     2.41    0.00     2.9 0.320E+03   0.34    0.121   .12241E+02
      0.01     2.66    0.00     3.1 0.296E+03   0.36    0.112   .14351E+02
      0.01     2.90    0.00     3.4 0.276E+03   0.39    0.104   .16622E+02
      0.02     3.15    0.00     3.6 0.258E+03   0.42    0.098   .19055E+02
      0.02     3.39    0.00     3.8 0.243E+03   0.44    0.092   .21648E+02
      0.02     3.64    0.00     4.1 0.229E+03   0.47    0.087   .24403E+02
      0.02     3.88    0.00     4.3 0.216E+03   0.50    0.082   .27318E+02
      0.03     4.12    0.00     4.5 0.205E+03   0.53    0.078   .30395E+02
      0.03     4.37    0.00     4.8 0.195E+03   0.55    0.074   .33633E+02
      0.03     4.61    0.00     5.0 0.186E+03   0.58    0.070   .37032E+02
      0.04     4.86    0.00     5.2 0.178E+03   0.61    0.067   .40593E+02
      0.04     5.10    0.00     5.5 0.170E+03   0.63    0.064   .44314E+02
      0.05     5.35    0.00     5.7 0.163E+03   0.66    0.062   .48197E+02
      0.05     5.59    0.00     5.9 0.157E+03   0.69    0.059   .52242E+02
      0.05     5.84    0.00     6.2 0.151E+03   0.71    0.057   .56447E+02
      0.06     6.08    0.00     6.4 0.146E+03   0.74    0.055   .60814E+02
      0.06     6.32    0.00     6.6 0.141E+03   0.77    0.053   .65342E+02
      0.07     6.57    0.00     6.9 0.136E+03   0.79    0.051   .70031E+02
      0.07     6.81    0.00     7.1 0.131E+03   0.82    0.050   .74882E+02
      0.08     7.06    0.00     7.3 0.127E+03   0.85    0.048   .79895E+02
      0.09     7.30    0.00     7.6 0.123E+03   0.88    0.047   .85068E+02
      0.09     7.55    0.00     7.8 0.120E+03   0.90    0.045   .90403E+02
      0.10     7.79    0.00     8.0 0.116E+03   0.93    0.044   .95900E+02
      0.10     8.03    0.00     8.3 0.113E+03   0.96    0.043   .10156E+03
      0.11     8.28    0.00     8.5 0.110E+03   0.98    0.041   .10738E+03
      0.12     8.52    0.00     8.7 0.107E+03   1.01    0.040   .11336E+03
      0.12     8.77    0.00     9.0 0.104E+03   1.04    0.039   .11950E+03
      0.13     9.01    0.00     9.2 0.101E+03   1.06    0.038   .12581E+03
      0.14     9.26    0.00     9.4 0.989E+02   1.09    0.037   .13227E+03
      0.14     9.50    0.00     9.7 0.965E+02   1.12    0.036   .13890E+03
      0.15     9.74    0.00     9.9 0.942E+02   1.15    0.036   .14569E+03
      0.16     9.99    0.00    10.1 0.920E+02   1.17    0.035   .15264E+03
      0.17    10.23    0.00    10.4 0.900E+02   1.20    0.034   .15975E+03
      0.18    10.48    0.00    10.6 0.880E+02   1.23    0.033   .16703E+03
      0.19    10.72    0.00    10.8 0.861E+02   1.25    0.033   .17447E+03
      0.19    10.97    0.00    11.1 0.843E+02   1.28    0.032   .18206E+03
      0.20    11.21    0.00    11.3 0.825E+02   1.31    0.031   .18983E+03
      0.21    11.45    0.00    11.5 0.808E+02   1.33    0.031   .19775E+03
      0.22    11.70    0.00    11.8 0.792E+02   1.36    0.030   .20583E+03
      0.23    11.94    0.00    12.0 0.777E+02   1.39    0.029   .21408E+03
      0.24    12.16    0.00    12.2 0.764E+02   1.41    0.029   .22143E+03
 Cumulative travel time =         221.4290 sec  (    0.06 hrs)

END OF CORJET (MOD110): JET/PLUME NEAR-FIELD MIXING REGION
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BEGIN MOD131: LAYER BOUNDARY/TERMINAL LAYER APPROACH

  Control volume inflow:
       X        Y       Z        S       C       B        TT
      0.24    12.16    0.00    12.2 0.764E+02   1.41 .22143E+03

 Profile definitions:
   BV = top-hat thickness, measured vertically
   BH = top-hat half-width, measured horizontally in Y-direction
   ZU = upper plume boundary (Z-coordinate)
   ZL = lower plume boundary (Z-coordinate)
   S  = hydrodynamic average (bulk) dilution
   C  = average (bulk) concentration (includes reaction effects, if any)
   TT = Cumulative travel time

        X        Y       Z        S       C       BV       BH      ZU      ZL       TT
      0.18    11.45    0.00    12.2 0.764E+02   0.00     0.00    0.00    0.00 .22143E+03
      0.47    15.06    0.00    12.4 0.750E+02   5.58     2.81    5.58    0.00 .62315E+03
      0.76    18.66    0.00    13.3 0.702E+02   6.62     3.97    6.62    0.00 .11226E+04
      1.05    22.27    0.00    14.6 0.639E+02   7.29     4.86    7.29    0.00 .16220E+04
      1.33    25.88    0.00    16.1 0.580E+02   7.77     5.61    7.77    0.00 .21214E+04
      1.62    29.48    0.00    17.5 0.533E+02   8.14     6.28    8.14    0.00 .26208E+04
      1.91    33.09    0.00    18.7 0.500E+02   8.42     6.88    8.42    0.00 .31202E+04
      2.20    36.69    0.00    19.5 0.478E+02   8.62     7.43    8.62    0.00 .36196E+04
      2.49    40.30    0.00    20.1 0.464E+02   8.77     7.94    8.77    0.00 .41190E+04
      2.77    43.90    0.00    20.4 0.457E+02   8.85     8.42    8.85    0.00 .46185E+04
      3.06    47.51    0.00    20.8 0.449E+02   8.88     8.88    8.88    0.00 .51179E+04
 Cumulative travel time =        5117.8633 sec  (    1.42 hrs)

END OF MOD131: LAYER BOUNDARY/TERMINAL LAYER APPROACH
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** End of NEAR-FIELD REGION (NFR) **
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BEGIN MOD141: BUOYANT AMBIENT SPREADING

 Profile definitions:
   BV = top-hat thickness, measured vertically
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BH = top-hat half-width, measured horizontally in Y-direction
ZU = upper plume boundary (Z-coordinate)
ZL = lower plume boundary (Z-coordinate)
S = hydrodynamic average (bulk) dilution
C = average (bulk) concentration (includes reaction effects, if any)
TT = Cumulative travel time

Plume Stage 1 (not bank attached):

X	Y	Z	S	C	BV	BH	ZU	ZL	TT
3.06	47.51	0.00	20.8	0.449E+02	8.88	8.88	8.88	0.00	.51179E+04
3.07	47.51	0.00	22.4	0.417E+02	7.11	11.94	7.11	0.00	.51392E+04
3.09	47.51	0.00	23.5	0.397E+02	6.10	14.63	6.10	0.00	.51605E+04
3.10	47.51	0.00	24.4	0.381E+02	5.44	17.03	5.44	0.00	.51818E+04
3.11	47.51	0.00	25.2	0.370E+02	4.95	19.34	4.95	0.00	.52031E+04
3.12	47.51	0.00	25.9	0.360E+02	4.58	21.47	4.58	0.00	.52244E+04
3.14	47.51	0.00	26.5	0.352E+02	4.28	23.49	4.28	0.00	.52458E+04
3.15	47.51	0.00	27.0	0.345E+02	4.03	25.40	4.03	0.00	.52671E+04
3.16	47.51	0.00	27.5	0.339E+02	3.83	27.24	3.83	0.00	.52884E+04
3.17	47.51	0.00	27.9	0.334E+02	3.65	29.00	3.65	0.00	.53097E+04
3.19	47.51	0.00	28.3	0.329E+02	3.50	30.70	3.50	0.00	.53310E+04
3.20	47.51	0.00	28.7	0.325E+02	3.37	32.35	3.37	0.00	.53524E+04
3.21	47.51	0.00	29.1	0.321E+02	3.25	33.94	3.25	0.00	.53737E+04
3.22	47.51	0.00	29.4	0.318E+02	3.14	35.49	3.14	0.00	.53950E+04
3.23	47.51	0.00	29.7	0.314E+02	3.04	36.99	3.04	0.00	.54163E+04
3.25	47.51	0.00	30.0	0.311E+02	2.96	38.45	2.96	0.00	.54376E+04
3.26	47.51	0.00	30.2	0.308E+02	2.88	39.88	2.88	0.00	.54589E+04
3.27	47.51	0.00	30.5	0.306E+02	2.80	41.27	2.80	0.00	.54803E+04
3.28	47.51	0.00	30.8	0.303E+02	2.74	42.63	2.74	0.00	.55016E+04
3.30	47.51	0.00	31.0	0.301E+02	2.67	43.96	2.67	0.00	.55229E+04
3.31	47.51	0.00	31.2	0.299E+02	2.62	45.27	2.62	0.00	.55442E+04
3.32	47.51	0.00	31.4	0.297E+02	2.56	46.55	2.56	0.00	.55655E+04
3.33	47.51	0.00	31.7	0.295E+02	2.51	47.80	2.51	0.00	.55868E+04
3.35	47.51	0.00	31.9	0.293E+02	2.46	49.03	2.46	0.00	.56082E+04
3.36	47.51	0.00	32.1	0.291E+02	2.42	50.23	2.42	0.00	.56295E+04
3.37	47.51	0.00	32.2	0.289E+02	2.38	51.42	2.38	0.00	.56508E+04
3.38	47.51	0.00	32.4	0.288E+02	2.34	52.59	2.34	0.00	.56721E+04
3.39	47.51	0.00	32.6	0.286E+02	2.30	53.73	2.30	0.00	.56934E+04
3.41	47.51	0.00	32.8	0.285E+02	2.27	54.86	2.27	0.00	.57147E+04
3.42	47.51	0.00	32.9	0.283E+02	2.23	55.97	2.23	0.00	.57361E+04
3.43	47.51	0.00	33.1	0.282E+02	2.20	57.06	2.20	0.00	.57574E+04
3.44	47.51	0.00	33.2	0.281E+02	2.17	58.14	2.17	0.00	.57787E+04
3.46	47.51	0.00	33.4	0.279E+02	2.14	59.20	2.14	0.00	.58000E+04
3.47	47.51	0.00	33.5	0.278E+02	2.11	60.25	2.11	0.00	.58213E+04
3.48	47.51	0.00	33.7	0.277E+02	2.09	61.28	2.09	0.00	.58426E+04
3.49	47.51	0.00	33.8	0.276E+02	2.06	62.30	2.06	0.00	.58640E+04
3.51	47.51	0.00	34.0	0.275E+02	2.04	63.30	2.04	0.00	.58853E+04
3.52	47.51	0.00	34.1	0.274E+02	2.01	64.29	2.01	0.00	.59066E+04
3.53	47.51	0.00	34.2	0.273E+02	1.99	65.27	1.99	0.00	.59279E+04
3.54	47.51	0.00	34.4	0.272E+02	1.97	66.24	1.97	0.00	.59492E+04
3.55	47.51	0.00	34.5	0.271E+02	1.95	67.16	1.95	0.00	.59706E+04
3.57	47.51	0.00	34.6	0.270E+02	1.93	68.14	1.93	0.00	.59919E+04
3.58	47.51	0.00	34.7	0.269E+02	1.91	69.07	1.91	0.00	.60132E+04
3.59	47.51	0.00	34.8	0.268E+02	1.89	69.99	1.89	0.00	.60345E+04
3.60	47.51	0.00	34.9	0.267E+02	1.87	70.87	1.87	0.00	.60558E+04
3.62	47.51	0.00	35.0	0.266E+02	1.85	71.75	1.85	0.00	.60771E+04
3.63	47.51	0.00	35.2	0.265E+02	1.83	72.70	1.83	0.00	.60985E+04
3.64	47.51	0.00	35.3	0.265E+02	1.82	73.58	1.82	0.00	.61198E+04
3.65	47.51	0.00	35.4	0.264E+02	1.80	74.43	1.80	0.00	.61411E+04
3.67	47.51	0.00	35.5	0.263E+02	1.79	75.32	1.79	0.00	.61624E+04
3.68	47.51	0.00	35.6	0.262E+02	1.77	76.18	1.77	0.00	.61837E+04

Cumulative travel time = 6183.7314 sec (1.72 hrs)

Plume is ATTACHED to RIGHT bank/shore.
Plume width is now determined from RIGHT bank/shore.

Plume Stage 2 (bank attached):

X	Y	Z	S	C	BV	BH	ZU	ZL	TT
3.68	-28.65	0.00	35.6	0.262E+02	1.77	152.32	1.77	0.00	.61837E+04
3.80	-28.65	0.00	35.9	0.260E+02	1.72	158.30	1.72	0.00	.63931E+04
3.92	-28.65	0.00	36.3	0.257E+02	1.68	164.03	1.68	0.00	.66024E+04
4.04	-28.65	0.00	36.6	0.255E+02	1.64	169.54	1.64	0.00	.68117E+04
4.16	-28.65	0.00	36.8	0.253E+02	1.60	174.85	1.60	0.00	.70211E+04
4.28	-28.65	0.00	37.1	0.251E+02	1.56	179.98	1.56	0.00	.72304E+04
4.40	-28.65	0.00	37.4	0.250E+02	1.53	184.95	1.53	0.00	.74397E+04
4.52	-28.65	0.00	37.6	0.248E+02	1.50	189.76	1.50	0.00	.76491E+04
4.64	-28.65	0.00	37.8	0.247E+02	1.48	194.44	1.48	0.00	.78584E+04
4.77	-28.65	0.00	38.1	0.245E+02	1.45	198.98	1.45	0.00	.80677E+04
4.89	-28.65	0.00	38.3	0.244E+02	1.43	203.41	1.43	0.00	.82770E+04
5.01	-28.65	0.00	38.5	0.242E+02	1.41	207.72	1.41	0.00	.84864E+04
5.13	-28.65	0.00	38.7	0.241E+02	1.38	211.93	1.38	0.00	.86957E+04
5.25	-28.65	0.00	38.9	0.240E+02	1.36	216.04	1.36	0.00	.89050E+04
5.37	-28.65	0.00	39.1	0.239E+02	1.35	220.05	1.35	0.00	.91144E+04
5.49	-28.65	0.00	39.2	0.238E+02	1.33	223.98	1.33	0.00	.93237E+04
5.61	-28.65	0.00	39.4	0.237E+02	1.31	227.83	1.31	0.00	.95330E+04
5.73	-28.65	0.00	39.6	0.236E+02	1.30	231.60	1.30	0.00	.97424E+04
5.85	-28.65	0.00	39.7	0.235E+02	1.28	235.30	1.28	0.00	.99517E+04
5.97	-28.65	0.00	39.9	0.234E+02	1.27	238.92	1.27	0.00	.10161E+05

** REGULATORY MIXING ZONE BOUNDARY **
In this prediction interval the plume DOWNSTREAM distance meets or exceeds

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 the regulatory value =     6.05 m.
 This is the extent of the REGULATORY MIXING ZONE.
      6.10   -28.65    0.00    40.0 0.233E+02   1.25   242.48    1.25    0.00 .10370E+05
      6.22   -28.65    0.00    40.2 0.232E+02   1.24   245.98    1.24    0.00 .10580E+05
      6.34   -28.65    0.00    40.3 0.231E+02   1.23   249.41    1.23    0.00 .10789E+05
      6.46   -28.65    0.00    40.5 0.231E+02   1.21   252.79    1.21    0.00 .10998E+05
      6.58   -28.65    0.00    40.6 0.230E+02   1.20   256.11    1.20    0.00 .11208E+05
      6.70   -28.65    0.00    40.7 0.229E+02   1.19   259.38    1.19    0.00 .11417E+05
      6.82   -28.65    0.00    40.9 0.228E+02   1.18   262.60    1.18    0.00 .11626E+05
      6.94   -28.65    0.00    41.0 0.228E+02   1.17   265.77    1.17    0.00 .11836E+05
      7.06   -28.65    0.00    41.1 0.227E+02   1.16   268.90    1.16    0.00 .12045E+05
      7.18   -28.65    0.00    41.3 0.226E+02   1.15   271.98    1.15    0.00 .12254E+05
      7.30   -28.65    0.00    41.4 0.226E+02   1.14   275.01    1.14    0.00 .12464E+05
      7.42   -28.65    0.00    41.5 0.225E+02   1.13   278.01    1.13    0.00 .12673E+05
      7.55   -28.65    0.00    41.6 0.224E+02   1.12   280.96    1.12    0.00 .12882E+05
      7.67   -28.65    0.00    41.7 0.224E+02   1.11   283.88    1.11    0.00 .13092E+05
      7.79   -28.65    0.00    41.8 0.223E+02   1.11   286.76    1.11    0.00 .13301E+05
      7.91   -28.65    0.00    41.9 0.222E+02   1.10   289.60    1.10    0.00 .13510E+05
      8.03   -28.65    0.00    42.1 0.222E+02   1.09   292.41    1.09    0.00 .13720E+05
      8.15   -28.65    0.00    42.2 0.221E+02   1.08   295.18    1.08    0.00 .13929E+05
      8.27   -28.65    0.00    42.3 0.221E+02   1.08   297.92    1.08    0.00 .14138E+05
      8.39   -28.65    0.00    42.4 0.220E+02   1.07   300.63    1.07    0.00 .14348E+05
      8.51   -28.65    0.00    42.5 0.220E+02   1.06   303.31    1.06    0.00 .14557E+05
      8.63   -28.65    0.00    42.6 0.219E+02   1.06   305.96    1.06    0.00 .14766E+05
      8.75   -28.65    0.00    42.7 0.219E+02   1.05   308.58    1.05    0.00 .14976E+05
      8.88   -28.65    0.00    42.8 0.218E+02   1.04   311.18    1.04    0.00 .15185E+05
      9.00   -28.65    0.00    42.9 0.218E+02   1.04   313.74    1.04    0.00 .15394E+05
      9.12   -28.65    0.00    42.9 0.217E+02   1.03   316.28    1.03    0.00 .15604E+05
      9.24   -28.65    0.00    43.0 0.217E+02   1.02   318.79    1.02    0.00 .15813E+05
      9.36   -28.65    0.00    43.1 0.216E+02   1.02   321.28    1.02    0.00 .16022E+05
      9.48   -28.65    0.00    43.2 0.216E+02   1.01   323.75    1.01    0.00 .16232E+05
      9.60   -28.65    0.00    43.3 0.215E+02   1.01   326.19    1.01    0.00 .16441E+05
      9.72   -28.65    0.00    43.4 0.215E+02   1.00   328.57    1.00    0.00 .16650E+05
 Cumulative travel time =       16650.3340 sec  (    4.63 hrs)
 Plume is LATERALLY FULLY MIXED at the end of the buoyant spreading regime.

END OF MOD141: BUOYANT AMBIENT SPREADING
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 Due to the attachment or proximity of the plume to the bottom, the bottom
   coordinate for the FAR-FIELD differs from the ambient depth, ZFB = 0 m.
 In a subsequent analysis set "depth at discharge" equal to "ambient depth".
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BEGIN MOD161: PASSIVE AMBIENT MIXING IN UNIFORM AMBIENT

  Vertical diffusivity (initial value)   = 0.603E-02 m^2/s
  Horizontal diffusivity (initial value) = 0.754E-02 m^2/s

 Profile definitions:
   BV = Gaussian s.d.*sqrt(pi/2) (46%) thickness, measured vertically
      = or equal to layer depth, if fully mixed
   BH = Gaussian s.d.*sqrt(pi/2) (46%) half-width,
        measured horizontally in Y-direction
   ZU = upper plume boundary (Z-coordinate)
   ZL = lower plume boundary (Z-coordinate)
   S  = hydrodynamic centerline dilution
   C  = centerline concentration (includes reaction effects, if any)
   TT = Cumulative travel time

 Plume Stage 2 (bank attached):
        X        Y        Z        S        C        BV       BH      ZU      ZL       TT
      9.72   -28.65    0.00    43.4 0.215E+02   1.00   328.57    1.00    0.00 .16650E+05
    109.53   -28.65    0.00    43.4 0.215E+02   1.00   328.57    1.00    0.00 .18950E+06
    209.33   -28.65    0.00    43.4 0.215E+02   1.00   328.57    1.00    0.00 .36235E+06
    309.14   -28.65    0.00    43.4 0.215E+02   1.00   328.57    1.00    0.00 .53520E+06
    408.94   -28.65    0.00    43.4 0.215E+02   1.00   328.57    1.00    0.00 .70805E+06
    508.75   -28.65    0.00    43.4 0.215E+02   1.00   328.57    1.00    0.00 .88090E+06
    608.55   -28.65    0.00    43.4 0.215E+02   1.00   328.57    1.00    0.00 .10537E+07
    708.36   -28.65    0.00    43.4 0.215E+02   1.00   328.57    1.00    0.00 .12266E+07
    808.17   -28.65    0.00    43.4 0.215E+02   1.00   328.57    1.00    0.00 .13994E+07
    907.97   -28.65    0.00    43.4 0.215E+02   1.00   328.57    1.00    0.00 .15723E+07
   1007.78   -28.65    0.00    43.4 0.215E+02   1.00   328.57    1.00    0.00 .17451E+07
   1107.58   -28.65    0.00    43.4 0.215E+02   1.00   328.57    1.00    0.00 .19180E+07
   1207.39   -28.65    0.00    43.4 0.215E+02   1.00   328.57    1.00    0.00 .20908E+07
   1307.19   -28.65    0.00    43.4 0.215E+02   1.00   328.57    1.00    0.00 .22637E+07
   1407.00   -28.65    0.00    43.4 0.215E+02   1.00   328.57    1.00    0.00 .24365E+07
   1506.80   -28.65    0.00    43.4 0.215E+02   1.00   328.57    1.00    0.00 .26094E+07
   1606.61   -28.65    0.00    43.4 0.215E+02   1.00   328.57    1.00    0.00 .27822E+07
   1706.42   -28.65    0.00    43.4 0.215E+02   1.00   328.57    1.00    0.00 .29551E+07
   1806.22   -28.65    0.00    43.4 0.215E+02   1.00   328.57    1.00    0.00 .31279E+07
   1906.03   -28.65    0.00    43.5 0.215E+02   1.00   328.57    1.00    0.00 .33008E+07
   2005.83   -28.65    0.00    43.5 0.215E+02   1.00   328.57    1.00    0.00 .34736E+07
   2105.64   -28.65    0.00    43.5 0.215E+02   1.00   328.57    1.00    0.00 .36465E+07
   2205.44   -28.65    0.00    43.5 0.215E+02   1.00   328.57    1.00    0.00 .38193E+07
   2305.25   -28.65    0.00    43.5 0.215E+02   1.00   328.57    1.00    0.00 .39922E+07
   2405.06   -28.65    0.00    43.5 0.215E+02   1.00   328.57    1.00    0.00 .41650E+07
   2504.86   -28.65    0.00    43.5 0.215E+02   1.00   328.57    1.00    0.00 .43379E+07
   2604.67   -28.65    0.00    43.5 0.215E+02   1.00   328.57    1.00    0.00 .45107E+07
   2704.47   -28.65    0.00    43.5 0.215E+02   1.00   328.57    1.00    0.00 .46836E+07
   2804.28   -28.65    0.00    43.5 0.215E+02   1.00   328.57    1.00    0.00 .48564E+07
   2904.08   -28.65    0.00    43.5 0.215E+02   1.00   328.57    1.00    0.00 .50293E+07
```

3003.89	-28.65	0.00	43.5	0.215E+02	1.00	328.57	1.00	0.00	.52021E+07
3103.69	-28.65	0.00	43.5	0.215E+02	1.00	328.57	1.00	0.00	.53750E+07
3203.50	-28.65	0.00	43.5	0.215E+02	1.00	328.57	1.00	0.00	.55478E+07
3303.31	-28.65	0.00	43.5	0.215E+02	1.00	328.57	1.00	0.00	.57207E+07
3403.11	-28.65	0.00	43.5	0.215E+02	1.00	328.57	1.00	0.00	.58935E+07
3502.92	-28.65	0.00	43.5	0.215E+02	1.00	328.57	1.00	0.00	.60664E+07
3602.72	-28.65	0.00	43.5	0.215E+02	1.00	328.57	1.00	0.00	.62392E+07
3702.53	-28.65	0.00	43.5	0.215E+02	1.00	328.57	1.00	0.00	.64121E+07
3802.33	-28.65	0.00	43.5	0.215E+02	1.00	328.57	1.00	0.00	.65849E+07
3902.14	-28.65	0.00	43.5	0.214E+02	1.00	328.57	1.00	0.00	.67578E+07
4001.95	-28.65	0.00	43.5	0.214E+02	1.00	328.57	1.00	0.00	.69306E+07
4101.75	-28.65	0.00	43.5	0.214E+02	1.00	328.57	1.00	0.00	.71035E+07
4201.56	-28.65	0.00	43.5	0.214E+02	1.00	328.57	1.00	0.00	.72763E+07
4301.36	-28.65	0.00	43.5	0.214E+02	1.00	328.57	1.00	0.00	.74492E+07
4401.17	-28.65	0.00	43.5	0.214E+02	1.00	328.57	1.00	0.00	.76220E+07
4500.97	-28.65	0.00	43.5	0.214E+02	1.00	328.57	1.00	0.00	.77949E+07
4600.78	-28.65	0.00	43.5	0.214E+02	1.00	328.57	1.00	0.00	.79677E+07
4700.59	-28.65	0.00	43.5	0.214E+02	1.00	328.57	1.00	0.00	.81406E+07
4800.39	-28.65	0.00	43.5	0.214E+02	1.00	328.57	1.00	0.00	.83134E+07
4900.20	-28.65	0.00	43.5	0.214E+02	1.00	328.57	1.00	0.00	.84863E+07
5000.00	-28.65	0.00	43.5	0.214E+02	1.00	328.57	1.00	0.00	.86591E+07

Cumulative travel time = 8659132.0000 sec (2405.31 hrs)

Note:
CORMIX is a steady state model and assumes discharge and ambient conditions do not vary over time. The predicted plume cumulative travel time exceeds 48 hours at this trajectory distance. Keep in mind that ambient and discharge conditions are likely to vary over large space and time scales. Predictions at such large space and time scales may be inconsistent with CORMIX modeling assumptions.

Please carefully evaluate your simulation results and limit model interpretation to space and time scales consistent with steady state assumptions and ambient schematization.

Simulation limit based on maximum specified distance = 5000.00 m.
This is the REGION OF INTEREST limitation.

END OF MOD161: PASSIVE AMBIENT MIXING IN UNIFORM AMBIENT

```
-----------------------------------------------------------------------------------------------
-----------------------------------------------------------------------------------------------
CORMIX1: Single Port Discharges              End of Prediction File
11111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111111
```


WALKER COUNTY
TUSCALOOSA COUNTY
T 16 S
T 17 S
T 18 S
R 9 W
R 8 W
R 7 W
WALLACE FERRY RD
T's KORNER
BLACKBURN RD
ALABAMA HWY 69
SPENCER HILL ROAD
WILLIAMS CAMP RD
GOODWATER ROAD
BLACK WARRIOR RIVER
BANKHEAD LAKE
N
GRAPHIC SCALE 1" = 2000'
0' 2000' 4000' 6000'
1) INFORMATION OBTAINED FROM A COMBINATION OF WELL PLATS, U.S. GEOLOGICAL SURVEY QUADRANGLE SHEETS, STATE OIL AND GAS BOARD RECORDS, AERIAL PHOTOGRAPHS, URBAN OIL AND GAS GROUP, LLC PERSONNEL AND OTHER RESOURCES.
2) INFORMATION NOT FIELD VERIFIED.
3) REPRODUCTION OF A PORTION OF TUSCALOOSA COUNTY TOPOGRAPHICAL MAPS BY LANDSAT 2021.
LEGEND
INDICATES EXISTING WELL LOCATION
INDICATES EXISTING WATER TANK
INDICATES PLUGGED & ABANDONED WELL
INDICATES EXISTING COMPRESSOR STATION
INDICATES PUBLIC ROAD
INDICATES PROJECT ROAD OR MULTIPLE USE PRIVATE ROAD
INDICATES NPDES PROJECT PERMIT BOUNDARY
INDICATES CREEK CROSSING
INDICATES WATER MAIN & LOW PRESSURE GAS GATHERING MAIN AND PIPE SIZES (SAME DITCH)
INDICATES DRIP – RELIEVES WATER FROM GAS MAIN
INDICATES GAS VENT – RELIEVES GAS AND AIR FROM WATER MAIN
INDICATES GAS & WATER POLY VALVES
INDICATES GAS POLY VALVE
INDICATES WATER POLY VALVE
INDICATES GATHER PIPE LINE AND SIZE
INDICATES WATER PIPE LINE AND SIZE
INDICATES VALVE DRIP VENT
INDICATES MAIN LINE CUT OFF VALVE
URBAN OIL & GAS GROUP, LLC
WHITE OAK CREEK COALBED METHANE PROJECT
TUSCALOOSA & WALKER COUNTIES
ALABAMA
TOPOGRAPHIC MAP
McGiffert and Associates, LLC
SINCE 1949
CIVIL ENGINEERS
2814 STILLMAN BLVD. • P.O. BOX 20559
TUSCALOOSA, ALABAMA 35402-0559
WWW.MCGIFFERT.COM
(205) 759-1521
FAX (205) 759-1524
REVISION
DATE
DESCRIPTION
BY
THIS DRAWING AND ALL INFORMATION SHOWN HEREON IS THE PROPERTY OF THE ENGINEER AND MAY NOT BE REPRODUCED OR USED WITHOUT WRITTEN CONSENT OF THE ENGINEER.
COPYRIGHT © 2023 McGIFFERT AND ASSOCIATES, LLC
FILE NAME: URBAN-WOC-2023-TOPO
DATE OF FIELD SURVEY: N/A
FIELD BOOK: N/A
PAGE: N/A
DRAWN BY: D D H
SCALE: 1"=2000'
JOB No. 22-3095
SHEET No. 1 of 1
CHECKED BY: QHS
DWG. No. 17-23

EPA Identification Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19 OMB No. 2040-0004
	AL0068390	White Oak Creek CBM Project	

Form 2C NPDES

U.S. Environmental Protection Agency
Application for NPDES Permit to Discharge Wastewater

EXISTING MANUFACTURING, COMMERCIAL, MINING, AND SILVICULTURE OPERATIONS

SECTION 1. OUTFALL LOCATION (40 CFR 122.21(g)(1))

Outfall Location

1.1 Provide information on each of the facility's outfalls in the table below.

Outfall Number	Receiving Water Name	Latitude	Longitude
001-1	Black Warrior River	33° 29′ 16.0″ N	87° 18′ 50.0″ W
003-1	Black Warrior River	33° 31′ 53.9″ N	87° 16′ 9.8″ W
		° ′ ″	° ′ ″

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

Line Drawing

2.1 Have you attached a line drawing to this application that shows the water flow through your facility with a water balance? (See instructions for drawing requirements. See Exhibit 2C–1 at end of instructions for example.)

☑ Yes ☐ No

SECTION 3. AVERAGE FLOWS AND TREATMENT (40 CFR 122.21(g)(3))

Average Flows and Treatment

3.1 For each outfall identified under Item 1.1, provide average flow and treatment information. Add additional sheets if necessary.

****Outfall Number**** 001-1

Operations Contributing to Flow

Operation	Average Flow
Coalbed methane exploration, production,	0.00 mgd
operation, and associated activities	mgd
	mgd
	mgd

Treatment Units

Description (include size, flow rate through each treatment unit, retention time, etc.)	Code from Table 2C-1	Final Disposal of Solid or Liquid Wastes Other Than by Discharge
When in operation, process water is removed by pumping	001-1	There are no drying beds and
unit and relayed to treatment pond that typically retains		no solids accumulation for
and treats process water for five (5) days and then		disposal.
discharges to the receiving water through a 3" meter.		

Average Flows and Treatment Continued

3.1 cont.

****Outfall Number**** 003-1

Operations Contributing to Flow

Operation	Average Flow
Coalbed methane exploration, production,	0.22564 mgd
operation, and associated activities	mgd
	mgd
	mgd

Treatment Units

Description (include size, flow rate through each treatment unit, retention time, etc.)	Code from Table 2C-1	Final Disposal of Solid or Liquid Wastes Other Than by Discharge
Process water is removed by pumping unit and relayed to	003-1	There are no drying beds and
wastewater treatment pond. The pond typically retains		no solids accumulation for
and treats process water for five (5) days and then		disposal.
discharges to the receiving water through a 3" meter.		

****Outfall Number**** _____

Operations Contributing to Flow

Operation	Average Flow
	mgd
	mgd
	mgd
	mgd

Treatment Units

Description (include size, flow rate through each treatment unit, retention time, etc.)	Code from Table 2C-1	Final Disposal of Solid or Liquid Wastes Other Than by Discharge

System Users

3.2 Are you applying for an NPDES permit to operate a privately owned treatment works?

☐ Yes ☑ No ➔ SKIP to Section 4.

3.3 Have you attached a list that identifies each user of the treatment works?

☐ Yes ☐ No

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

Intermittent Flows

4.1 Except for storm runoff, leaks, or spills, are any discharges described in Sections 1 and 3 intermittent or seasonal?

☐ Yes ☑ No ➔ SKIP to Section 5.

4.2 Provide information on intermittent or seasonal flows for each applicable outfall. Attach additional pages, if necessary.

Outfall Number	Operation (list)	Frequency		Flow Rate		Duration
		Average Days/Week	Average Months/Year	Long-Term Average	Maximum Daily	
		days/week	months/year	mgd	mgd	days
		days/week	months/year	mgd	mgd	days
		days/week	months/year	mgd	mgd	days
		days/week	months/year	mgd	mgd	days
		days/week	months/year	mgd	mgd	days
		days/week	months/year	mgd	mgd	days
		days/week	months/year	mgd	mgd	days
		days/week	months/year	mgd	mgd	days
		days/week	months/year	mgd	mgd	days

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

Applicable ELGs

5.1 Do any effluent limitation guidelines (ELGs) promulgated by EPA under Section 304 of the CWA apply to your facility?

☐ Yes ☑ No ➔ SKIP to Section 6.

5.2 Provide the following information on applicable ELGs.

ELG Category	ELG Subcategory	Regulatory Citation

Production-Based Limitations

5.3 Are any of the applicable ELGs expressed in terms of production (or other measure of operation)?

☐ Yes ☐ No ➔ SKIP to Section 6.

5.4 Provide an actual measure of daily production expressed in terms and units of applicable ELGs.

Outfall Number	Operation, Product, or Material	Quantity per Day	Unit of Measure

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

Upgrades and Improvements

6.1 Are you presently required by any federal, state, or local authority to meet an implementation schedule for constructing, upgrading, or operating wastewater treatment equipment or practices or any other environmental programs that could affect the discharges described in this application?

☐ Yes ☑ No ➔ SKIP to Item 6.3.

6.2 Briefly identify each applicable project in the table below.

Brief Identification and Description of Project	Affected Outfalls (list outfall number)	Source(s) of Discharge	Final Compliance Dates	
			Required	Projected

6.3 Have you attached sheets describing any additional water pollution control programs (or other environmental projects that may affect your discharges) that you now have underway or planned? *(optional item)*

☐ Yes ☐ No ☑ Not applicable

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

Effluent and Intake Characteristics

See the instructions to determine the pollutants and parameters you are required to monitor and, in turn, the tables you must complete. Not all applicants need to complete each table.

Table A. Conventional and Non-Conventional Pollutants

7.1 Are you requesting a waiver from your NPDES permitting authority for one or more of the Table A pollutants for any of your outfalls?

☐ Yes ☑ No ➔ SKIP to Item 7.3.

7.2 If yes, indicate the applicable outfalls below. Attach waiver request and other required information to the application.

Outfall Number _____ Outfall Number _____ Outfall Number _____

7.3 Have you completed monitoring for all Table A pollutants at each of your outfalls for which a waiver has not been requested and attached the results to this application package?

☑ Yes ☐ No; a waiver has been requested from my NPDES permitting authority for all pollutants at all outfalls.

Table B. Toxic Metals, Cyanide, Total Phenols, and Organic Toxic Pollutants

7.4 Do any of the facility's processes that contribute wastewater fall into one or more of the primary industry categories listed in Exhibit 2C-3? (See end of instructions for exhibit.)

☐ Yes ☑ No ➔ SKIP to Item 7.8.

7.5 Have you checked "Testing Required" for all toxic metals, cyanide, and total phenols in Section 1 of Table B?

☑ Yes ☐ No

7.6 List the applicable primary industry categories and check the boxes indicating the required GC/MS fraction(s) identified in Exhibit 2C-3.

Primary Industry Category	Required GC/MS Fraction(s) (Check applicable boxes.)			
	☐ Volatile	☐ Acid	☐ Base/Neutral	☐ Pesticide
	☐ Volatile	☐ Acid	☐ Base/Neutral	☐ Pesticide
	☐ Volatile	☐ Acid	☐ Base/Neutral	☐ Pesticide

Effluent and Intake Characteristics Continued

7.7	Have you checked "Testing Required" for all required pollutants in Sections 2 through 5 of Table B for each of the GC/MS fractions checked in Item 7.6? ☐ Yes ☐ No
7.8	Have you checked "Believed Present" or "Believed Absent" for all pollutants listed in Sections 1 through 5 of Table B where testing is not required? ☑ Yes ☐ No
7.9	Have you provided (1) quantitative data for those Section 1, Table B, pollutants for which you have indicated testing is required or (2) quantitative data or other required information for those Section 1, Table B, pollutants that you have indicated are "Believed Present" in your discharge? ☑ Yes ☐ No
7.10	Does the applicant qualify for a small business exemption under the criteria specified in the instructions? ☐ Yes ➔ Note that you qualify at the top of Table B, then SKIP to Item 7.12. ☑ No
7.11	Have you provided (1) quantitative data for those Sections 2 through 5, Table B, pollutants for which you have determined testing is required or (2) quantitative data or an explanation for those Sections 2 through 5, Table B, pollutants you have indicated are "Believed Present" in your discharge? ☑ Yes ☐ No
Table C. Certain Conventional and Non-Conventional Pollutants	
7.12	Have you indicated whether pollutants are "Believed Present" or "Believed Absent" for all pollutants listed on Table C for all outfalls? ☑ Yes ☐ No
7.13	Have you completed Table C by providing (1) quantitative data for those pollutants that are limited either directly or indirectly in an ELG and/or (2) quantitative data or an explanation for those pollutants for which you have indicated "Believed Present"? ☑ Yes ☐ No
Table D. Certain Hazardous Substances and Asbestos	
7.14	Have you indicated whether pollutants are "Believed Present" or "Believed Absent" for all pollutants listed in Table D for all outfalls? ☑ Yes ☐ No
7.15	Have you completed Table D by (1) describing the reasons the applicable pollutants are expected to be discharged and (2) by providing quantitative data, if available? ☐ Yes ☑ No
Table E. 2,3,7,8-Tetrachlorodibenzo-p-Dioxin (2,3,7,8-TCDD)	
7.16	Does the facility use or manufacture one or more of the 2,3,7,8-TCDD congeners listed in the instructions, or do you know or have reason to believe that TCDD is or may be present in the effluent? ☐ Yes ➔ Complete Table E. ☑ No ➔ SKIP to Section 8.
7.17	Have you completed Table E by reporting *qualitative* data for TCDD? ☑ Yes ☐ No

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

Used or Manufactured Toxics

8.1	Is any pollutant listed in Table B a substance or a component of a substance used or manufactured at your facility as an intermediate or final product or byproduct? ☐ Yes ☑ No ➔ SKIP to Section 9.
8.2	List the pollutants below.

1.	4.	7.
2.	5.	8.
3.	6.	9.

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

Biological Toxicity Tests

9.1 Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made within the last three years on (1) any of your discharges or (2) on a receiving water in relation to your discharge?

☑ Yes ☐ No ➔ SKIP to Section 10.

9.2 Identify the tests and their purposes below.

Test(s)	Purpose of Test(s)	Submitted to NPDES Permitting Authority?	Date Submitted
Ceriodaphnia Acute Pimephales Acute	Verify Bio-toxicity at IWC	☑ Yes ☐ No	08/30/2022
Ceriodaphnia Acute Pimephales Acute	Verify Bio-toxicity at IWC	☑ Yes ☐ No	02/23/2022
Ceriodaphnia Acute Pimephales Acute	Verify Bio-toxicity at IWC	☑ Yes ☐ No	07/30/2021

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

Contract Analyses

10.1 Were any of the analyses reported in Section 7 performed by a contract laboratory or consulting firm?

☑ Yes ☐ No ➔ SKIP to Section 11.

10.2 Provide information for each contract laboratory or consulting firm below.

	Laboratory Number 1	Laboratory Number 2	Laboratory Number 3
Name of laboratory/firm	McGehee Engineering Corp.		
Laboratory address	450 19th Street West Jasper, AL 35501		
Phone number	(205) 221-0686		
Pollutant(s) analyzed	Table A, Table B Sections 1-4, and Table C		

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

Additional Information

11.1 Has the NPDES permitting authority requested additional information?

☐ Yes ☑ No ➔ SKIP to Section 12.

11.2 List the information requested and attach it to this application.

1.	4.
2.	5.
3.	6.

EPA Identification Number	NPDES Permit Number	Facility Name	Form Approved 03/05/19 OMB No. 2040-0004
	AL0068390	White Oak Creek CBM Project	

SECTION 12. CHECKLIST AND CERTIFICATION STATEMENT (40 CFR 122.22(a) and (d))

Checklist and Certification Statement

12.1 In Column 1 below, mark the sections of Form 2C that you have completed and are submitting with your application. For each section, specify in Column 2 any attachments that you are enclosing to alert the permitting authority. Note that not all applicants are required to complete all sections or provide attachments.

Column 1	Column 2			
☑ Section 1: Outfall Location	☐	w/ attachments		
☑ Section 2: Line Drawing	☑	w/ line drawing	☐	w/ additional attachments
☑ Section 3: Average Flows and Treatment	☐	w/ attachments	☐	w/ list of each user of privately owned treatment works
☑ Section 4: Intermittent Flows	☐	w/ attachments		
☑ Section 5: Production	☐	w/ attachments		
☑ Section 6: Improvements	☐	w/ attachments	☐	w/ optional additional sheets describing any additional pollution control plans
☑ Section 7: Effluent and Intake Characteristics	☐	w/ request for a waiver and supporting information	☐	w/ explanation for identical outfalls
	☐	w/ small business exemption request	☐	w/ other attachments
	☑	w/ Table A	☑	w/ Table B
	☑	w/ Table C	☑	w/ Table D
	☑	w/ Table E	☑	w/ analytical results as an attachment
☑ Section 8: Used or Manufactured Toxics	☐	w/ attachments		
☑ Section 9: Biological Toxicity Tests	☐	w/ attachments		
☑ Section 10: Contract Analyses	☐	w/ attachments		
☑ Section 11: Additional Information	☐	w/ attachments		
☑ Section 12: Checklist and Certification Statement	☐	w/ attachments		

12.2 **Certification Statement**

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.

Name (print or type first and last name)	Official title
Jeffrey Smith	Health, Environ., and Safety Manager
Signature: Jeff Smith	Date signed: 2-27-2023

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EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
	AL0068390	White Oak Creek CBM Project	001-1 (Representative)

Form Approved 03/05/19
OMB No. 2040-0004

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

	Pollutant	Waiver Requested (if applicable)	Units (specify)		Effluent				Intake (Optional)	
					Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
☐	Check here if you have applied to your NPDES permitting authority for a waiver for *all* of the pollutants listed on this table for the noted outfall.									
1.	Biochemical oxygen demand (BOD_5)	☐	Concentration	mg/L	6			1		
			Mass							
2.	Chemical oxygen demand (COD)	☐	Concentration	mg/L	19			1		
			Mass							
3.	Total organic carbon (TOC)	☐	Concentration	mg/L	6.0			1		
			Mass							
4.	Total suspended solids (TSS)	☐	Concentration	mg/L	17			1		
			Mass							
5.	Ammonia (as N)	☐	Concentration	mg/L	BML(<0.3)			1		
			Mass							
6.	Flow	☐	Rate	mgd	0.00			0		
7.	Temperature (winter)	☐	°C	°C	1.1					
	Temperature (summer)	☐	°C	°C	33.3					
8.	pH (minimum)	☐	Standard units	s.u.	8.44			1		
	pH (maximum)	☐	Standard units	s.u.	8.44			1		

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

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EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
	AL0068390	White Oak Creek CBM Project	001-1 (Representative)

Form Approved 03/05/19
OMB No. 2040-0004

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

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
☐	Check here if you qualify as a small business per the instructions to Form 2C and, therefore, do not need to submit quantitative data for any of the organic toxic pollutants in Sections 2 through 5 of this table. Note, however, that you must still indicate in the appropriate column of this table if you believe any of the pollutants listed are present in your discharge.											
Section 1. Toxic Metals, Cyanide, and Total Phenols												
1.1	Antimony, total (7440-36-0)	☑	☐	☑	Concentration	µg/L	BML(<1.92)			1		
					Mass							
1.2	Arsenic, total (7440-38-2)	☑	☑	☐	Concentration	µg/L	0.32			1		
					Mass							
1.3	Beryllium, total (7440-41-7)	☑	☐	☑	Concentration	µg/L	BML(<2.2)			1		
					Mass							
1.4	Cadmium, total (7440-43-9)	☑	☐	☑	Concentration	µg/L	BML(<0.08)			1		
					Mass							
1.5	Chromium, total (7440-47-3)	☑	☐	☑	Concentration	µg/L	BML(<1.64)			1		
					Mass							
1.6	Copper, total (7440-50-8)	☑	☐	☑	Concentration	µg/L	BML(<0.90)			1		
					Mass							
1.7	Lead, total (7439-92-1)	☑	☐	☑	Concentration	µg/L	BML(<0.31)			1		
					Mass							
1.8	Mercury, total (7439-97-6)	☑	☑	☐	Concentration	µg/L	0.02			1		
					Mass							
1.9	Nickel, total (7440-02-0)	☑	☐	☑	Concentration	µg/L	BML(<6.86)			1		
					Mass							
1.10	Selenium, total (7782-49-2)	☑	☐	☑	Concentration	µg/L	BML(<0.95)			1		
					Mass							
1.11	Silver, total (7440-22-4)	☑	☐	☐	Concentration	µg/L	BML(<0.15)			1		
					Mass							

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

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
1.12	Thallium, total (7440-28-0)	☑	☐	☑	Concentration	µg/L	BML(<0.08)			1		
					Mass							
1.13	Zinc, total (7440-66-6)	☑	☐	☑	Concentration	µg/L	BML(<16.45)			1		
					Mass							
1.14	Cyanide, total (57-12-5)	☑	☐	☑	Concentration	µg/L	BML(<3.0)			1		
					Mass							
1.15	Phenols, total	☑	☐	☑	Concentration	µg/L	BML(<6.0)			1		
					Mass							
Section 2. Organic Toxic Pollutants (GC/MS Fraction—Volatile Compounds)												
2.1	Acrolein (107-02-8)	☑	☐	☑	Concentration	µg/L	BDL(<200.0)			1		
					Mass							
2.2	Acrylonitrile (107-13-1)	☑	☐	☑	Concentration	µg/L	BDL(<50.0)			1		
					Mass							
2.3	Benzene (71-43-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.4	Bromoform (75-25-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.5	Carbon tetrachloride (56-23-5)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.6	Chlorobenzene (108-90-7)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.7	Chlorodibromomethane (124-48-1)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.8	Chloroethane (75-00-3)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							

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

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
2.9	2-chloroethylvinyl ether (110-75-8)	☑	☐	☑	Concentration	µg/L	BDL(<10.0)			1		
					Mass							
2.10	Chloroform (67-66-3)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.11	Dichlorobromomethane (75-27-4)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.12	1,1-dichloroethane (75-34-3)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.13	1,2-dichloroethane (107-06-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.14	1,1-dichloroethylene (75-35-4)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.15	1,2-dichloropropane (78-87-5)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.16	1,3-dichloropropylene (542-75-6)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.17	Ethylbenzene (100-41-4)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.18	Methyl bromide (74-83-9)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.19	Methyl chloride (74-87-3)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.20	Methylene chloride (75-09-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.21	1,1,2,2- tetrachloroethane (79-34-5)	☐	☐	☑	Concentration	µg/L	BDL(<10.0)			1		
					Mass							

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

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
2.22	Tetrachloroethylene (127-18-4)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.23	Toluene (108-88-3)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.24	1,2-trans-dichloroethylene (156-60-5)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.25	1,1,1-trichloroethane (71-55-6)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.26	1,1,2-trichloroethane (79-00-5)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.27	Trichloroethylene (79-01-6)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.28	Vinyl chloride (75-01-4)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
Section 3. Organic Toxic Pollutants (GC/MS Fraction—Acid Compounds)												
3.1	2-chlorophenol (95-57-8)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
3.2	2,4-dichlorophenol (120-83-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
3.3	2,4-dimethylphenol (105-67-9)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
3.4	4,6-dinitro-o-cresol (534-52-1)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
3.5	2,4-dinitrophenol (51-28-5)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							

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

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
3.6	2-nitrophenol (88-75-5)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
3.7	4-nitrophenol (100-02-7)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
3.8	p-chloro-m-cresol (59-50-7)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
3.9	Pentachlorophenol (87-86-5)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
3.10	Phenol (108-95-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
3.11	2,4,6-trichlorophenol (88-05-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
Section 4. Organic Toxic Pollutants (GC/MS Fraction—Base /Neutral Compounds)												
4.1	Acenaphthene (83-32-9)	☑	☐	☑	Concentration	µg/L	BDL(<10.0)			1		
					Mass							
4.2	Acenaphthylene (208-96-8)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.3	Anthracene (120-12-7)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.4	Benzidine (92-87-5)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.5	Benzo (a) anthracene (56-55-3)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.6	Benzo (a) pyrene (50-32-8)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							

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

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
4.7	3,4-benzofluoranthene (205-99-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.8	Benzo (ghi) perylene (191-24-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.9	Benzo (k) fluoranthene (207-08-9)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.10	Bis (2-chloroethoxy) methane (111-91-1)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.11	Bis (2-chloroethyl) ether (111-44-4)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.12	Bis (2-chloroisopropyl) ether (102-80-1)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.13	Bis (2-ethylhexyl) phthalate (117-81-7)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.14	4-bromophenyl phenyl ether (101-55-3)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.15	Butyl benzyl phthalate (85-68-7)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.16	2-chloronaphthalene (91-58-7)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.17	4-chlorophenyl phenyl ether (7005-72-3)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.18	Chrysene (218-01-9)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.19	Dibenzo (a,h) anthracene (53-70-3)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							

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

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
4.20	1,2-dichlorobenzene (95-50-1)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.21	1,3-dichlorobenzene (541-73-1)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.22	1,4-dichlorobenzene (106-46-7)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.23	3,3-dichlorobenzidine (91-94-1)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.24	Diethyl phthalate (84-66-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.25	Dimethyl phthalate (131-11-3)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.26	Di-n-butyl phthalate (84-74-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.27	2,4-dinitrotoluene (121-14-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.28	2,6-dinitrotoluene (606-20-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.29	Di-n-octyl phthalate (117-84-0)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.30	1,2-Diphenylhydrazine (as azobenzene) (122-66-7)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.31	Fluoranthene (206-44-0)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.32	Fluorene (86-73-7)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							

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

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
4.33	Hexachlorobenzene (118-74-1)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.34	Hexachlorobutadiene (87-68-3)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.35	Hexachlorocyclopentadiene (77-47-4)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.36	Hexachloroethane (67-72-1)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.37	Indeno (1,2,3-cd) pyrene (193-39-5)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.38	Isophorone (78-59-1)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.39	Naphthalene (91-20-3)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.40	Nitrobenzene (98-95-3)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.41	N-nitrosodimethylamine (62-75-9)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.42	N-nitrosodi-n-propylamine (621-64-7)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.43	N-nitrosodiphenylamine (86-30-6)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.44	Phenanthrene (85-01-8)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.45	Pyrene (129-00-0)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							

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

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
4.46	1,2,4-trichlorobenzene (120-82-1)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
Section 5. Organic Toxic Pollutants (GC/MS Fraction—Pesticides)												
5.1	Aldrin (309-00-2)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.2	α-BHC (319-84-6)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.3	β-BHC (319-85-7)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.4	γ-BHC (58-89-9)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.5	δ-BHC (319-86-8)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.6	Chlordane (57-74-9)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.7	4,4'-DDT (50-29-3)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.8	4,4'-DDE (72-55-9)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.9	4,4'-DDD (72-54-8)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.10	Dieldrin (60-57-1)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.11	α-endosulfan (115-29-7)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							

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

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
5.12	β-endosulfan (115-29-7)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.13	Endosulfan sulfate (1031-07-8)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.14	Endrin (72-20-8)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.15	Endrin aldehyde (7421-93-4)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.16	Heptachlor (76-44-8)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.17	Heptachlor epoxide (1024-57-3)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.18	PCB-1242 (53469-21-9)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.19	PCB-1254 (11097-69-1)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.20	PCB-1221 (11104-28-2)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.21	PCB-1232 (11141-16-5)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.22	PCB-1248 (12672-29-6)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.23	PCB-1260 (11096-82-5)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.24	PCB-1016 (12674-11-2)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							

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

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
5.25	Toxaphene (8001-35-2)	☐	☐	☑	Concentration	µg/L	BDL(<2.0)			1		
					Mass							

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

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EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
	AL0068390	White Oak Creek CBM Project	001-1 (Representative)

Form Approved 03/05/19
OMB No. 2040-0004

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

	Pollutant	Presence or Absence (check one)		Units (specify)		Effluent				Intake (Optional)	
		Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
☐	Check here if you believe all pollutants on Table C to be ***present*** in your discharge from the noted outfall. You need *not* complete the "Presence or Absence" column of Table C for *each* pollutant.										
☐	Check here if you believe all pollutants on Table C to be ***absent*** in your discharge from the noted outfall. You need *not* complete the "Presence or Absence" column of Table C for *each* pollutant.										
1.	Bromide (24959-67-9)	☑	☐	Concentration	mg/L	1.2			1		
				Mass							
2.	Chlorine, total residual	☑	☐	Concentration	mg/L	0.03			1		
				Mass							
3.	Color	☐	☑	Concentration	C.U.	BDL(<25)			1		
				Mass							
4.	Fecal coliform	☐	☑	Concentration	col/100ml	0			1		
				Mass							
5.	Fluoride (16984-48-8)	☑	☐	Concentration	mg/L	1.1			1		
				Mass							
6	Nitrate-nitrite	☐	☑	Concentration	mg/L	BML(<0.06)			1		
				Mass							
7.	Nitrogen, total organic (as N)	☑	☐	Concentration	mg/L	1.10			1		
				Mass							
8.	Oil and grease	☐	☑	Concentration	mg/L	BML(<5.0)			1		
				Mass							
9.	Phosphorus (as P), total (7723-14-0)	☑	☐	Concentration	mg/L	0.38			1		
				Mass							
10.	Sulfate (as SO_4) (14808-79-8)	☑	☐	Concentration	mg/L	51			1		
				Mass							
11.	Sulfide (as S)	☐	☑	Concentration	mg/L	BML(<0.3)			1		
				Mass							

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

	Pollutant	Presence or Absence (check one)		Units (specify)		Effluent				Intake (Optional)	
		Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
12.	Sulfite (as SO_3) (14265-45-3)	☐	☑	Concentration	mg/L	BML(<3.0)			1		
				Mass							
13.	Surfactants	☐	☑	Concentration	mg/L	BML(<0.1)			1		
				Mass							
14.	Aluminum, total (7429-90-5)	☐	☑	Concentration	mg/L	BML(<0.02)			1		
				Mass							
15.	Barium, total (7440-39-3)	☑	☐	Concentration	µg/L	1195			1		
				Mass							
16.	Boron, total (7440-42-8)	☑	☐	Concentration	mg/L	0.08			1		
				Mass							
17.	Cobalt, total (7440-48-4)	☐	☑	Concentration	µg/L	BML(<0.17)			1		
				Mass							
18.	Iron, total (7439-89-6)	☑	☐	Concentration	mg/L	0.18			1		
				Mass							
19.	Magnesium, total (7439-95-4)	☑	☐	Concentration	mg/L	2.01			1		
				Mass							
20.	Molybdenum, total (7439-98-7)	☑	☐	Concentration	µg/L	3.08			1		
				Mass							
21.	Manganese, total (7439-96-5)	☐	☑	Concentration	mg/L	BML(<0.03)			1		
				Mass							
22.	Tin, total (7440-31-5)	☐	☐	Concentration	mg/L	BDL(<0.1)			1		
				Mass							
23.	Titanium, total (7440-32-6)	☐	☑	Concentration	mg/L	BDL(<0.005)			1		
				Mass							

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

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

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

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

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
1.	Asbestos	☐	☑		
2.	Acetaldehyde	☐	☑		
3.	Allyl alcohol	☐	☑		
4.	Allyl chloride	☐	☑		BDL(<10.0) µg/L
5.	Amyl acetate	☐	☑		
6.	Aniline	☐	☑		BDL(<5.0) µg/L
7.	Benzonitrile	☐	☑		
8.	Benzyl chloride	☐	☑		
9.	Butyl acetate	☐	☑		
10.	Butylamine	☐	☑		
11.	Captan	☐	☑		
12.	Carbaryl	☐	☑		
13.	Carbofuran	☐	☑		
14.	Carbon disulfide	☐	☑		BDL(<5.0) µg/L
15.	Chlorpyrifos	☐	☑		
16.	Coumaphos	☐	☑		
17.	Cresol	☐	☑		
18.	Crotonaldehyde	☐	☑		
19.	Cyclohexane	☐	☑		

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

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
20.	2,4-D (2,4-dichlorophenoxyacetic acid)	☐	☑		BDL(<0.05) µg/L
21.	Diazinon	☐	☑		
22.	Dicamba	☐	☑		BDL(<0.05) µg/L
23.	Dichlobenil	☐	☑		
24.	Dichlone	☐	☑		
25.	2,2-dichloropropionic acid	☐	☑		
26.	Dichlorvos	☐	☑		
27.	Diethyl amine	☐	☑		
28.	Dimethyl amine	☐	☑		
29.	Dintrobenzene	☐	☑		
30.	Diquat	☐	☑		
31.	Disulfoton	☐	☑		BDL(<5.0) µg/L
32.	Diuron	☐	☑		
33.	Epichlorohydrin	☐	☑		
34.	Ethion	☐	☑		
35.	Ethylene diamine	☐	☑		
36.	Ethylene dibromide	☐	☑		
37.	Formaldehyde	☐	☑		
38.	Furfural	☐	☑		

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

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
39.	Guthion	☐	☑		
40.	Isoprene	☐	☑		
41.	Isopropanolamine	☐	☑		
42.	Kelthane	☐	☑		
43.	Kepone	☐	☑		BDL(<5.0) µg/L
44.	Malathion	☐	☑		
45.	Mercaptodimethur	☐	☑		
46.	Methoxychlor	☐	☑		BDL(<5.0) µg/L
47.	Methyl mercaptan	☐	☑		
48.	Methyl methacrylate	☐	☑		BDL(<10.0) µg/L
49.	Methyl parathion	☐	☑		BDL(<5.0) µg/L
50.	Mevinphos	☐	☑		
51.	Mexacarbate	☐	☑		
52.	Monoethyl amine	☐	☑		
53.	Monomethyl amine	☐	☑		
54.	Naled	☐	☑		
55.	Naphthenic acid	☐	☑		
56.	Nitrotoluene	☐	☑		
57.	Parathion	☐	☑		BDL(<5.0) µg/L

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

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
58.	Phenolsulfonate	☐	☑		
59.	Phosgene	☐	☑		
60.	Propargite	☐	☑		
61.	Propylene oxide	☐	☑		
62.	Pyrethrins	☐	☑		
63.	Quinoline	☐	☑		
64.	Resorcinol	☐	☑		
65.	Strontium	☐	☑		
66.	Strychnine	☐	☑		
67.	Styrene	☐	☑		BDL(<5.0) µg/L
68.	2,4,5-T (2,4,5-trichlorophenoxyacetic acid)	☐	☑		
69.	TDE (tetrachlorodiphenyl ethane)	☐	☑		
70.	2,4,5-TP [2-(2,4,5-trichlorophenoxy) propanoic acid]	☐	☑		
71.	Trichlorofon	☐	☑		
72.	Triethanolamine	☐	☑		
73.	Triethylamine	☐	☑		
74.	Trimethylamine	☐	☑		
75.	Uranium	☐	☑		
76.	Vanadium	☐	☑		

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

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
77.	Vinyl acetate	☐	☑		BDL(<20.0) µg/L
78.	Xylene	☐	☑		BDL(<5.0) µg/L
79.	Xylenol	☐	☑		
80.	Zirconium	☐	☑		

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

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TABLE E. 2,3,7,8 TETRACHLORODIBENZO P DIOXIN (2,3,7,8 TCDD) (40 CFR 122.21(g)(7)(viii))

Pollutant	TCDD Congeners Used or Manufactured	Presence or Absence (check one)		Results of Screening Procedure
		Believed Present	Believed Absent	
2,3,7,8-TCDD	☐	☐	☑	BDL(<5.0) µg/L

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EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
	AL0068390	White Oak Creek CBM Project	003-1

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

	Pollutant	Waiver Requested (if applicable)	Units (specify)		Effluent				Intake (Optional)	
					Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
☐	Check here if you have applied to your NPDES permitting authority for a waiver for *all* of the pollutants listed on this table for the noted outfall.									
1.	Biochemical oxygen demand (BOD_5)	☐	Concentration	mg/L	6			1		
			Mass							
2.	Chemical oxygen demand (COD)	☐	Concentration	mg/L	19			1		
			Mass							
3.	Total organic carbon (TOC)	☐	Concentration	mg/L	6.0			1		
			Mass							
4.	Total suspended solids (TSS)	☐	Concentration	mg/L	17			1		
			Mass							
5.	Ammonia (as N)	☐	Concentration	mg/L	BML(<0.3)			1		
			Mass							
6.	Flow	☐	Rate	mgd	0.22564					
7.	Temperature (winter)	☐	°C	°C	1.1					
	Temperature (summer)	☐	°C	°C	33.3					
8.	pH (minimum)	☐	Standard units	s.u.	8.44			1		
	pH (maximum)	☐	Standard units	s.u.	8.44			1		

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

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EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
	AL0068390	White Oak Creek CBM Project	003-1

Form Approved 03/05/19
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TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))[1]

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
☐	Check here if you qualify as a small business per the instructions to Form 2C and, therefore, do not need to submit quantitative data for any of the organic toxic pollutants in Sections 2 through 5 of this table. Note, however, that you must still indicate in the appropriate column of this table if you believe any of the pollutants listed are present in your discharge.											
Section 1. Toxic Metals, Cyanide, and Total Phenols												
1.1	Antimony, total (7440-36-0)	☑	☐	☑	Concentration	µg/L	BML(<1.92)			1		
					Mass							
1.2	Arsenic, total (7440-38-2)	☑	☑	☐	Concentration	µg/L	0.32			1		
					Mass							
1.3	Beryllium, total (7440-41-7)	☑	☐	☑	Concentration	µg/L	BML(<2.2)			1		
					Mass							
1.4	Cadmium, total (7440-43-9)	☑	☐	☑	Concentration	µg/L	BML(<0.08)			1		
					Mass							
1.5	Chromium, total (7440-47-3)	☑	☐	☑	Concentration	µg/L	BML(<1.64)			1		
					Mass							
1.6	Copper, total (7440-50-8)	☑	☐	☑	Concentration	µg/L	BML(<0.90)			1		
					Mass							
1.7	Lead, total (7439-92-1)	☑	☐	☑	Concentration	µg/L	BML(<0.31)			1		
					Mass							
1.8	Mercury, total (7439-97-6)	☑	☑	☐	Concentration	µg/L	0.02			1		
					Mass							
1.9	Nickel, total (7440-02-0)	☑	☐	☑	Concentration	µg/L	BML(<6.86)			1		
					Mass							
1.10	Selenium, total (7782-49-2)	☑	☐	☑	Concentration	µg/L	BML(<0.95)			1		
					Mass							
1.11	Silver, total (7440-22-4)	☑	☐	☐	Concentration	µg/L	BML(<0.15)			1		
					Mass							

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

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
1.12	Thallium, total (7440-28-0)	☑	☐	☑	Concentration	µg/L	BML(<0.08)			1		
					Mass							
1.13	Zinc, total (7440-66-6)	☑	☐	☑	Concentration	µg/L	BML(<16.45)			1		
					Mass							
1.14	Cyanide, total (57-12-5)	☑	☐	☑	Concentration	µg/L	BML(<3.0)			1		
					Mass							
1.15	Phenols, total	☑	☐	☑	Concentration	µg/L	BML(<6.0)			1		
					Mass							
Section 2. Organic Toxic Pollutants (GC/MS Fraction—Volatile Compounds)												
2.1	Acrolein (107-02-8)	☑	☐	☑	Concentration	µg/L	BDL(<200.0)			1		
					Mass							
2.2	Acrylonitrile (107-13-1)	☑	☐	☑	Concentration	µg/L	BDL(<50.0)			1		
					Mass							
2.3	Benzene (71-43-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.4	Bromoform (75-25-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.5	Carbon tetrachloride (56-23-5)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.6	Chlorobenzene (108-90-7)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.7	Chlorodibromomethane (124-48-1)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.8	Chloroethane (75-00-3)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							

EPA Identification Number	NPDES Permit Number	Facility Name	Outfall Number
	AL0068390	White Oak Creek CBM Project	003-1

Form Approved 03/05/19
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TABLE B. TOXIC METALS, CYANIDE, TOTAL PHENOLS, AND ORGANIC TOXIC POLLUTANTS (40 CFR 122.21(g)(7)(v))[1]

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
2.9	2-chloroethylvinyl ether (110-75-8)	☑	☐	☑	Concentration	µg/L	BDL(<10.0)			1		
					Mass							
2.10	Chloroform (67-66-3)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.11	Dichlorobromomethane (75-27-4)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.12	1,1-dichloroethane (75-34-3)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.13	1,2-dichloroethane (107-06-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.14	1,1-dichloroethylene (75-35-4)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.15	1,2-dichloropropane (78-87-5)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.16	1,3-dichloropropylene (542-75-6)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.17	Ethylbenzene (100-41-4)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.18	Methyl bromide (74-83-9)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.19	Methyl chloride (74-87-3)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.20	Methylene chloride (75-09-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.21	1,1,2,2- tetrachloroethane (79-34-5)	☐	☐	☑	Concentration	µg/L	BDL(<10.0)			1		
					Mass							

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

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
2.22	Tetrachloroethylene (127-18-4)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.23	Toluene (108-88-3)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.24	1,2-trans-dichloroethylene (156-60-5)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.25	1,1,1-trichloroethane (71-55-6)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.26	1,1,2-trichloroethane (79-00-5)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.27	Trichloroethylene (79-01-6)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
2.28	Vinyl chloride (75-01-4)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
Section 3. Organic Toxic Pollutants (GC/MS Fraction—Acid Compounds)												
3.1	2-chlorophenol (95-57-8)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
3.2	2,4-dichlorophenol (120-83-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
3.3	2,4-dimethylphenol (105-67-9)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
3.4	4,6-dinitro-o-cresol (534-52-1)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
3.5	2,4-dinitrophenol (51-28-5)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							

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

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
3.6	2-nitrophenol (88-75-5)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
3.7	4-nitrophenol (100-02-7)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
3.8	p-chloro-m-cresol (59-50-7)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
3.9	Pentachlorophenol (87-86-5)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
3.10	Phenol (108-95-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
3.11	2,4,6-trichlorophenol (88-05-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
Section 4. Organic Toxic Pollutants (GC/MS Fraction—Base /Neutral Compounds)												
4.1	Acenaphthene (83-32-9)	☑	☐	☑	Concentration	µg/L	BDL(<10.0)			1		
					Mass							
4.2	Acenaphthylene (208-96-8)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.3	Anthracene (120-12-7)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.4	Benzidine (92-87-5)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.5	Benzo (a) anthracene (56-55-3)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.6	Benzo (a) pyrene (50-32-8)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							

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

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
4.7	3,4-benzofluoranthene (205-99-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.8	Benzo (ghi) perylene (191-24-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.9	Benzo (k) fluoranthene (207-08-9)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.10	Bis (2-chloroethoxy) methane (111-91-1)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.11	Bis (2-chloroethyl) ether (111-44-4)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.12	Bis (2-chloroisopropyl) ether (102-80-1)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.13	Bis (2-ethylhexyl) phthalate (117-81-7)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.14	4-bromophenyl phenyl ether (101-55-3)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.15	Butyl benzyl phthalate (85-68-7)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.16	2-chloronaphthalene (91-58-7)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.17	4-chlorophenyl phenyl ether (7005-72-3)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.18	Chrysene (218-01-9)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.19	Dibenzo (a,h) anthracene (53-70-3)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							

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

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
4.20	1,2-dichlorobenzene (95-50-1)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.21	1,3-dichlorobenzene (541-73-1)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.22	1,4-dichlorobenzene (106-46-7)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.23	3,3-dichlorobenzidine (91-94-1)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.24	Diethyl phthalate (84-66-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.25	Dimethyl phthalate (131-11-3)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.26	Di-n-butyl phthalate (84-74-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.27	2,4-dinitrotoluene (121-14-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.28	2,6-dinitrotoluene (606-20-2)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.29	Di-n-octyl phthalate (117-84-0)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.30	1,2-Diphenylhydrazine (as azobenzene) (122-66-7)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.31	Fluoranthene (206-44-0)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.32	Fluorene (86-73-7)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							

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

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
4.33	Hexachlorobenzene (118-74-1)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.34	Hexachlorobutadiene (87-68-3)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.35	Hexachlorocyclopentadiene (77-47-4)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.36	Hexachloroethane (67-72-1)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.37	Indeno (1,2,3-cd) pyrene (193-39-5)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.38	Isophorone (78-59-1)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.39	Naphthalene (91-20-3)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.40	Nitrobenzene (98-95-3)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.41	N-nitrosodimethylamine (62-75-9)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.42	N-nitrosodi-n-propylamine (621-64-7)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.43	N-nitrosodiphenylamine (86-30-6)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.44	Phenanthrene (85-01-8)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
4.45	Pyrene (129-00-0)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							

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

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
4.46	1,2,4-trichlorobenzene (120-82-1)	☑	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
Section 5. Organic Toxic Pollutants (GC/MS Fraction—Pesticides)												
5.1	Aldrin (309-00-2)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.2	α-BHC (319-84-6)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.3	β-BHC (319-85-7)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.4	γ-BHC (58-89-9)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.5	δ-BHC (319-86-8)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.6	Chlordane (57-74-9)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.7	4,4'-DDT (50-29-3)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.8	4,4'-DDE (72-55-9)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.9	4,4'-DDD (72-54-8)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.10	Dieldrin (60-57-1)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.11	α-endosulfan (115-29-7)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							

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

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
5.12	β-endosulfan (115-29-7)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.13	Endosulfan sulfate (1031-07-8)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.14	Endrin (72-20-8)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.15	Endrin aldehyde (7421-93-4)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.16	Heptachlor (76-44-8)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.17	Heptachlor epoxide (1024-57-3)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.18	PCB-1242 (53469-21-9)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.19	PCB-1254 (11097-69-1)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.20	PCB-1221 (11104-28-2)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.21	PCB-1232 (11141-16-5)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.22	PCB-1248 (12672-29-6)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.23	PCB-1260 (11096-82-5)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							
5.24	PCB-1016 (12674-11-2)	☐	☐	☑	Concentration	µg/L	BDL(<5.0)			1		
					Mass							

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

	Pollutant/Parameter (and CAS Number, if available)	Testing Required	Presence or Absence (check one)		Units (specify)		Effluent				Intake (optional)	
			Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
5.25	Toxaphene (8001-35-2)	☐	☐	☑	Concentration	µg/L	BDL(<2.0)			1		
					Mass							

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

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

	Pollutant	Presence or Absence (check one)		Units (specify)		Effluent				Intake (Optional)	
		Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
☐	Check here if you believe all pollutants on Table C to be ***present*** in your discharge from the noted outfall. You need *not* complete the "Presence or Absence" column of Table C for *each* pollutant.										
☐	Check here if you believe all pollutants on Table C to be ***absent*** in your discharge from the noted outfall. You need *not* complete the "Presence or Absence" column of Table C for *each* pollutant.										
1.	Bromide (24959-67-9)	☑	☐	Concentration	mg/L	1.2			1		
				Mass							
2.	Chlorine, total residual	☑	☐	Concentration	mg/L	0.03			1		
				Mass							
3.	Color	☐	☑	Concentration	C.U.	BDL(<25)			1		
				Mass							
4.	Fecal coliform	☐	☑	Concentration	col/100ml	0			1		
				Mass							
5.	Fluoride (16984-48-8)	☑	☐	Concentration	mg/L	1.1			1		
				Mass							
6	Nitrate-nitrite	☐	☑	Concentration	mg/L	BML(<0.06)			1		
				Mass							
7.	Nitrogen, total organic (as N)	☑	☐	Concentration	mg/L	1.10			1		
				Mass							
8.	Oil and grease	☐	☑	Concentration	mg/L	BML(<5.0)			1		
				Mass							
9.	Phosphorus (as P), total (7723-14-0)	☑	☐	Concentration	mg/L	0.38			1		
				Mass							
10.	Sulfate (as SO_4) (14808-79-8)	☑	☐	Concentration	mg/L	51			1		
				Mass							
11.	Sulfide (as S)	☐	☑	Concentration	mg/L	BML(<0.3)			1		
				Mass							

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

	Pollutant	Presence or Absence (check one)		Units (specify)		Effluent				Intake (Optional)	
		Believed Present	Believed Absent			Maximum Daily Discharge (required)	Maximum Monthly Discharge (if available)	Long-Term Average Daily Discharge (if available)	Number of Analyses	Long-Term Average Value	Number of Analyses
12.	Sulfite (as SO_3) (14265-45-3)	☐	☑	Concentration	mg/L	BML(<3.0)			1		
				Mass							
13.	Surfactants	☐	☑	Concentration	mg/L	BML(<0.1)			1		
				Mass							
14.	Aluminum, total (7429-90-5)	☐	☑	Concentration	mg/L	BML(<0.02)			1		
				Mass							
15.	Barium, total (7440-39-3)	☑	☐	Concentration	µg/L	1195			1		
				Mass							
16.	Boron, total (7440-42-8)	☑	☐	Concentration	mg/L	0.08			1		
				Mass							
17.	Cobalt, total (7440-48-4)	☐	☑	Concentration	µg/L	BML(<0.17)			1		
				Mass							
18.	Iron, total (7439-89-6)	☑	☐	Concentration	mg/L	0.18			1		
				Mass							
19.	Magnesium, total (7439-95-4)	☑	☐	Concentration	mg/L	2.01			1		
				Mass							
20.	Molybdenum, total (7439-98-7)	☑	☐	Concentration	µg/L	3.08			1		
				Mass							
21.	Manganese, total (7439-96-5)	☐	☑	Concentration	mg/L	BML(<0.03)			1		
				Mass							
22.	Tin, total (7440-31-5)	☐	☐	Concentration	mg/L	BDL(<0.1)			1		
				Mass							
23.	Titanium, total (7440-32-6)	☐	☑	Concentration	mg/L	BDL(<0.005)			1		
				Mass							

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

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

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

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

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
1.	Asbestos	☐	☑		
2.	Acetaldehyde	☐	☑		
3.	Allyl alcohol	☐	☑		
4.	Allyl chloride	☐	☑		BDL(<10.0) µg/L
5.	Amyl acetate	☐	☑		
6.	Aniline	☐	☑		BDL(<5.0) µg/L
7.	Benzonitrile	☐	☑		
8.	Benzyl chloride	☐	☑		
9.	Butyl acetate	☐	☑		
10.	Butylamine	☐	☑		
11.	Captan	☐	☑		
12.	Carbaryl	☐	☑		
13.	Carbofuran	☐	☑		
14.	Carbon disulfide	☐	☑		BDL(<5.0) µg/L
15.	Chlorpyrifos	☐	☑		
16.	Coumaphos	☐	☑		
17.	Cresol	☐	☑		
18.	Crotonaldehyde	☐	☑		
19.	Cyclohexane	☐	☑		

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

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
20.	2,4-D (2,4-dichlorophenoxyacetic acid)	☐	☑		BDL(<0.05) µg/L
21.	Diazinon	☐	☑		
22.	Dicamba	☐	☑		BDL(<0.05) µg/L
23.	Dichlobenil	☐	☑		
24.	Dichlone	☐	☑		
25.	2,2-dichloropropionic acid	☐	☑		
26.	Dichlorvos	☐	☑		
27.	Diethyl amine	☐	☑		
28.	Dimethyl amine	☐	☑		
29.	Dintrobenzene	☐	☑		
30.	Diquat	☐	☑		
31.	Disulfoton	☐	☑		BDL(<5.0) µg/L
32.	Diuron	☐	☑		
33.	Epichlorohydrin	☐	☑		
34.	Ethion	☐	☑		
35.	Ethylene diamine	☐	☑		
36.	Ethylene dibromide	☐	☑		
37.	Formaldehyde	☐	☑		
38.	Furfural	☐	☑		

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

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
39.	Guthion	☐	☑		
40.	Isoprene	☐	☑		
41.	Isopropanolamine	☐	☑		
42.	Kelthane	☐	☑		
43.	Kepone	☐	☑		BDL(<5.0) µg/L
44.	Malathion	☐	☑		
45.	Mercaptodimethur	☐	☑		
46.	Methoxychlor	☐	☑		BDL(<5.0) µg/L
47.	Methyl mercaptan	☐	☑		
48.	Methyl methacrylate	☐	☑		BDL(<10.0) µg/L
49.	Methyl parathion	☐	☑		BDL(<5.0) µg/L
50.	Mevinphos	☐	☑		
51.	Mexacarbate	☐	☑		
52.	Monoethyl amine	☐	☑		
53.	Monomethyl amine	☐	☑		
54.	Naled	☐	☑		
55.	Naphthenic acid	☐	☑		
56.	Nitrotoluene	☐	☑		
57.	Parathion	☐	☑		BDL(<5.0) µg/L

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

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
58.	Phenolsulfonate	☐	☑		
59.	Phosgene	☐	☑		
60.	Propargite	☐	☑		
61.	Propylene oxide	☐	☑		
62.	Pyrethrins	☐	☑		
63.	Quinoline	☐	☑		
64.	Resorcinol	☐	☑		
65.	Strontium	☐	☑		
66.	Strychnine	☐	☑		
67.	Styrene	☐	☑		BDL(<5.0) µg/L
68.	2,4,5-T (2,4,5-trichlorophenoxyacetic acid)	☐	☑		
69.	TDE (tetrachlorodiphenyl ethane)	☐	☑		
70.	2,4,5-TP [2-(2,4,5-trichlorophenoxy) propanoic acid]	☐	☑		
71.	Trichlorofon	☐	☑		
72.	Triethanolamine	☐	☑		
73.	Triethylamine	☐	☑		
74.	Trimethylamine	☐	☑		
75.	Uranium	☐	☑		
76.	Vanadium	☐	☑		

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

	Pollutant	Presence or Absence (check one)		Reason Pollutant Believed Present in Discharge	Available Quantitative Data (specify units)
		Believed Present	Believed Absent		
77.	Vinyl acetate	☐	☑		BDL(<20.0) µg/L
78.	Xylene	☐	☑		BDL(<5.0) µg/L
79.	Xylenol	☐	☑		
80.	Zirconium	☐	☑		

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

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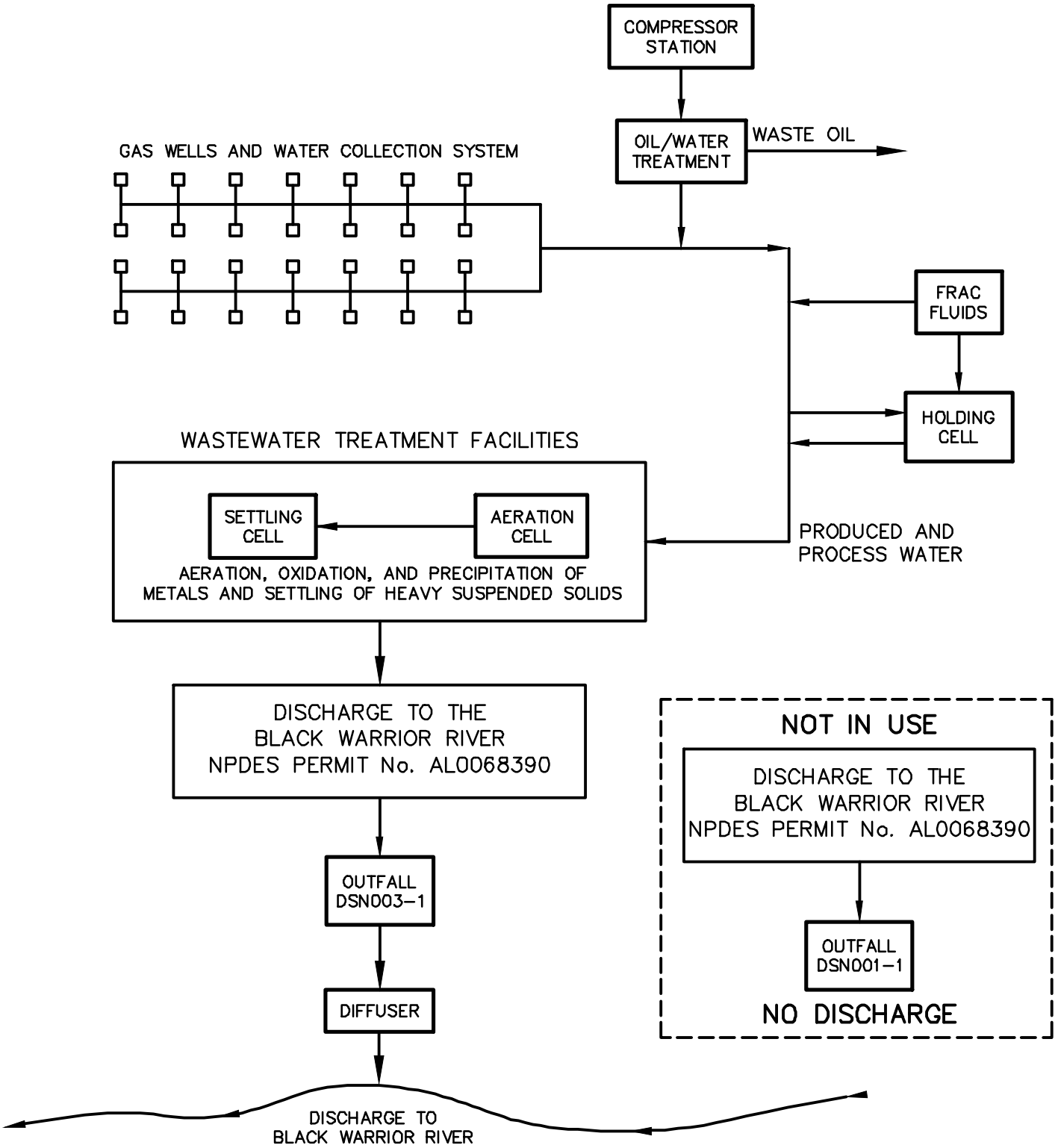
TABLE E. 2,3,7,8 TETRACHLORODIBENZO P DIOXIN (2,3,7,8 TCDD) (40 CFR 122.21(g)(7)(viii))

Pollutant	TCDD Congeners Used or Manufactured	Presence or Absence (check one)		Results of Screening Procedure
		Believed Present	Believed Absent	
2,3,7,8-TCDD	☐	☐	☑	BDL(<5.0) µg/L



McGiffert and Associates, LLC
SINCE 1949
CIVIL ENGINEERS
2814 STILLMAN BLVD. • P.O. BOX 20559
TUSCALOOSA, ALABAMA 35402-0559
WWW.MCGIFFERT.COM (205)759-1521 FAX (205)759-1524

URBAN OIL & GAS GROUP, LLC

WHITE OAK CREEK CBM PROJECT
NPDES DISCHARGE PERMIT
NO. AL0068390
TUSCALOOSA & WALKER COUNTIES ALABAMA

FACILITY FLOW DIAGRAM

REVISION		
DATE	DESCRIPTION	BY

SCALE: N/A	
DATE OF FIELD SURVEY: N/A	
FB. N/A	PG. N/A
DRAWN BY: D D H	
JOB No. 22-3095	
FILE NAME: URBAN-WOC-Flow	
SHEET No. 1 of 1	
CHECKED BY: QHS	DWG. No. 19-23

Date Printed: 1/12/2023

Client: **McGiffert And Associates, LLC**
P.O. Box 20559
Tuscaloosa, AL 35402

REPORT OF FINDINGS

Location: , MAA-Special Urban White Oak Creek -- WOC-Eff **Lab ID:** 22120710-01

Sample Date: 12/6/2022 @ 9:20:00 AM **Comments:**

Analyte	Result	Minimum Level / Units	Method	Analysis Date	Analyst
Aluminum, Total	BML	0.02 mg/L	EPA200.8	12/13/2022 3:35:11 PM	KyleThomas
Ammonia Nitrogen	BML	0.3 mg/L	SM4500-NH3-C	12/19/2022	Stillbrook
Antimony, Dissolved	BML	1.92 µg/L	EPA200.8	12/13/2022 3:39:07 PM	KyleThomas
Arsenic III	BML	0.30 µg/L	EPA200.8/HPLC	1/11/2023	KyleThomas
Arsenic, Dissolved	0.32	0.27 µg/L	EPA200.8	12/13/2022 3:39:07 PM	KyleThomas
Barium, Total	1195	0.06 µg/L	EPA200.8	12/13/2022 3:35:11 PM	KyleThomas
Beryllium, Dissolved	BML	2.20 µg/L	EPA200.8	12/13/2022 3:39:07 PM	KyleThomas
Biochemical Oxygen Demand	6	mg/L	SM5210-B	12/8/2022	HeathBrown
Cadmium, Dissolved	BML	0.08 µg/L	EPA200.8	12/13/2022 3:39:07 PM	KyleThomas
Carbon, Total Organic	6.0	3.0 mg/l	SM5310B	12/14/2022	Stillbrook
Chemical Oxygen Demand	19	15 mg/L	SM5220-D	12/15/2022	Stillbrook
Chromium, Dissolved	BML	1.64 µg/L	EPA200.8	12/13/2022 3:39:07 PM	KyleThomas
Cobalt, Total	BML	0.17 µg/L	EPA200.8	12/13/2022 3:35:11 PM	KyleThomas
Copper, Dissolved	BML	0.90 µg/L	EPA200.8	12/13/2022 3:39:07 PM	KyleThomas
Cyanide, Total	BML	3.0 µg/L	SM4500-CN-E	1/11/2023	KyleThomas
Fecal Coliform	0	col/100mL	9222D	12/6/2022	HeathBrown
Iron, Total	0.18	0.02 mg/L	EPA200.8	12/13/2022 3:35:11 PM	KyleThomas
Lead, Dissolved	BML	0.31 µg/L	EPA200.8	12/13/2022 3:39:07 PM	KyleThomas
Magnesium, Total	2.01	0.08 mg/L	EPA200.8	12/13/2022 3:35:11 PM	KyleThomas
Manganese, Total	BML	0.03 mg/L	EPA200.8	12/13/2022 3:35:11 PM	KyleThomas
Mercury, Total	0.020	0.010 µg/L	EPA245.7	12/29/2022 3:02:00 PM	KyleThomas
Molybdinum, Total	3.08	0.27 µg/L	EPA200.8	12/13/2022 3:35:11 PM	KyleThomas
Nickel, Dissolved	BML	6.86 µg/L	EPA200.8	12/13/2022 3:39:07 PM	KyleThomas
Nitrite + Nitrate, Total as N	BML	0.06 mg/L	SM4110-B	12/13/2022	Stillbrook
Oil & Grease	BML	5.0 mg/L	EPA1664	12/14/2022	HeathBrown
pH	8.44	s.u.	D1293-B	12/6/2022	McGiffert And Associates, LLC
Phenols, Total	BML	6.0 µg/L	EPA420.1	1/9/2023	KyleThomas

NA = Not Analyzed *ND = No Discharge* *BML = Below Minimum Level*

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Date Printed: 1/12/2023

Phosphorus, Total	0.38	0.06 mg/L	SM4500-P-E	12/16/2022	DrewBentley
Selenium, Total	BML	0.95 µg/L	EPA200.8	12/13/2022 3:35:11 PM	KyleThomas
Silver, Dissolved	BML	0.15 µg/L	EPA200.8	12/13/2022 3:39:07 PM	KyleThomas
Solids, Total Suspended	17	mg/L	SM2540-D	12/7/2022	DrewBentley
Sulfate	51	6 mg/L	D516	12/7/2022	KyleThomas
Sulfide, Total	BML	0.3 mg/L	SM4500-S2-F	12/9/2022	Stillbrook
Sulfite, Total	BML	3 mg/L	SM4500-SO3-B	12/9/2022	Stillbrook
Thallium, Dissolved	BML	0.08 µg/L	EPA200.8	12/13/2022 3:39:07 PM	KyleThomas
Total Organic Nitrogen	1.10	0.10 mg/L	SM4500-N	12/19/2022	Stillbrook
Total Residual Chlorine	0.03	mg/L	SM4500-Cl-G	12/6/2022	McGiffert And Associates, LLC
Zinc, Dissolved	BML	16.45 µg/L	EPA200.8	12/13/2022 3:39:07 PM	KyleThomas

NA = Not Analyzed *ND = No Discharge* *BML = Below Minimum Level*

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Date Printed: 1/12/2023

Location: , MAA-Special Urban White Oak Creek -- WOC-Up **Lab ID:** 22120710-02

Sample Date: 12/6/2022 @ 10:30:00 AM **Comments:**

Analyte	Result	Minimum Level / Units	Method	Analysis Date	Analyst
Aluminum, Total	0.33	0.02 mg/L	EPA200.8	12/13/2022 3:42:58 PM	KyleThomas
Ammonia Nitrogen	BML	0.3 mg/L	SM4500-NH3-C	12/19/2022	Stillbrook
Antimony, Dissolved	BML	1.92 µg/L	EPA200.8	12/13/2022 3:46:54 PM	KyleThomas
Arsenic III	BML	0.30 µg/L	EPA200.8/HPLC	1/11/2023	KyleThomas
Arsenic, Dissolved	0.61	0.27 µg/L	EPA200.8	12/13/2022 3:46:54 PM	KyleThomas
Barium, Total	23.00	0.06 µg/L	EPA200.8	12/13/2022 3:42:58 PM	KyleThomas
Beryllium, Dissolved	BML	2.20 µg/L	EPA200.8	12/13/2022 3:46:54 PM	KyleThomas
Biochemical Oxygen Demand	2	mg/L	SM5210-B	12/8/2022	HeathBrown
Cadmium, Dissolved	BML	0.08 µg/L	EPA200.8	12/13/2022 3:46:54 PM	KyleThomas
Carbon, Total Organic	6.0	3.0 mg/l	SM5310B	12/14/2022	Stillbrook
Chemical Oxygen Demand	BML	15 mg/L	SM5220-D	12/15/2022	Stillbrook
Chromium, Dissolved	BML	1.64 µg/L	EPA200.8	12/13/2022 3:46:54 PM	KyleThomas
Cobalt, Total	0.23	0.17 µg/L	EPA200.8	12/13/2022 3:42:58 PM	KyleThomas
Copper, Dissolved	1.22	0.90 µg/L	EPA200.8	12/13/2022 3:46:54 PM	KyleThomas
Cyanide, Total	BML	3.0 µg/L	SM4500-CN-E	1/11/2023	KyleThomas
Fecal Coliform	3	col/100mL	9222D	12/6/2022	HeathBrown
Iron, Total	0.79	0.02 mg/L	EPA200.8	12/13/2022 3:42:58 PM	KyleThomas
Lead, Dissolved	BML	0.31 µg/L	EPA200.8	12/13/2022 3:46:54 PM	KyleThomas
Magnesium, Total	11.29	0.08 mg/L	EPA200.8	12/13/2022 3:42:58 PM	KyleThomas
Manganese, Total	0.06	0.03 mg/L	EPA200.8	12/13/2022 3:42:58 PM	KyleThomas
Mercury, Total	BML	0.010 µg/L	EPA245.7	12/29/2022 3:07:00 PM	KyleThomas
Molybdinum, Total	0.42	0.27 µg/L	EPA200.8	12/13/2022 3:42:58 PM	KyleThomas
Nickel, Dissolved	BML	6.86 µg/L	EPA200.8	12/13/2022 3:46:54 PM	KyleThomas
Nitrite + Nitrate, Total as N	0.49	0.06 mg/L	SM4110-B	12/13/2022	Stillbrook
Oil & Grease	BML	5.0 mg/L	EPA1664	12/14/2022	HeathBrown
pH	7.81	s.u.	D1293-B	12/6/2022	McGiffert And Associates, LLC
Phenols, Total	BML	6.0 µg/L	EPA420.1	1/9/2023	KyleThomas
Phosphorus, Total	0.08	0.06 mg/L	SM4500-P-E	12/16/2022	DrewBentley
Selenium, Total	BML	0.95 µg/L	EPA200.8	12/13/2022 3:42:58 PM	KyleThomas
Silver, Dissolved	BML	0.15 µg/L	EPA200.8	12/13/2022 3:46:54 PM	KyleThomas
Solids, Total Suspended	5	mg/L	SM2540-D	12/7/2022	DrewBentley
Sulfate	43	6 mg/L	D516	12/7/2022	KyleThomas

NA = Not Analyzed ND = No Discharge BML = Below Minimum Level

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Sulfide, Total	BML	0.3 mg/L	SM4500-S2-F	12/9/2022	Stillbrook
Sulfite, Total	BML	3 mg/L	SM4500-SO3-B	12/9/2022	Stillbrook
Thallium, Dissolved	BML	0.08 µg/L	EPA200.8	12/13/2022 3:46:54 PM	KyleThomas
Total Organic Nitrogen	0.80	0.10 mg/L	SM4500-N	12/19/2022	Stillbrook
Total Residual Chlorine	0.04	mg/L	SM4500-Cl-G	12/6/2022	McGiffert And Associates, LLC
Zinc, Dissolved	BML	16.45 µg/L	EPA200.8	12/13/2022 3:46:54 PM	KyleThomas

Analysis Approved: 1/12/2023

John Morris
Laboratory Manager

NA = Not Analyzed *ND = No Discharge* *BML = Below Minimum Level*

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STILLBROOK

Environmental Testing Laboratory, Inc.
302 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 46071

Client: Mr. John Morris
McGehee Engineering Corporation
P.O. Box 3431
Jasper, AL 35502-3431

Date: December 22, 2022

Project Name: MEC
Project Number: N/A
Project Location: Various
P.O. Number: N/A
Sample Matrix: Water
Sampled By: Various
Date Collected: Various
Test Method: "Standard Methods for the Examination of Water and Wastewater", 20th Edition.
"Methods for Chemical Analysis of Water and Wastes", EPA-600/3-83.

WATER AND WASTEWATER ASSAYS

Lab I.D.: / **Field I.D.:**	112286 WOC EFF	112287 WOC UP		Detection Limit/Units	Method Reference	Date Analyzed	Time Analyzed	Lab Analyst
PARAMETERS				D.L./UNITS	NUMBER	DATE	TIME	ANALYST
Total Bromide	1.20	BDL		0.02 mg/L	4110B	13-Dec-22	1030	MD
Total Fluoride	1.10	0.11		0.02 mg/L	4110B	13-Dec-22	1030	MD
MBAS	BDL	BDL		0.1 mg/L	425.1	12-Dec-22	1600	MD
Color-ADMI	BDL	BDL		25 C.U.	2120E	9-Dec-22	1730	MD
Total Tin	BDL	BDL		0.1 mg/L	200.8	14-Dec-22	1200	MD
Total Boron	0.08	BDL		0.02 mg/L	200.8	14-Dec-22	1200	MD
Total Titanium	BDL	0.009		0.005 mg/L	200.8	14-Dec-22	1200	MD

Detection limit, practical
BDL=Below Detection Limit

Respectfully submitted,

John T. Brooks
President

ADEM Laboratory Certification I.D. #40710

STILLBROOK

Environmental Testing Laboratory, Inc.
302 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 46071

Client: Mr. John Morris
McGehee Engineering Corporation
P.O. Box 3431
Jasper, AL 35502-3431

Date: December 22, 2022

Project Name: MEC
Project Location: Various
Sample Matrix: Water
Sampled By: Various
Lab Analyst: JTB
Project Number: N/A
P.O. Number: N/A
Date Collected: Various
Date/Time Analyzed: December 13, 2022 @ 1000
Test Methods: "Test Methods for Evaluating Solid Waste", SW-846, 11/86, 3rd edition. Method 8260B.

VOLATILES

Lab I.D.:	112286	112287					Detection Limit
Field I.D.:	WOC EFF	WOC UP					
PARAMETERS	ug/L(PPB)	ug/L(PPB)					ug/L(PPB)
Acetone	BDL	BDL					10
Acrolein	BDL	BDL					200
Acrylonitrile	BDL	BDL					50
Benzene	BDL	BDL					5
Bromobenzene	BDL	BDL					5
Bromochloromethane	BDL	BDL					5
Bromodichloromethane	BDL	BDL					5
Bromoform	BDL	BDL					5
Bromomethane	BDL	BDL					5
2-Butanone(MEK)	BDL	BDL					20
n-Butylbenzene	BDL	BDL					5
sec-Butylbenzene	BDL	BDL					5
tert-Butylbenzene	BDL	BDL					10
Carbon disulfide	BDL	BDL					5
Carbon tetrachloride	BDL	BDL					5
Chlorobenzene	BDL	BDL					5
Chloroethane	BDL	BDL					5
2-Chloroethyl vinyl ether	BDL	BDL					10
Chloroform	BDL	BDL					5
Chloromethane	BDL	BDL					5
2-Chlorotoluene	BDL	BDL					5
4-Chlorotoluene	BDL	BDL					5
Dibromochloromethane	BDL	BDL					5
1,2-Dibromo-3-chloropropane	BDL	BDL					5
1,2-Dibromoethane	BDL	BDL					5
Dibromomethane	BDL	BDL					5
1,2-Dichlorobenzene	BDL	BDL					5
1,3-Dichlorobenzene	BDL	BDL					5
1,4-Dichlorobenzene	BDL	BDL					5
Dichlorodifluoromethane	BDL	BDL					10

Detection Limit , practical
BDL=Below Detection Limit

Respectfully submitted,

John T. Brooks
President

ADEM Laboratory Certification I.D. #40710

STILLBROOK

Environmental Testing Laboratory, Inc.

302 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 46071

Client: Mr. John Morris
McGehee Engineering Corporation
P.O. Box 3431
Jasper, AL 35502-3431

Date: December 22, 2022

Project Name: MEC
Project Number: N/A
Project Location: Various
P.O. Number: N/A
Sample Matrix: Water
Sampled By: Various
Date Collected: Various
Lab Analyst: JTB
Date/Time Analyzed: December 13, 2022 @ 1000
Test Methods: "Test Methods for Evaluating Solid Waste", SW-846, 11/86, 3rd edition. Method 8260B.

VOLATILES

Lab I.D.:	112286	112287					Detection Limit
Field I.D.:	WOC EFF	WOC UP					
PARAMETERS	ug/L(PPB)	ug/L(PPB)					ug/L(PPB)
1,1-Dichloroethane	BDL	BDL					5
1,2-Dichloroethane	BDL	BDL					5
1,1-Dichloroethene	BDL	BDL					5
cis-1,2-Dichloroethene	BDL	BDL					5
trans-1,2-Dichloroethene	BDL	BDL					5
1,2-Dichloropropane	BDL	BDL					5
1,3-Dichloropropane	BDL	BDL					5
2,2-Dichloropropane	BDL	BDL					5
1,1-Dichloropropene	BDL	BDL					5
cis-1,3-Dichloropropene	BDL	BDL					5
trans-1,3-Dichloropropene	BDL	BDL					5
Ethylbenzene	BDL	BDL					5
Hexachlorobutadiene	BDL	BDL					10
2-Hexanone(MBK)	BDL	BDL					20
Iodomethane	BDL	BDL					20
Isopropylbenzene(Cumene)	BDL	BDL					5
p-Isopropyltoluene	BDL	BDL					5
Methylene chloride	BDL	BDL					5
Methyl tert-butyl ether(MTBE)	BDL	BDL					5
Naphthalene	BDL	BDL					5
4-methyl-2-Pentanone(MIBK)	BDL	BDL					20
n-Propylbenzene	BDL	BDL					5
Styrene	BDL	BDL					5
1,1,1,2-Tetrachloroethane	BDL	BDL					5
1,1,2,2-Tetrachloroethane	BDL	BDL					10
Tetrachloroethene	BDL	BDL					5
Toluene	BDL	BDL					5
1,2,3-Trichlorobenzene	BDL	BDL					5
1,2,4-Trichlorobenzene	BDL	BDL					5
1,1,1-Trichloroethane	BDL	BDL					5

Detection Limit , practical
BDL=Below Detection Limit

Respectfully submitted,

John T. Brooks
President

ADEM Laboratory Certification I.D. #40710

STILLBROOK

Environmental Testing Laboratory, Inc.
302 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 46071

Client: Mr. John Morris
McGehee Engineering Corporation
P.O. Box 3431
Jasper, AL 35502-3431

Date: December 22, 2022

Project Name: MEC
Project Number: N/A
Project Location: Various
P.O. Number: N/A
Sample Matrix: Water
Sampled By: Various
Date Collected: Various
Lab Analyst: JTB
Date/Time Analyzed: December 13, 2022 @ 1000
Test Methods: "Test Methods for Evaluating Solid Waste", SW-846, 11/86, 3rd edition. Method 8260B.

VOLATILES							
Lab I.D.:	112286	112287					Detection Limit
Field I.D.:	WOC EFF	WOC UP					
PARAMETERS	ug/L(PPB)	ug/L(PPB)					ug/L(PPB)
1,1,2-Trichloroethane	BDL	BDL					5
Trichloroethene	BDL	BDL					5
Trichlorofluoromethane	BDL	BDL					10
1,2,3-Trichloropropane	BDL	BDL					5
1,2,4-Trimethylbenzene	BDL	BDL					5
1,3,5-Trimethylbenzene	BDL	BDL					5
Vinyl acetate	BDL	BDL					20
Vinyl chloride	BDL	BDL					5
Xylenes	BDL	BDL					5
ADDITIONAL REQUESTED VOLATILES							
Allyl chloride	BDL	BDL					10
Cloroprene	BDL	BDL					10
trans-1,4-Dichloro-2-butene	BDL	BDL					10
Ethyl methacrylate	BDL	BDL					10
Hexane	BDL	BDL					10
isobutanol	BDL	BDL					10
Methyl methacrylate	BDL	BDL					10
Propionitrile	BDL	BDL					10
2,2,4-Trimethylpentane(Isooctane)	BDL	BDL					10

Detection Limit , practical
BDL=Below Detection Limit

Respectfully submitted,

John T. Brooks
President

ADEM Laboratory Certification I.D. #40710

STILLBROOK

Environmental Testing Laboratory, Inc.
302 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 46071

Client: Mr. John Morris
McGehee Engineering Corporation
P.O. Box 3431
Jasper, AL 35502-3431

Date: December 22, 2022

Project Name: MEC
Project Location: Various
Sample Matrix: Water
Sampled By: Various
Lab Analyst: JTB
Project Number: N/A
P.O. Number: N/A
Date Collected: Various
Date/Time Analyzed: December 13, 2022 @ 1100
Test Methods: "Test Methods for Evaluating Solid Waste", SW-846, 11/86, 3rd edition. Method 8270D.

SEMI-VOLATILES

Lab I.D.:	112286	112287					Detection Limit
Field I.D.:	WOC EFF	WOC UP					
PARAMETERS	ug/L(PPB)	ug/L(PPB)					ug/L(PPB)
Acenaphthene	BDL	BDL					10
Acenaphthylene	BDL	BDL					5
Acetophenone	BDL	BDL					5
2-Acetylaminofluorene	BDL	BDL					5
Aldrin	BDL	BDL					5
Aniline	BDL	BDL					5
Anthracene	BDL	BDL					5
4-Aminobiphenyl	BDL	BDL					10
Aroclor 1016	BDL	BDL					5
Aroclor 1221	BDL	BDL					5
Aroclor 1232	BDL	BDL					5
Aroclor 1242	BDL	BDL					5
Aroclor 1248	BDL	BDL					5
Aroclor 1254	BDL	BDL					5
Aroclor 1260	BDL	BDL					5
Azobenzene	BDL	BDL					5
Benzidine	BDL	BDL					5
Benz(a)anthracene	BDL	BDL					5
Benzo(b)fluoranthene	BDL	BDL					5
Benzo(k)fluoranthene	BDL	BDL					5
Benzo(g,h,i)perylene	BDL	BDL					5
Benzo(a)pyrene	BDL	BDL					5
Benzyl alcohol	BDL	BDL					5
alpha-BHC	BDL	BDL					5
beta-BHC	BDL	BDL					5
delta-BHC	BDL	BDL					5
gamma-BHC(Lindane)	BDL	BDL					5
Bis(2-chloroethoxy)methane	BDL	BDL					5
Bis(2-chloroethyl)ether	BDL	BDL					5
Bis(2-chloro-1-methylethyl)ether	BDL	BDL					5
Bis(2-chloroisopropyl)ether	BDL	BDL					5

Detection Limit , practical
BDL=Below Detection Limit

Respectfully submitted,

John T. Brooks
President

ADEM Laboratory Certification I.D. #40710

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302 Crawford Street
Fairfield, AL 35064
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Lab Invoice #: 46071

Client: Mr. John Morris
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P.O. Box 3431
Jasper, AL 35502-3431

Date: December 22, 2022

Project Name: MEC
Project Location: Various
Sample Matrix: Water
Sampled By: Various
Lab Analyst: JTB
Project Number: N/A
P.O. Number: N/A
Date Collected: Various
Date/Time Analyzed: December 13, 2022 @ 1100
Test Methods: "Test Methods for Evaluating Solid Waste", SW-846, 11/86, 3rd edition. Method 8270D.

SEMI-VOLATILES

Lab I.D.:	112286	112287					Detection Limit
Field I.D.:	WOC EFF	WOC UP					
PARAMETERS	ug/L(PPB)	ug/L(PPB)					ug/L(PPB)
Bis(2-ethylhexyl)phthalate	BDL	BDL					5
4-Bromophenyl phenyl ether	BDL	BDL					5
Butyl benzyl phthalate	BDL	BDL					5
Carbazole	BDL	BDL					5
cis-Chlordane	BDL	BDL					5
trans-Chlordane	BDL	BDL					5
4-Chloroaniline	BDL	BDL					5
Chlorobenzilate	BDL	BDL					5
2-Chloronaphthalene	BDL	BDL					5
4-Chloro-3-methylphenol	BDL	BDL					5
2-Chlorophenol	BDL	BDL					5
4-Chlorophenyl phenyl ether	BDL	BDL					5
Chrysene	BDL	BDL					5
4,4'-DDD	BDL	BDL					5
4,4'-DDE	BDL	BDL					5
4,4'-DDT	BDL	BDL					5
Diallate	BDL	BDL					5
Dibenz(a,j)acridine	BDL	BDL					5
Dibenz(a,h)anthracene	BDL	BDL					5
Dibenzofuran	BDL	BDL					5
Di-n-butylphthalate	BDL	BDL					5
1,3-Dichlorobenzene	BDL	BDL					5
1,4-Dichlorobenzene	BDL	BDL					5
1,2-Dichlorobenzene	BDL	BDL					5
3,3'-Dichlorobenzidine	BDL	BDL					5
2,4-Dichlorophenol	BDL	BDL					5
2,6-Dichlorophenol	BDL	BDL					5
Dieldrin	BDL	BDL					5
Diethyl phthalate	BDL	BDL					5
0,0-Diethyl 0-2-pyrazinyl	BDL	BDL					5
Dimethoate	BDL	BDL					5

Detection Limit , practical
BDL=Below Detection Limit

Respectfully submitted,

John T. Brooks
President

ADEM Laboratory Certification I.D. #40710

STILLBROOK

Environmental Testing Laboratory, Inc.

302 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 46071

Client: Mr. John Morris
McGehee Engineering Corporation
P.O. Box 3431
Jasper, AL 35502-3431

Date: December 22, 2022

Project Name: MEC
Project Location: Various
Sample Matrix: Water
Sampled By: Various
Lab Analyst: JTB
Project Number: N/A
P.O. Number: N/A
Date Collected: Various
Date/Time Analyzed: December 13, 2022 @ 1100
Test Methods: "Test Methods for Evaluating Solid Waste", SW-846, 11/86, 3rd edition. Method 8270D.

SEMI-VOLATILES

Lab I.D.:	112286	112287					Detection Limit
Field I.D.:	WOC EFF	WOC UP					
PARAMETERS	ug/L(PPB)	ug/L(PPB)					ug/L(PPB)
p-Dimethylaminoazobenzene	BDL	BDL					10
7,12-Dimethylbenz(a)anthracene	BDL	BDL					5
3,3'-Dimethylbenzidine	BDL	BDL					5
2,4-Dimethylphenol	BDL	BDL					5
Dimethyl phthalate	BDL	BDL					5
m-Dinitrobenzene	BDL	BDL					5
4,6-Dinitro-2-methylphenol	BDL	BDL					5
2,4-Dinitrophenol	BDL	BDL					5
2,4-Dinitrotoluene	BDL	BDL					5
2,6-Dinitrotoluene	BDL	BDL					5
Dinoseb	BDL	BDL					5
Diphenylamine	BDL	BDL					5
1,2-Diphenylhydrazine	BDL	BDL					5
Di-n-octylphthalate	BDL	BDL					5
Disulfoton	BDL	BDL					5
Endosulfan I	BDL	BDL					5
Endosulfan II	BDL	BDL					5
Endosulfan Sulfate	BDL	BDL					5
Endrin	BDL	BDL					5
Endrin aldehyde	BDL	BDL					5
Endrin ketone	BDL	BDL					5
Ethyl methanesulfonate	BDL	BDL					5
Famphur	BDL	BDL					5
Fluoranthene	BDL	BDL					5
Fluorene	BDL	BDL					5
Heptachlor	BDL	BDL					5
Heptachlor epoxide	BDL	BDL					5
Hexachlorobenzene	BDL	BDL					5
Hexachlorobutadiene	BDL	BDL					5
Hexachlorocyclopentadiene	BDL	BDL					5
Hexachloroethane	BDL	BDL					5
Hexachloropropene	BDL	BDL					5

Detection Limit , practical
BDL=Below Detection Limit

Respectfully submitted,

John T. Brooks
President

ADEM Laboratory Certification I.D. #40710

STILLBROOK

Environmental Testing Laboratory, Inc.
302 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 46071

Client: Mr. John Morris
McGehee Engineering Corporation
P.O. Box 3431
Jasper, AL 35502-3431

Date: December 22, 2022

Project Name: MEC
Project Location: Various
Sample Matrix: Water
Sampled By: Various
Lab Analyst: JTB
Project Number: N/A
P.O. Number: N/A
Date Collected: Various
Date/Time Analyzed: December 13, 2022 @ 1100
Test Methods: "Test Methods for Evaluating Solid Waste", SW-846, 11/86, 3rd edition. Method 8270D.

SEMI-VOLATILES

Lab I.D.:	112286	112287					Detection Limit
Field I.D.:	WOC EFF	WOC UP					
PARAMETERS	ug/L(PPB)	ug/L(PPB)					ug/L(PPB)
Indeno(1,2,3-cd)pyrene	BDL	BDL					5
Isodrin	BDL	BDL					5
Isophorone	BDL	BDL					5
Isosafrole	BDL	BDL					5
Kepone	BDL	BDL					5
Methapyrilene	BDL	BDL					5
Methoxychlor	BDL	BDL					5
3-Methylcholanthrene	BDL	BDL					5
Methyl methanesulfonate	BDL	BDL					5
2-Methylnaphthalene	BDL	BDL					5
Methyl parathion	BDL	BDL					5
2-Methylphenol (o-cresol)	BDL	BDL					5
3,4-Methylphenol (m,p-cresol)	BDL	BDL					10
Naphthalene	BDL	BDL					5
1,4-Naphthoquinone	BDL	BDL					5
1-Naphthylamine	BDL	BDL					5
2-Naphthylamine	BDL	BDL					5
2-Nitroaniline	BDL	BDL					5
3-Nitroaniline	BDL	BDL					10
4-Nitroaniline	BDL	BDL					5
Nitrobenzene	BDL	BDL					5
2-Nitrophenol	BDL	BDL					5
4-Nitrophenol	BDL	BDL					5
N-Nitrosodi-n-butylamine	BDL	BDL					5
N-Nitrosodiethylamine	BDL	BDL					5
N-Nitrosodimethylamine	BDL	BDL					5
N-Nitrosodiphenylamine	BDL	BDL					5
N-Nitrosodi-n-propylamine	BDL	BDL					5
N-Nitrosomethylethylamine	BDL	BDL					5
N-Nitrosomorpholine	BDL	BDL					5
N-Nitrosopiperidine	BDL	BDL					5
N-Nitrosopyrrolidine	BDL	BDL					5

Detection Limit , practical
BDL=Below Detection Limit

Respectfully submitted,

John T. Brooks
President

ADEM Laboratory Certification I.D. #40710

STILLBROOK

Environmental Testing Laboratory, Inc.

302 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 46071

Client: Mr. John Morris
McGehee Engineering Corporation
P.O. Box 3431
Jasper, AL 35502-3431

Date: December 22, 2022

Project Name: MEC
Project Location: Various
Sample Matrix: Water
Sampled By: Various
Lab Analyst: JTB
Project Number: N/A
P.O. Number: N/A
Date Collected: Various
Date/Time Analyzed: December 13, 2022 @ 1100
Test Methods: "Test Methods for Evaluating Solid Waste", SW-846, 11/86, 3rd edition. Method 8270D.

SEMI-VOLATILES

Lab I.D.:	112286	112287					Detection Limit
Field I.D.:	WOC EFF	WOC UP					
PARAMETERS	ug/L(PPB)	ug/L(PPB)					ug/L(PPB)
5-Nitro-o-toluidine	BDL	BDL					5
4-Nitroquinoline-1-oxide	BDL	BDL					10
Parathion	BDL	BDL					5
Pentachlorobenzene	BDL	BDL					5
Pentachloroethane	BDL	BDL					5
Pentachloronitrobenzene	BDL	BDL					5
Pentachlorophenol	BDL	BDL					5
Phenacetin	BDL	BDL					5
Phenanthrene	BDL	BDL					5
Phenol	BDL	BDL					5
2-Picoline	BDL	BDL					5
Pronamide	BDL	BDL					5
Phorate	BDL	BDL					5
Pyrene	BDL	BDL					5
Pyridine	BDL	BDL					10
Safrole	BDL	BDL					5
1,2,4,5-Tetrachlorobenzene	BDL	BDL					5
2,3,7,8-Tetrachlorodibenzo-p-dioxin	BDL	BDL					5
2,3,4,6-Tetrachlorophenol	BDL	BDL					5
2,4,6-Tribromophenol	BDL	BDL					5
1,2,4-Trichlorobenzene	BDL	BDL					5
2,4,5-Trichlorophenol	BDL	BDL					5
2,4,6-Trichlorophenol	BDL	BDL					5
0,0,0-Triethyl phosphorothioate	BDL	BDL					5
1,3,5-Trinitrobenzene	BDL	BDL					5
o-Toluidine	BDL	BDL					5
Toxaphene	BDL	BDL					2

Detection Limit , practical
BDL=Below Detection Limit

Respectfully submitted,

John T. Brooks
President

ADEM Laboratory Certification I.D. #40710

STILLBROOK

Environmental Testing Laboratory, Inc.

302 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 46071

Client: Mr. John Morris
McGehee Engineering Corporation
P.O. Box 3431
Jasper, AL 35502-3431

Date: December 22, 2022

Project Name: MEC
Project Number: N/A
Project Location: Various
P.O. Number: N/A
Sample Matrix: Water
Sampled By: Various
Date Collected: Various
Lab Analyst: JTB
Date/Time Analyzed: December 12, 2022 @ 1030
Test Method: "Test Methods for Evaluating Solid Waste", SW-846, 11/86, 3rd Edition. Method 8150/8270D.

HERBICIDES

Lab I.D.:	112286	112287						Detection Limit
Field I.D.:	WOC EFF	WOC UP						
PARAMETERS	ug/L(PPB)	ug/L(PPB)						ug/L(PPB)
Acfluorfen	BDL	BDL						0.05
2,4-D	BDL	BDL						0.05
Dalapon	BDL	BDL						0.05
Dicamba	BDL	BDL						0.05
Dinoseb	BDL	BDL						0.05
Pentachlorophenol	BDL	BDL						0.05
Picloram	BDL	BDL						0.05
Silvex	BDL	BDL						0.05

Detection limit, practical
BDL=Below Detection Limit

Respectfully submitted,

John T. Brooks
President

ADEM Laboratory Certification I.D. #40710

URBAN OIL & GAS GROUP, LLC

WHITE OAK CREEK FIELD COALBED METHANE PROJECT

TUSCALOOSA AND WALKER COUNTIES, ALABAMA

SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN

APRIL 2020

PREPARED BY

McGiffert and Associates, LLC
Since 1949
CIVIL ENGINEERS

2814 STILLMAN BLVD. • P.O. BOX 20559
TUSCALOOSA, ALABAMA 35402-0559
WWW.MCGIFFERT.COM (205) 759-1521 FAX (205) 759-1524

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A. Log of Plan Review and Amendments
B. Site Drawings, Vicinity Map, and Quadrangle Area Maps
C. Typical Well Site Plans
D. Secondary Containment Inspection Checklist
E. Secondary Containment Drainage Report
F. Tank & Piping Inspection Checklist
G. Spill Incident Report Form
H. Discharge Prevention Briefing Log
I. Response Equipment Inspection Log

ONSHORE FACILITY - REGULATORY CROSS-REFERENCE		
Citation	**Description**	**Section**
§112.3(d)(1)	Professional Engineer Certification	1.2
§112.5(b)	Management of Plan Review and Amendments	Foreword
§112.7	General Requirements for SPCC Plans for all facilities and all oil types	1.0
§112.7	Management Approval	1.1
§112.7(a)(1)	Discussion of facility's conformance with rule requirements	1.12.1
§112.7(a)(2)	Deviations from Plan requirements	1.12.1
§112.7(a)(3)	Description of facility characteristics and facility diagrams	1.6.1, 1.6.2
§112.7(a)(3)(i)	Containers and Capacity	1.6.3
§112.7(a)(3)(ii)	Discharge Prevention Measures	1.7.1
§112.7(a)(3)(iii)	Discharge or Drainage Controls	1.7.2
§112.7(a)(3)(iv)	Discharge Discovery Response and Cleanup	1.8, 1.8.1
§112.7(a)(3)(v)	Disposal of Recovered Material	1.8.2
§112.7(a)(3)(vi)	Contact List and Phone Numbers	1.4
§112.7(a)(4)	Spill reporting information	1.6.2,1.6.3
§112.7(a)(5)	Emergency Response procedures	1.6.2,1.6.3
§112.7(b)	Experience Indicating Potential Failure	1.7.4
§112.7(c)	Secondary Containment and Diversionary Structures	1.7.2, 1.7.3
§112.7(d)	Impracticability and Contingency planning	1.11
§112.7(e)	Inspections, Tests, and Records	1.9
§112.7(f)	Personnel, Training, and Discharge Prevention Procedures	1.5
§112.7(g)	Security (excluding oil producing facilities)	1.10
§112.7(h)	Loading/Unloading racks	1.7.1
§112.7(j)	Conformance with State requirements	1.12.2
§112.8(a)	General Requirements	2.0
§112.8(b)(1&2)	Facility Drainage (diked area)	1.7.2
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§112.8(c)(6)	Integrity Testing of Aboveground Tanks	2.7
§112.8(c)(7)	Leakage from Heating Coils	2.5
§112.8(c)(8)	Update or Engineer Containers to Avoid Discharge	2.6
§112.8(c)(9)	Effluent Treatment Observations	2.7
§112.8(c)(10)	Address Visible Discharge	2.8
§112.8(c)(11)	Mobile or Portable Storage Containers	2.9
§112.8(d)(1&2)	Facility Transfer Operations, Pumping, and Facility Process	2.10
§112.8(d)(3)	Proper Design	1.7.2
§112.8(d)(4)	Regular Testing and Inspection	2.10
§112.8(d)(5)	Vehicle Warnings	1.7.1

SECTION 1

General Requirements

1.3 Substantial Harm Certification

§112 Attachment CII

CERTIFICATION OF THE APPLICABILITY
OF THE SUBSTANTIAL HARM CRITERIA CHECKLIST

FACILITY NAME:
White Oak Creek Field

FACILITY ADDRESS:
58 Tiger Mines Road; Oakman, Alabama 35579

Yes___ No _X_ 1. Does the facility transfer oil over water to or from vessels and does the facility have a total oil storage capacity greater than or equal to 42,000 gallons?

Yes___ No _X_ 2. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and does the facility lack secondary containment that is sufficiently large to contain the capacity of the largest aboveground oil storage tank plus sufficient freeboard to allow for precipitation within any aboveground oil storage tank area?

Yes___ No _X_ 3. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the formula in Attachment C-III, Appendix C, 40 CFR 112 or a comparable formula[1]) such that a discharge from the facility could cause injury to fish and wildlife and sensitive environments? For further description of fish and wildlife and sensitive environments, see Appendices I, II, and III to DOC/NOAA's "Guidance for Facility and Vessel Response Environments" (Section 10, Appendix E, 40 CFR 112 for availability) and the applicable Area Contingency Plan.

Yes___ No _X_ 4. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and is the facility located at a distance (as calculated using the appropriate formula (Attachment C-III, Appendix C, 40 CFR 112 or a comparable formula 1) such that a discharge from the facility would shut down a public drinking water intake[2]?

Yes___ No _X_ 5. Does the facility have a total oil storage capacity greater than or equal to 1 million gallons and has the facility experienced a reportable oil spill in an amount greater than or equal to 10,000 gallons within the last 5 years?

CERTIFICATION
I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document, and that based on my inquiry of those individuals responsible for obtaining this information, I believe that the submitted information is true, accurate, and complete.

Scott White
Name (please type or print)

Scott White
Signature

Operations Superintendent
Title

4/24/20
Date

[1]If a comparable formula is used, documentation of the reliability and analytical soundness of the comparable formula must be attached to this form.

[2]For the purposes of 40 CFR part 112, public drinking water intakes are analogous to public water systems as described at 40 CFR 143.2(e).(from 40 CFR 112 Appendix C, Attachment C-II)

1.5 Personnel, Training, and Discharge Prevention Procedures *§112.7(f)*

Urban shall be responsible for properly instructing employees in the operation and maintenance of equipment to prevent a discharge in accordance with this SPCC Plan and State and Federal regulations. All personnel, including contract personnel involved with oils or chemicals, will be trained and be familiar with this Plan. This includes personnel that handle, whether directly or indirectly, oils or chemicals covered by this SPCC Plan.

Urban shall schedule and conduct discharge prevention briefings for personnel at intervals frequent enough to maintain the knowledge and skills necessary to execute the provisions of this SPCC Plan. The briefings will include the review of events that have occurred on the site, equipment failures and malfunctions, and newly adopted preventive measures. Meetings will be recorded on the Discharge Prevention Briefing Log located in *Appendix I.* Mr. Scott White, Operations Superintendent with Urban, will designate a company employee as the facility supervisor responsible for discharge prevention at each facility.

1.6 Facility Layout and Information

1.6.1 Facility Layout *§112.7(a)(3)*

Urban operates coalbed methane gas production wells in North Tuscaloosa and South Walker Counties, Alabama. The Urban coalbed methane degasification field consists of more than 500 wells within the White Oak Creek Field. Multiple facility sites that house oil or chemicals in aboveground tanks have been evaluated and included in this SPCC Plan. The multiple facility sites include 2 waste water treatment facilities, 5 compressor station sites, and 3 booster compressor sites. The field is located West of the Black Warrior River at the intersection of Tuscaloosa and Walker Counties. There is a field office located at 58 Tiger Mines Road; Oakman, Alabama 35579. The main office is located at the Woods Creek Facility site off of Romulus Road in Buhl, Alabama.

WHITE OAK CREEK FIELD FACILITY SITE LOCATIONS:

1. **East Wastewater Treatment Facility,** Section 27, T 17 S, R 7 W, Walker County
2. **West Wastewater Treatment Facility,** Section 7, T 18 S, R 7 W, Tuscaloosa County
3. **Compressor Site No. 1,** Section 35, T 17 S, R 9 W, Tuscaloosa County
4. **Compressor Site No. 2,** Section 26, T 17 S, R 8 W, Tuscaloosa County
5. **Compressor Site No. 3,** Section 6, T 18 S, R 7 W, Tuscaloosa County
6. **Compressor Site No. 4,** Section 21, T 17 S, R 8 W, Tuscaloosa County
7. **Compressor Site No. 5,** Section 18, T 17 S, R 7 W, Walker County
8. **Booster Compressor USX 26-09-14,** Section 26, T 17 S, R 8 W, Tuscaloosa County
9. **Booster Compressor 1,** Section 15 & 16, T 17 S, R 8 W, Tuscaloosa County
10. **Booster Compressor 2,** Section 1, T 18 S, R 9 W, Tuscaloosa County

The sites are shown on the attached Schematic Drawings, Vicinity Map, and Quadrangle Area Maps located in *Appendix B.*

The degasification wells produce methane gas which flows from the well head to separators, compressor stations, and dryers' prior to entering a SouthCross transmission line at Compressor Stations No. 2 and No. 4. Any produced oil or condensate/slop oil from the above-mentioned processing of the gas is piped or transferred to a slop oil tank located on individual well sites as needed. A typical slop oil tank is a 300-gallon HDPE storage tank that is located within a steel secondary containment system with a minimum of 110% holding capacity of the tank. Slop oil that accumulates within the tanks is collected and disposed of according to regulatory requirements as often as necessary to maintain storage and containment capacities. See McGiffert & Associates, LLC Dwg. No. 374-19 Sheet 4 of 4, for a typical well site oil separator design (*Appendix C*). In addition, water produced from the wells and collected via a gathering system of pipelines is conveyed to holding tanks or a holding pond prior to being transferred to an NPDES Permitted waste water treatment facility and discharged to the Black Warrior River following the treatment process.

1.6.2 Facility Diagrams

§112.7(a)(3) & §112.7(b)

See *Appendix B* for the Site Schematic Drawings that include the physical layout of the facility marking the general location and contents of each storage container.

1.6.3 Storage Tanks

§112.7(a)(3)(i)

WHITE OAK CREEK FIELD FACILITY SITE LOCATIONS:

FACILITY/DESCRIPTION	CAPACITY		MATERIAL	CONTENTS/PRODUCT
EAST WASTEWATER TREATMENT FACILITY				
Storage Tank	300	gal	Plastic	Poly Aluminum Chloride
Storage Tank	330	gal	Plastic	Scale Inhibitor
Storage Tank	1450	gal	Plastic	Hydrochloric Acid 15%
WEST WASTEWATER TREATMENT FACILITY				
Storage Tank	1450	gal	Plastic	Hydrochloric Acid 15%
Storage Tote	275	gal	Plastic	Poly Aluminum Chloride
Storage Tote	275	gal	Plastic	Poly Aluminum Chloride
Storage Tote	300	gal	Plastic	Scale Inhibitor 7223 SIW
Storage Drum	55	gal	Plastic	Unknown
Storage Drum	55	gal	Plastic	Unknown
Storage Drum	55	gal	Plastic	Unknown

FACILITY/DESCRIPTION	CAPACITY		MATERIAL	CONTENTS/PRODUCT
Compressor Site No. 1				
Storage Tank	210	BBL	Steel	Used Oil
Storage Tank	210	BBL	Steel	Oil Emulison
Storage Tank	210	BBL	Steel	Oil Emulison
Storage Tank	210	BBL	Steel	Oil Emulison
Compressor Site No. 2				
Storage Tank	264	gal	Steel	Triethylene Glycol
Storage Tank	264	gal	Steel	HDAX 5200
Storage Tank	264	gal	Steel	HDAX 5200
Storage Tank	264	gal	Steel	HDAX 5200
Storage Tank	264	gal	Steel	HDAX 5200
Storage Tank	264	gal	Steel	HDAX 5200
Storage Tank	264	gal	Steel	HDAX 5200
Storage Tank	264	gal	Steel	Antifreeze
Storage Tote	264	gal	Steel	Antifreeze
Storage Tote	300	gal	Plastic	Antifreeze
Compressor Site No. 3				
Storage Tank	210	BBL	Steel	Produced Water
Storage Tank	210	BBL	Steel	Produced Water
Storage Tank	210	BBL	Steel	Oil Emulsion
Storage Tank	210	BBL	Steel	Used Oil
Storage Tank	264	gal	Steel	Triethylene Glycol
Storage Tank	264	gal	Steel	HDAX 5200
Storage Tank	264	gal	Steel	Antifreeze

FACILITY/DESCRIPTION	CAPACITY		MATERIAL	CONTENTS/PRODUCT
Compressor Site No. 4				
Storage Tank	210	BBL	Steel	Used Oil
Storage Tank	210	BBL	Steel	Oil Emulsion
Storage Tank	210	BBL	Steel	Oil Emulsion
Storage Tank	210	BBL	Steel	Oil Emulsion
Storage Tank	264	gal	Steel	LA40
Storage Tank	264	gal	Steel	Antifreeze
Storage Tank	264	gal	Steel	Triethylene Glycol
Storage Tank	264	gal	Steel	HDAX 5200
Storage Tank	264	gal	Steel	HDAX 5200
Storage Tank	264	gal	Steel	HDAX 5200
Storage Tank	264	gal	Steel	HDAX 5200
Storage Tank	300	gal	Plastic	Used Antifreeze
Storage Tank	264	gal	Steel	Antifreeze
Compressor Site No. 5				
Storage Tank	300	gal	Steel	NGP100
Storage Tank	564	gal	Steel	HDAX 5200
Storage Tote	275	gal	Plastic	Antifreeze
Storage Tote	275	gal	Plastic	Used Antifreeze
Storage Tote	275	gal	Plastic	Used Oil
Drum - No SC	55	gal	Steel	Antifreeze
Storage Tank	661	gal	Steel	HDAX 5200
Storage Tote	275	gal	Plastic	Antifreeze
Storage Tote	275	gal	Plastic	Used Antifreeze
Storage Tote	275	gal	Plastic	Used Oil
Storage Tote	275	gal	Plastic	Antifreeze
Storage Tote	275	gal	Plastic	Used Antifreeze
Storage Tote	275	gal	Plastic	Used Oil
Storage Tank	286	gal	Steel	NGP100
Storage Tank	180	gal	Steel	HDAX 5200
Storage Tank	100	BBL	Steel	Waste Oil
Storage Tank	210	BBL	Steel	Oil Water Emulsion
Storage Tank	210	BBL	Steel	Oil Water Emulsion

regularly monitored and scheduled for removal of product when 50 percent capacity is reached. The sump is covered with a steel lid and is higher in elevation than the surrounding topography to prevent surface stormwater from entering the sump tank that is partially or completely buried.

b) Some compressor stations are equipped with a skid "drip pan", which captures and drains leaks and spills to a catchment-bucket that is manually monitored and manually dumped into a waste oil tank within the respective facility. Drips or leaks from the compressor, piping, and fittings is collected by the catchment-bucket and dumped at a minimum of once daily to minimize the potential for a discharge of oil or other related chemicals at the facility.

c) Booster compressor stations are equipped with a skids "drip pans", which captures and contains any oil that drips and/or leaks from the compressor, piping, and fittings. These boosters are observed daily for leaks and/or drips. Oil that accumulates within these skids are collected by absorbent pads or by pumping operation to a mobile trailer, discussed in Section 1.7.1, and transferred to an oil handling facility as needed. Any drips or leaks from the compressor, piping, and fittings is collected by the skid, monitored daily to minimize the potential for a discharge of oil or other related chemicals at the facility, and maintained as needed.

Compressors are protected with metal sheds and thus minimally impacted by stormwater during rain events which reduces the potential for oil migration across or from the site. There is typically an oil lube tank located on a portion of each compressor skid or within an individual secondary containment. In the event of a leak or spill at any of these compressor facilities, measures will be implemented as discussed in Section 1.8 of this document. Absorbent pads will be readily available and utilized as needed to soak up and contain in place any leaked or spilled engine oil associated with individual compressor stations.

Individual sites that contain storage tanks and secondary containment consisting of earthen berms have been graded so that stormwater is diverted away from structures to the site discharge point(s). Only rain that falls directly into the containment areas at these locations is collected within the containment areas, and adjacent stormwater runoff is diverted around these areas to protected discharge points that utilize vegetation or rip-rap to reduce stormwater velocity prior to discharge. Well site locations are initially constructed with a reserve pit and a berm around the perimeter of the work area which allows drainage to the reserve pit. The reserve pit and berm will be utilized during the drilling and completion operations. These serve to contain spills of oil, chemicals, or drilling fluids. See McGiffert and Associates, LLC Dwg. No. 374-19 Sheet 1 of 4, for a typical well site plan during drilling/completion (*Appendix C*). The reserve pit will be constructed to have a retention volume to contain all spills within the well site and still maintain a 2-foot freeboard. In the event the reserve pit cannot maintain an operating level of 3 feet, the pit will be pumped down and the fluid removed to an approved disposal facility or a second pit will be constructed. See McGiffert and Associates, LLC Dwg. 374-19 Sheet 2 of 4, for retention structure design data (*Appendix C*). Once the well site has been completed and is ready to enter production, the site will be grassed and stabilized around the perimeter. See McGiffert and Associates, LLC Dwg. No. 374-19 Sheet 3 of 4, for a typical completed well site (*Appendix C*).

1.7.4 Experience Indicating Potential Failure *§112.7(b)*

Historically, during previous ownership and operator, there have been minor releases of produced oil/water at various well locations. This is attributed largely to produced water leaking from the wellhead packing that could contain some oil/water emulsion. Urban is aware of the potential for release at these locations and continually monitors well sites for possible failure locations.

Experience does not indicate a potential for equipment failure at the facility sites under ownership and operation by Urban. If equipment used in the loading or unloading of oils or chemicals causes a tank to overflow, rupture, or leak; the equipment should be evaluated for issues that could occur in a similar fashion in the future. If this occurs at any of the sites, this Plan should be updated to include a prediction of the failure and associated possible flow rate, total quantity, and direction of spill release travel.

1.8 Spill Response and Cleanup *§112.7(a)(iv)*

1.8.1 Response *§112.7(a)(4) & §112.7(a)(5)*

In the event of an oil or chemical spill call the person listed on the contact list located in section 1.4 of this SPCC to receive further instructions. The employee on duty will be trained to attempt to stop the continuation of the discharge. Urban shall maintain onsite or have readily available absorbent pads, solidifiers, and granular absorbents, as well as containment booms and sufficient material to contain and absorb fuel and chemical spills and leaks. A record of response equipment inspections, located in *Appendix J,* will be maintained to insure proper materials, accessibility, and operation.

ADEM must be notified when 300 c.y. of material is contaminated by a petroleum spill or when the reportable quantity of a chemical is spilled. Report the following information:

1. Name, address, and telephone number of person reporting spill
2. Exact location of facility and spill
3. Company name, telephone number, and address
4. Material spilled
5. Estimated quantity
6. Source of spill
7. Cause of spill
8. Nearest down-stream body of water to receive spill
9. Request actions to take for containment and clean-up

In the event of a discharge or spill take the following actions:

1. Take prompt necessary measures to stop the discharge such as turning of pumps, shutting valves, or isolating lines.
2. Identify the source of the discharge, type of liquid discharged, and an approximate volume of discharge.
3. Evaluate the possibility of a fire hazard to inform the Fire Department accordingly.
4. Evaluate the potential risks to persons located on property surrounding the discharge. Notify emergency personnel accordingly.
5. Take action to contain the discharge on site by use of temporary dams or absorbent materials such as sand, booms, or pads to soak up and contain the spill in place.
6. Once the spill is contained, place the absorbed material in appropriate drums on the site prior to properly disposing in an ADEM approved manner.

1.8.2 Cleanup

§112.7(a)(4) & §112.7(a)(5) & §112.8(c)(10)

If a spill, either within or adjacent to the containment structures, should occur, the usable oil or chemical will immediately be transferred to other storage containers. The unusable wastes resulting from oil or chemical spills will be treated, disposed of and/or reused in accordance with applicable Alabama Department of Environmental Management (ADEM) regulations.

Records documenting oil or chemical spills shall be maintained for a minimum of three years by the Operations Superintendent. The records document should include dates of spills, corrective actions, disposal records, characterization records, and clean-up procedures. It will also include the cause of the spill and the corrective actions to prevent its reoccurrence. See *Appendix H* of this Plan for the Spill Incident Report Form.

1.9 Inspections Tests and Records

§112.7(e)

Urban will take an active approach with evaluations to prevent the potential for a discharge of oil or other related chemicals at the facility. This includes the evaluation and recording required by Secondary Containment Inspection Checklist (*Appendix D*), the Secondary Containment Drainage Report (*Appendix E*), the Tank & Piping Inspection Checklist (*Appendix F*), and the Annual Inspection Record (*Appendix G*). The secondary containment, tanks, piping, and containment drainage should be inspected on a quarterly basis by the facility site supervisor. All of the facilities should be inspected on an annual basis, following the annual inspection record located in *Appendix G*, by the facility site supervisor and the field manager or appointed representative to identify any potential issues not recognized during the quarterly inspections.

Urban will properly maintain tanks and keep them in good condition. Tanks should be subject to periodic integrity testing, taking into account tank design and using such techniques as hydrostatic testing, visual inspection or a system of non-destructive shell thickness testing. Comparison records should be kept where appropriate, and tank supports and foundations should be included in these inspections. In addition, the outside of the tank should frequently be observed by operating personnel for signs of deterioration, leaks which might cause a spill, or accumulation of oil inside dike areas.

1.10 Security

§112.7(g)

Urban is aware that the implementation of security measures at facility sites must be tailored to specific needs based on equipment conditions, construction activities, and the surrounding residents. Each site has been examined for the adequacy of implemented security measures and the need of additional measures will be continually monitored. In the event that additional security measures are required at a facility site, Urban shall immediately implement the necessary additions in order to protect the site, equipment, and attempt to prevent possible discharge that could occur due to vandalism.

The following list is examples of security measures that are currently in place at individual facility sites:

1. Fences – security fences around the perimeter of the sites have been constructed to restrict access
2. The secondary containment areas that are equipped with a drain are closed and in the locked position. Drains without a valve have been plugged with a cap.
3. Master flow valves are securely locked in the closed position to reduce the potential for vandalism.
4. The facility sites are illuminated after dark by lights so that a discharge may be discovered and vandalism discouraged.

1.11 Impracticality *§112.7(d)*

The measures noted in 40 CFR 112 are practical and relative to this Plan.

1.12 Conformance and Deviation

1.12.1 Conformance with Rule Requirements *§112.7(a)(1)&(2)*

Urban has prepared this Plan with the intention to conform to all the requirements set forth by the 40 CFR Part 112. Urban has attempted to operate and maintain the facility covered by this Plan in accordance with this Plan and all State of Alabama and Federal regulations regarding spill prevention control and countermeasure requirements.

1.12.2 Conformance with Other Applicable Requirements *§112.7(j)*

This SPCC Plan conforms to the requirements set forth by the 40 CFR 112. This Plan does not incorporate any additional requirements of the city or county in which the facility is located. If Urban becomes aware of any deviations following the implementation of this Plan, Urban will review and amend the Plan as necessary.

SECTION 2

Onshore Facilities

(excluding production facilities)

2.0 General Requirements *§112.8(a)*

Urban shall operate in compliance with the requirements of Section 112.7, as outlined in this SPCC Plan, and the specific discharge prevention and containment listed in Section 112.8 as set forth below.

2.1 Facility Drainage *§112.8(b)(1&2)*

2.1.1 Drainage from Diked Areas

Drainage within diked areas is discussed in detail in Section 1.7.2. Flapper valves are not used in secondary containments areas.

2.1.2 Drainage from Undiked Areas

A majority of aboveground piping is located within the secondary containment area and will be contained if a leak occurs. Areas outside of the containment areas are where piping is underground. The location where loading of portable tanks or trucks occur is within a diversionary structure area and the potential for a discharge is discussed in Section 1.7.1 of this Plan.

2.2 Bulk Storage Containers *§112.8(c)(1)*

The storage tanks located at the facility sites are constructed of steel, plastic, and fiberglass, which are appropriate materials used for storing petroleum and chemical products under variable climate temperatures. The tanks used have been designed not to add pressure to the tank other than from the petroleum contained within it.

2.3 Secondary Containment Areas

2.3.1 Containment Area Capacity *§112.8(c)(2)*

The area around the above ground tanks is enclosed by a complete diversionary structure and/or containment dike or wall arranged so that the spill will terminate and be safely confined within the retaining walls or in a containment area. The containment area exceeds the volume of the largest tank by 10%. This is addressed in section 1.7.2 of this Plan.

2.3.2 Containment Stormwater Control *§112.8(c)(3)*

This is addressed in section 1.7.2 of this Plan and provides a method of inspection and discharge of precipitation in accordance with the sheen rule and 40 CFR 112.7(a)(3)(iii).

2.4 Tank Protection and Testing *§112.8(c)(4&5)*

There are no underground or partially buried storage tanks at this facility. A concrete pad and metal containment have been provided at each compressor location to collect operation residuals from the compressor skids. The concrete collection systems will be visually inspected on a regular as needed basis to determine the required maintenance. The concrete and metal collection systems are open to atmospheric pressure; therefore, leaks should be visible on the surface of the structure.

2.5 Leakage from Heating Coils

§112.8(c)(7)

Heating coils are not used at this facility.

2.6 Update or Engineer Containers to Avoid Discharge

§112.8(c)(8)(iv)

Urban uses direct vision gauges and visual gauging as a fast response system for determining the liquid level of bulk storage containers. An Urban employee must be present to monitor the filling, unloading, and transfer operations of each bulk storage container.

2.7 Visual Observation Requirements

§112.8(c)(9)

Urban does not use an oil effluent treatment system at this facility.

2.8 Promptly Address Visual Discharges

§112.8(c)(10)

This is addressed in section 1.7.2 of this Plan. Any visual discharge resulting in a loss of a petroleum product or chemical from a container seam, gasket, piping, pump, valves, rivets, bolts, or any other connection to the container should be immediately cleaned up. The containment area should also be cleaned as well to remove any accumulation or liquid and prevent contamination with stormwater or soaking into an earthen containment area.

2.9 Mobile or Portable Storage Containers

§112.8(c)(11)

Urban utilizes aboveground storage containers that are within the secondary containment areas which are shown on the topographical layouts located in *Appendix B* of this Plan. Any portable containers used will be loaded and unloaded as discussed in section 1.7.1 of this Plan.

2.10 Facility Transfer Operations

§112.8(d)(1,2,& 4)

Loading and/or off-loading of oils or chemicals to and/or from transport vehicles will meet applicable requirements of the Occupational Safety and Health Administration and the Department of Transportation. Truck drivers should follow correct operating procedures when unloading diesel fuel, gasoline, waste oil and chemicals and stay with the equipment at all times during unloading operations. Periodic visual inspection of liquid level indicators will be performed by the assigned Production Supervisor, or his designee, to help reduce the likelihood of an accidental spill. Periodic inspection of transport unloading hoses, the replacement of hoses as necessary, and use of the proper hose drainage procedure to prevent hose rupture during unloading and spillage from hoses after disconnection will be implemented as preventive operation procedures. All aboveground valves, piping and appurtenances will be regularly inspected to assess the general condition. All aboveground storage tanks, valves, aboveground piping, spill containment, dispensers, and emergency response equipment and supplies will be inspected and a log will be maintained in the forms located in *Appendix D, F, and J* to record the inspections. Urban will visually examine and pressure test individual elements as frequently as needed to insure preventive maintenance practices.

Log of Plan Review & Amendments

Urban Oil & Gas Group, LLC – White Oak Creek Field

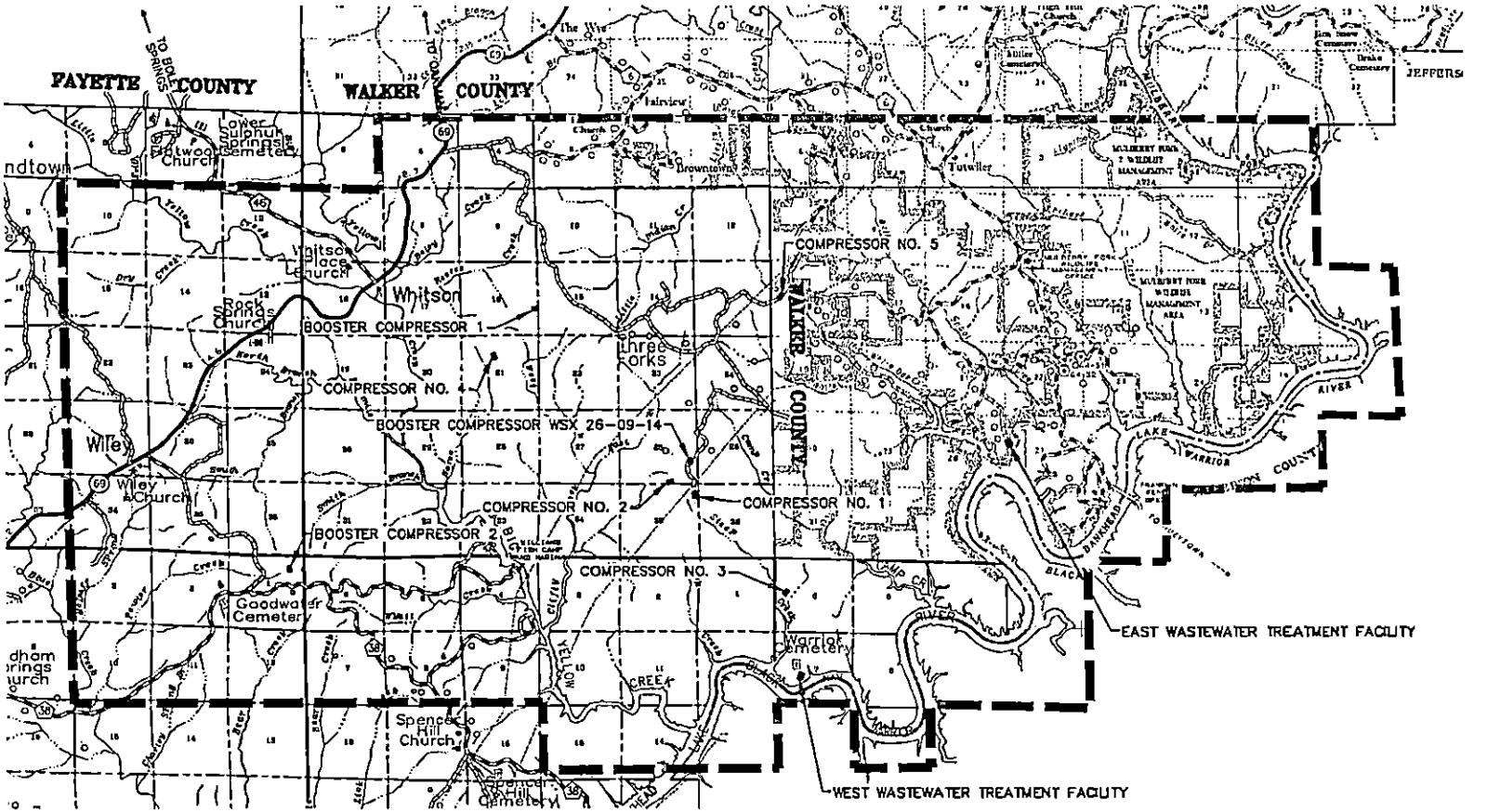
Tuscaloosa and Walker Counties

Facility Changes Review/Amendment

Facility Changes		Review and Evaluation of Plan (Date)	Name, Title, Signature	Plan Amendment Required (Yes/No)	Description of Review/Amendment	Amendment			
Date	Description					Date	Pages	PE Cert (Yes/No)	Implemented Date

APPENDIX B
Site Drawings

VICINITY MAP



THIS DRAWING IS A REPRODUCTION OF THE ALABAMA TUSCALOOSA COUNTY HIGHWAY MAP.

McGiffert and Associates, LLC
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TUSCALOOSA, ALABAMA 35402-0559
WWW.MCGIFFERT.COM (205)759-1521 FAX (205)759-1524

VICINITY MAP

REVISION

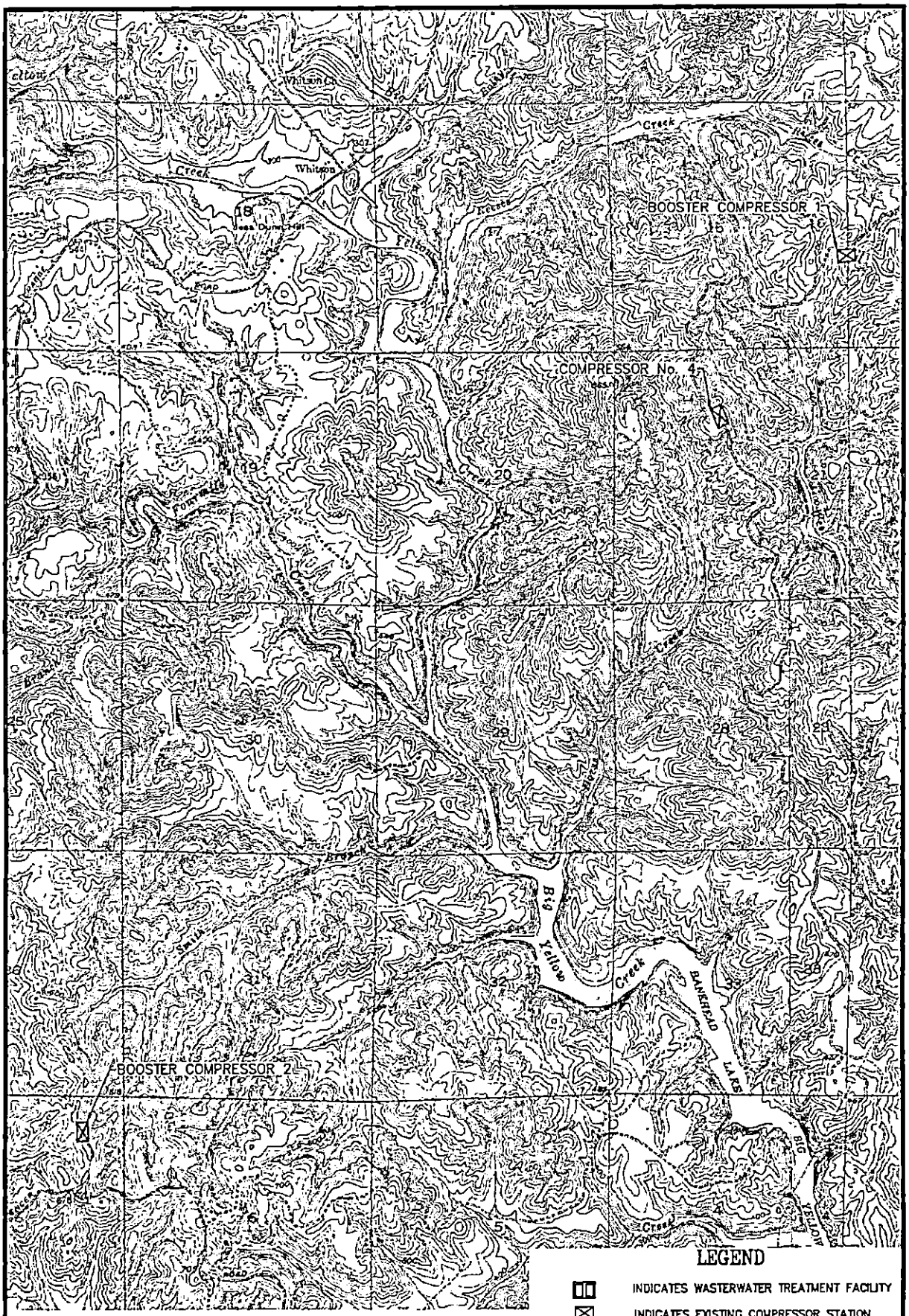
DATE	DESCRIPTION	BY

URBAN OIL & GAS GROUP, LLC
WHITE OAK CREEK FIELD FACILITY

TUSCALOOSA AND WALKER COUNTY ALABAMA

FILE NAME: URBAN-WOC-SPCC19-VW		SHEET No. 1 of 1	
DATE OF FIELD SURVEY: N/A	JOB No. 19-3128	CHECKED BY: QHS	DWG. No. 358-19
FIELD BOOK: N/A	SCALE: 1"=8,000'		
PAGE: N/A	DRAWN BY: D D H		

QUADRANGLE AREA MAPS



REPRODUCTION OF A PORTION OF US GEOLOGICAL SURVEY QUADRANGLE SHEET WILEY AND TUTWILER STORE ALABAMA

McGiffert and Associates, LLC
SINCE 1949
CIVIL ENGINEERS
2814 STILLMAN BLVD. • P.O. BOX 20559
TUSCALOOSA, ALABAMA 35402-0559
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QUADRANGLE AREA MAP

REVISION		
DATE	DESCRIPTION	BY

URBAN OIL & GAS GROUP, LLC
WHITE OAK CREEK FIELD FACILITY
COMPRESSOR No. 4 AND BOOSTER COMPRESSORS 1 AND 2

TUSCALOOSA AND WALKER COUNTIES — ALABAMA

FILE NAME: URBAN-WOC-SPCC19-QUADS		SHEET No. 1 of 3	
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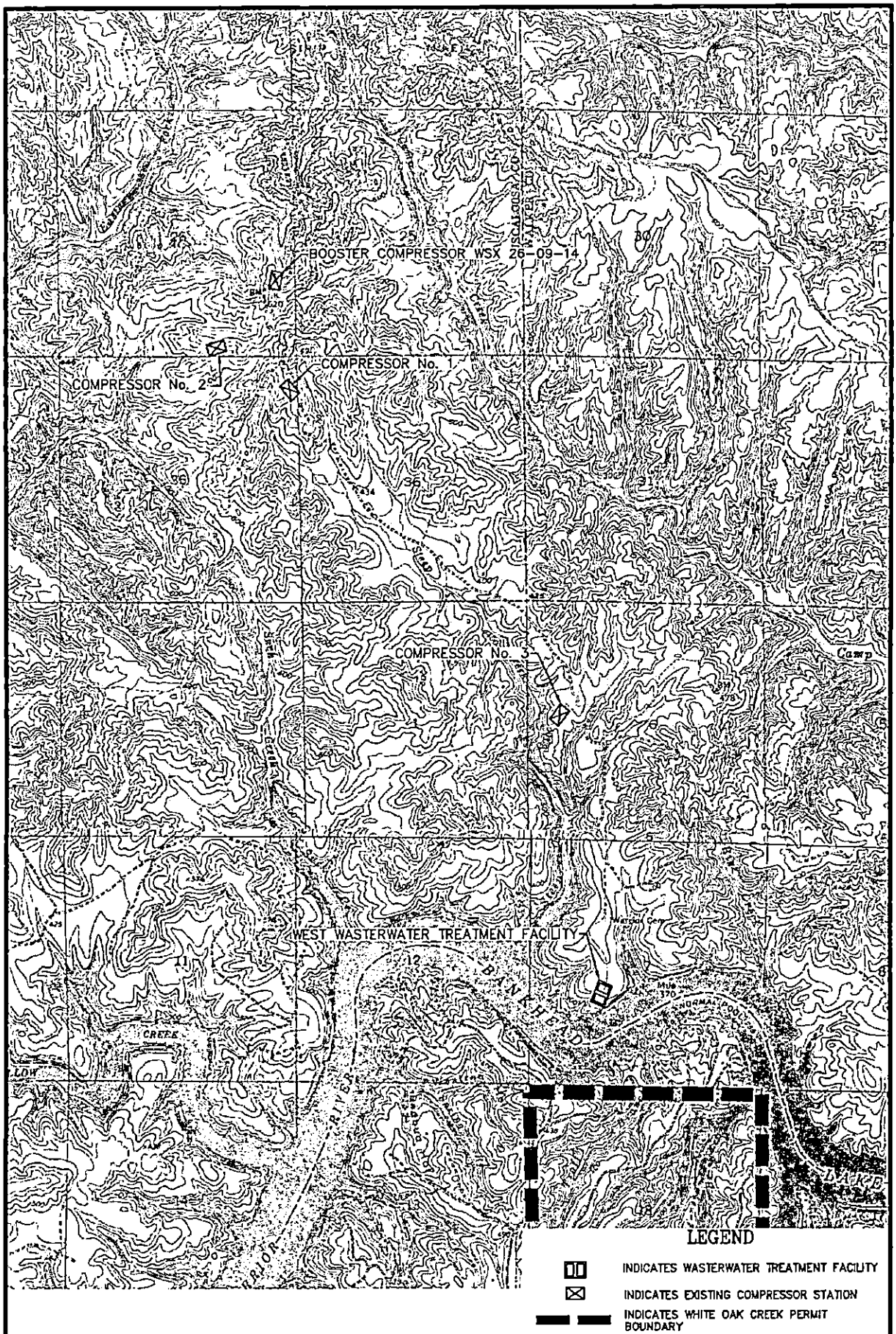

REPRODUCTION OF A PORTION OF US GEOLOGICAL SURVEY QUADRANGLE SHEET BURDNFIELD STORE AND TUTWILER STORE ALABAMA

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QUADRANGLE AREA MAP

REVISION		
DATE	DESCRIPTION	BY

URBAN OIL & GAS GROUP, LLC
WHITE OAK CREEK FIELD FACILITY
WEST WASTEWATER TREATMENT FACILITY,
COMPRESSORS 1-3,
AND BOOSTER COMPRESSOR WSX 26-09-14
TUSCALOOSA AND WALKER COUNTIES ALABAMA

FILE NAME: URBAN-WOC-SPEC19-QUADS			SHEET No. 2 of 3
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FIELD BOOK: N/A	SCALE: 1"=2000'		
PAGE: N/A	DRAWN BY: D O H		

LEGEND

- INDICATES WASTERWATER TREATMENT FACILITY
- INDICATES EXISTING COMPRESSOR STATION
- INDICATES WHITE OAK CREEK PERMIT BOUNDARY

REPRODUCTION OF A PORTION OF US GEOLOGICAL SURVEY QUADRANGLE SHEET TUTWILER STORE ALABAMA

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QUADRANGLE AREA MAP

REVISION		
DATE	DESCRIPTION	BY

URBAN OIL & GAS GROUP, LLC
WHITE OAK CREEK FIELD FACILITY

EAST WASTEWATER TREATMENT FACILITY AND COMPRESSOR No. 5

TUSCALOOSA AND WALKER COUNTIES ALABAMA

FILE NAME: URBAN-WOC-SPCC19-QUADS		SHEET No. 3 of 3	
DATE OF FIELD SURVEY: N/A	JOB No. 19-3128	CHECKED BY: QHS	DWG. No. 357-19
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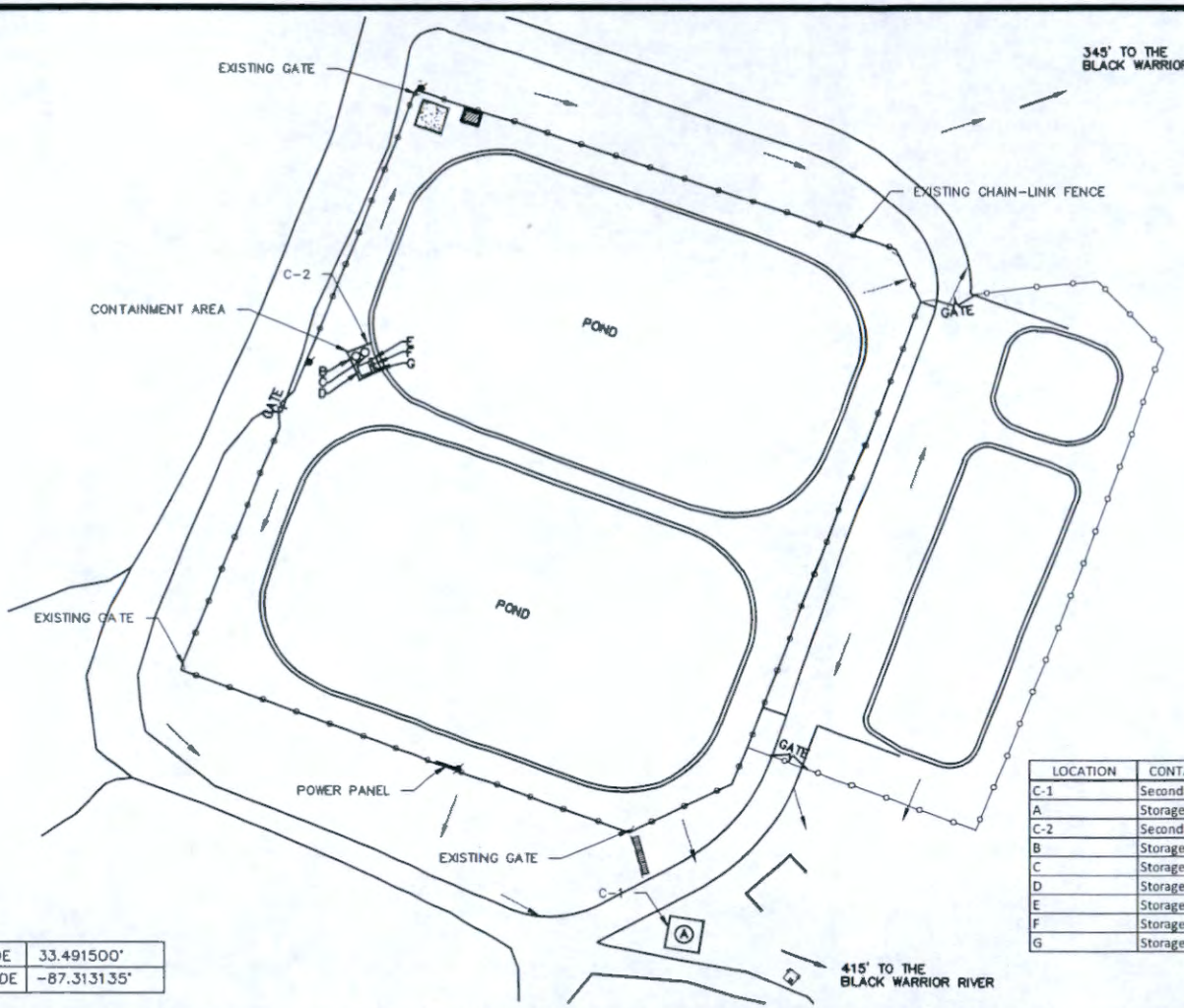
TOPOGRAPHICAL LAYOUT DRAWINGS



N

GRAPHIC SCALE 1" = 60'

0' 60' 120'

LEGEND

- INDICATES COVERED ROOF
- INDICATES EXISTING ROAD
- INDICATES EXISTING DRAINAGE FLOW
- INDICATES EXISTING CHAIN-LINK FENCE

LOCATION	CONTAINER DESCRIPTION	CAPACITY	MATERIAL	CONTENTS
C-1	Secondary Containment	2450 gal	Wood w/poly liner	N/A
A	Storage Tank	1450 gal	Plastic	Hydrochloric Acid 15%
C-2	Secondary Containment	Open Drain to Pond	Wood w/poly liner	N/A
B	Storage Tote	275 gal	Plastic	Poly Aluminum Chloride
C	Storage Tote	275 gal	Plastic	Poly Aluminum Chloride
D	Storage Tote	300 gal	Plastic	Scale Inhibitor 7223 SIW
E	Storage Drum	55 gal	Plastic	Unknown
F	Storage Drum	55 gal	Plastic	Unknown
G	Storage Drum	55 gal	Plastic	Unknown

LATITUDE	33.491500°
LONGITUDE	-87.313135°

NOTES:
1. SCHEMATIC DRAWING HAS BEEN CREATED FROM FIELD OBSERVATIONS, ON-SITE MEASUREMENTS, AND GOOGLE EARTH AERIAL IMAGES AND HAS NOT BEEN FIELD SURVEY VERIFIED.

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— SINCE 1949 —
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TUSCALOOSA, ALABAMA 35402-0559
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SCHEMATIC DRAWING

REVISION

DATE	DESCRIPTION	BY

WHITE OAK CREEK FIELD

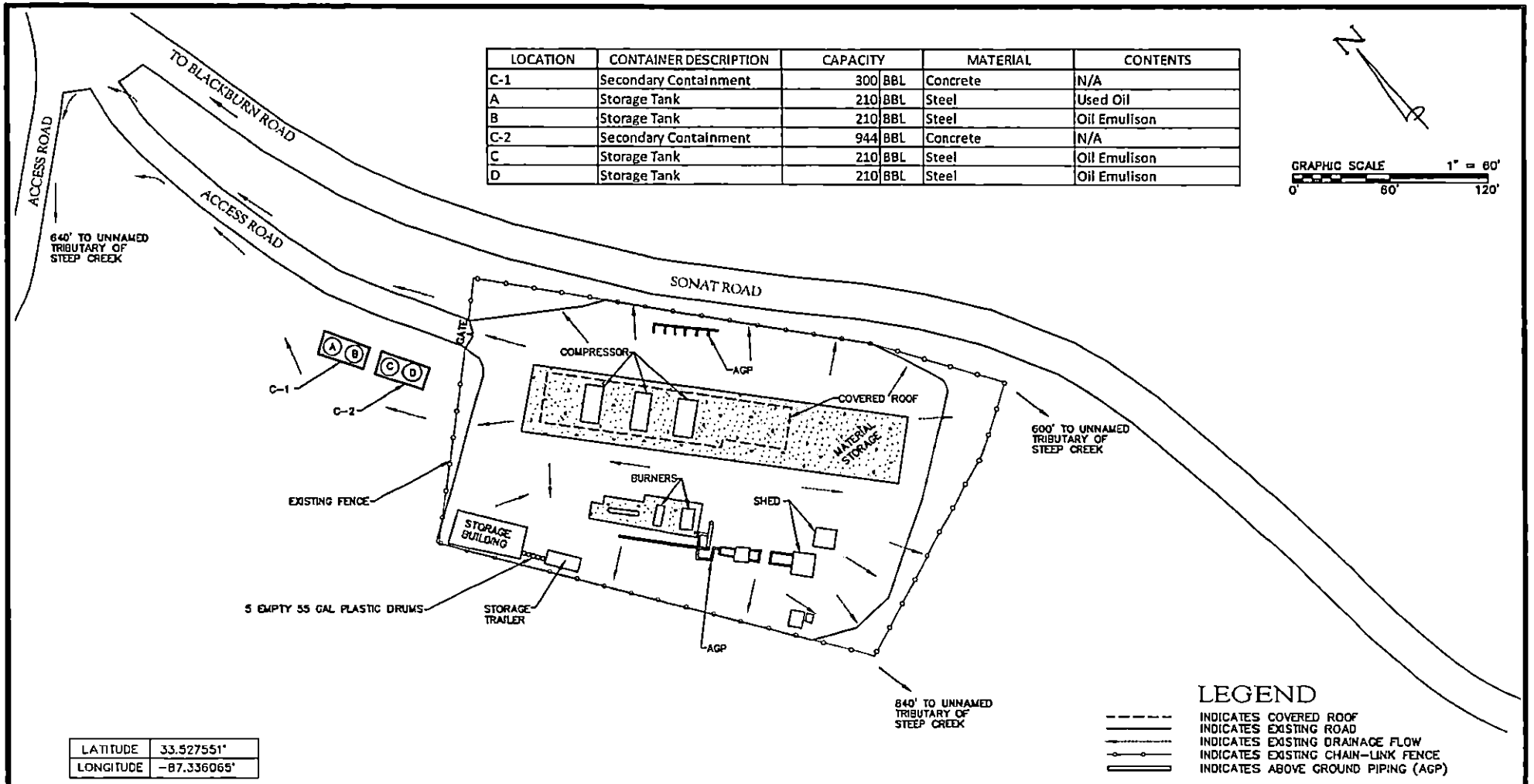
WEST WASTEWATER TREATMENT FACILITY

SECTION 7, TOWNSHIP 18 SOUTH, RANGE 7 WEST

TUSCALOOSA COUNTY ALABAMA

FILE NAME: URBAN-WOC-SPCC19-COMPSCHEME
DATE OF FIELD SURVEY: N/A
FIELD BOOK: N/A
PAGE: N/A
JOB No. 19-3126
SCALE: 1"=60'
DRAWN BY: D D H
CHECKED BY: QHS
SHEET No. 2 of 10
DWG. No. 351-19

LOCATION	CONTAINER DESCRIPTION	CAPACITY	MATERIAL	CONTENTS
C-1	Secondary Containment	300 BBL	Concrete	N/A
A	Storage Tank	210 BBL	Steel	Used Oil
B	Storage Tank	210 BBL	Steel	Oil Emulison
C-2	Secondary Containment	944 BBL	Concrete	N/A
C	Storage Tank	210 BBL	Steel	Oil Emulison
D	Storage Tank	210 BBL	Steel	Oil Emulison



LATITUDE	33.527551°
LONGITUDE	-87.336065°

LEGEND

- INDICATES COVERED ROOF
- INDICATES EXISTING ROAD
- INDICATES EXISTING DRAINAGE FLOW
- INDICATES EXISTING CHAIN-LINK FENCE
- INDICATES ABOVE GROUND PIPING (AGP)

NOTES:
1. SCHEMATIC DRAWING HAS BEEN CREATED FROM FIELD OBSERVATIONS, ON-SITE MEASUREMENTS, AND GOOGLE EARTH AERIAL IMAGES AND HAS NOT BEEN FIELD SURVEY VERIFIED.

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SCHEMATIC DRAWING

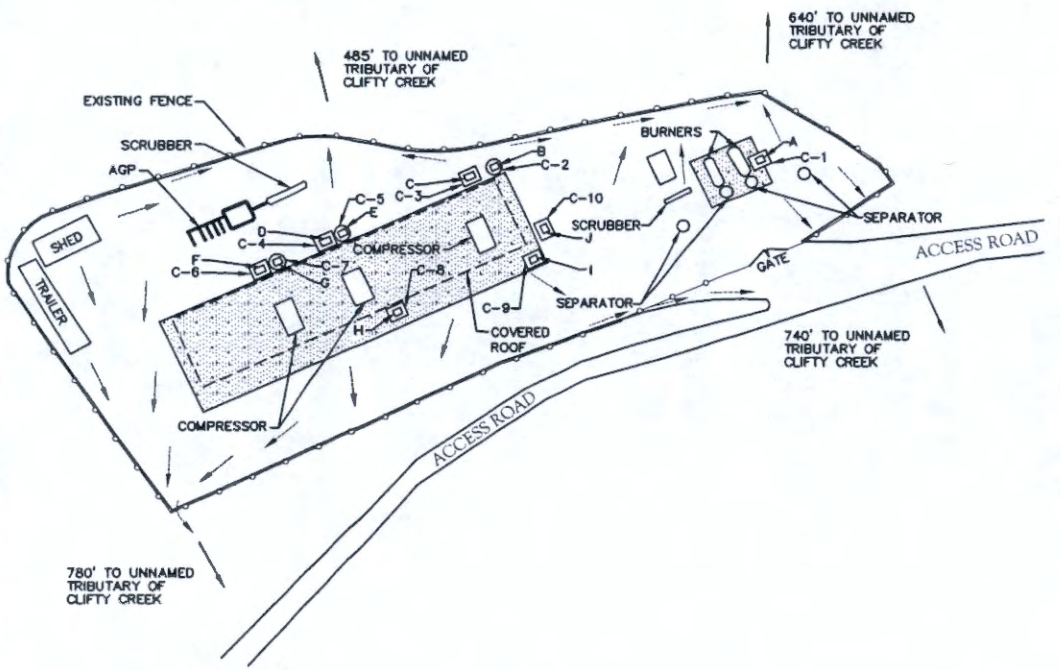
REVISION

DATE	DESCRIPTION	BY

WHITE OAK CREEK FIELD
COMPRESSOR SITE No. 1

SECTION 35, TOWNSHIP 17 SOUTH, RANGE 8 WEST
TUSCALOOSA COUNTY ALABAMA

FILE NAME: URBAN-WOC-SPCC19-COMPSCHEME		SHEET No. 3 of 10	
DATE OF FIELD SURVEY: N/A	JOB No. 19-2136	CHECKED BY: QHS	DWG. No. 351-19
FIELD BOOK: N/A	SCALE: 1"=60'		
PAGE: N/A	DRAWN BY: D D H		



N

GRAPHIC SCALE 1" = 60'

0' 60' 120'

LOCATION	CONTAINER DESCRIPTION	CAPACITY	MATERIAL	CONTENTS
C-1	Secondary Containment	340 gal	Steel	N/A
A	Storage Tank	264 gal	Steel	Triethylene Glycol
C-2	Secondary Containment	633 gal	Steel	N/A
B	Storage Tank	264 gal	Steel	HDAX 5200
C-3	Secondary Containment	340 gal	Steel	N/A
C	Storage Tank	264 gal	Steel	HDAX 5200
C-4	Secondary Containment	340 gal	Steel	N/A
D	Storage Tank	264 gal	Steel	HDAX 5200
C-5	Secondary Containment	633 gal	Steel	N/A
E	Storage Tank	264 gal	Steel	HDAX 5200
C-6	Secondary Containment	340 gal	Steel	N/A
F	Storage Tank	264 gal	Steel	HDAX 5200
C-7	Secondary Containment	633 gal	Steel	N/A
G	Storage Tank	264 gal	Steel	HDAX 5200
C-8	Secondary Containment	340 gal	Steel	N/A
H	Storage Tank	264 gal	Steel	Antifreeze
C-9	Secondary Containment	340 gal	Steel	N/A
I	Storage Tote	264 gal	Steel	Antifreeze
C-10	Secondary Containment	842 gal	Plastic	N/A
J	Storage Tote	300 gal	Plastic	Antifreeze

LATITUDE	33.529646°
LONGITUDE	−87.340730°

LEGEND

- INDICATES COVERED ROOF
- INDICATES EXISTING ROAD
- INDICATES EXISTING DRAINAGE FLOW
- INDICATES EXISTING CHAIN−LINK FENCE
- INDICATES ABOVE GROUND PIPING (AGP)

NOTES:
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SCHEMATIC DRAWING

REVISION

DATE	DESCRIPTION	BY
4/7/20	CHEMICAL STORAGE UPDATE	D D H

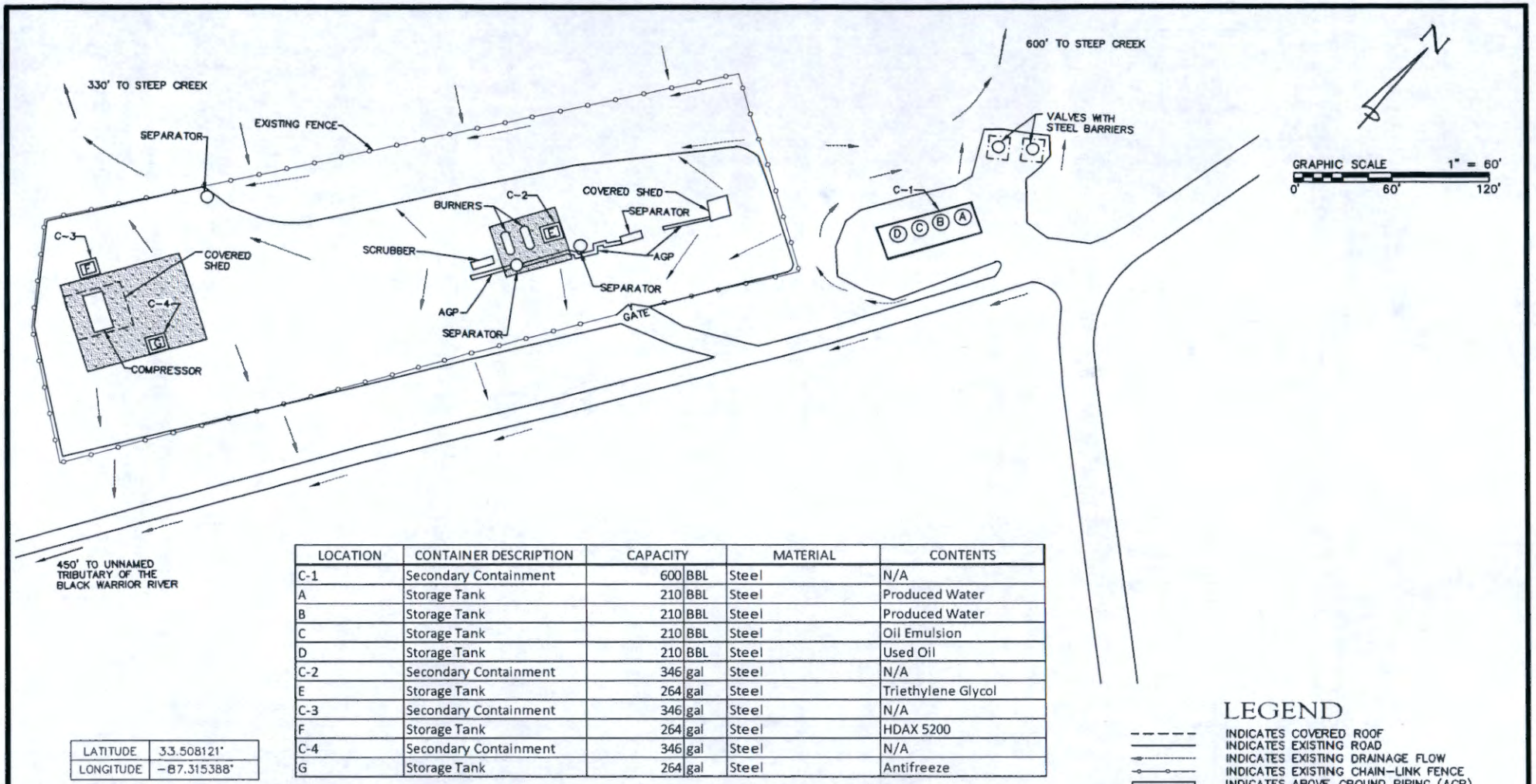
WHITE OAK CREEK FIELD

COMPRESSOR SITE No. 2

SECTION 26, TOWNSHIP 17 SOUTH, RANGE 8 WEST

TUSCALOOSA COUNTY ALABAMA

FILE NAME: URBAN−WOC−SPCC19−COMPSCHEME
SHEET No. 4 of 10
DATE OF FIELD SURVEY: N/A
JOB No. 19−3126
CHECKED BY: QHS
DWG. No. 351−19
FIELD BOOK: N/A
SCALE: 1"=60'
PAGE: N/A
DRAWN BY: D D H



LOCATION	CONTAINER DESCRIPTION	CAPACITY	MATERIAL	CONTENTS
C-1	Secondary Containment	600 BBL	Steel	N/A
A	Storage Tank	210 BBL	Steel	Produced Water
B	Storage Tank	210 BBL	Steel	Produced Water
C	Storage Tank	210 BBL	Steel	Oil Emulsion
D	Storage Tank	210 BBL	Steel	Used Oil
C-2	Secondary Containment	346 gal	Steel	N/A
E	Storage Tank	264 gal	Steel	Triethylene Glycol
C-3	Secondary Containment	346 gal	Steel	N/A
F	Storage Tank	264 gal	Steel	HDAX 5200
C-4	Secondary Containment	346 gal	Steel	N/A
G	Storage Tank	264 gal	Steel	Antifreeze

LATITUDE	33.508121°
LONGITUDE	-87.315388°

LEGEND

- INDICATES COVERED ROOF
- INDICATES EXISTING ROAD
- INDICATES EXISTING DRAINAGE FLOW
- INDICATES EXISTING CHAIN-LINK FENCE
- INDICATES ABOVE GROUND PIPING (AGP)

NOTES:
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SCHEMATIC DRAWING

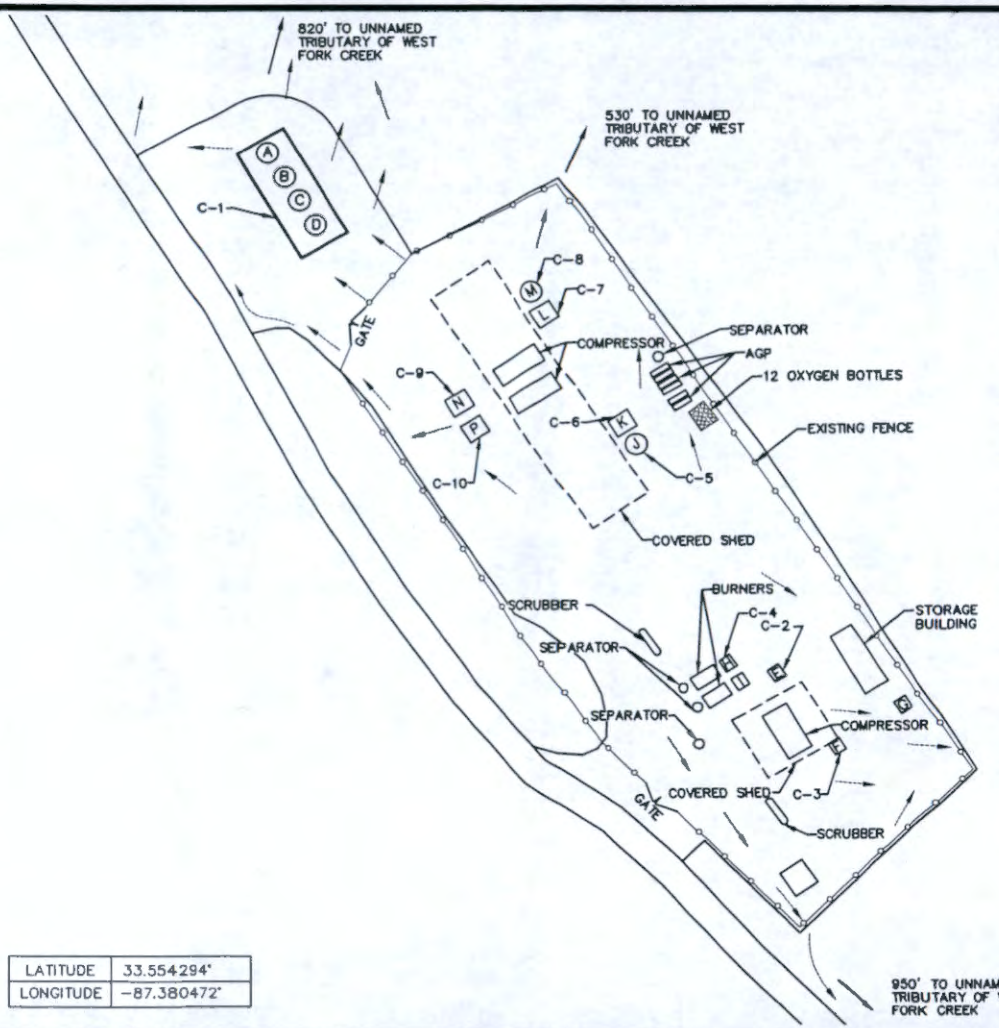
REVISION

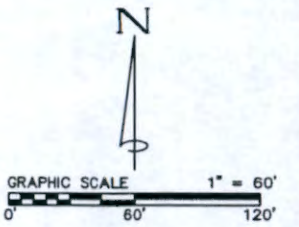
DATE	DESCRIPTION	BY

WHITE OAK CREEK FIELD
COMPRESSOR SITE No. 3

SECTION 6, TOWNSHIP 18 SOUTH, RANGE 7 WEST
TUSCALOOSA COUNTY ALABAMA

FILE NAME: URBAN-WOC-SPCC19-COMPSCHEME
DATE OF FIELD SURVEY: N/A
FIELD BOOK: N/A
PAGE: N/A
JOB No. 19-3126
SCALE: 1"=60'
DRAWN BY: D D H
CHECKED BY: QHS
SHEET No. 5 of 10
DWG. No. 351-19





LOCATION	CONTAINER DESCRIPTION	CAPACITY		MATERIAL	CONTENTS
C-1	Secondary Containment	668	BBL	Concrete	N/A
A	Storage Tank	210	BBL	Steel	Used Oil
B	Storage Tank	210	BBL	Steel	Oil Emulsion
C	Storage Tank	210	BBL	Steel	Oil Emulsion
D	Storage Tank	210	BBL	Steel	Oil Emulsion
C-2	Secondary Containment	340	gal	Steel	N/A
E	Storage Tank	264	gal	Steel	LA40
C-3	Secondary Containment	340	gal	Steel	N/A
F	Storage Tank	264	gal	Steel	Antifreeze
C-4	Secondary Containment	340	gal	Steel	N/A
H	Storage Tank	264	gal	Steel	Triethylene Glycol
C-5	Secondary Containment	946	gal	Steel	N/A
J	Storage Tank	264	gal	Steel	HDAX 5200
C-6	Secondary Containment	340	gal	Steel	N/A
K	Storage Tank	264	gal	Steel	HDAX 5200
C-7	Secondary Containment	340	gal	Steel	N/A
L	Storage Tank	264	gal	Steel	HDAX 5200
C-8	Secondary Containment	946	gal	Steel	N/A
M	Storage Tank	264	gal	Steel	HDAX 5200
C-9	Secondary Containment	842	gal	Plastic	N/A
N	Storage Tank - No SC	300	gal	Plastic	Used Antifreeze
C-10	Secondary Containment	340	gal	Steel	N/A
P	Storage Tank	264	gal	Steel	Antifreeze

LATITUDE	33.554294°
LONGITUDE	-87.380472°

LEGEND

- INDICATES COVERED ROOF
- INDICATES EXISTING ROAD
- INDICATES EXISTING DRAINAGE FLOW
- INDICATES EXISTING CHAIN-LINK FENCE
- INDICATES ABOVE GROUND PIPING (AGP)

NOTES:
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SCHEMATIC DRAWING

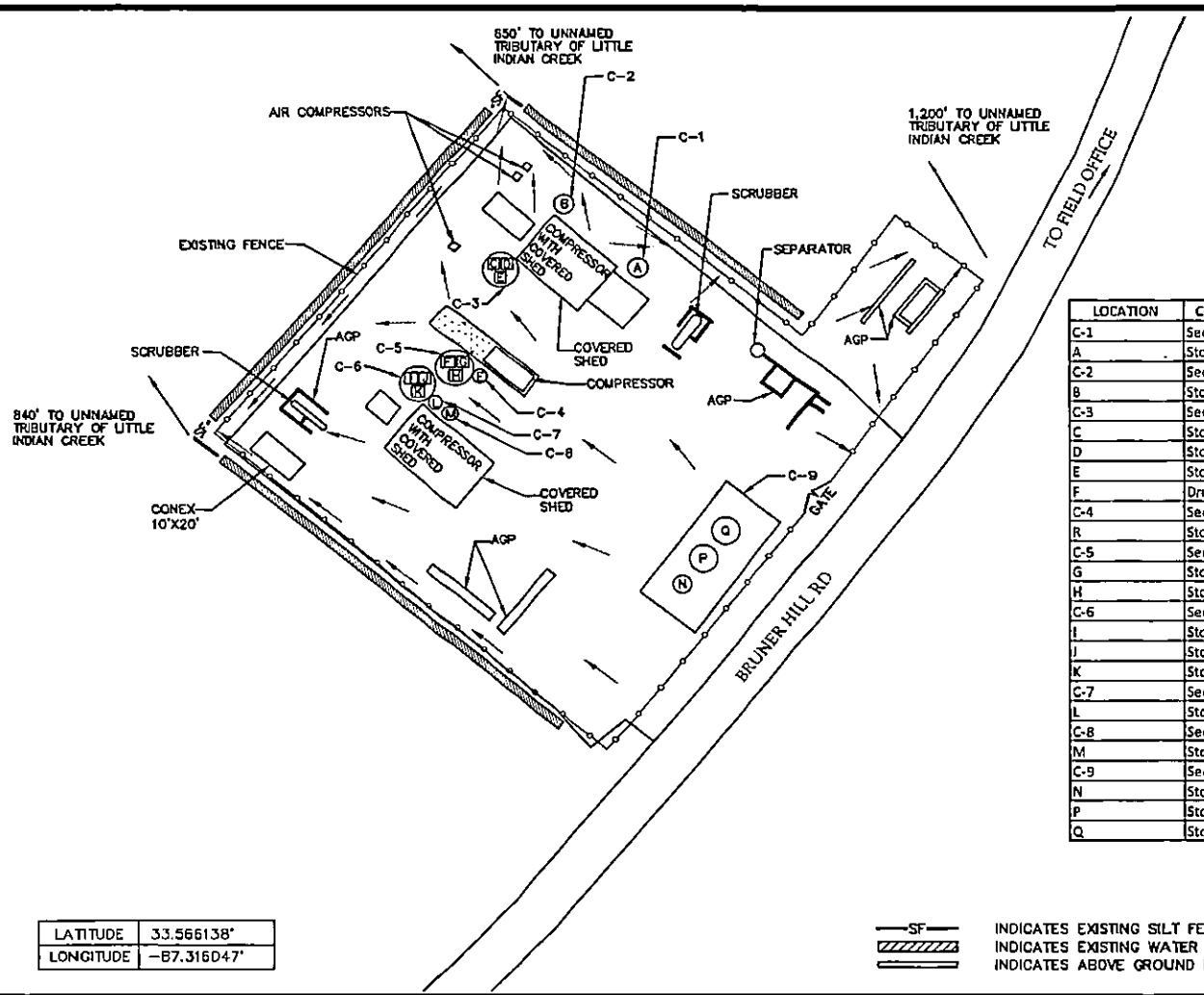
REVISION

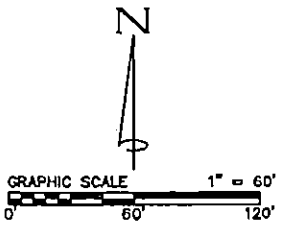
DATE	DESCRIPTION	BY
4/7/20	CHEMICAL STORAGE UPDATE	D D H

WHITE OAK CREEK FIELD
COMPRESSOR SITE No. 4

SECTION 21, TOWNSHIP 17 SOUTH, RANGE 8 WEST
TUSCALOOSA COUNTY ALABAMA

FILE NAME: URBAN-WOC-SPCC19-COMPSCHEME
DATE OF FIELD SURVEY: N/A
FIELD BOOK: N/A
PAGE: N/A
JOB No. 19-3126
SCALE: 1"=60'
DRAWN BY: D D H
CHECKED BY: QHS
SHEET No. 6 of 10
DWG. No. 351-19





LOCATION	CONTAINER DESCRIPTION	CAPACITY		MATERIAL	CONTENTS
C-1	Secondary Containment	633	gal	Steel	N/A
A	Storage Tank	300	gal	Steel	NGP100
C-2	Secondary Containment	633	gal	Steel	N/A
B	Storage Tank	564	gal	Steel	HDAX 5200
C-3	Secondary Containment	946	gal	Steel	N/A
C	Storage Tote	275	gal	Plastic	Antifreeze
D	Storage Tote	275	gal	Plastic	Used Antifreeze
E	Storage Tote	275	gal	Plastic	Used Oil
F	Drum - No SC	55	gal	Steel	Antifreeze
C-4	Secondary Containment	995	gal	Steel	N/A
R	Storage Tank	661	gal	Steel	HDAX 5200
C-5	Secondary Containment	995	gal	Steel	N/A
G	Storage Tote	275	gal	Plastic	Used Antifreeze
H	Storage Tote	275	gal	Plastic	Used Oil
C-6	Secondary Containment	995	gal	Steel	N/A
I	Storage Tote	275	gal	Plastic	Antifreeze
J	Storage Tote	275	gal	Plastic	Used Antifreeze
K	Storage Tote	275	gal	Plastic	Used Oil
C-7	Secondary Containment	661	gal	Steel	N/A
L	Storage Tank	286	gal	Steel	NGP100
C-8	Secondary Containment	661	gal	Steel	N/A
M	Storage Tank	180	gal	Steel	HDAX 5200
C-9	Secondary Containment	1370	BBL	Steel	N/A
N	Storage Tank	100	BBL	Steel	Waste Oil
P	Storage Tank	210	BBL	Steel	Oil Water Emulsion
Q	Storage Tank	210	BBL	Steel	Oil Water Emulsion

LATITUDE	33.566138°
LONGITUDE	-87.316047°

LEGEND

-SF- INDICATES EXISTING SILT FENCE
INDICATES EXISTING WATER DIVERSION BERM
INDICATES ABOVE GROUND PIPING (AGP)
INDICATES COVERED ROOF
INDICATES EXISTING ROAD
INDICATES EXISTING DRAINAGE FLOW
INDICATES EXISTING CHAIN-LINK FENCE

NOTES:
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SCHEMATIC DRAWING

REVISION		
DATE	DESCRIPTION	BY

WHITE OAK CREEK FIELD
COMPRESSOR SITE No. 5
SECTION 18, TOWNSHIP 17 SOUTH, RANGE 7 WEST
WALKER COUNTY ALABAMA

FILE NAME: URBAN-WOC-SPCC19-COMPSCHEME		SHEET No. 7 of 10	
DATE OF FIELD SURVEY: N/A	JOB No. 19-3128	CHECKED BY: QHS	DWG. No. 351-19
FIELD BOOK: N/A	SCALE: 1"=60'		
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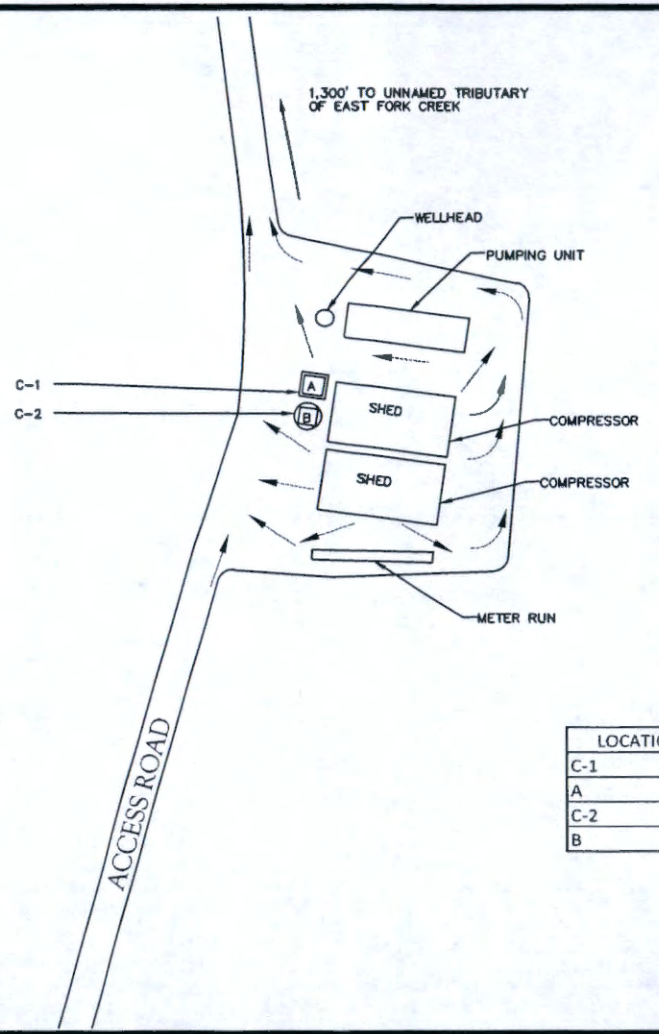

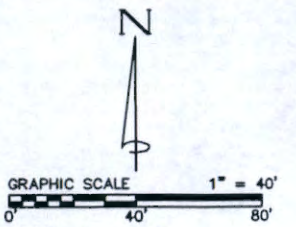

LOCATION	CONTAINER DESCRIPTION	CAPACITY	MATERIAL	CONTENTS
C-1	Secondary Containment	700 gal	Steel	N/A
A	Storage Tote	275 gal	Plastic	Used Oil
C-2	Secondary Containment	633 gal	Steel	N/A
B	Storage Tank	264 gal	Steel	NGP100

LATITUDE	33.533745°
LONGITUDE	−87.336765°

LEGEND

- INDICATES COVERED ROOF
- INDICATES EXISTING ROAD
- INDICATES EXISTING DRAINAGE FLOW
- INDICATES EXISTING CHAIN-LINK FENCE

NOTES:
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SCHEMATIC DRAWING

REVISION

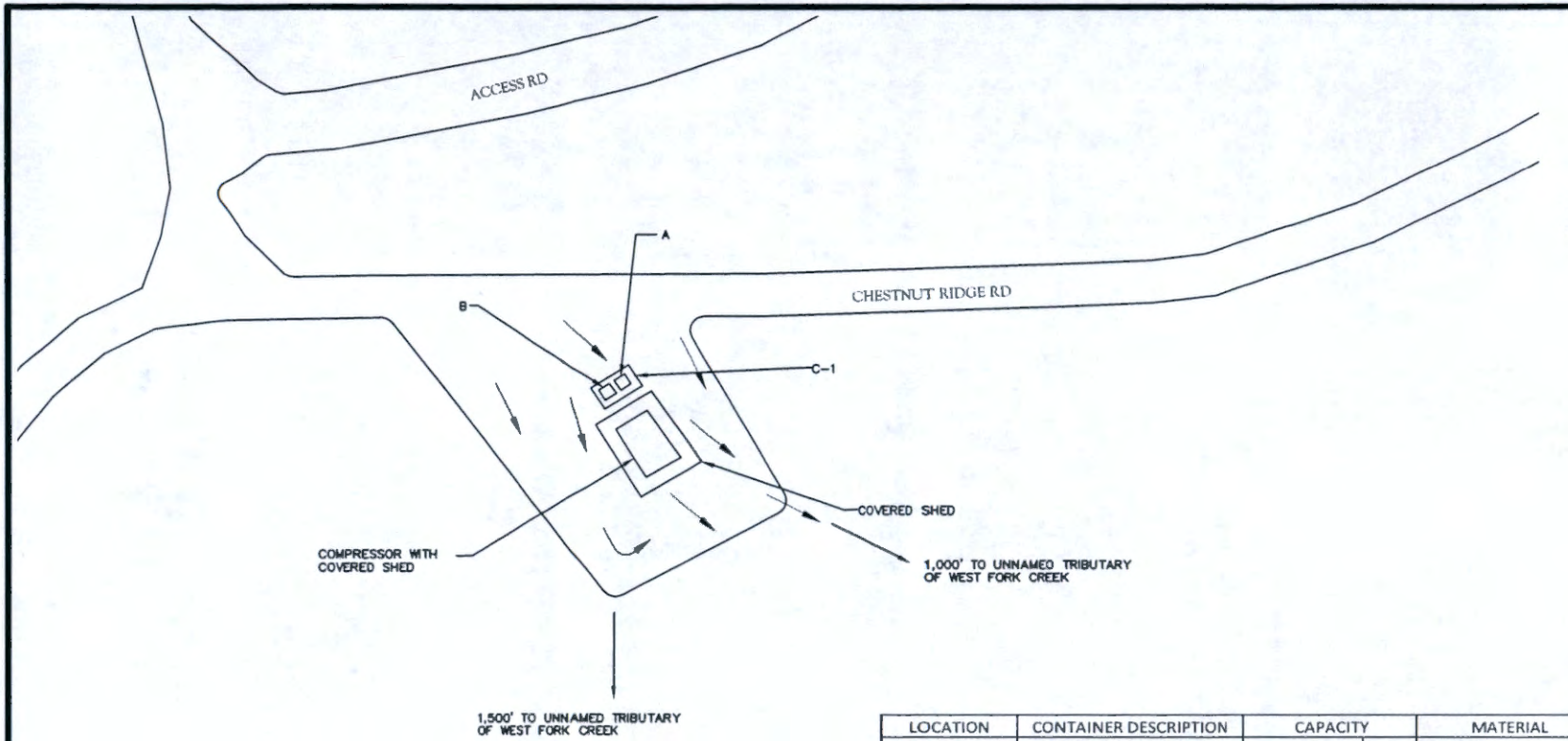
DATE	DESCRIPTION	BY

WHITE OAK CREEK FIELD

BOOSTER COMPRESSOR WSX 26 - 09 - 14

SECTION 26, TOWNSHIP 17 SOUTH, RANGE 8 WEST
TUSCALOOSA COUNTY ALABAMA

FILE NAME: URBAN-WOC-SPCC19-COMPSCHEME		SHEET No. 8 of 10	
DATE OF FIELD SURVEY: N/A	JOB No. 19-3126	CHECKED BY: QHS	DWG. No. 351-19
FIELD BOOK: N/A	SCALE: 1"=40'		
PAGE: N/A	DRAWN BY: D D H		



LOCATION	CONTAINER DESCRIPTION	CAPACITY	MATERIAL	CONTENTS
C-1	Secondary Containment	340 gal	Steel	N/A
A	Storage Tote	275 gal	Plastic	NGP100
B	Storage Tote	275 gal	Plastic	Used Oil

LATITUDE	33.563796°
LONGITUDE	-87.371306°

LEGEND

- INDICATES COVERED ROOF
- INDICATES EXISTING ROAD
- INDICATES EXISTING DRAINAGE FLOW
- INDICATES EXISTING CHAIN-LINK FENCE

NOTES:
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SCHEMATIC DRAWING

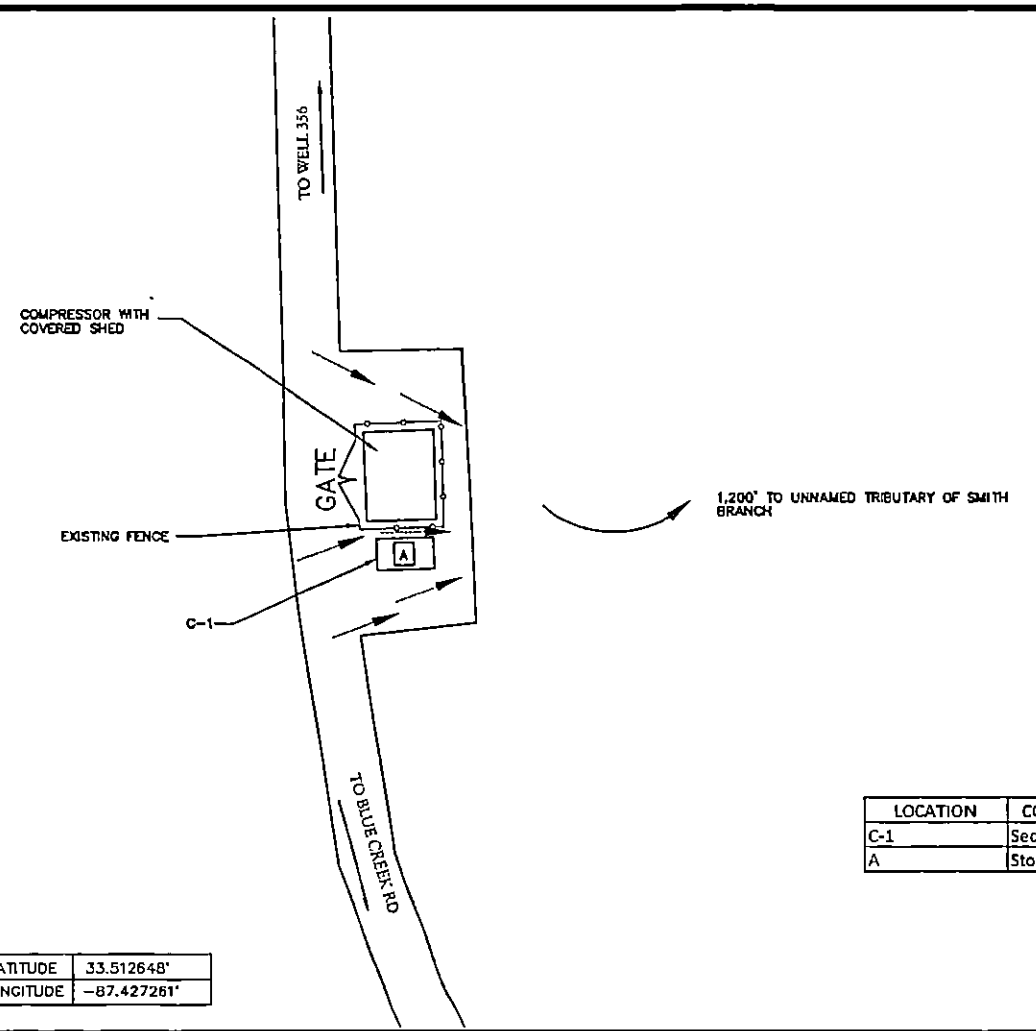
REVISION

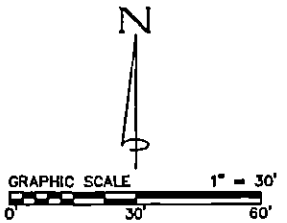
DATE	DESCRIPTION	BY

WHITE OAK CREEK FIELD
BOOSTER COMPRESSOR

SECTION 15 & 16, TOWNSHIP 17 SOUTH, RANGE 8 WEST
TUSCALOOSA COUNTY ALABAMA

FILE NAME: URBAN-WOC-SPCC19-COMPSCHEME		SHEET No. 9 of 10	
DATE OF FIELD SURVEY: N/A	JOB No. 19-3126	CHECKED BY: QHS	DWG. No. 351-19
FIELD BOOK: N/A	SCALE: 1"=40'		
PAGE: N/A	DRAWN BY: D D H		





LOCATION	CONTAINER DESCRIPTION	CAPACITY	MATERIAL	CONTENTS
C-1	Secondary Containment	340 gal	Steel	N/A
A	Storage Tank	264 gal	Steel	TK3337

LATITUDE	33.512648°
LONGITUDE	−87.427261°

LEGEND

- INDICATES COVERED ROOF
- INDICATES EXISTING ROAD
- INDICATES EXISTING DRAINAGE FLOW
- INDICATES EXISTING CHAIN-LINK FENCE

NOTES:
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SCHEMATIC DRAWING

REVISION

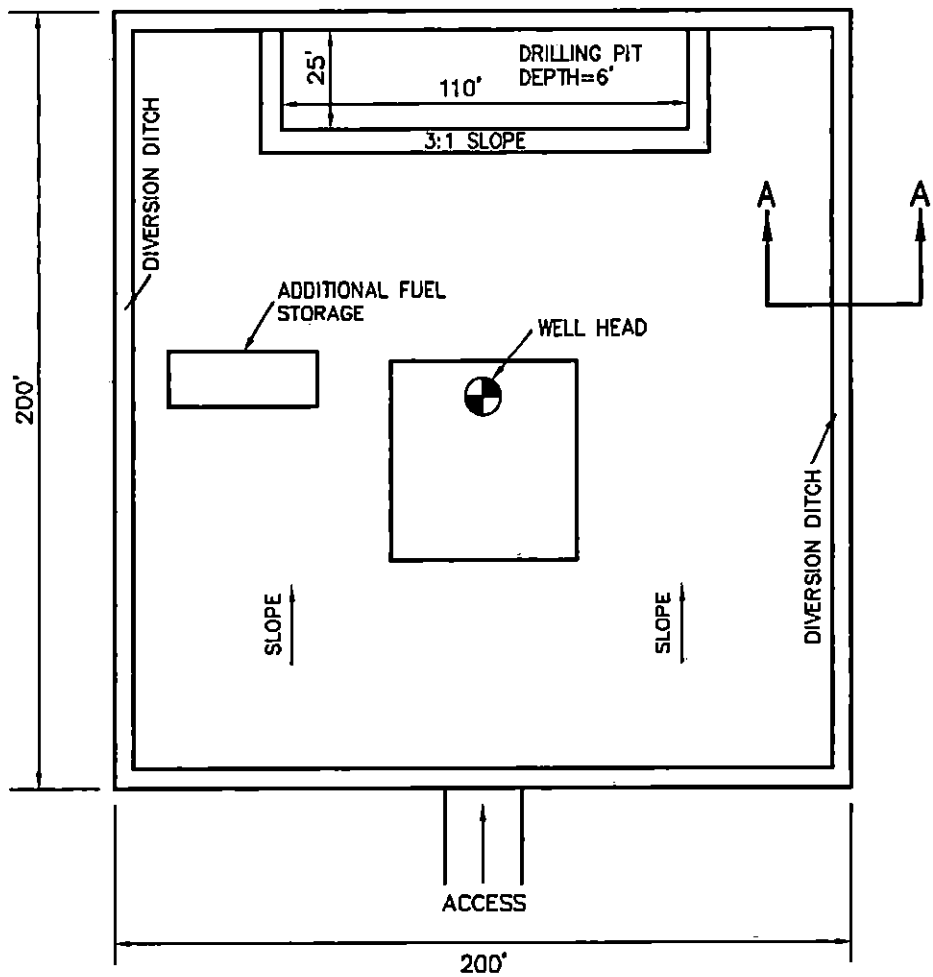
DATE	DESCRIPTION	BY

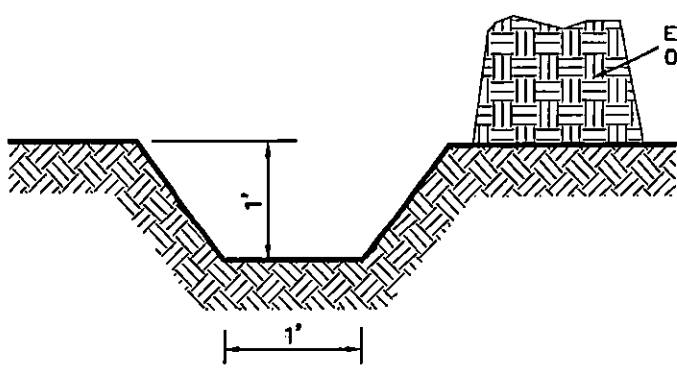
WHITE OAK CREEK FIELD
BOOSTER COMPRESSOR

SECTION 1, TOWNSHIP 18 SOUTH, RANGE 9 WEST
TUSCALOOSA COUNTY ALABAMA

FILE NAME: URBAN-WOC-SPCC19-COMPSCHEME		SHEET No. 10 of 10	
DATE OF FIELD SURVEY: N/A	JOB No. 19-3126	CHECKED BY: QHS	DWG. No. 351-19
FIELD BOOK: N/A	SCALE: 1"=30'		
PAGE: N/A	DRAWN BY: D O H		

APPENDIX C
Typical Well Site Plans





TYPICAL DIVERSION DITCH
SECTION "A–A"

NOTE: LAYOUT OF PAD WILL VARY FROM ONE LOCATION TO ANOTHER. SOME PADS MAY REQUIRE 150' x 250'

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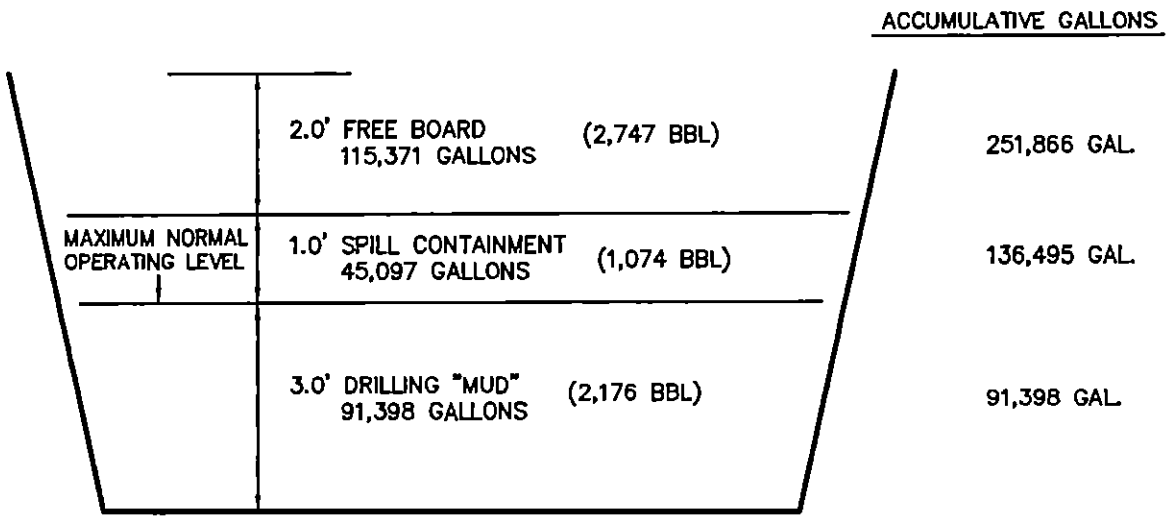
URBAN OIL & GAS GROUP, LLC
WELL PAD LAYOUT
DRILLING/COMPLETION PHASE

TUSCALOOSA & WALKER COUNTIES ALABAMA

TYPICAL WELL SITE

REVISION		
DATE	DESCRIPTION	BY

SCALE: NOT TO SCALE
DATE OF FIELD SURVEY: N/A
FB. N/A PG. N/A
DRAWN BY: D D H
JOB No. 19-3126
FILE NAME: URBAN-WOC-SPCC-TWS
SHEET No. 1 of 4
CHECKED BY: QHS
DWG. No. 374-19



BOTTOM DIMENSION = 110' x 25' WITH 3:1 SLOPE

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URBAN OIL & GAS GROUP, LLC

RETENTION STRUCTURE DESIGN DATA

DRILLING/COMPLETION PHASE

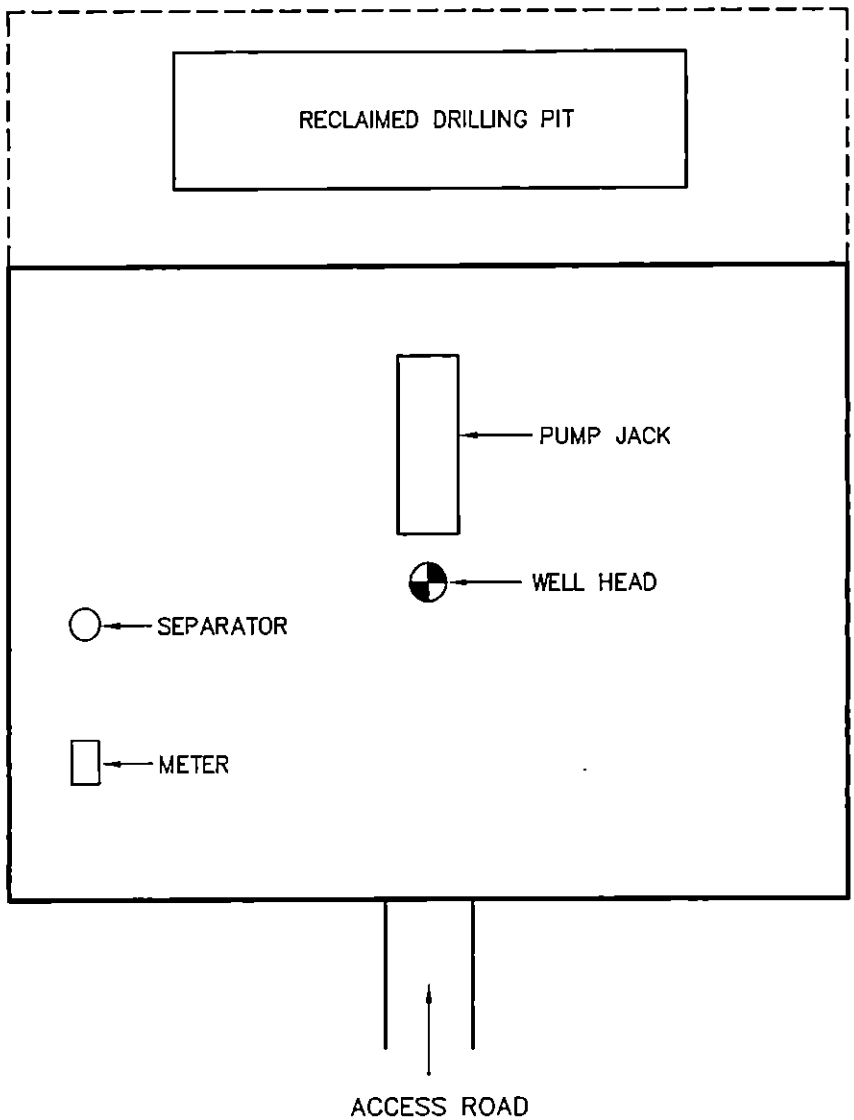
TUSCALOOSA & WALKER COUNTIES ALABAMA

TYPICAL WELL SITE

REVISION

DATE	DESCRIPTION	BY

SCALE: NOT TO SCALE	
DATE OF FIELD SURVEY: N/A	
FB. N/A	PG. N/A
DRAWN BY: D D H	
JOB No. 19-3126	
FILE NAME: URBAN-WOC-SPCC-TWS	
SHEET No. 2 of 4	
CHECKED BY: QHS	DWG. No. 374-19



NOTE:
AREA OUTSIDE OF IMMEDIATE PAD AREA WILL BE VEGETATED WITH GRASS, TREES OR OTHER VEGETATION TO CONTROL SOIL EROSION

McGiffert and Associates, LLC
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URBAN OIL & GAS GROUP, LLC

COMPLETED WELL SITE

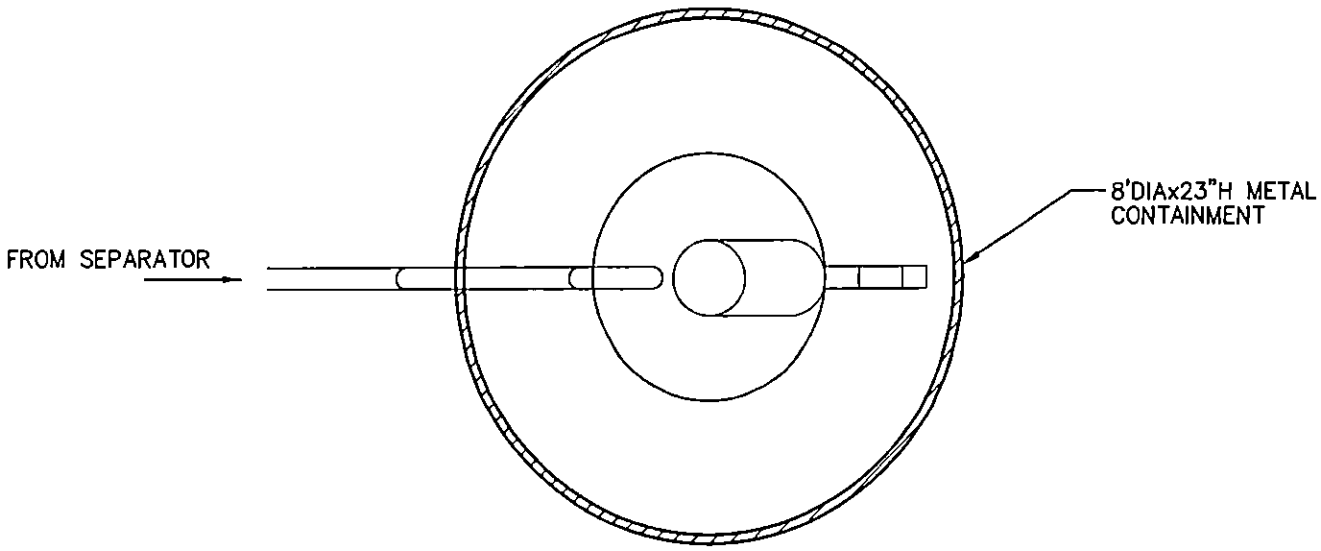
TUSCALOOSA & WALKER COUNTIES ALABAMA

TYPICAL WELL SITE

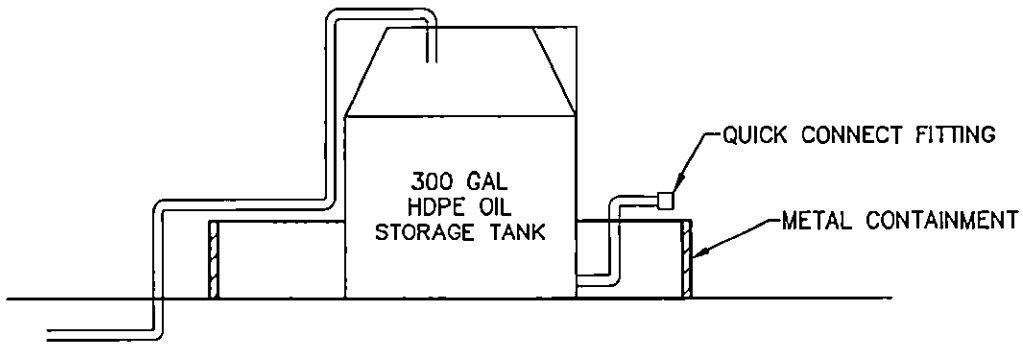
REVISION

DATE	DESCRIPTION	BY

SCALE: NOT TO SCALE
DATE OF FIELD SURVEY: N/A
FB. N/A PG. N/A
DRAWN BY: D D H
JOB No. 19-3126
FILE NAME: URBAN-WOC-SPCC-TWS
SHEET No. 3 of 4
CHECKED BY: QHS
DWG. No. 374-19



CONTAINMENT VOLUME: 700 GAL.



McGiffert and Associates, LLC
SINCE 1949
CIVIL ENGINEERS
2814 STILLMAN BLVD. • P.O. BOX 20559
TUSCALOOSA, ALABAMA 35402-0559
WWW.MCGIFFERT.COM (205)759-1521 FAX (205)759-1524

URBAN OIL & GAS GROUP, LLC

WELLSITE SLOPE OIL TANK DETAIL

TUSCALOOSA & WALKER COUNTIES ALABAMA

TYPICAL WELL SITE

REVISION		
DATE	DESCRIPTION	BY

SCALE: NOT TO SCALE	
DATE OF FIELD SURVEY: N/A	
FB. N/A	PG. N/A
DRAWN BY: D D H	
JOB No. 19-3126	
FILE NAME: URBAN-WOC-SPCC-TWS	
SHEET No. 4 of 4	
CHECKED BY: QHS	DWG. No. 374-19

APPENDIX D
Secondary Containment Inspection Checklist

Secondary Containment Inspection Checklist

Urban Oil & Gas Group, LLC
White Oak Creek Field Coalbed Methane Project
Tuscaloosa and Walker Counties

FACILITY SITE: _____

YEAR: _____

Inspection of all secondary containment structures should be perfomed on a quarterly basis in accordance with this plan and 40 CFR 112.7(a)(3)(iii)

Facility Supervisor								
Date of Inspection	1st Qtr:		2nd Qtr:		3rd Qtr:		4th Qtr:	
	Check For	*Done*	*Comments/Location*	*Done*	*Comments/Location*	*Done*	*Comments/Location*	*Done*	*Comments/Location*
Containment Area Discription: _____	Presence of leaked or spilled liquid								
	Discoloration of structure or soil berm								
	Status of Drainage Valve								
	Cracks in concrete continment								
	Settling or weakness in soil berm								
	Corrosion of containment structure								
	Debris or used containers								
	Status of area beneath tanks								
	Stormwater level and capacity								
COMMENTS / ACTION									

Attach additional sheets as required to record issues and actions taken.

APPENDIX E
Secondary Containment
Drainage Report

Secondary Containment Drainage Report

Urban Oil & Gas Group, LLC
White Oak Creek Field Coalbed Methane Project
Tuscalooa and Walker Counties

FACILITY SITE: _____

YEAR: _____

When stormwater is released from a secondary containment area, it must not have a sheen. If a sheen is present, the water must be cleaned by use of absorbent pads, absorbent booms or other approved methods. Once the sheen is removed, the water may be either pumped or drained. If the water cannot be adequately cleaned then the owner should be contacted to provide guidance for addtional cleanup measures.

The following record report should be filled out everytime a discharge from a secondary containment area occurs.

Date	Facility Supervisor	Sheen Present		Describe absorbant material if used	Water Removal		Gallons of Water Removed (estimate)
		Yes	No		Start Time	End Time	

APPENDIX F
Tank & Piping
Inspection Checklist

Tank & Piping Inspection Checklist

Urban Oil & Gas Group, LLC
White Oak Creek Field Coalbed Methane Project
Tuscaloosa and Walker Counties

FACILITY SITE: _____

YEAR: _____

Inspection of all tanks and pipes should be perfomed on a quarterly basis to identify the potential for leaks and perform proactive maintanence.

Facility Supervisor								
Date of Inspection		1st Qtr:		2nd Qtr:		3rd Qtr:	4th Qtr:	
	Check For	*Done*	*Comments/Location*	*Done*	*Comments/Location*	*Done*	*Comments/Location*	*Done*	*Comments/Location*
TANK Observations	Puddles of Leaks								
	Drip Marks								
	Tank Discoloration								
	Corrosion								
	Cracks								
	Tank Supports								
PIPING Observations	Drips or Droplets of Liquid								
	Seepage at Valves or Seals								
	Bending of Between Supports								
	Abrasions / Rubbing at Supports								
	Corrosion								
	Discoloration								
COMMENTS / ACTION									

Attach additional sheets as required to record issues and actions taken.

APPENDIX G
Annual Inspection Record

Annual Inspection Record

Urban Oil & Gas Group, LLC
White Oak Creek Field Coalbed Methane Project
Tuscaloosa and Walker Counties

AREA: _____

SUPERINTENDENT: _____

FACILITY SITE: _____

DATE OF INSPECTION: _____

I. **STORAGE TANKS**
General Condition; _____

Foundation and Supports: _____

Shut Down Switches: _____

II. **FIREWALLS**
Adequacy of size: _____

General Condition: _____

Drains: _____

III. **LEASE OPERATOR INTERVIEW** to discuss condition of valves, pipelines, flange joints, valve glands and bodies, drip pan, pipeline supports, stuffing boxes, and bleeder and gauge valves:

Annual Inspection Record

Urban Oil & Gas Group, LLC
White Oak Creek Field Coalbed Methane Project
Tuscaloosa and Walker Counties

IV. FLOWLINES

WELL NO.	DATE INSTALLED	CORROSION PROTECTION	TEST DATE	DATE LAST WALKED	PROPOSED DATE FOR NEXT REPLACEMENT

GENERAL COMMENTS: **Identify concerns and prioritize work schedule. Include dates work is scheduled, if applicable.**

APPENDIX H
Spill Incident Report Form

URBAN OIL & GAS GROUP, LLC
Spill Incident Report Form

Location & Date

Spill Location _____ Area _____ Date of Incident _____ Time _____

County Name _____ State _____ Lat/ Long _____

Receiving Water (if applicable) _____ Adjacent Property _____

Representative at Location _____ Phone _____

Directions to Location _____

Incident

Description of Incident _____

Type & Amount of	Spill	Liters	Gallons
Circle Type of material spilled and complete volumes. Specify type of Chemical, etc.	Oil		
	Diesel Fuel		
	Anti-Freeze		
	Chemical		
	Other		

Area Impacted _____
(Describe and Complete Table)

	In Water	On Land	Contained (Y/N)
Length (ft)			
Width (ft)			
Depth (ft)			
Appearance			

Weather & Stream Conditions: Temperature (F) _____ Forecast _____ Stream Conditions _____
Current Conditions _____ Conditions _____

Response Action

Clean-up / Response Actions _____

Action to Prevent Recurrence _____

Signatures and Comments

Comments (Use back for additional comments) _____

Supervisor's Signature _____ Date _____ Phone No. _____

Reports to Regulatory Agencies

Agency	Case No.	Reported By	Reported to	Date & Time

APPENDIX I
Discharge Prevention Briefing Log

Discharge Prevention Briefing Log

Urban Oil & Gas Group, LLC

White Oak Creek Field Coalbed Methane Project

Tuscaloosa and Walker Counties

Date: _____

Attendees:

_____ _____ _____

_____ _____ _____

_____ _____ _____

Subject/Issue Identified	Required Action	Implementation Details

APPENDIX J
Response Equipment Inspection Log

Response Equipment Inspection Log

Urban Oil & Gas Group, LLC
White Oak Creek Field Coalbed Methane Project
Tuscaloosa and Walker Counties

Check for the following:

1. Inventory (item and quantity)
2. Storage location
3. Accessibility (time to access and respond)
4. Operational status/condition
5. Actual use/testing (last test date and frequency of testing)
6. Shelf life (present age, expected replacement date)

Facility Supervisor	Date	Comments