UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

MAR 0 8 2012

CERTIFIED MAIL 7010 1060 0002 1705 6796
RETURN RECEIPT REQUESTED

Mr. Don Wiggins,
Technical Services Manager
Walter Coke, Inc.
3500 35th Avenue North
Birmingham, Alabama 35207

Re: Letter of Concern
Compliance Evaluation Inspection
National Pollutant Discharge Elimination System Permit No. AL0003247

Dear Mr. Wiggins:

On September 12-14, 2011, and December 12, 2011, the U.S. Environmental Protection Agency, Region 4 and the Alabama Department of Environmental Management (ADEM) performed a Compliance Evaluation Inspection (CEI) of Walter Coke, Inc. (Facility). The EPA's participation in this inspection was to evaluate the Facility's compliance with the treatment of process wastewater and stormwater in accordance with the requirements of the Clean Water Act and the ADEM *National Pollutant Discharge Elimination System (NPDES)* Permit Number AL0003247.

Based on the information obtained and onsite observations during the CEI, the EPA has concerns regarding the following:

1. The Facility's development of a Best Management Plan (BMP) that does not address all permit elements and is deficient in the areas of *BMP Records and Reporting*, as well as, *BMP Implementation*;

2. An unauthorized discharge of coal material from the coal pile storage area to the City of Birmingham's storm drain system on December 12, 2011;

3. Three potential unauthorized discharge sources located at:

    a. the EPA sewer (stormwater runoff capacity issue);
    b. the railroad track area along the coke pile storage, and
    c. the unpermitted ditch near the Biological Treatment Facility.

These concerns are outlined in more detail in the enclosed CEI report. Please provide all requested information as well as the corrective actions your Facility has taken or plans to take to address the

deficiencies identified in the CEI report and to ensure compliance with the Permit. The requested information and corrective actions should be submitted within 30 days of receipt of this letter.

Failure to comply with the requirements of the Permit and the Clean Water Act (CWA) may subject the Facility to enforcement action pursuant to Section 309 of the CWA. This Section provides for the issuance of administrative penalty and compliance orders and/or the initiation of civil and/or criminal actions.

Enclosed is a document entitled *U.S. EPA Small Business Resources-Information Sheet* to assist you in understanding the compliance assistance resources and tools available to you. Any decision to seek compliance assistance at this time, however, does not relieve you of your obligation to the EPA nor does it create any new rights or defenses, and will not affect the EPA's decision to pursue enforcement action. In addition, the Securities and Exchange Commission (Commission) requires its registrants to periodically disclose environmental legal proceedings in statements filed with the Commission. To assist you, the EPA has also enclosed a document entitled *Notice of Securities and Exchange Commission Registrants' Duty to Disclose Environmental Legal Proceedings.*

Please direct your response to this inquiry to Mr. Kenneth Kwan or Ms. Alenda Johnson, of the Clean Water Enforcement Branch, using the above address. If you should have any further questions, you may contact Mr. Kwan at (404) 562-9752 or Ms. Johnson at (404) 562-9761.

Sincerely,

Denisse D. Diaz, Chief
Clean Water Enforcement Branch
Water Protection Division

Enclosures

United States Environmental Protection Agency
Region 4
Water Protection Division
Clean Water Enforcement Branch
61 Forsyth St SW,
Atlanta, Georgia 30303

Compliance Evaluation Inspection Report
Walter Coke Inc.
Industrial Wastewater Treatment System and Stormwater Collection and Discharge System

Facility Address:
3500 35th Avenue N
Birmingham, Alabama 35207

Inspection Dates:
September 12 -14, 2011 and December 12, 2011

Inspectors:
Kenneth Kwan, Enforcement Officer, EPA Region 4
Alenda Johnson, Enforcement Officer, EPA Region 4
James Couch, Field Operation Division, Birmingham Branch, ADEM
Craig Mangham, Field Operation Division, Birmingham Branch, ADEM

Inspection Report Prepared by:
Kenneth Kwan
Alenda Johnson

January 23, 2012

Table of Contents

ABBREVIATIONS AND ACRONYMS

ADEM	Alabama Department of Environmental Management
BMP	Best Management Plan
BTF	Biological Treatment Facility
CEI	Compliance Evaluation Inspection
CWA	Clean Water Act
DMR	Discharge Monitoring Report
EPA	United States Environmental Protection Agency
GIS	Geographic Information System
ICIS	Integrated Compliance Information System
IWC	In-stream Waste Concentration
MGD	Million Gallons per Day
NPDES	National Pollutant Discharge Elimination System
SIC	Standard Industrial Classification
SW	Stormwater
WET	Whole Effluent Toxicity

INSPECTION FORMS

Attached on page 5 of this report is the inspection form used during the course of the inspection including Form 3650-3 (Rev 1-06) Water Compliance Inspection Reports.

Compliance Evaluation Inspection

Walter Coke, Inc. Municipal Wastewater Treatment and Stormwater Inspection, September 12-14, 2011 and December 12, 2011

EPA

United States Environmental Protection Agency
Washington, D.C. 20460

Water Compliance Inspection Report

Form Approved
OMB No.2040-0057
Approval Expires
8-31-98

Section A: National Data System Coding (i.e., PCS)

Transaction Code	NPDES	yr/mo/day	Inspection Type	Inspector	Facility Type
N	AL0003247	2011/09/12-14 2011/12/12	M	J	2

Remarks

Inspection Work Days | Facility Self Monitoring Evaluation Rating | B1 | QA | ----------Reserved----------

Section B: Facility Data

Name and Location of Facility Inspected

Walter Coke, Inc.
3500 35th Avenue North
Birmingham, AL 35207

Entry Time/Date: 09/12/2011 8:38 a.m. CST
Exit Time/Date: 09/14/2011 11:35a.m. CST
Entry Time/Date: 12/12/11 10:15 a.m. CST

Permit Effective Date December 1, 2009
Permit Expiration Date: November 30, 2014
Exit Time/Date: 12/12/11 5:24 p.m. CST

Names of On-Site Representative(s)/Title(s)/Phone and Fax Number(s)

Ron Schoen, VIP Operations, (205) 808-7857
Don Wiggins, Technical Services Manager, (205) 808-7972
Vera Yitram, BTF Coordinator, (205) 808-7900
Charles Jones, Environmental Coordinator (205) 808-7712

Name, Address of Responsible Official/Title/Phone and Fax Number

Don Wiggins, Technical Services Manager
3500 35th Avenue North
Birmingham, AL 35207 Tel. (205) 808-7972

Other Facility Data

This is a joint EPA and ADEM inspection. James Couch and Craig Mangham from ADEM's Birmingham field office participated in both inspections

SEV Codes

D0N11
B0N17
B0N18

Section C: Areas Evaluated During Inspection *(Check only those areas evaluated)*

✔	Permit	✔	Flow Measurement	✔	Operations & Maintenance		CSO/SSO (Sewer Overflow)
✔	Records/Reports	✔	Self-Monitoring Program		Sludge Handling/Disposal		Pollution Prevention
✔	Facility Site Review		Compliance Schedules		Pretreatment	✔	Multimedia
✔	Effluent/Receiving Waters	✔	Laboratory	✔	Stormwater	✔	Other: BMP/Stormwater

Section D: Summary of Findings/Comments

Please pay special attention to Regulatory Requirement headings noted throughout the attached report.

Names and Signatures of Inspectors	Agency/Office/Phone and Fax Numbers	Date
Alenda Johnson	US-EPA/CWEB Phone: 404/562-9761 Fax: 404/562-9729	3/1/12
Kenneth Kwan	US-EPA/CWEB Phone: 404/562-9752 Fax: 404/562-9729	3/1/12
Signature of Reviewer Denisse D. Diaz, Chief, CWEB	US-EPA/CWEB Phone: 404/562-9610 Fax: 404/562-9729	3/8/12

EPA Form 3560-3 (Rev 1-06) Previous editions are obsolete

INTRODUCTION

On September 12 -14, 2011, and December 12, 2011, representatives of the United States Environmental Protection Agency, Region 4 and the Alabama Department of Environmental Management (ADEM) conducted a Compliance Evaluation Inspection (CEI) of the Walter Coke Inc., (Facility) in Birmingham, Alabama. The CEI included the Biological Treatment Facility (BTF), Best Management Plan and stormwater management practices of the industrial site. The primary purpose of these inspections was to evaluate compliance with the Clean Water Act (CWA) as it relates to industrial wastewater and stormwater discharges.

This inspection report will be divided into two parts. Part I will cover the National Pollutant Discharge Elimination System (NPDES) permitted outfalls and related facilities and Part II will cover stormwater management and related facilities.

Part I, Industrial Processes and Wastewater Treatment System

I. OVERVIEW

The Facility processes coal to produce coke for fuel use in blast furnaces and foundries. The Facility operates seven days a week and employs approximately 265 employees. The main products produced are furnace and foundry coke. The industrial manufacturing process creates coal tar, light oil, ammonium sulfate and Benzene, Toluene, and Xylene (BTX) by-products. The BTX by-products are processed at the refinery. The primary industrial activity of the Facility is the manufacturer of inorganic petroleum catalysts, Standard Industrial Classification (SIC) Code 3312 (Iron and Steel Manufacturing Steelmaking).

The Facility's National Pollutant Discharge Elimination System (NPDES) permit covers two separate regulated outfalls; 001 and 001B, as noted in Photo11. Outfall 001 discharges treated process wastewater, non-contact cooling water, boiler blow down, and stormwater runoff. Outfall 001B is an internal outfall that discharges into Outfall 001. This internal outfall discharges treated wastewater from the coke plant, by-product plant, steam trap, process area stormwater, sanitary, and contaminated groundwater trucked in from Arichem, LLC.

The Facility covers over 400 acres including, coke storage, coal storage, a truck wash area, vehicle maintenance area, the BTF, Slag Wool Aggregate pile, Coal Processing area, Coke Oven Battery area, and the By-products area. The Vulcan Materials Company borders the Facility on the west and the ABC Coke is located northwest of Vulcan Materials (Photo 1).

Photo 1-Walter Coke Inc. Aerial View

Start of EPA Sewer

EPA Sewer – Coal Storage Pile Runoff

Oven Boulevard

By-products Area

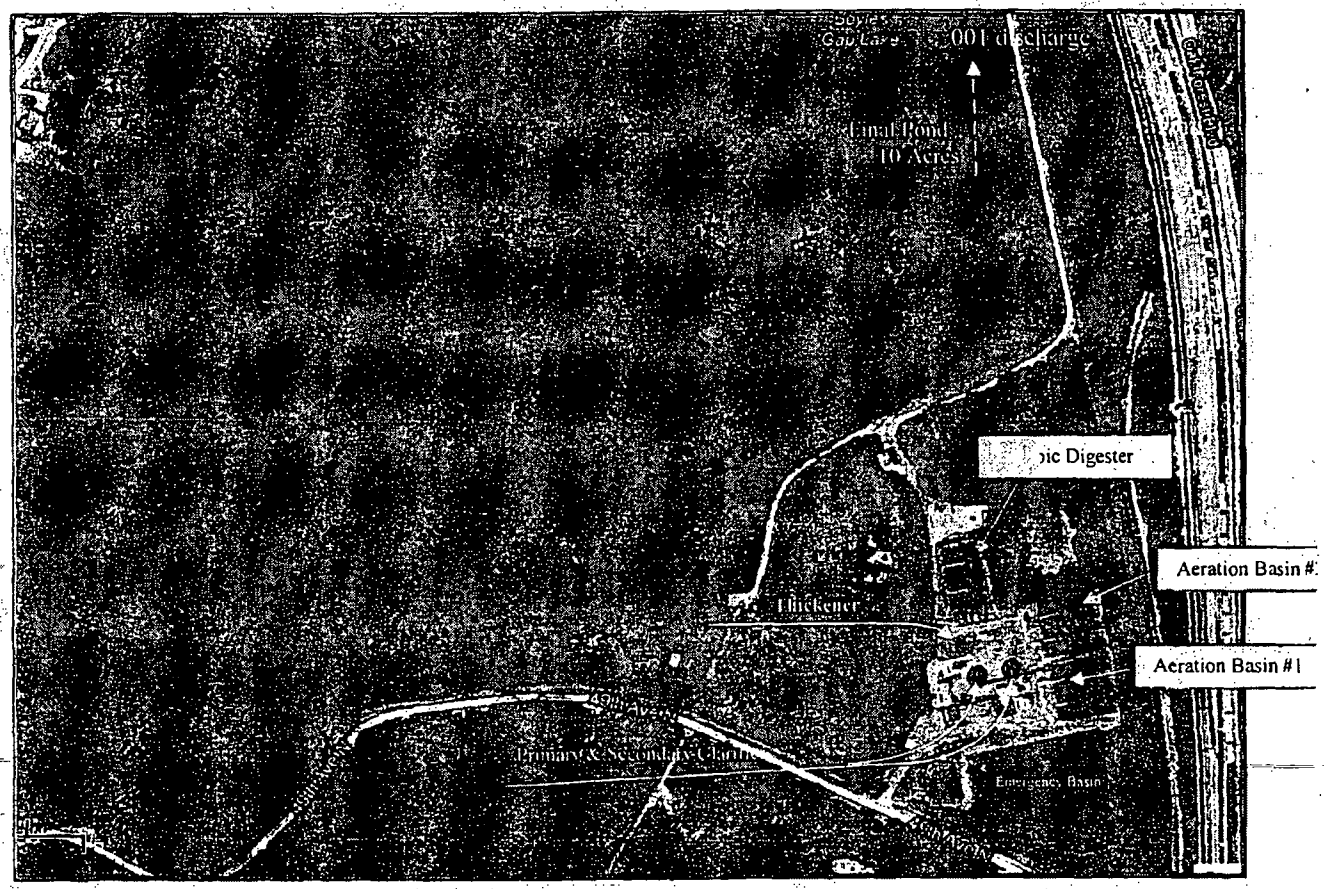

Photo 2- Walter Coke Inc. Biological Treatment Facility

The Facility operates a Biological Treatment Facility (BTF) with advance treatment for the phenol compound and cyanide removal (Photo 2). Figure 1 is a schematic diagram of the process wastewater flow for both Outfalls 001B and Outfall 001. The configuration of the schematic diagram is based on information provided to the EPA by Walter Coke Inc.

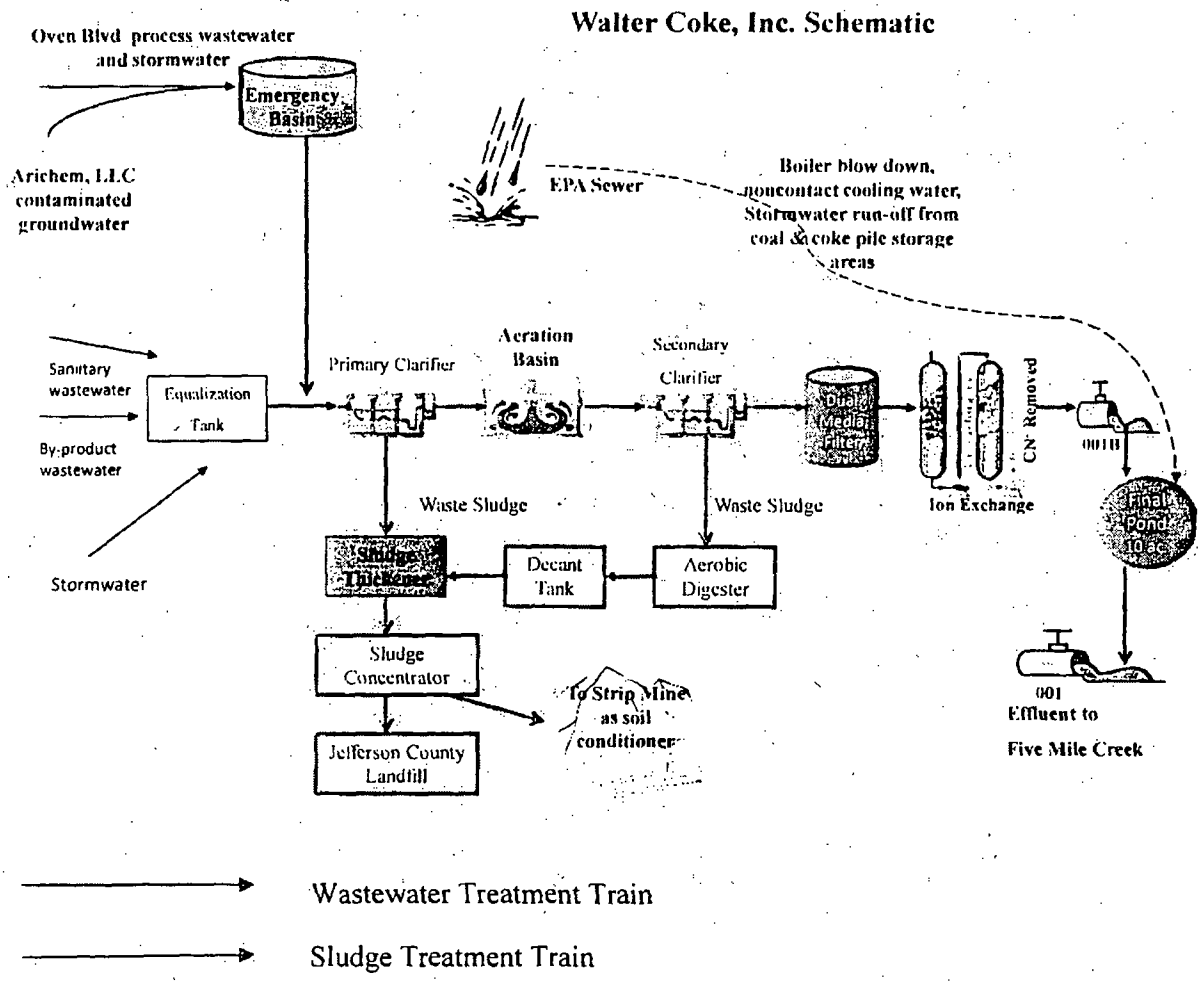

Figure 1 - Flow Schematic

II. REGULATORY SUMMARY

ADEM is authorized under the CWA to implement the NPDES program in Alabama. Walter Coke Inc. owns and operates an industrial wastewater treatment system that treats process wastewater, stormwater runoff, and domestic wastewater under NPDES Permit No. AL0003247 (the Permit). The Permit has an effective date of December 1, 2009, and an expiration date of November 30, 2014.

The Facility is permitted to discharge treated industrial wastewater and stormwater from its BTF into the Five Mile Creek. Five Mile Creek has a designated use of Fish and Wildlife at the point of discharge. As defined by Section 502(7) of the CWA, 33 U.S.C. § 1362(7), Five Mile Creek is a navigable waters of the United States.

The Facility's effluent limitations are technology-based limits which were developed using the effluent guidelines and water quality standards. A total list of parameters for Outfall 001 includes: pH, carbonaceous biochemical oxygen demand (5-day), total suspended solids (TSS), oil and grease (O&G), ammonia (as nitrogen), total kjeldahl nitrogen, dissolved oxygen, available cyanide, total cyanide, benzo(a)pyrene, total recoverable copper, total recoverable lead, total recoverable zinc, total recoverable selenium, total phosphorus, nitrates plus nitrites, total dissolved solids, and chronic whole effluent toxicity. The carbonaceous biochemical oxygen demand, ammonia (as nitrogen), and total kjeldahl nitrogen parameters have seasonal limits based on a waste load allocation model. A total list of parameters for internal Outfall 001B includes: pH, TSS, O&G, ammonia (as nitrogen), total cyanide, phenols, naphthalene and benzo(a)pyrene based upon effluent guidelines. Also, due to the groundwater being trucked in from Arichem for treatment, there are monitoring only requirements for 1,2,4 trichlorobenzene, 1,2 dichlorobenzene, 1,3 dichlorobenzene, 1,4 dichlorobenzene, and chlorobenzene.

III. OBJECTIVE

The purpose of this CEI is to evaluate compliance with the CWA as it relates to the NPDES Permit AL0003247.

IV. INVESTIGATION METHODS

The investigation included:

a. Review of the EPA's water document request submitted to Walter Coke Inc., and made available to EPA on 9/12/11;
b. Interviews with Facility personnel;
c. Review of the Facility's records/documents/plans;
d. On-site inspection; and,
e. EPA's retrieval of Discharge Monitoring Report (DMR) data from the Integrated Compliance Information System (ICIS) database.

V. INSPECTION FINDINGS

A. Facility Site Review – Biological Treatment Facility (BTF)

The EPA and ADEM personnel toured the Facility on September 12, 2011, to assess daily operations and general conditions of the BTF. The field portion of the inspection started at the process/manufacturing area and process wastewater collection points. The inspectors then visited each of the treatment processes at the BTF. All of the treatment processes were in operation during the inspection. An additional inspection was conducted on December 12, 2011, to follow-up on issues raised following the September inspection.

1. Equalization Tanks

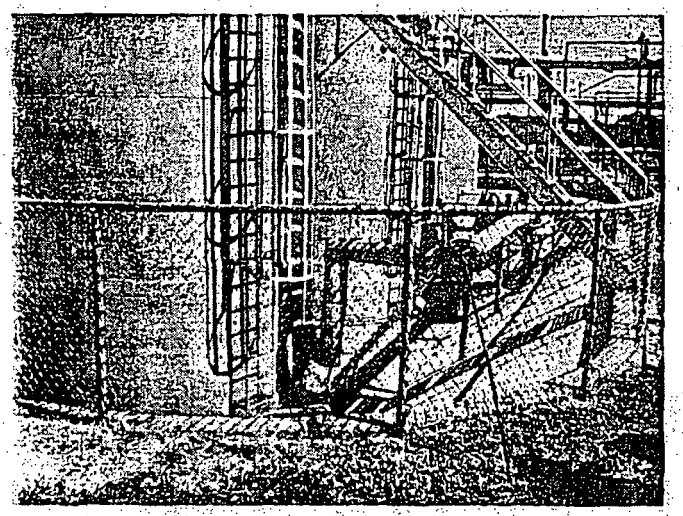

Photo 3 - 500,000 gallon EQ Tanks

The Facility has two Equalization Tanks that operate in parallel (Photo 3). Each tank has a capacity of 500,000 gallons. The Equalization Tanks are used to hold excess inflow from the process wastewater, flow from the By-product area, stormwater runoff and sanitary wastewater.

2. Primary Clarifier

The primary clarifier receives contaminated groundwater from Arichem LLC and process wastewater from the Oven Boulevard and By-product areas. The Primary Clarifier (Photo 4) is used as a primary treatment mechanism to settle solids in the waste stream prior to biological treatment. The Primary Clarifier has a diameter of 42 feet and a depth of 14 feet. It is set to operate at a detention time of six hours to maximize settling.

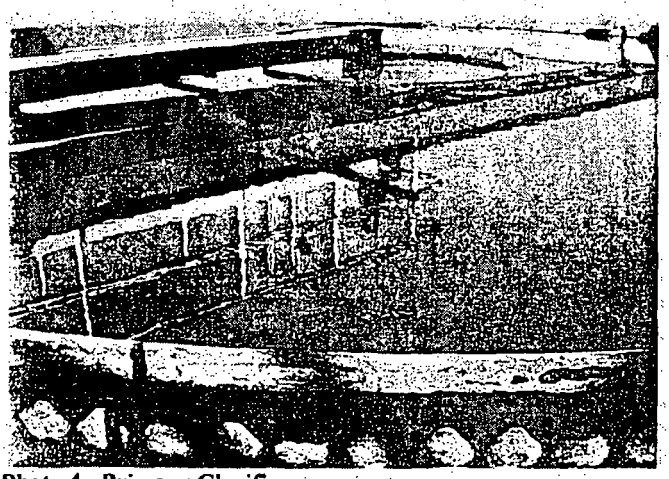

Photo 4 - Primary Clarifier

3. Aeration Basins

The Facility has two Aeration Basins (Photos 5 and 6). These two basins are designed for an average flow of 0.8 million gallons per day (MGD) and a waste strength of 20,000 lbs/day of chemical oxygen demand (COD). Currently, the basins are treating an average flow of 0.3 MGD with a waste strength of 2,000 lbs/day COD. Due to the low flow condition, the two basins are operating in series instead of in parallel mode. Each basin has two 60 horse power (hp) aerators that are used to maintain a dissolved oxygen level of 4 – 8 mg/l. It is set to operate at a detention time of six days. After the aeration basin, polymer is added to improve settling at the secondary clarifier.

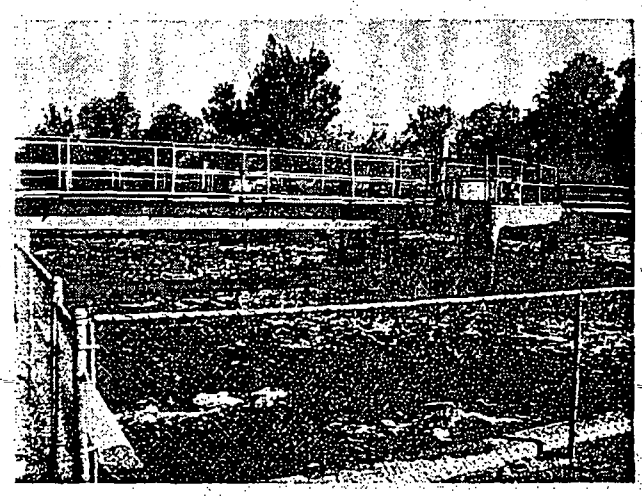

Photo 5 - Aeration Basin 1

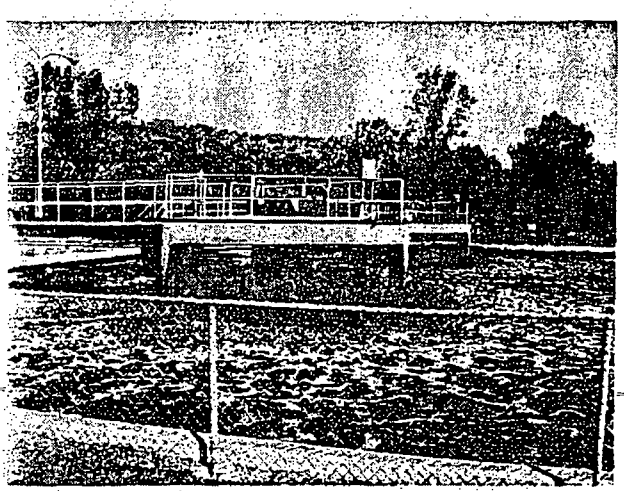

Photo 6 - Aeration Basin 2

4. Secondary Clarifier

The Secondary Clarifier in Photo 7 has the same dimensions as the primary clarifier. The Facility tries to maintain a sludge blanket of four to five feet in this clarifier. The standard procedure is to waste sludge three to four hours per day at 76 gallon per minute to the aerobic digester.

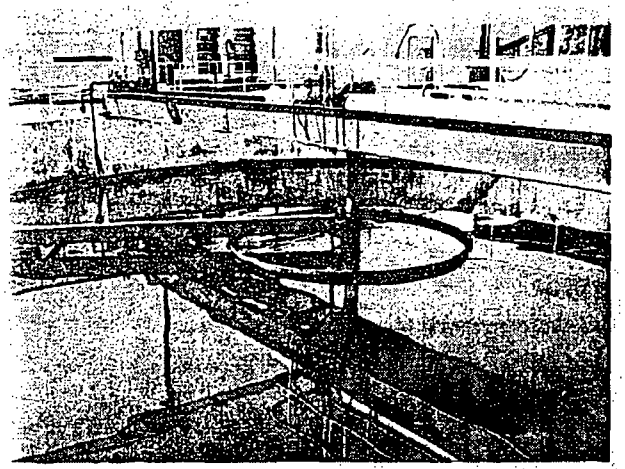

Photo 7 - Secondary Clarifier

5. Dual Media Filters

The Facility's Dual Media Filter is designed to remove phenol compounds from the wastewater (Photo 8). The Duel Media Filter treatment consists of sand filtration followed by active carbon absorption.

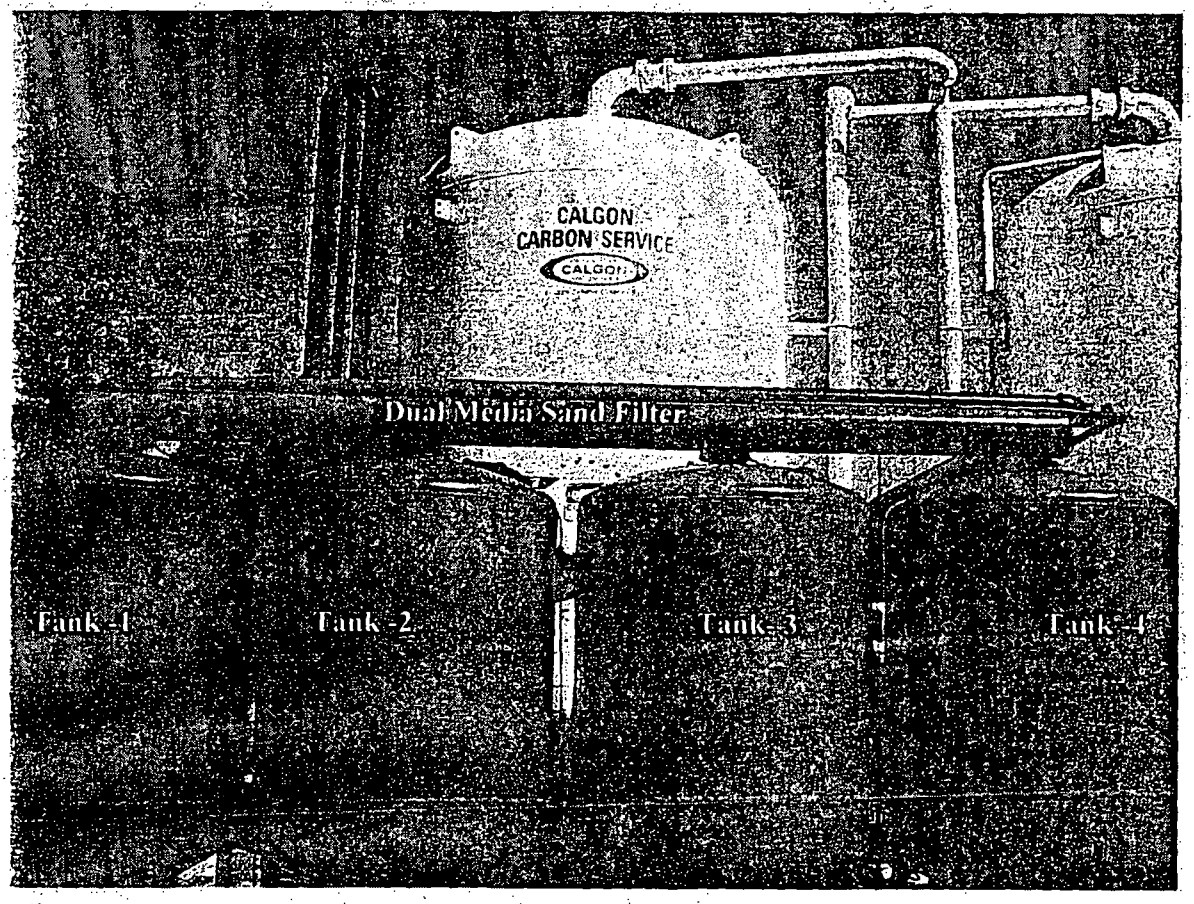

Photo 8 - Sand and Carbon Absorption Filters

6. Ion Exchange

The Ion Exchange treatment (Photo 10) is designed to remove cyanide which typically forms during the steam distillation process. A portion of the contact chamber previously used for disinfection is now utilized for the ion exchange treatment (Photo 9).

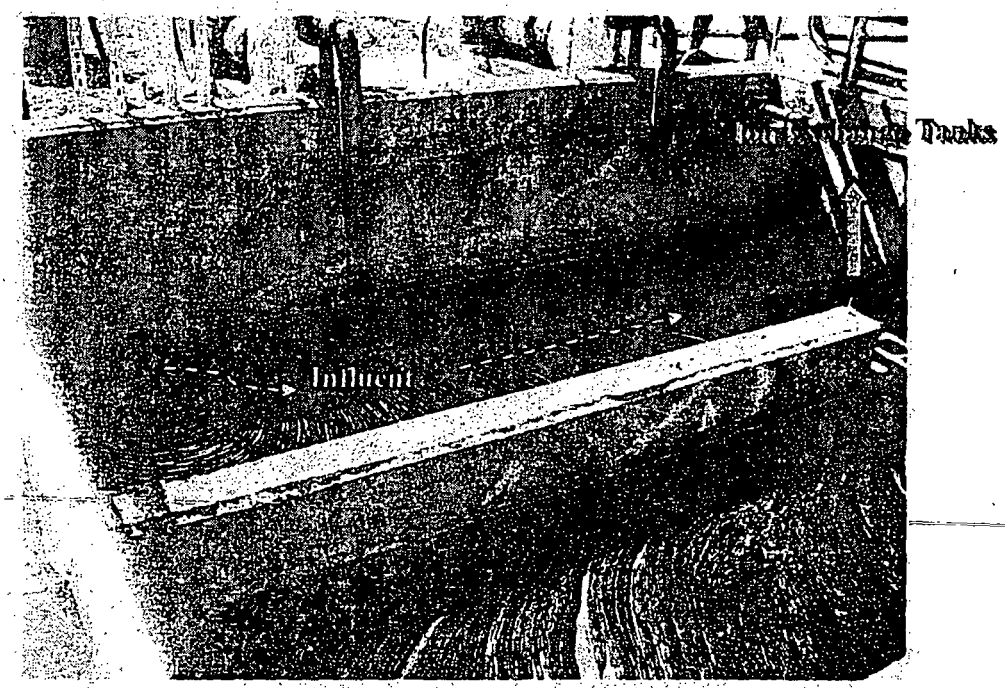

Photo 9 - Inlet to Ion Exchange Treatment Chamber

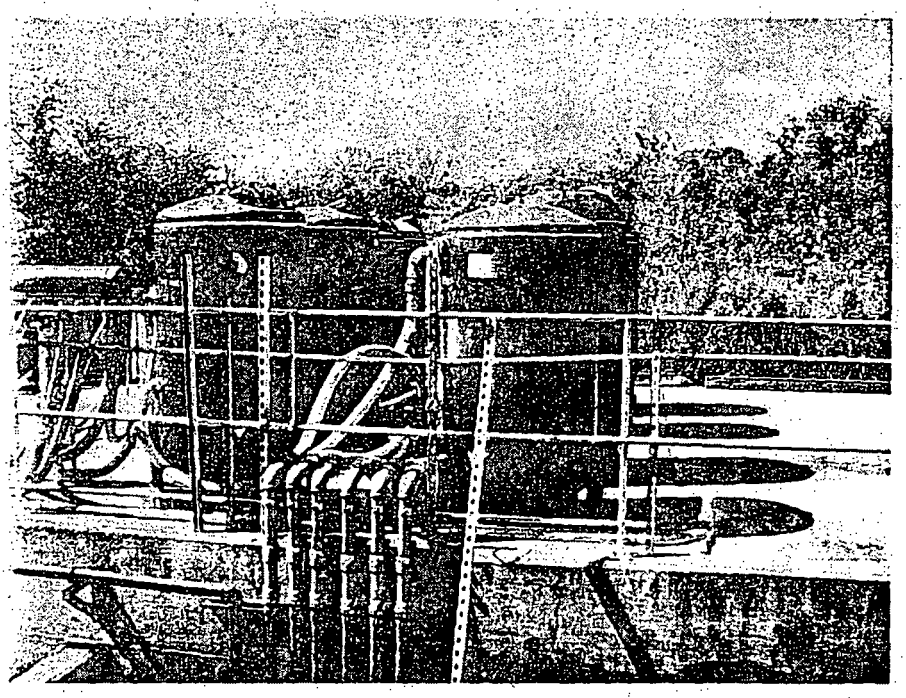

Photo 10 - Ion Exchange Treatment Tanks

7. Final Pond

The EPA Sewer, which collects non-contact cooling water and stormwater runoff, discharges into a 10 acre Final Pond for treatment. Also, treated process wastewater from the BTF discharges into the Final Pond as an internal discharge outfall 001B as shown below in Photo 11. The combined treated wastewater from these main sources is discharged though Outfall 001 into Five Mile Creek (Photos 12 and 13).

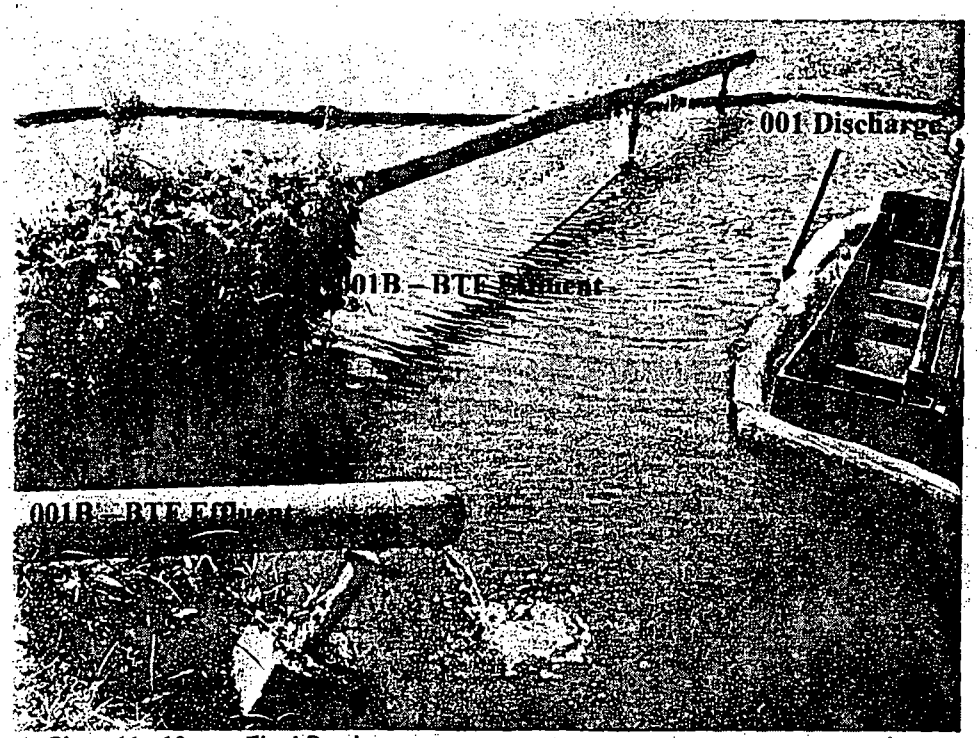

Photo 11 - 10 acre Final Pond

Photo 12 – Outfall 001 treated effluent

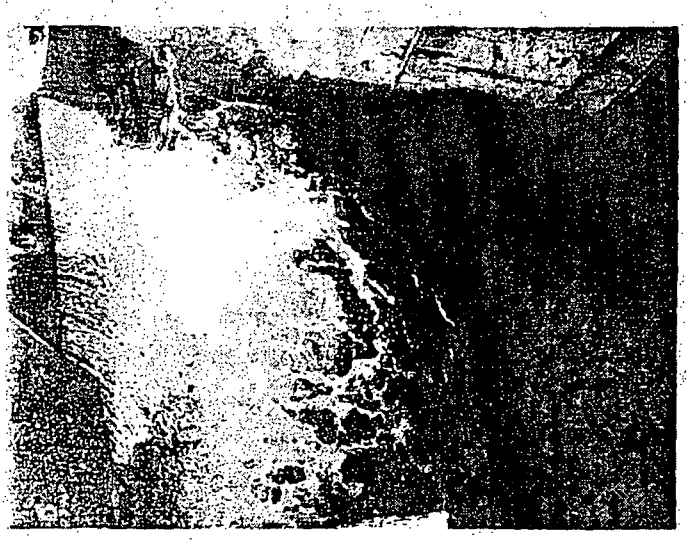

Photo 13 - Discharge to Five Mile Creek

8. Sludge Treatment Processes

The primary clarifier sludge is treated by the sludge thickener (Photo 14) and sludge concentrator. The secondary clarifier sludge is wasted to an aerobic digester and a decant tank (Photo 15). After the decant tank, the secondary clarifier sludge is combined with the primary clarifier sludge at the sludge thickener and sludge concentrator. The final disposal of the sludge is via Jefferson County landfill or reused at a strip mine as a soil conditioner.

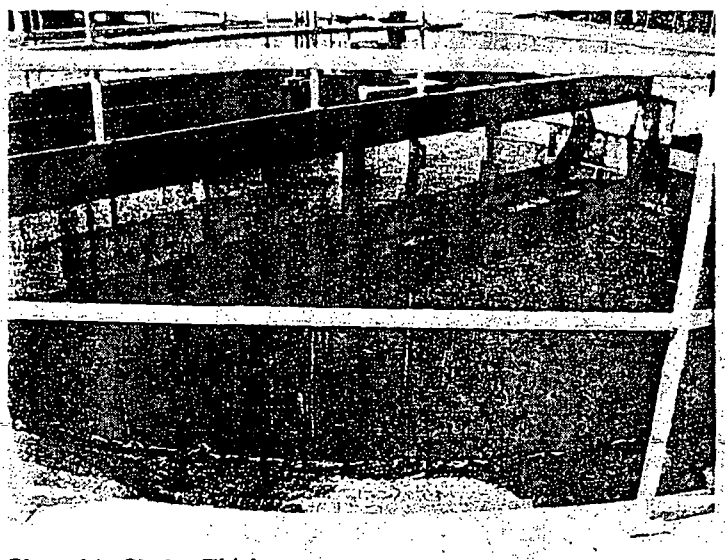

Photo 14 - Sludge Thickener

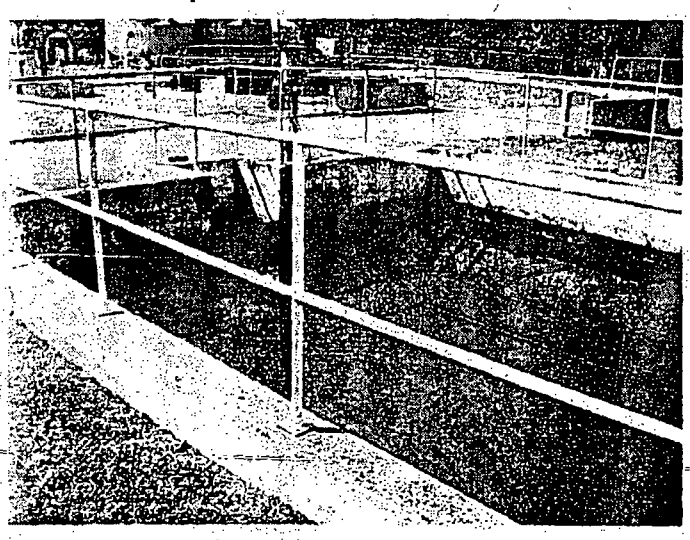

Photo 15 - Decant Tank

Summary: All of the BTF treatment processes are in operation. No treatment unit was taken out of service for maintenance and/or repair. The BTF is overdesigned for the current flow and loading.

Deficiency: No deficiencies were identified in this area during the inspection.

B. <u>Operation and Maintenance (O&M)</u>

Daily operation of the BTF is computerized and tracked by monitor. By using the monitor, the BTF operator can adjust process operation, pumping rate, and valve setting. The Facility's O&M of the BTF is contracted out to Enersolv. Enersolv performs monthly routine O&M such as lubrication of pumps and motors as well as equipment calibration. Also, the Facility has an electrical contractor to repair any electrical and mechanical failures. All of the BTF pumps have spare parts in house. The Facility rotates the operation of the equipment to extend the useful life. In the event that Alabama Power cannot provide power due to a power failure, the Facility has a portable generator that can provide power to the BTF. Additionally, there is a diesel generator to power the laboratory.

Deficiency: No deficiencies were identified in this area during the inspection.

C. Records and Reports

1. Sampling Procedures

Sampling procedures were not observed; however, the inspectors reviewed the sampling log, methods used, and laboratory chain of custody records. All parameters that are required to be analyzed by the Permit are collected and analyzed by Enersolv. The Facility also analyzes phenols, pH and suspended solids internally. The refrigeration unit where the final effluent is collected by an automatic composite sample was locked during the time of inspection. Thus, sampling preservation and technique could not be verified.

2. Laboratory Procedures

Walter Coke maintains a laboratory on site that is dedicated to process and regulatory sampling. The inspectors reviewed laboratory bench sheets, calibration records and expiration dates. Samples for phenols, pH and suspended solids are monitored internally as well as by Enersolv. At the time of inspection, the laboratory appeared to meet the requirements and intent of the Permit.

Deficiency: No deficiencies were identified in this area during the inspection.

D. Self-Monitoring Program

1. Flow Measuring Devices

The Facility's influent flow was measured using a 24" Parshall Flume (Photo 16) in conjunction with an ISCO 4230 Bubbler Flow Meter. The primary flow device is capable of handling up to 20 MGD which is well beyond the expected range of flow. The primary flow measuring device is calibrated quarterly and was last calibrated in June 2011. The Facility calibrates the flow measuring device more often than recommended by the manufacturer and by the permit.

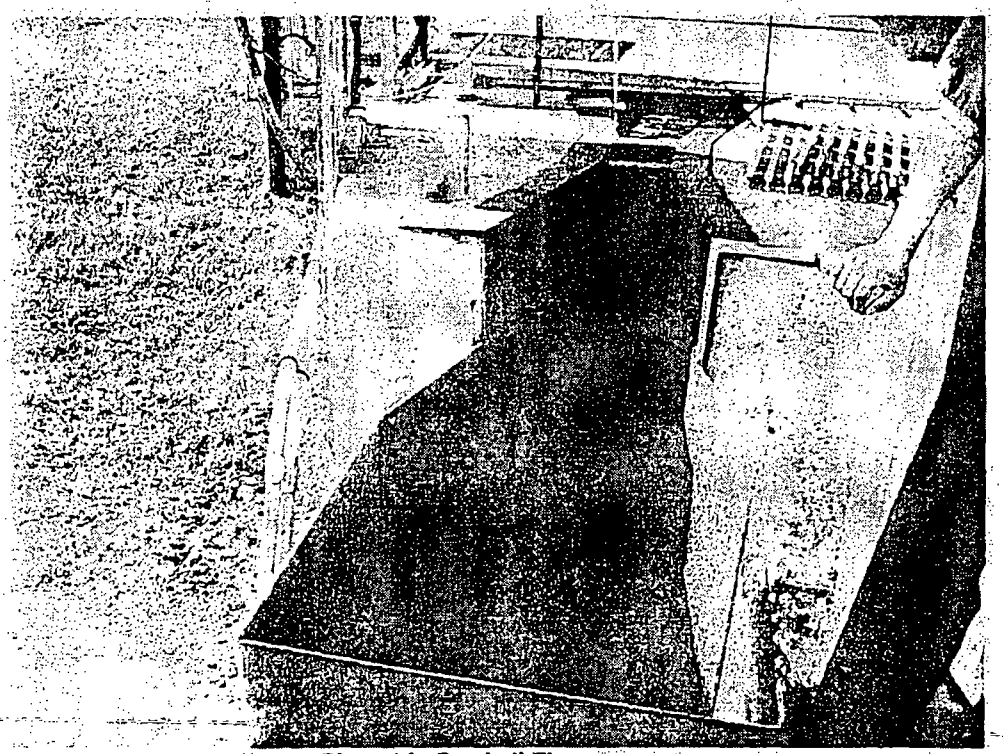

Photo 16 - Parshall Flume

2. Self-Monitoring Records

Self-monitoring records reviewed consisted of Discharge Monitoring Reports (DMRs), the operations logbook and daily laboratory bench sheets. The inspectors examined laboratory bench sheet records for the months of January - March 2011. DMRs were reviewed for the months of November 2010 – February 2011. There was no record keeping deficiencies identified in the chain of custody, preservation, test procedures or methods used. Also, no transcription errors between the laboratory data and the DMR were noted.

Deficiency: No deficiencies were identified in this area during the inspection.

E. Effluent and Receiving Water Observations

The final discharge from Outfall 001 was clear to slightly turbid. There was no visible sheen, grease, foam, floatable solids or color observed in the effluent discharged. At Five Mile Creek, there was no visible change between upstream (Photo 17) and downstream (Photo 18) conditions.

Deficiency: No deficiencies were identified in this area during the inspection.

Photo 17 - Five Mile Creek Upstream of 001

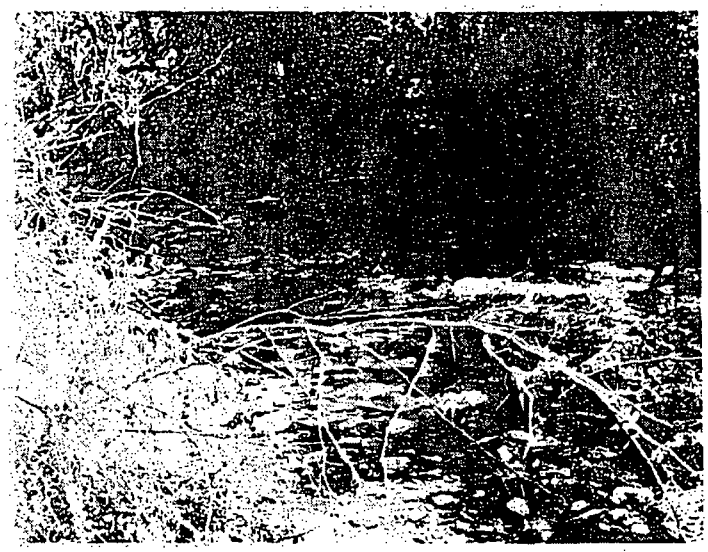

Photo 18 - Five Mile Creek Downstream of 001

F. Document Review and Analysis

This Section will summarize the compliance documents reviewed during and after the inspection. Documents reviewed include the NPDES Permit, DMRs and Whole Effluent Toxicity (WET) reports.

1. Discharge Monitoring Report Data Analysis

DMRs were reviewed from copies provided by the Facility for the months of January to July 2011. Past DMR information was reviewed off-site using data from ICIS for the months of January 2009 through December 2011. Table 1 shows the Facility's three year compliance record.

Table 1. DMR violations from January 2009 to December 2011

Parameter	Violation	Measurement	Limit	Outfall	Reporting Period
Total Suspended Solids	Daily Maximum	1738 lbs/day	1571 lbs/day	001	01/31/2009
Total Suspended Solids	Daily Maximum	1956 lbs/day	1571 lbs/day	001	06/30/2009
Total Suspended Solids	Daily Maximum	3017 lbs/day	1571 lbs/day	001	11/30/2009
Total Suspended Solids	Daily Maximum	2601 lbs/day	1571 lbs/day	001	04/30/2010
Total Suspended Solids	Daily Maximum	1789 lbs/day	1571 lbs/day	001	11/30/2011
Total Ammonia Nitrogen	Daily Maximum	1.11 mg/L	1.0 mg/L	001	01/31/2010
Total Ammonia Nitrogen	Daily Maximum	12.93 lbs/day	10 lbs/day	001B	01/31/2010
Total Ammonia Nitrogen	Daily Maximum	11.65 lbs/day	10 lbs/day	001B	05/31/2010
Total Ammonia Nitrogen	Daily Maximum	11.37 lbs/day	10 lbs/day	001B	09/30/2011
Total Ammonia Nitrogen	Monthly Average	8.83 lbs/day	7 lbs/day	001B	09/30/2011

2. Whole Effluent Toxicity Analysis

The Whole Effluent Toxicity (WET) analysis consisted of an off-site review of *Ceriodaphnia dubia* and *Pimephales promelas* tests performed in March and June of 2011, as well as a review of toxicity results reported in ICIS between January 2007 to November 2011. The Permit requires the permittee to perform monthly WET testing using fathead minnows (*Pimephales promelas)* and water fleas (*Ceriodaphnia dubia)* on effluent from Outfall 001. Should any monthly test demonstrate toxicity, two follow-up chronic biomonitoring tests are to be conducted consecutively beginning on the first calendar week following the date the Facility is aware of the permit noncompliance. Toxicity is demonstrated when the inhibition concentration (IC_{25}) for reproduction or growth is less than the Instream Waste Concentration (IWC) of 79%.

Two sets of WET tests (also known as biomonitoring tests) were evaluated, dated March 21, 2011, and June 16, 2011. For each of the aforementioned dates, an effluent WET test was conducted using both *Ceriodaphnia dubia* and *Pimephales promelas*. The *Pimephales promelas* effluent WET tests were evaluated for compliance with the Permit and the standard method for chronic toxicity (EPA Method 1000.0 (*Pimephales promelas)*[1] and the *Ceriodaphnia dubia* effluent WET tests were evaluated for compliance with the Permit and the standard method for chronic toxicity (EPA Method 1002.0 (*Ceriodaphnia dubia)*[1].

For the DMRs submitted between January 2007 through November 2011, there was one toxicity failure for *Ceriodaphnia dubia* in March 2010. The Permit requires performance of two additional tests to determine the extent and duration of the toxic condition. There was no toxicity demonstrated in the follow up tests.

Summary: For the past three years, there were a total of five daily maximum violations of TSS and five violations of Total Ammonia Nitrogen (4 daily maximum and 1 monthly average). However, for the latest month of sampling in December 2011, the Facility did not have any effluent violations. There was one toxicity failure for *Ceriodaphnia dubia* in March 2010. The Facility performed two follow up WET tests in accordance with the permit conditions to determine the extent and duration of the toxic condition. There was no toxicity demonstrated in the two follow up tests.

Deficiency: None – No on-going effluent limitation or WET violations.

[1] 40 CFR, Part 136, EPA-821-R-02-013, Short-Term Methods for Estimating the Chronic Toxicity and Receiving Waters to Freshwater Organisms (4th Edition)

Part II, BMP and Stormwater

On September 13, 2011, and December 12, 2011, a Compliance Stormwater Evaluation Inspection (CSWEI) was conducted at Walter Coke Inc. (Facility). The Clean Water Act (CWA) regulates, among other things, the discharge of pollutants to surface waters. Requirements of the CWA include a prohibition on the discharge of pollutants through stormwater runoff into waters of the United States, except when the discharge is in compliance with requirements established by the U.S. Environmental Protection Agency in the Code of Federal Regulations (C.F.R) § 122.26 and by the EPA or an authorized state in an appropriate NPDES permit.

The CSWEI evaluated the stormwater permit requirements including, but not limited to, records/reports, stormwater outfalls, and development and implementation of a Best Management Plan (BMP). A summary of the relevant findings are described in the subsequent sections of this report.

A. NPDES Permit

The Facility's stormwater discharges are covered under the State of Alabama's NPDES Permit No. AL0003247 (Permit). The Permit has an effective date of December 1, 2009, and an expiration date of November 30, 2014. The industrial, production and process areas encompass approximately 460 acres where stormwater is both collected and discharged. Stormwater drains mainly from the South to the North side of the Facility. Stormwater is contained on the property by concrete walls, berms and swales. The Facility employs various drains, underground pipes and ditches to divert stormwater to a 10 acre Final Pond for treatment. The stormwater from the Final Pond is combined with treated process wastewater discharged from the BTF (internal outfall 001B) prior to discharging into Five Mile Creek via outfall 001.

B. Management of Stormwater Runoff

The Facility has four major industrial activities that contribute to stormwater runoff.

1. Coal Storage – The coal pile storage area is located on the southside of the Facility. The coal in this area is contained by a concrete berm to keep coal material from draining off-site. Stormwater is routed to various drains surrounding the coal pile and piped to the EPA Sewer (Photo 19) and discharged into the Final Pond for treatment.

2. Coke Storage – The coke pile storage area is located on the eastside of the Facility. Stormwater is routed by drainage ditch directly to the EPA Sewer and finally to the Final Pond. The Final Pond discharges to Five Mile Creek via outfall 001.

3. Oven Boulevard – Stormwater from the westside of the Facility and process wastewater from the coke oven battery area is collected by various underground drains

and piped to the Emergency Basin, BTF and Final Pond for treatment prior to discharging through outfall 001.

4. By-Product Area - Stormwater from this area is collected by various underground drains and combined with the Facility's process wastewater from the ammonia still and Facility's sanitary wastewater. The combined waste streams are pumped to the Equalization Tank, BTF and Final Pond for treatment prior to discharging through outfall 001.

The Facility is comprised of approximately 460 acres. From the information provided in the Facility's BMP, a large portion of the 460 acres is used to store coal as raw material and the coke products as finished material. The stormwater from these two main sources is conveyed to an open ditch know as the EPA Sewer. The EPA Sewer also collects non-contact cooling water from the coke plant operation. The 2009 permit application identifies the main sources of flow contributing to the EPA Sewer to be the 0.5 MGD of stormwater flow and 2.56 MGD of non-contact cooling water. The EPA Sewer appeared to be close to 70 percent capacity at the time of inspection with just the base flow of non-contact cooling water (Photo 19). The stormwater flow was negligible since the most recent rain event occurred five days prior to the inspection. A total of 2.41 inches of rainfall accumulated in the Birmingham area from December 5-7, 2011. As result of the high volume of flow in the EPA Sewer, none of which was coming from stormwater, the EPA has a concern regarding the capacity of the EPA Sewer to handle stormwater runoff from the Facility. The Rational Method was used to determine the peak flow for the Facility's drainage area. The equation, Q = c x i x A, where c is the runoff coefficient, i is the rainfall intensity and A is the drainage area, generated the data shown in the table below. For these calculations, the EPA estimated a drainage area (A) of 400 acres with an average c value of 0.7 for the industrial area.

Runoff coefficient, c	Jefferson County rainfall intensity, i (inches)	Area, A (acres)	Peak discharge, Q (MGD)
0.7	1-yr 24-hr = 3.5	400	26
0.7	2-yr 24 hr = 4.1	400	31
0.7	10-yr 24 hr = 6.0	400	45
0.7	25-yr 24 hr = 6.9	400	52

It appears the Facility would experience a peak stormwater flow of 26 MGD on an annual basis to the EPA Sewer. This volume is significantly greater than the 0.5 MGD stormwater flow listed in the permit application.

Recommendation: Please provide to the EPA a site map of the Facility by drainage area, showing the direction of stormwater flow as well as the locations of storm drains and diversion structures that lead to the EPA Sewer. Also, provide the hydraulic calculation showing the EPA Sewer has adequate capacity to handle peak stormwater flow from the Facility's selected design storm event.

Photo 19 - EPA Sewer

C. Best Management Plan (BMP)

The Facility's BMP was revised on May 11, 2007, and was certified by a professional engineer. The EPA has reviewed the BMP and has determined that the BMP should be updated and revised to address the following in accordance with the minimum requirements contained in Part IV.B of the Permit:

BMP Permit Requirements	BMP Permit Deficiencies
Part IV.B.2.b – The BMP requires Walter Coke to identify specific preventative or remedial measures to be implemented to prevent and minimize the amount of pollutants reaching surface waters.	Walter Coke is utilizing street sweeper, spray down operations, tire washing operation and manual cleaning of curbing to prevent and minimize pollutant runoff in stormwater. The BMP did not have any detailed discussion on the operation of these structural and nonstructural controls.
Part IV.B.2.d – The BMP requires an evaluation of vehicle and equipment maintenance activities and discussion of controls to prevent the spillage or loss of fluids, oil, grease, gasoline, etc.	Walter Coke's BMP did not have a section regarding the location and control measures for its on-site vehicle and equipment maintenance activities. However, some elements of the vehicle maintenance and spill control in the Sloss Emergency Response Plan can be used to meet this requirement.

Part IV.B.2.e – The BMP should designate by position or name the person or persons responsible for day to day implementation of the BMP.	Walter Coke's BMP did not identify these individuals or describe each person's responsibilities for the direct implementation of the BMP.
Part IV.B.2.i – The BMP requires a development of a solvent management BMP.	Walter Coke's solvent management BMP is very general and nonspecific. The solvent management BMP was limited to one paragraph.
Part IV.B.2.k – The BMP should include a diagram showing any collection and handling systems intended to prevent or remove pollutants from stormwater.	Walter Coke's BMP did not have a diagram or a detailed description for managing stormwater runoff from the coal pile, coke pile, slag wool aggregate pile, byproduct production area and oven boulevard area.
Part IV.B.2.m – The BMP should provide spill control sufficient to prevent or minimize contaminated stormwater runoff. The containment system shall be capable of retaining a volume equal to 110 percent of the capacity of the largest tank for which containment is provided.	Walter Coke's BMP did not have a section on its containment system. However, Walter Coke's Spill Prevention Control and Countermeasure (SPCC) Plan states its containment system is capable of retaining a volume equal to 100 percent of the capacity of the largest tank for which containment is provided. However, the SPCC requirement specified a minimum containment capacity of 110 percent. Walter Coke needs to evaluate their existing containment system to ensure that it meets the 110 percent requirement.
Part IV.B.5.c – Walter Coke shall provide training for all personnel that implement the BMP.	Walter Coke stated it maintains records of employee training. However, the BMP did not specify who will be trained, the training frequency or the topics covered.
Part IV.B.5.d – The BMP shall be amended whenever there is a change in the Facility name or change in operation of the Facility.	The Facility name on the BMP should be changed to reflect Walter Coke instead of Sloss Industries Corporation. Also, the BMP needs to be amended to reflect the closure of the chemical and slag wool plant.
Part IV.B.5.e – Walter Coke shall complete a review and evaluation of the BMP at least once every three years. Documentation of the review and evaluation shall be signed and dated by the Plant Manager.	Walter Coke did not review and evaluate its BMP every three years as required by the Permit. The BMP should have been reviewed and evaluated by May 11, 2010. Also, the existing expired 2007 BMP was certified by a professional engineer. However, it was not signed and dated by the Plant Manager in accordance with the permit condition.

Deficiency: Walter Coke failed to meet nine of twenty-seven BMP permit requirements as specified in Part IV.B of the Permit. The BMP has been expired since May 11, 2010, and has not been updated, reviewed, evaluated and signed by the Plant Manager. Many of structural and nonstructural controls utilized by the Facility were not identified in the plan. Without a complete inventory of the structural and nonstructural controls, the Facility cannot ensure adequate implementation of its structural and nonstructural controls, conduct thorough inspections, nor ensure proper training of its employees. Walter Coke has numerous industrial activities on site

that have an impact on the discharge of pollutants. The BMP did not have a detail discussion on the management of stormwater runoff for its industry activities and material storage areas. Also, the handling of the stormwater runoff, cooling water, boiler blow down, sanitary wastewater and process wastewater to various pretreatment treatment units (i.e., emergency basin, equalization tanks, etc.) and then to the BTF need to be discussed in more detail in the BMP.

Permit Requirement: Walter Coke should develop a BMP that meets the requirements of Part IV.B of the Permit.

D. Records and Reports

Records and reports were evaluated to ensure that all inspection procedures and record keeping protocols were followed in accordance with the Permit condition and BMP requirements.

> Part IV.B.2.g of the Permit requires routine inspections of any structures that function to prevent stormwater pollution or to remove pollutants from stormwater and of the Facility in general to ensure that the BMP is continually implemented and effective. A review of the Facility's weekly Storm System Observation Notes showed that only four drain field areas and outfall 001 were inspected on a routine bases. The Facility has structural and nonstructural controls such as concrete berms, swales, ditches, culverts, street sweeper, spray down operations, tire washing operation and manual cleaning of curbing and Final Pond. However, none of these structural and nonstructural controls were included as part of the routine inspections.

Deficiency: Walter Coke's weekly Storm System Observation Notes did not evaluate all structural and non-structural controls to ensure that these controls are implemented correctly and continue to be effective.

Permit Requirement: Walter Coke should modify its Storm System Observation Note with a checklist to ensure all the structural and nonstructural controls onsite are adequately inspected and evaluated as specified in Part IV.B.2.g of the Permit.

E. Site Evaluation and BMP Implementation

A walkthrough of the Facility was conducted on September 13, 2011, and December 12, 2011, focusing on industrial activities, material storage areas, stormwater pollutant sources and on the adequacy of BMP implementation.

> 1. Coal Pile Storage Area – The coal pile storage at the Southside of the Facility has a perimeter berm to contain coal material on-site. On December 12, 2011, coal material was observed overtopping the concrete berm along 35th Avenue into the City of Birmingham's storm drain system (Photos 20 -22).

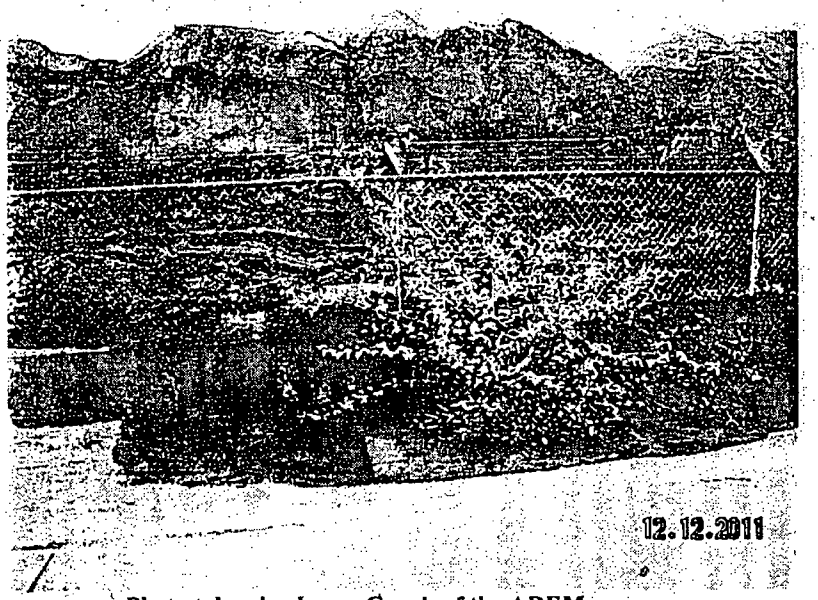

Photo taken by James Couch of the ADEM
Photo 20 - Coal discharging to City Stormwater drain

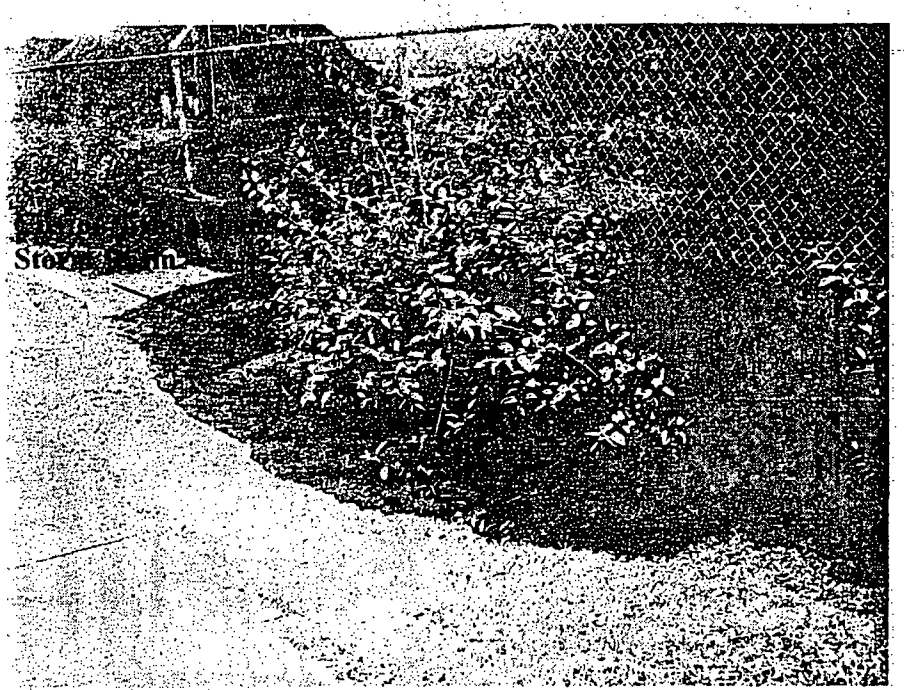

Photo 21 - Coal pile overtopping concrete berm and disposed around a storm drain

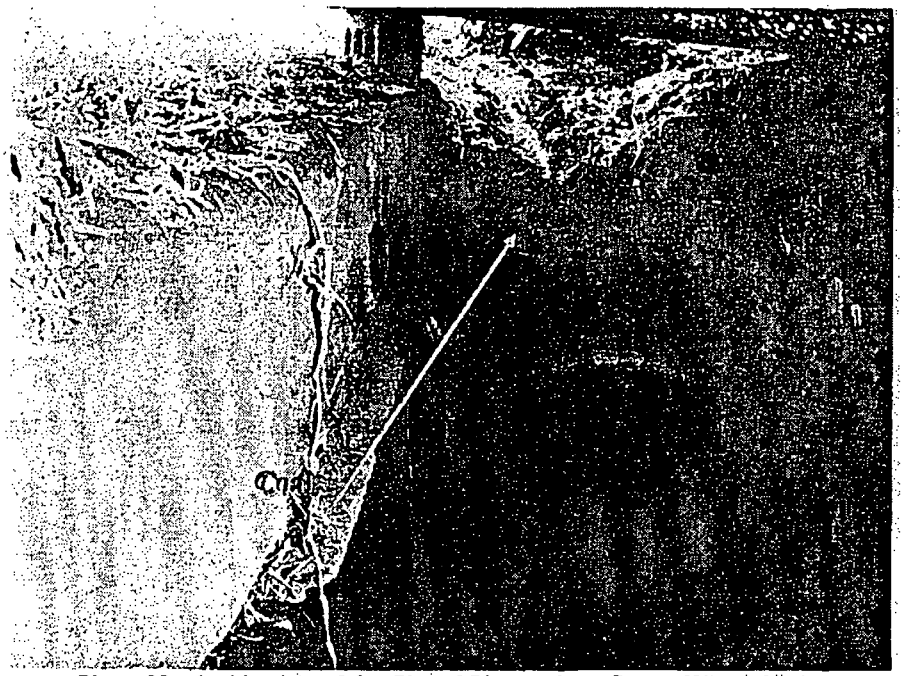

Photo 22 – Inside view of the City of Birmingham Storm Water Drain

Deficiency: The overtopping of coal material over the concrete berm along 35th Avenue into the City of Birmingham's storm drain system is not an authorized permitted discharge point. This discharge occurring on December 12, 2011, is considered an unpermitted discharge event. Once this deficiency was identified during the inspection, Walter Coke immediately mobilized a crew to clean out the coal deposits on the ground and inside the storm drain. To prevent this from future occurrences, Walter Coke proposed to move a majority of the coal stockpile away from 35th Avenue and may store more coal in railroad cars. Please provide to the EPA a detailed plan and schedule for this remedial action.

Permit Requirement: Part I.A of Walter Coke's Permit authorized discharge through outfalls 001 and 001B only.

2. At the coke pile storage, stormwater runoff is designed to rout directly to a drainage ditch located in the center of the coke storage area. This drainage ditch carries stormwater along the railroad track directly into the EPA sewer and then to the Final Pond for treatment. The EPA observed numerous gullies cause by uncontrolled stormwater runoff directly to the railroad track bypassing the drainage ditch and treatment at the Final Pond. On December 13, 2011, a huge gully was observed from the coke pile storage leading to the railroad track area (Photo 23). Coke/coal material deposits were noted along the railroad track area (Photo 24).

Photo taken by Craig Mangham of the ADEM on December 14, 2011
Photo 23 - Gully Erosion caused by uncontrolled stormwater run-off near Coke pile

Photo taken on December 13, 2012 during neighboring property inspection
Photo 24 - Coke deposit along railroad track area

Deficiency: The coke pile storage at the eastside of the Facility is not adequate to contain coke material on-site. The EPA observed numerous gullies cause by uncontrolled stormwater runoff directly to the railroad track bypassing the drainage ditch and treatment at the Final Pond.

Permit Requirement: Part IV.B.2.n of Walter Coke's Permit requires all contaminated stormwater be collected and treated.

3. Slag Wool Aggregate Storage – This waste storage pile is the product of the Slag Wool fiberization process. The Facility's fiber plant has been closed since 2005. A Toxicity Characteristic Leaching Procedure (TCLP) test performed on March 10, 2011, characterizes the slag wool aggregate waste pile as non- hazardous for the purposes of disposal. The material is composed mainly of sand and a sand-silt mixture. During the December 12, 2011, inspection there was a potential for surface runoff onto 35th Avenue (Photo 25).

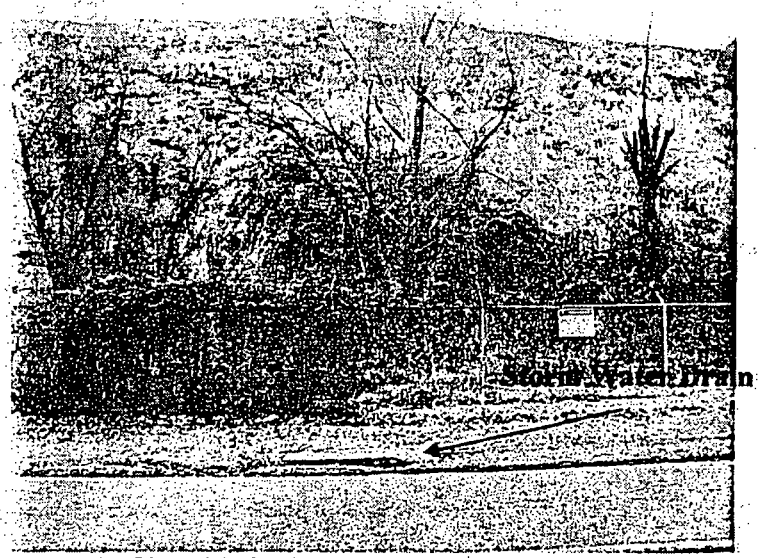

Photo 25 - Slag Wool Aggregate Pile

Recommendation: Walter Coke should try to re-establish vegetation at the Slag Wool aggregate storage piles to prevent and minimized stormwater runoff onto 35th Avenue.

4. Vehicle Maintenance Areas – The Facility conducts vehicle maintenance on-site (Photo 26). The Facility performs maintenance on an average of two to three vehicles daily. This maintenance activity is conducted indoors. However, vehicle maintenance activity needs to be identified, evaluated and addressed in the BMP.

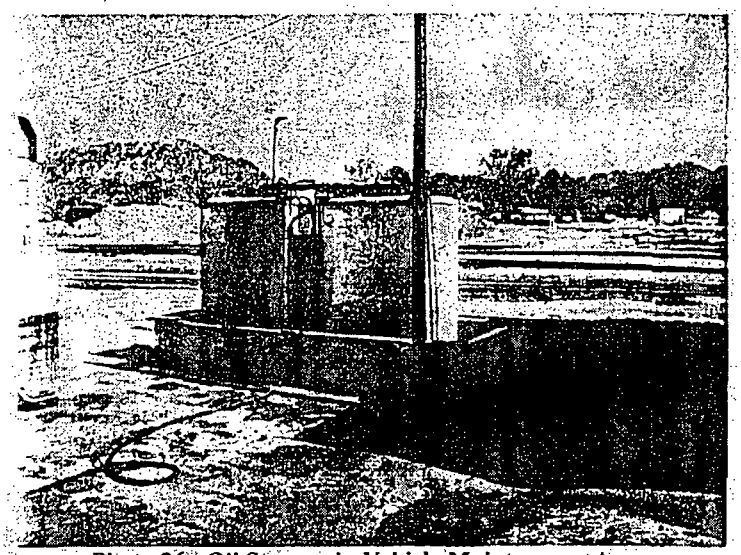

Photo 26 - Oil Storage in Vehicle Maintenance Area

Deficiency: Walter Coke did not evaluate nor assess its vehicle maintenance activities for controls to prevent contaminated stormwater in the BMP.

Permit Requirement: Part IV.B.2.d of the Permit requires Walter Coke to discuss, in the BMP, all necessary controls to prevent the spillage or loss of fluids, oil, grease, etc. from vehicle and equipment activities. Part IV.B.2.j of the Permit requires Walter Coke to discuss controls for the disposal of all used oil, hydraulic fluids, solvent degreasing material, etc. in the BMP to ensure it meets all applicable state or federal regulations.

5. Tire washing area – The Facility has a tire washing area to prevent and minimize vehicles tracking pollutants onto the roadway (Photo 27). Wash water from this area sheet flows to a system of drains in front of the driveway located on 35th Avenue (Photo 28).

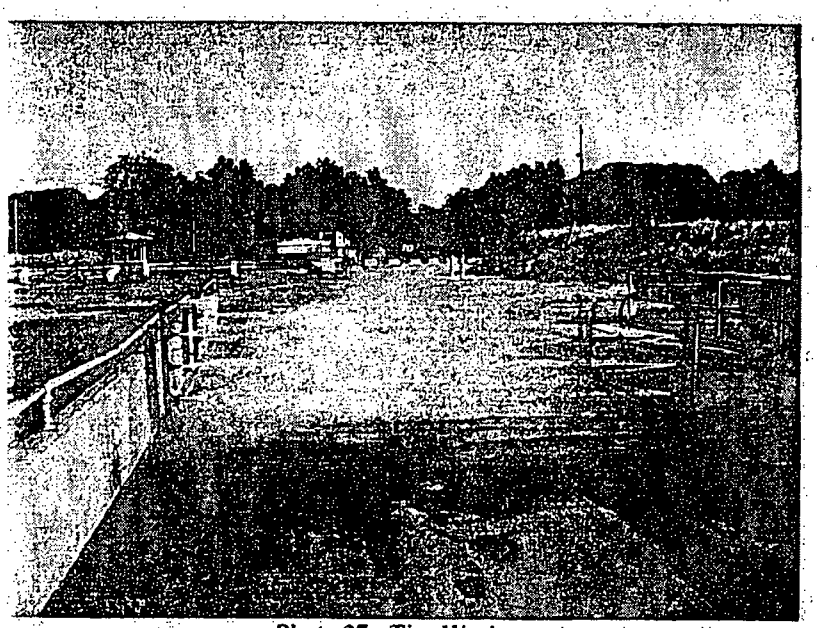

Photo 27 - Tire Washer

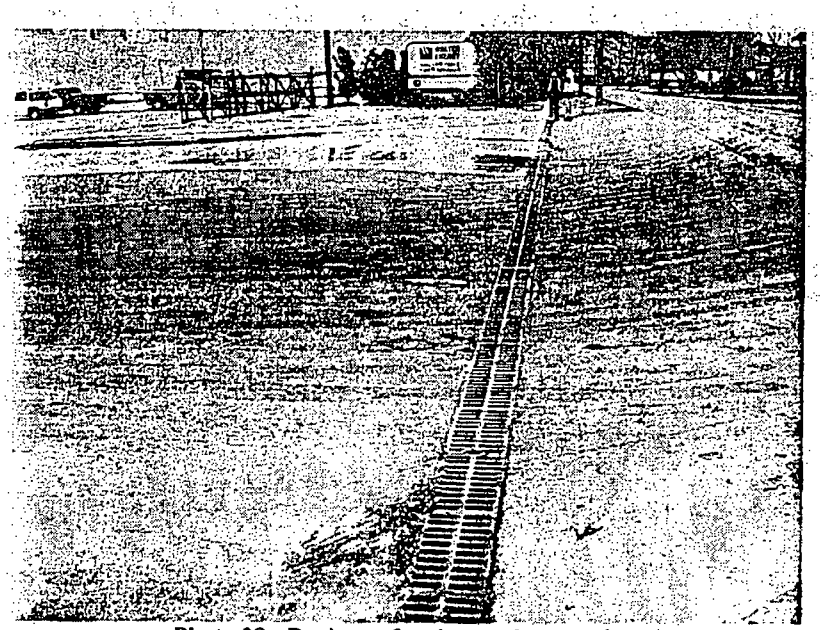

Photo 28 - Drainage for tire wash operation

Recommendation: Walter Coke needs to identify and discuss the operation of the tire washing area in the BMP.

6. Drainage ditch down gradient of the BTF – The head of this ditch lies within Walter Coke's property. It flows along the property boundary between Walter Coke and Vulcan Materials (formally LaFarge Aggregates and Concrete). The ditch passes through a culvert beneath F.L. Shuttlesworth Drive near the driveway of Vulcan Materials. It connects with a roadside ditch and flows eastward toward two culverts. From this point, the ditch flows north along the eastern side of the BTF. The ditch flows into the discharge channel from outfall 001 near the bank area of Five Mile Creek. At the time of the December 12, 2011, inspection, water was observed flowing in the ditch. Sediment deposits containing coke/coal fines were observed in several areas along the bottom of the ditch (Photo 29). In the bank area, there is a seam of coke/coal fines about 50 yards wide and about 12 feet in height (Photo 30). Stormwater culverts along the curve of F.L. Shuttlesworth Drive (Photo 31) and the entrance of Vulcan Materials (Photo 32) contained a significant amount of coke/coal fine deposits. The headwater of this ditch originates from Walter Coke's property (Photo 33). A topography map of the ditch drainage path is shown in Figure 2. This drainage ditch is not listed in the NPDES Permit as a permitted outfall. The Facility should investigate the source of the flow and coke/coal fines deposited and obtain the necessary structural and nonstructural controls, and permit coverage for this drainage ditch. Due to the contamination at this ditch, stormwater runoff at the site should be analyzed using the most sensitive low-level analytical methods in 40 CFR Part 136 for pollutants listed in the EPA Form 2C. Specifically, where the EPA has approved more than one analytical method for a pollutant, the EPA expects that applicants and permittees would select methods that are able to quantify the presence of pollutants in a given discharge at concentrations that are low enough to determine compliance with Water Quality Criteria. NPDES permit applicants should not use a less sensitive or less appropriate method, thus masking the presence of a pollutant in the discharge, when an EPA approved method is available that can quantify the pollutant concentration at the lower levels needed for permit decision-making. For purposes of permit applications and compliance monitoring, a method is "sufficiently sensitive" when (1) the method quantitation level is at or below the level of the applicable water quality criterion for the pollutant or (2) the method quantitation level is above the applicable water quality criterion, but the amount of pollutant in a Facility's discharge is high enough that the method detects and quantifies the level of pollutant in the discharge.

Photo 29 – Unpermitted ditch draining towards outfall 001 discharge channel

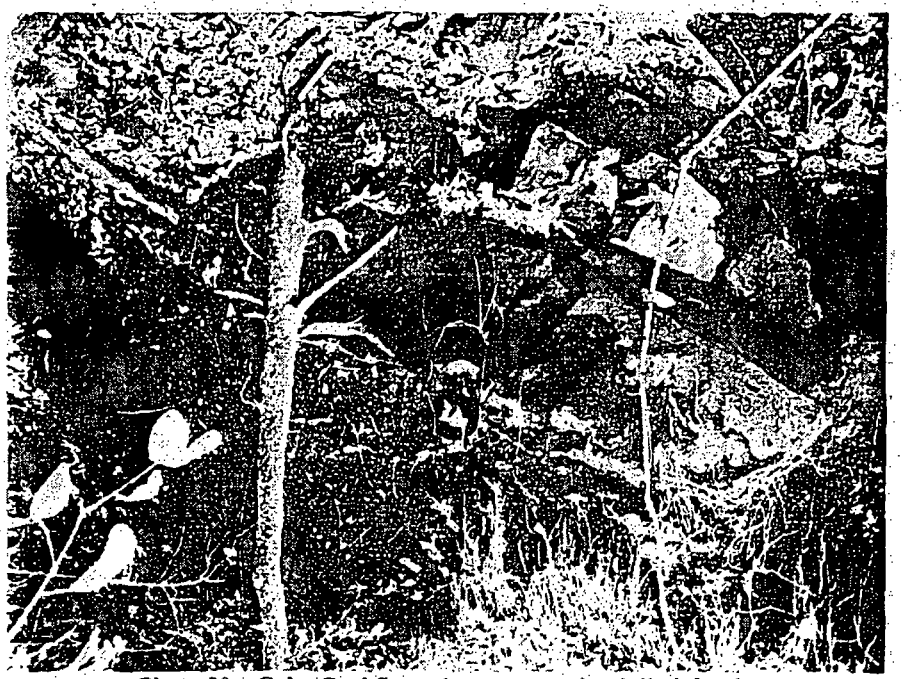

Photo 30 – Coke/Coal fines along unpermitted ditch bank

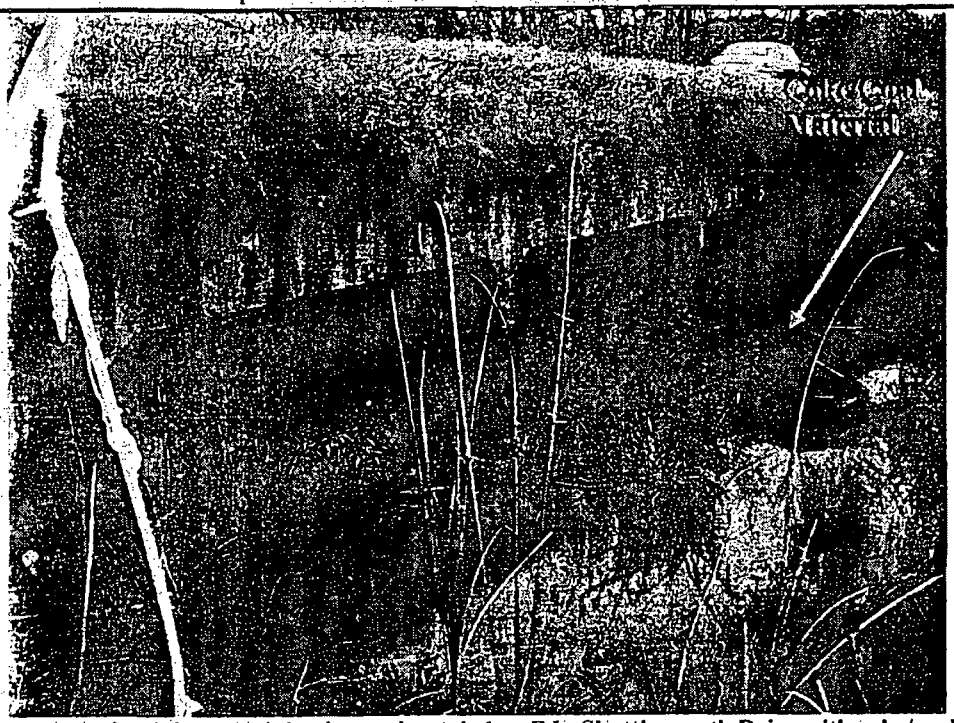

Photo 31 – Unpermitted ditch draining into culvert below F.L. Shuttlesworth Drive with coke/coal deposits

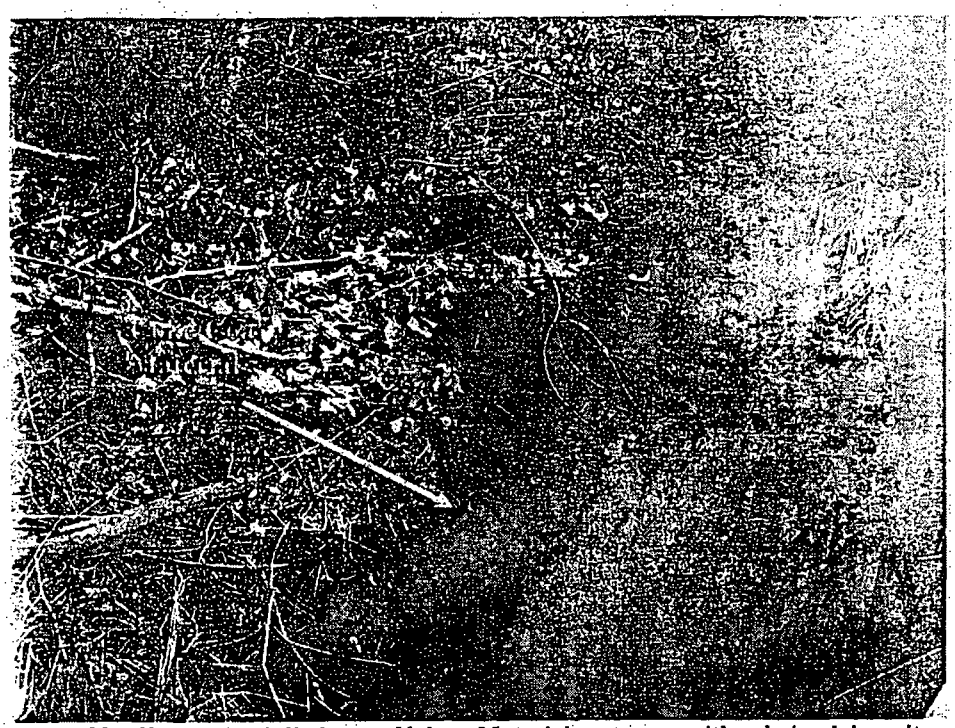

Photo 32 – Unpermitted ditch near Vulcan Materials entrance with coke/coal deposits

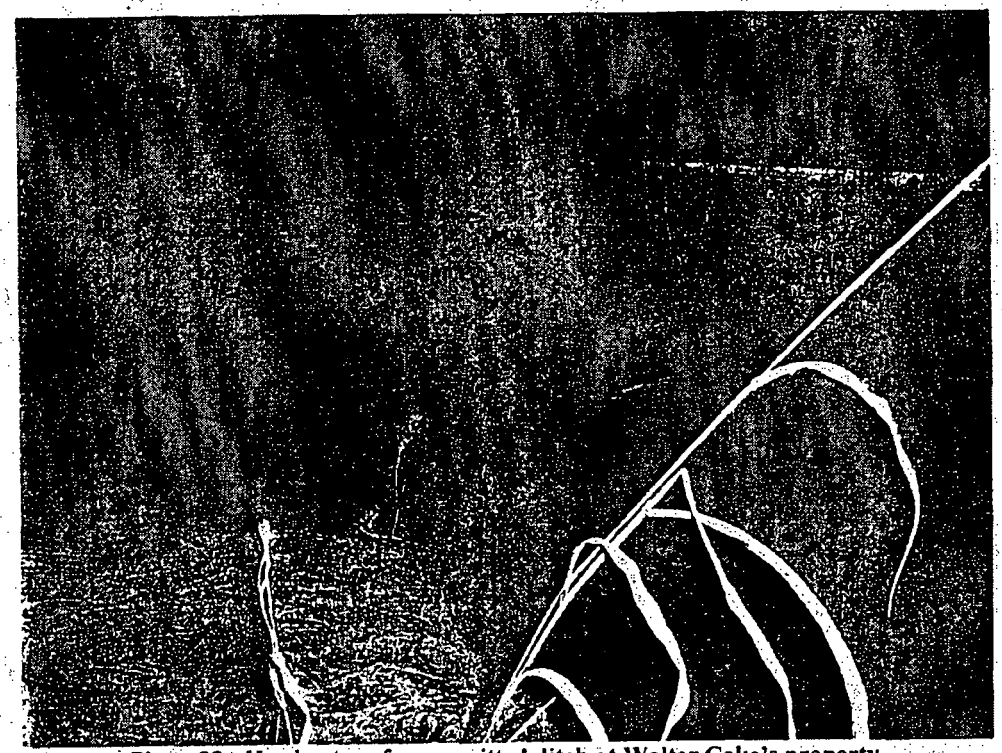

Photo 33 - Headwater of unpermitted ditch at Walter Coke's property

Deficiency: This drainage ditch is not listed in the NPDES Permit as a permitted outfall. The Facility should investigate the source of the flow and coke/coal fines deposits and obtain the necessary structural and nonstructural controls, and permit coverage for this drainage ditch.

Permit Requirement: Part I.A of Walter Coke's Permit authorized discharge through outfalls 001 and 001B only.

Figure 2 - GPS Points of Unpermitted Ditch with Photo Reference