

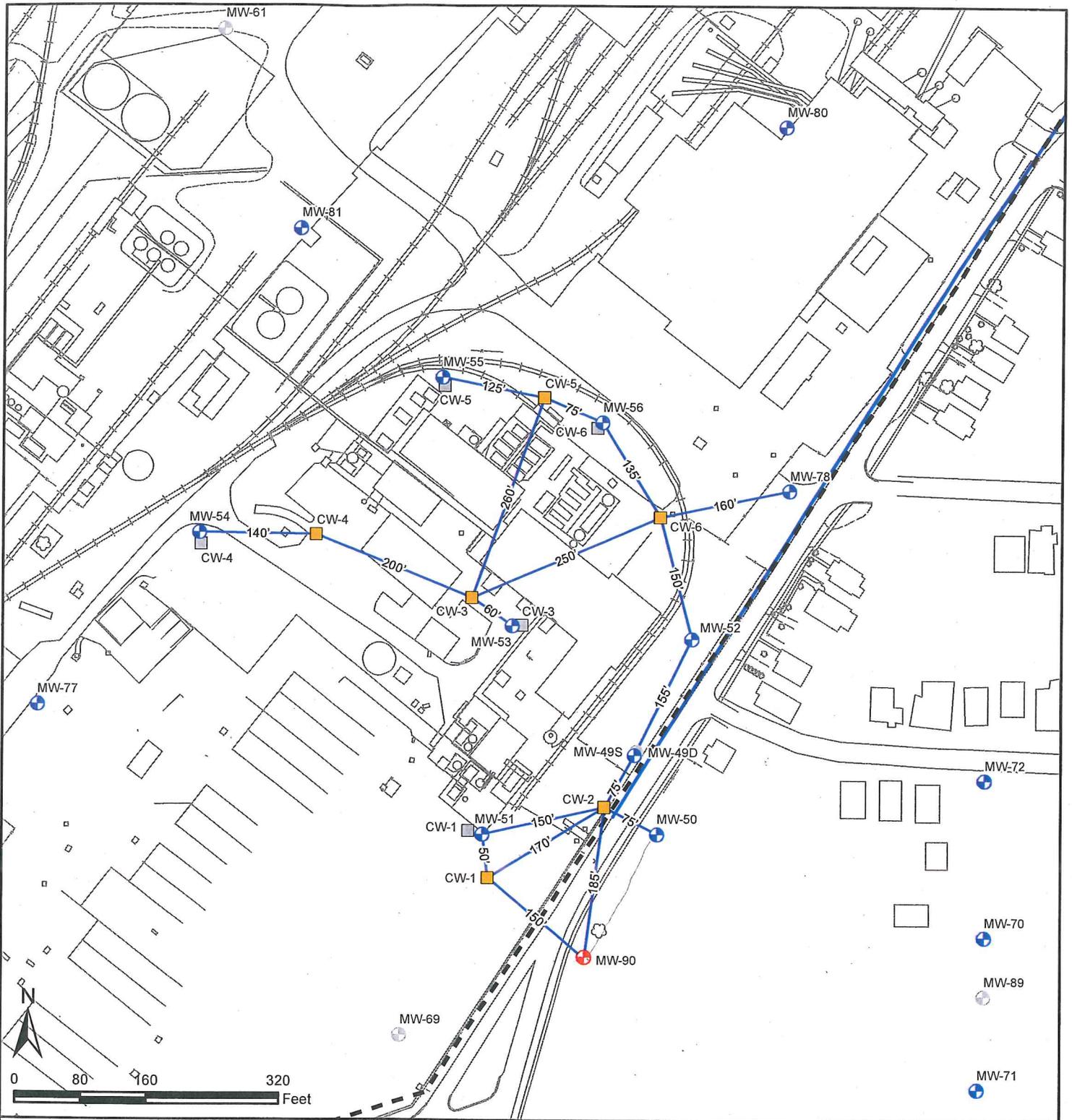
**Legend**  
 Former Chemical Manufacturing Plant

Former Chemical Manufacturing Plant

**Figure 1**  
 Location of Former Chemical Manufacturing Plant  
 within Site Boundary

Walter Coke, Inc  
 Birmingham, AL





**Legend**

- ⊕ Proposed for Performance Monitoring of IM
- ⊕ Proposed for Performance Monitoring of IM (Not Yet Installed)
- Proposed Location for Containment Well
- Original Location for Containment Well

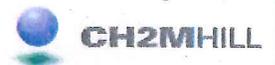
**Notes:**

- 1) IM - Interim Measure
- 2) MW-90 will be installed to evaluate the IM
- 3) Distances shown between wells is approximate

**Figure 2**  
Proposed Containment Well Locations

Interim Measure at the  
Former Chemical Manufacturing Plant

Walter Coke, Inc  
Birmingham, AL



**Appendix A**  
**EPA Approval of the former Chemical Plant**  
**Interim Measures Work Plan**  
**(Letter dated April 16, 2012)**

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

APR 16 2012

Carol Farrell, President  
Walter Energy, Inc.  
P.O. Box 5327  
3500 35<sup>th</sup> Avenue  
Birmingham, Alabama 33618

SUBJECT: Approval of February 20, 2002, RCRA Facility Investigation Interim Remedial Measures Work Plan (IRMWP) – Groundwater Interim Measures Work Plan prepared by Arcadis, and the February 11, 2011, Groundwater Interim Measures Work Plan Addendum for the former Chemical Plant (Addendum IMWP) prepared by CH2MHill  
Walter Coke, Inc., Birmingham, Alabama  
EPA ID No. AL 000 828 848

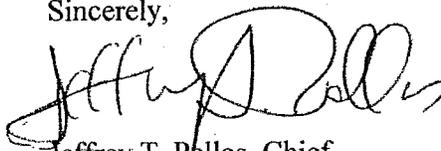
Dear Ms. Farrell:

The U.S. Environmental Protection Agency has reviewed the above subject documents for the groundwater interim measures of the Former Chemical Plant submitted by Walter Coke, Birmingham, Alabama in February 2002 and revised in February 2011. Pursuant to Section VI of the RCRA Section 3008(h) Administrative Order dated September 29, 1989, EPA is hereby approving the groundwater interim measures Work Plan for the off-site migration of contaminated groundwater for the Former Chemical Plant.

This approval for the groundwater interim measures includes approval of Sections 2.0 and 5.0 of the above referenced IRMWP prepared by Arcadis, dated February 20, 2002, the above referenced Addendum IMWP prepared by CH2MHill, dated February 11, 2011, and the modifications to both documents as specified in the Enclosure entitled "EPA Final Comments on the Interim Measures Work Plan for the Off-site Migration of Contaminated Groundwater from the Former Chemical Manufacturing Plant." Together, these constitute the final interim measures work plan (IWMP) and the IWMP is considered effective on the date of this letter. Pursuant to the schedule contained in the Enclosure, Walter Coke is required to resubmit a final IMWP (to have everything in one document) for the Former Chemical Plant incorporating all of the changes to EPA within 30 days of the date of this letter.

If you have any questions regarding this correspondence, please feel free to contact me at (404) 562-8569 or by electronic mail at [pallas.jeff@epa.gov](mailto:pallas.jeff@epa.gov), or Karen Knight, Chief of the RCRA Corrective Action Section, at (404) 562-8885 or by electronic mail at [knight.karen@epa.gov](mailto:knight.karen@epa.gov).

Sincerely,

A handwritten signature in black ink, appearing to read "Jeffrey T. Pallas". The signature is fluid and cursive, with a large loop at the end.

Jeffrey T. Pallas, Chief  
Restoration and Underground Storage Tank  
Branch  
RCRA Division

Enclosure

cc: Metz Duites, ADEM

## Enclosure

**EPA Final Comments on the Interim Measures Work Plan  
for the Off-site Migration of Contaminated Groundwater from the  
Former Chemical Manufacturing Plant  
Walter Coke, Inc., Birmingham, Alabama  
EPA ID No. AL 000 828 848  
Revised April 13, 2012**

### **Introduction**

EPA has completed its review of the Interim Remedial Measures Work Plan (IRMWP) for the Chemical Manufacturing Plant, dated February 20, 2002, and the Groundwater Interim Measures Work Plan Addendum (Addendum IMWP) for the former Chemical Manufacturing Plant dated February 11, 2011. Sections 2.0 and 5.0 of the IRMWP and the Addendum IMWP represent the proposed groundwater interim measures. The facility has proposed an interim measure for addressing off-site migration of contaminated groundwater from the former Chemical Manufacturing Plant. The interim measure is hydraulic containment with the secondary benefit of chemical mass reduction via groundwater recovery.

### **Comment #1 Objective of the Interim Measures (IM)**

Please add to the Scope in the final Interim Measures Work Plan (IMWP) for Groundwater Interim Measures the following objective: As a secondary benefit, the IM will reduce the mass of VOCs and SVOCs in the groundwater under the former Chemical Manufacturing Plant with the understanding that the final remedy goal for meeting the groundwater protection standards is to achieve the MCLs, regional screening levels (RSLs), and/or the Corrective Measures Study (CMS) risk-based standards.

### **Comment #2 Performance Objectives- Addendum IMWP**

The IM stated, “[t]he performance objective of the hydraulic containment IM is to maintain an inward gradient at those locations along the down gradient property boundary where chemical concentrations have been detected above the EPA’s tap water regional screening levels (RSLs). The specific area being targeted is “around” monitoring wells MW-49S, MW-50, and MW-51.”

- Revise the final IMWP to restate the performance objectives as follows: 1) Establish pumping rates in the recovery wells to maintain the inward gradient along the property line of MW-49S and MW 51. 2) Evaluate hydraulic interaction and capture for the interior wells (CW-3, CW-4, CW-5, and CW-6); and
- Revise the final IMWP to specify that Walter Coke will quantify the secondary benefits of chemical mass reduction by: 1) Determining on a quarterly basis, the mass of VOCs and SVOCs removed from the aquifer system-wide; and 2) Describe how Walter Coke will measure and calculate mass removal of VOCs and SVOCs.

### **Comment #3 - Down Gradient Well from CW-1- Addendum IMWP**

As Walter Coke proposes to install CW-1 down gradient of MW-51, Walter Coke needs a new down gradient monitoring well from CW-1 to monitor the effectiveness of CW-1. The down gradient hydraulic radius and chemical concentrations will need to be monitored. EPA recommends installing a down gradient monitoring well approximately 170 feet south of MW-50 and approximately 150 feet from CW-1.

### **Comment #4 - System Performance Monitoring 2<sup>nd</sup> Bullet – Addendum IMWP**

*Once the entire groundwater IM is operational, monthly water levels will be collected manually for six months in the wells listed in Table 1, followed by quarterly monitoring for the remainder of the year.*

- Provide a description of how the system data will be evaluated.
- Add quarterly routine sampling and chemical analysis to allow the calculation of mass removal. EPA may allow annual sampling after a minimum of 4 quarterly sampling events if Walter Coke can demonstrate, with EPA approval, system effectiveness.

### **General Comment #5 Interim Measures System Objective**

Report the total mass and volume of the VOCs and SVOCs recovered in pounds and gallons, respectively.

Specify that the facility will routinely calculate the mass of constituents removed from the system for reporting to EPA and ADEM.

### **Comment #6 Schedule - Addendum IMWP**

Amend the schedule in the work plan as follows:

- A. A final IMWP incorporating these comments must be resubmitted to EPA within 30 days of Walter Coke's receipt of these comments.
- B. Planning, design, and acquisition of subcontracts to support the final IMWP must be submitted within 90 days of Walter Coke's receipt of these comments.
- C. An Interim Measures Groundwater Sampling and Analysis Plan (IM GWSAP) and an Indoor Air Vapor Intrusion Work Plan (IAVIWP) must be submitted to EPA within 75 days of Walter Coke's receipt of these comments.
- D. Preconstruction monitoring must begin within 30 days of EPA approval of the IM GW-SAP.
- E. Construction will be completed and system start-up will begin within 120 days of the completion of preconstruction monitoring.
- F. Construction Progress Reports should be submitted bi-monthly until the system is operationally ready.
- G. After the system is operationally ready, quarterly monitoring reports should be submitted to document system performance. Quarterly reports are due 60 days after the end of the

quarter, and should continue to be submitted for two years.

- a. Quarterly monitoring reports should include:
  - i. Report Narrative
  - ii. Groundwater elevation data
  - iii. System Evaluation
    - a. Flow direction and magnitude, containment, potentiometric surface and chemical concentration maps, and data trend plots.
    - b. Well Performance (trend line plotted).
  - iv. Quarterly Groundwater Monitoring Results
    - a. Chemical concentrations from CW system sampling port
    - b. Chemical concentrations from monitoring wells (until EPA approves demonstrated system effectiveness)
    - c. Groundwater elevation tables.
  - v. Mass removal calculations system wide from the single combined system wide sample port.
  - vi. Recommendations for system improvement.
- H. The fourth quarter monitoring report shall include an "annual system effectiveness" report to include the calculated contaminant mass removal; and, if necessary, corrective measures with a schedule for implementation for EPA's concurrence.
- I. EPA may allow annual sampling after a minimum of 4 quarterly sampling events if Walter Coke can demonstrate, with EPA Approval, system effectiveness.

References:

- Bair, Scott E. and George S. Roadcap, Comparison of Flow Models Used to Delineate Capture Zones of Wells: 1. Leaky-Confined Fractured-Carbonate Aquifer. Groundwater, Vol. 30, No. 2, March-April 1992, p. 199-211.
- A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Systems, EPA 600/R-08/003.
- Elements for Effective Management of Operating Pump and Treatment System. 542-R-02-009 OSWER 9355.4-27FS-A December 2002.
- Insitu Remediation Technology Status Report: Hydraulic and Pneumatic Fracturing. EPA542-K-94-005 April 1995.
- Frank U. and N. Barkley, Remediation of Low Permeability Subsurface Formations by Fracturing Enhancement of Soil Vapor Extraction. Journal of Hazardous Materials, Vol. 40. 1995, p.191-201.