WORMALD SITE INVESTIGATION WORK PLAN

Former Cedar Chemicals Facility Helena – West Helena, Arkansas State EPA ID No. ARD990660649

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January 2009

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TABLE OF CONTENTS

Section **Page**

LIST OF FIGURES ii
LIST OF TABLES ii
LIST OF APPENDICES ii
LIST OF ACRONYMS iii
CERTIFICATION PAGE iv

1.0 INTRODUCTION 1
1.1 SITE LOCATION AND SETTING 1-1
1.2 SITE HISTORY 1-2
1.3 SITE INVESTIGATION OBJECTIVES 1-3
1.4 DATA QUALITY OBJECTIVES 1-3
1.5 DOCUMENT ORGANIZATION 1-3

2.0 FIELD OPERATIONS 2-1
2.1 SITE RECONNAISSANCE 2-1
2.2 BOREHOLE DRILLING, LITHOLOGIC SAMPLING, AND HEADSPACE SCREENING 2-1
2.2.1 Lithologic Sampling 2-2
2.2.2 Headspace Screening 2-2
2.3 SITE SURVEYING 2-2

3.0 ENVIRONMENTAL SAMPLING 3-1
3.1 SOIL SAMPLING 3-1
3.2 SAMPLE IDENTIFICATION 3-1
3.3 SAMPLE HANDLING AND CUSTODY 3-1
3.4 SAMPLE SHIPPING 3-2
3.5 ANALYTICAL TESTING PROGRAM 3-3

4.0 DECONTAMINATION 4-1
4.1 SAMPLING EQUIPMENT 4-1

5.0 WASTE MANAGEMENT 5-1
5.1 SOLID IDW 5-1
5.2 PERSONAL PROTECTIVE EQUIPMENT AND DISPOSABLE SAMPLING EQUIPMENT 5-1

6.0 QA/QC PROGRAM 6-1

7.0 DOCUMENTATION 7-1
7.1 FIELD LOGBOOK 7-1
7.2 EQUIPMENT LOGBOOK 7-1
7.3 DAILY QUALITY CONTROL REPORTS 7-1
7.4 FIELD FORMS 7-2

8.0 DELIVERABLES 8-1
9.0 SCHEDULE 9-1
10.0 REFERENCES 10-1

LIST OF FIGURES

Figure	Title
1	Site Location Map
2	Site Layout Map
3	Subsurface Soil Boring Location Map

LIST OF TABLES

Table	Title
1	Wormald Site Investigation Analytical Data Quality Objectives
2	Summary of Wormald Site Investigation Soil Sample Identifications and Analysis

LIST OF APPENDICES

Appendix	Description
A	Consent Administrative Order and Separate Agreement
	Consent Administrative Order LIS No. 07-027
	Wormald Separate Agreement
B	Chronological List of Key Documents
C	Field Forms
	Test Boring Report
	Chain of Custody and Analytical Request
	Investigation-Derived Waste Management Form
	Daily Quality Control Report

LIST OF ACRONYMS

ADEQ	Arkansas Department of Environmental Quality
bgs	below ground surface
CCC	Cedar Chemical Corporation
COC	Contaminant of Concern
CSA	Comprehensive Site Assessment
CSM	Conceptual Site Model
DPT	Direct Push Technology
DOT	Department of Transportation
DQCR	Daily Quality Control Report
DQO	Data Quality Objective
EPA	Environmental Protection Agency
FI	Facility Investigation
IDW	Investigation Derived Waste
mg/kg	milligrams per kilogram
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NAD	North American Datum
NAVD	North American Vertical Datum
OVA	Organic Vapor Analyzer
PID	Photo Ionization Detector
PPE	Personal Protective Equipment
PRP	Potentially Responsible Party
QA	Quality Assurance
QC	Quality Control
RPD	Relative Percent Difference
SI	Site Investigation
SIWP	Site Investigation Work Plan
SVOC	Semi-Volatile Organic Compound
TCLP	Toxicity Characteristic Leaching Procedure
USCS	Unified Soil Classification System
VOC	Volatile Organic Compound

CERTIFICATION PAGE
WORMALD SITE INVESTIGATION WORK PLAN
FORMER CEDAR CHEMICAL FACILITY
HELENA – WEST HELENA, ARKANSAS

I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to evaluate the information submitted. I certify that the information contained in or accompanying this submittal is true, accurate, and complete. As to those identified portion(s) of this submittal for which I cannot personally verify the accuracy, I certify that this submittal and all attachments were prepared in accordance with procedures designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those directly responsible for gathering the information, or the immediate supervisor of such person (s), the information submitted is, to the best of my knowledge and belief, true, accurate, and complete.

Signature: J. R. Haramut

Name: John R. Haramut

Title: Project Manager

Date: January 22, 2009

Signature: Leslee J. Alexander

Name: Leslee J. Alexander

Title: Project Geologist

License #: *Pending*[1]

Date: January 22, 2009

1. Leslee J. Alexander has submitted an application to become a Registered Professional Geologist in the State of Arkansas in accordance with Arkansas Code of 1987 Annotated 17-32-303 through 17-32-305. Formal approval of the application is pending. Inquiries regarding the application and approval status should be directed to Ms. Connie Raper, Business Controller for the Arkansas State Board of Registration for Professional Geologists, at (501)683-0150 or via email at connie.raper@arkansas.gov.

1.0 INTRODUCTION

This *Wormald Site Investigation Work Plan* (Wormald SIWP) describes the field sampling procedures for the performance of Supplemental Site Characterization activities (Site Investigation) at the former Cedar Chemicals Facility (the "Site"; Figure 1). The work will be performed to obtain the necessary data to: 1) fill in any critical data gaps identified by Wormald pursuant to this SIWP in historical documents for soil contamination at Site 3 as provided and described in Arkansas Department of Environmental Quality (ADEQ's) Comprehensive Site Assessment (CSA) dated May 2003 and revised April 2004 and ADEQ's 2005 Risk Evaluation Report; and 2) support the potential development of a feasibility study for remediation of soil contamination at Site 3 pursuant to the results of this SIWP. This Wormald SIWP is issued pursuant to and meets the requirements of the Wormald Separate Agreement Pursuant to Consent Administrative Order LIS No. 07-027 for the Conduct of a Site Investigation and Feasibility Study *(Effective Date January 9, 2009)* (Wormald Separate Agreement), a copy of which is attached and incorporated herein in Appendix A.

1.1 SITE LOCATION AND SETTING

The former Cedar Chemical Corporation (CCC) Helena-West Helena Plant is located just to the south of the city of Helena-West Helena, in Phillips County, Arkansas. The Facility consists of approximately 48 acres located within the Helena-West Helena Industrial Park, approximately 1.25 miles southwest of the intersection of U.S. Highway 49 and State Highway 242. A site location map is included as Figure 1.

The Former operational portion of the property is divided into two major areas: (1) the manufacturing area, to the north of Industrial Park Road, and (2) the wastewater treatment system area, to the south of Industrial Park Road. Of the 48 acres, approximately 40 acres comprise the former manufacturing area of the facility, and are fenced. The remaining 8 acres contain the wastewater treatment ponds.

This Wormald SIWP includes a description of proposed soil sample locations, environmental sampling techniques, and the analytical test method. Also, described herein are the procedures required for field operations, environmental sampling, equipment decontamination, investigation-derived waste (IDW) management, Quality Assurance/Quality Control (QA/QC), documentation, and a proposed schedule for the implementation of this SIWP. A Site layout map is provided as Figure 2. Appendix B contains a list of key documents reviewed during the preparation of this SIWP.

1.2 SITE HISTORY

Prior to 1970, the land where the site now exists was used for agriculture purposes (EnSafe, 1996). The plant was constructed in the early 1970s, and operated by a number of parties until its closure under bankruptcy in 2002. ADEQ assumed control of the site on October 12, 2002.

During its operational life, the Facility manufactured various agricultural chemicals, including insecticides, herbicides, polymers, and organic intermediates. Plant processes were batch operations, with seasonal production fluctuations and the frequent introduction of new products. The plant also produced a variety of chemicals on a toll manufacturing basis for a number of customers.

Several previous investigations of the Site were completed between 1985 and 2002. These investigations are documented in previous reports and outlined in detail in the *Current Conditions Report* (Geomatrix, 2007). AMEC Geomatrix conducted Facility Investigation (FI) activities at the Site between January 2008 and October 2008. The FI Report is pending (expected submittal by AMEC Geomatrix on or before January 31, 2009). A summary of the FI activities is provided in the inset table below and is based on the documents reviewed to date (Appendix B).

Investigation Activity Description	Date
Baseline Groundwater Sample – on-Site monitoring wells	January 2008
Direct Push Technology (DPT) Soil Boring Installation – 40 DPT soil borings installed and sampled; 10 perched zone temporary monitoring wells installed	March/April 2008
Groundwater Sampling – perched zone temporary monitoring wells and 2 off-Site alluvial aquifer monitoring wells	March/April 2008
Monitoring Well Installation – 14 perched zone monitoring wells and 2 alluvial aquifer monitoring wells installed on-Site; 4 alluvial aquifer monitoring wells installed off-Site	June/July 2008
Drum Vault Sampling – 4 test pits installed in the Drum Vault; 4 composite soil samples collected	July 2008
Aquifer Testing	July 2008
Site-wide Groundwater Sampling	July 2008
Site-wide Groundwater Sampling	September 2008
Additional Off-Site Alluvial Aquifer Monitoring Well Installation - installation and sampling of 4 off-Site alluvial aquifer monitoring wells	October 2008

1.3 SITE INVESTIGATION OBJECTIVES

Site 3 - Stormwater Ditches: SI activities will focus on the assessment of soil quality in the vicinity of historical subsurface soil sample 3SB-6 where dinoseb was detected at a concentration of 13,000 milligrams per kilogram (mg/kg) and identified as a contaminant of concern (COC) in the Risk Assessment (EnSafe, 1996; ADEQ, 2005).

The following activities will be performed to meet the objective described above.

1. Site reconnaissance and field work preparation, including but not limited to obtaining permits and access agreements for invasive activities, schedule subcontractors, mark sample locations and perform utility clearance.
2. Install five soil borings for the collection of up to seven primary soil samples for dinoseb analysis.
3. Collect horizontal and vertical coordinates from soil sample locations.
4. Validate analytical data in accordance with the data quality objections specified herein.

The data will be used to supplement the current Conceptual Site Model (CSM) and develop the Wormald SI Report.

1.4 DATA QUALITY OBJECTIVES

Data Quality Objectives (DQOs) are defined as statements of expectations of the performance capabilities of the environmental program that aid in the decision-making process. DQOs have been established to ensure that data of known defensible quality are obtained to meet the project objectives described above, and to determine the appropriate quantitation, detection, and reporting limits, analytical methods, and sample collection and handling procedures. The analytical DQOs for the Wormald SI are defined in Table 1. The analytical DQO process will be evaluated through a comprehensive QA/QC program described in Section 6.0.

1.5 DOCUMENT ORGANIZATION

This SIWP has been organized into the following sections:

- Section 1 – Introduction;
- Section 2 – Field Operations;

- Section 3 – Environmental Sampling;
- Section 4 – Decontamination;
- Section 5 – Waste Management;
- Section 6 – QA/QC Program;
- Section 7 – Documentation;
- Section 8 – Deliverables;
- Section 9 – Schedule; and
- Section 10 – References.

Appendix C includes field forms that will be used to document SI field activities.

2.0 FIELD OPERATIONS

Section 2.0 describes field activities that will be conducted during the Wormald SI activities.

2.1 SITE RECONNAISSANCE

Prior to implementing field work, the following activities will be performed:

- Obtain a Site access agreement (if required);
- Schedule field personnel and subcontractors;
- Coordinate the field activities with the ADEQ and Harcros Chemical, the potential or new owner/operator of the Site;
- Provide notice of sampling activities to the Cedar Chemical Site Potentially Responsible Party (PRP) Group and to Harcros; and
- Survey and stake sample locations and perform utility clearances.

AECOM will coordinate the utility clearance of all environmental sample locations prior to any intrusive work. All sample locations will be clearly marked for above- and below-ground utility clearance. All utilities including electrical, gas, sewer, water, and communication lines will be identified and marked by utility clearance personnel.

2.2 BOREHOLE DRILLING, LITHOLOGIC SAMPLING, AND HEADSPACE SCREENING

Five soil borings will be installed within Site 3 for the collection of soil samples for dinoseb analysis. The additional analytical data are needed to confirm the concentration of dinoseb at historical sample location 3SB-6 (Figure 3) and to further delineate dinoseb concentrations in the subsurface. All soil sampling activities shall be performed in accordance with state and local regulations. The following information will be recorded during sampling activities:

- Date and time sampling activities are conducted;
- Weather conditions;
- Boring number and location;
- Type of sampling equipment;
- Sampling methods;

- Sample intervals;
- Depth to saturated soil (if encountered);
- Headspace screening results; and
- Lithologic descriptions and changes in lithology.

2.2.1 Lithologic Sampling

Continuous soil samples will be collected at each sample location. Lithologic classification of soils will be conducted in the field in accordance with the Unified Soil Classification System (USCS) and recorded on Test Boring Reports (Appendix C). Soil descriptions will be used to supplement known Site-specific geologic and hydrogeologic properties. Soil descriptions will include the following: moisture content, color, grain size (most abundant to least abundant), angularity, and other pertinent textural or mineralogical properties. A USCS field classification name will be applied to all soil samples collected [e.g., Poorly Graded Sand (SP)].

2.2.2 Headspace Screening

A Photo Ionization Detector (PID) Organic Vapor Analyzer (OVA) will be used to assess the qualitative concentration of potential volatile organic vapors present in vadose zone soil core samples. Headspace screening will be conducted by filling a sealable polyethylene bag with soil sample aliquots collected from 2-foot sample intervals. After approximately fifteen minutes the PID probe shall be inserted into the headspace of the bag. PID results will be recorded in the field logbook and on Test Boring Reports (Appendix C).

2.3 SITE SURVEYING

Prior to sampling, the locations of soil samples will be surveyed by an Arkansas licensed land surveyor. Horizontal locations will be referenced to Arkansas State Plane Coordinate System 1983 North American Datum (NAD). Elevations will be referenced to the 1988 North American Vertical Datum (NAVD).

3.0 ENVIRONMENTAL SAMPLING

Sections 3.1 through 3.5 describe sampling procedures that will be followed while performing the SI.

3.1 SOIL SAMPLING

Soils sampling conducted during the 1996 FI (EnSafe) at Site 3, resulted in a detected dinoseb concentration of 13,000 mg/kg in soil sample 3SB-6 (collected from 4-8 feet below ground surface (bgs) in lithologic boring LB-6). Dinoseb was subsequently identified as a COC for subsurface soil at Site 3 in the 2001 Risk Assessment (EnSafe) and the 2005 Risk Evaluation (ADEQ).

In order to confirm and/or delineate dinoseb concentrations in subsurface soil at historic soil sample location 3SB-6, five soil borings (TSB-1 through TSB-5) will be installed at Site 3 (Figure 3). One primary soil sample for dinoseb analysis will be collected from 4-8 feet bgs at each boring (Table 2). Two additional soil samples, one from 1-4 feet bgs and one from 8-12 feet bgs, will be collected from TSB-1 and held for analysis pending dinoseb results from the 4-8 foot interval.

Prior to collecting a sample, all leaves, grass, and surface debris will be removed from the sample location. Soil will be collected from the desired sample interval using either a decontaminated stainless steel hand auger or a DPT Geoprobe® rig. Soil samples will be placed in a stainless steel bowl or aluminum foil tray and homogenized using the quartering technique prior to containerization. A portion of the sample will also be placed in a zip-lock bag and later screened for organic vapors utilizing a PID OVA. After placing soil samples in the laboratory-supplied bottleware, samples will be immediately placed in an ice filled cooler.

3.2 SAMPLE IDENTIFICATION

The environmental sample identifications are provided in Table 2. The following suffixes will be used to identify QC samples: duplicate –a, trip blank –c; and rinsates -d. Prior to collecting each sample, the sample container will be labeled with the following information: date and time, sample identification, sampling personnel, preservatives, and analytical parameters. All information pertaining to a particular sample is referenced by the sample identification, which will be recorded on the sample bottle(s), in the field logbook, and on the Chain of Custody and Analytical Request form (Appendix C).

3.3 SAMPLE HANDLING AND CUSTODY

All sample containers will be supplied by the analytical laboratory with the appropriate preservative. Immediately after collection, all samples will be stored on wet ice in a cooler sufficient to maintain the

required temperature until shipment and receipt at the laboratory. The samples will be packaged in individual Ziplock® bags wrapped with bubble wrap. Double Ziplock® bags will then be filled with ice and placed around the samples to maintain them at a temperature of approximately 4°Centigrade.

Legible Chain of Custody documentation will be completed to provide evidence of sample custody and allow traceability of the sample history. All coolers or shipping containers shall be accompanied by a Chain of Custody record documenting the samples contained within the shipping container.

The following information will be provided on the Chain of Custody record:

1. The project name, address, and project number;
2. Sampler signatures in the designated signature block;
3. The sample identification, date and time of sample collection, grab sample designation, preservation method, and the sample matrix;
4. The total number of sample containers for each type of analysis;
5. Documentation of the transfer of the samples listed on the Chain of Custody record by the responsible sampler and the person receiving them;
6. The sample shipment courier name; and
7. The remarks column to record shipping information, sample condition information, or other pertinent comments.

The Chain of Custody will be completed legibly using indelible ink pens. The completed Chain of Custody form will be placed in a Ziplock® bag and affixed with tape to the inside top of the sample cooler. The cooler will be sealed to prevent liquids from leaking, and custody seals will be placed over opposite ends of the lid. Clear tape will be placed over the custody seals to insure that they are not damaged during shipment.

3.4 SAMPLE SHIPPING

Environmental samples will be shipped via overnight express for next day delivery to Microbac Laboratories, Inc. located at the following address:

Microbac Laboratories, Inc.
156 Starlight Drive
Marietta, OH 45750
Contact: Stephanie Mossburg
800-373-4071

The laboratory will be notified by telephone or fax of each daily shipment along with the estimated time of arrival. The laboratory QA Manager will verify sample shipments and delivery on a daily basis during field sampling activities.

3.5 ANALYTICAL TESTING PROGRAM

All soil samples will be analyzed for dinoseb using Environmental Protection Agency (EPA) SW846 Method 8151A. In addition to the primary samples, one duplicate sample, one rinsate blank sample, and one matrix spike/matrix spike duplicate (MS/MSD) sample will be collected and analyzed for dinoseb by EPA SW-846 Method 8151A.

IDW samples will also be collected characterization. The solid IDW sample will be analyzed for toxicity characteristic leaching procedure (TCLP) volatile organic compounds (VOCs) by EPA SW-846 Method 8260B, TCLP semi-volatile organic compounds (SVOCs) by EPA SW-846 Method 8270C, TCLP pesticides by EPA SW-846 Method 8081A, TCLP herbicides by EPA SW-846 8151A, and TCLP metals by EPA SW-846 Methods 6010B/7470A.

4.0 DECONTAMINATION

Equipment decontamination activities will be conducted in accordance with methods specified in the *Environmental Investigations Standard Operating Procedures and Quality Assurance Manual* (EPA, 1996) and specifications summarized below.

4.1 SAMPLING EQUIPMENT

For equipment made of stainless steel, the following decontamination procedures will be used:

1. Wash and scrub the equipment using potable water with non-phosphate detergent (Liquinox or laboratory grade equivalent) or Alconox if nutrients are not being analyzed;
2. Rinse thoroughly with potable water;
3. Rinse with deionized water;
4. Rinse thoroughly with analyte-free water;
5. Allow the equipment to air dry, if possible; and
6. Wrap in aluminum foil for storage and transport.

5.0 WASTE MANAGEMENT

This section addresses the management, containment, and characterization of IDW. Wormald SI activities will produce the following types of materials:

1. Soil cutting generated during soil sampling; and
2. Personal protective equipment (PPE) and disposable sampling equipment.

The drum used for soil IDW containment will be labeled to indicate the type of material contained, place of origin, Site number and location, boring numbers, and date on which materials were initially placed in the container. Labeling will be of a permanent nature such that it is unaffected by exposure to outdoor elements over an extended period of time. An IDW Management Form (Appendix C) will be completed to document IDW generated during field activities.

5.1 SOLID IDW

Soil generated during drilling activities will be properly contained in new 55-gallon drums approved by the Department of Transportation (DOT) and staged at a central location in accordance with all Federal, State and local requirements. At the completion of field activities, a representative sample of solid IDW will be collected for analyses of methods specified in Section 3.5 evaluate disposal options.

5.2 PERSONAL PROTECTIVE EQUIPMENT AND DISPOSABLE SAMPLING EQUIPMENT

Used PPE, disposable sampling equipment, and other miscellaneous trash will be consolidated in trash bags at the end of each day and sealed for subsequent off-Site disposal.

6.0 QA/QC PROGRAM

The QA program is a system of documented checks that ensures the authenticity and validity of the environmental data. QC includes the tools provided in the QA program for performing the data validation process. The analytical program will include collection of the following QC samples:

- Field duplicate samples (solid) will be collected for a minimum of one per 10 primary samples.
- MS/MSD soil samples will be collected for a minimum of one MS/MSD sample per 20 primary samples.
- Rinsate blank samples will be collected for a minimum of one rinsate blank sample per 20 primary soil samples if non-disposable equipment is utilized.

All solid and aqueous data shall be reported as Level III (to include the case narrative, chains-of-custody, cooler temperatures, condition upon receipt forms, holding times, analytical data, surrogate recoveries, laboratory control sample recoveries/laboratory control sample duplicate relative percent difference (RPDs), method blanks, matrix spike recoveries, and matrix spike duplicate RPDs).

AECOM shall perform independent QC checks of field and laboratory procedures used in collecting and analyzing the data. The QC checks will be used to verify the data collected are of appropriate quality for the intended data use and the analytical DQOs were met. The steps and guidelines followed during the data validation process will be modeled on the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (USEPA, October 2004), *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (USEPA, October 1999), and *Data Validation Standard Operating Procedures for Contract Laboratory Program Routine Analytical Services* (USEPA, July 1999). In addition, method-specific criteria set forth in the compendium of analytical methods found in the *Test Methods for Evaluation Solid Waste (SW-846), Update III* (USEPA, June 1997) will also be evaluated during the validation process. This validation process has been adapted to meet the analytical DQO requirements for generation of definitive critical data.

7.0 DOCUMENTATION

Field personnel will maintain documentation of field activities using field logbooks, equipment calibration logbooks, Daily Quality Control Reports (DQCRs), and various field forms (Appendix C). A summary of field documentation that will be performed is provided below.

7.1 FIELD LOGBOOK

A field logbook will be maintained by field personnel during all field activities. The cover of the field logbook shall be labeled with the facility name, the project name and number, and the date of field activity duration. The logbook will be completed on a daily basis and will summarize all activities performed that day including: 1) date; 2) time; 3) weather conditions; 4) personnel on-Site; and 5) level of personal protection. Entries regarding environmental sampling will include the Site name, location of sampling, sample identification numbers, sample collection times, analytical parameters, field parameter measurements, and field observations.

7.2 EQUIPMENT LOGBOOK

Field equipment logbooks will be maintained daily to document equipment maintenance and calibration. The daily information will include the following:

- Equipment type and identifying number;
- Calibration date;
- Calibration parameters;
- Person performing the calibration;
- Standards used;
- Results of the calibration; and
- Corrective action, if required.

7.3 DAILY QUALITY CONTROL REPORTS

A DQCR will be completed by field personnel at the completion of daily activities. The DQCR (Appendix C) summarizes field activities, measurement instruments used and calibrations performed, and samples collected. The DQCR will be signed each day by the field personnel responsible for daily activities.

7.4 FIELD FORMS

Field forms will be maintained daily to document specific SI activities. These forms will include:

- Test Boring Report
- Chain of Custody and Analytical Request
- IDW Management Form
- DQCR

Copies of field forms are provided in Appendix C.

8.0 DELIVERABLES

In accordance with Section 5(E) of the Wormald Separate Agreement, a Wormald SI Report will be prepared. The SI Report will provide the additional data collected during the Wormald SI and summarize those findings pursuant to this SIWP. The SI Report will include an identification of all sample locations and summarize analytical results collected during the Wormald SI. The SI Report will be provided to the ADEQ on or before March 31, 2009.

In accordance with Section 5(F) of the Wormald Separate Agreement, a Wormald Feasibility Study Report for soil contamination at Site 3 will be prepared. The Feasibility Study will identify the proposed final remedial measures for cleanup of soil contamination at Site 3. The Feasibility Study will also identify any interim actions related to the Wormald SI that appear appropriate and necessary. The Feasibility Study Report will be submitted to ADEQ on or before June 30, 2009.

9.0 SCHEDULE

The following proposed schedule will be implemented in accordance with the Wormald Separate Agreement *(Effective Date January 9, 2009)*.

Activity/Document	**Duration**
SIWP	within 15 days of the effective date of the Wormald Separate Agreement
SIWP Implementation	within 30 days after ADEQ approval of SIWP
SI Report	on or before March 31, 2009
Feasibility Study Report	on or before June 30, 2009

10.0 REFERENCES

ADEQ, January 9, 2009. *Wormald Separate Agreement, Pursuant to Consent Administrative Order LIS No. 07-027 For the Conduct of a Site Investigation and Feasibility Study*

ADEQ, March 22, 2007. *Consent Administrative Order LIS No. 07-027.*

ADEQ, August 2005. Cedar Chemical Company: Request for Proposal Packet, Attachment D: *Risk Evaluation Repor*

ADEQ, *Comprehensive Site Assessment*, Cedar Chemical Corporation Plant Site, May 2003, Revised April 2004

AMEC Geomatrix, October 13, 2008. *Interim Facility Investigation (FI) Report* Submittal, Cedar Chemical Company Facility ("the Site"), West Helena, Arkansas, State EPA ID Number ARD990660649.

EnSafe, Inc., June 28, 1996. *Facility Investigation*, Cedar Chemical Company. (Phase I through III).

Ensafe, Inc., March 21, 2001. *Risk Assessment* - Cedar Chemical Corporation, West Helena, Arkansas.

Ensafe, Inc., January 22, 2002. *Risk Assessment Addendum* - Cedar Chemical Corporation, West Helena, Arkansas.

Geomatrix, November 2007. *Current Conditions Report*, Cedar Chemical Corporation Facility, Helena – West Helena, Arkansas.

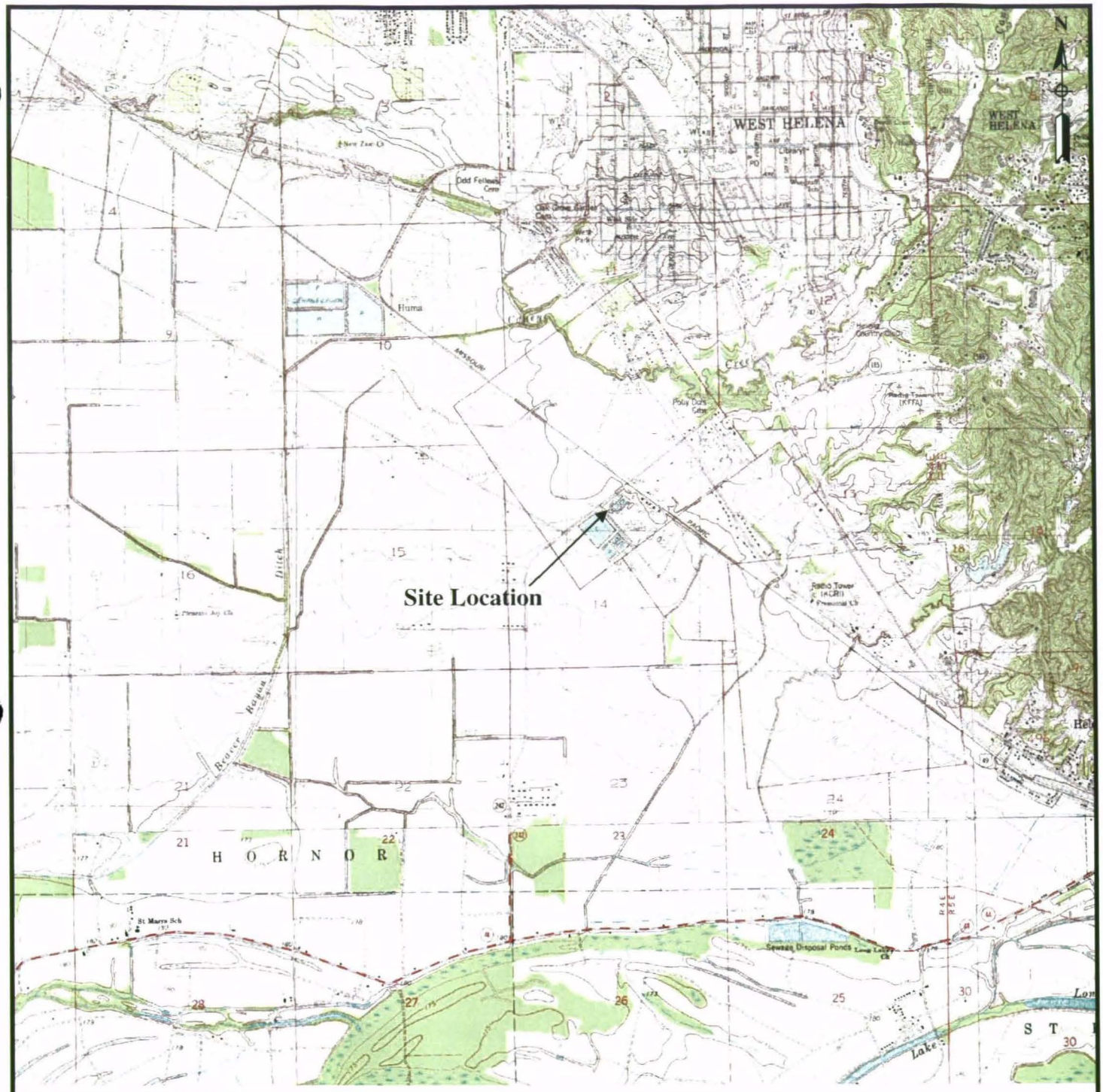
United States Environmental Protection (USEPA), June 1997. *Test Methods for Evaluating Solid Waste (SW-846), 3rd Edition, Update III.*

United States Environmental Protection Agency (USEPA), July 1999. *Data Validation Standard Operating Procedures for Contract Laboratory Program Routine Analytical Services, Revision 2.1,* EPA Region IV.

United States Environmental Protection Agency (USEPA), October 1999. *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review.* Publication #EPA540/R-99/008.

United States Environmental Protection Agency (USEPA), October 2004. *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review.* Publication #EPA540/R-04/004.

FIGURES



0 ft 2000 ft 4000 ft 6000 ft

Scale

Source: TerraServer DRG
(West Helena, Arkansas, United States)

AECOM

Figure 1
Site Location Map
Cedar Chemical Facility
Helena-West Helena, Arkansas

January 2009 104336

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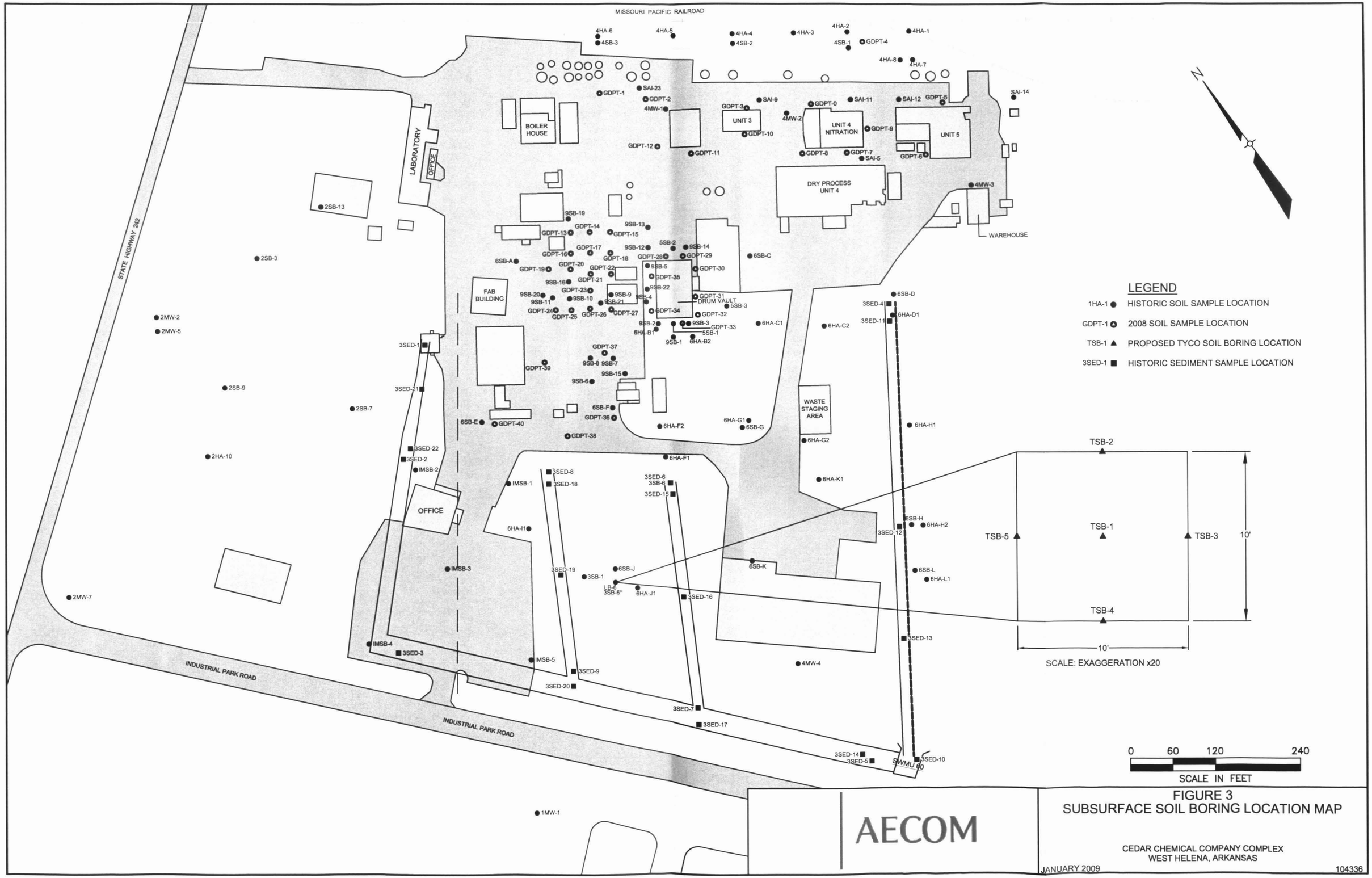

AECOM

FIGURE 3
SUBSURFACE SOIL BORING LOCATION MAP

CEDAR CHEMICAL COMPANY COMPLEX
WEST HELENA, ARKANSAS

JANUARY 2009

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\\USGRNS01\data\work\104336\CADD\104336_011 Subsurface Soil Boring Location Map.dwg, 1/20/2009 8:49:35 AM, mandy.splawn

TABLES

Table 1
Wormald Site Investigation Analytical Data Quality Objectives
Former Cedar Chemicals Facility
Helena - West Helena, Arkansas

Project Objectives

To obtain the necessary data to:

1) fill in any critical data gaps identified by Wormald pursuant to this SIWP in historical documents for soil contamination at Site 3 as provided and described in ADEQ's CSA dated May 2003 and revised April 2004 and ADEQ's 2005 Risk Evaluation Report; and

2) support thepotential development of a feasibility study for remediation of soil contamination at Site 3 pursuant to the results of this SIWP

Field Screening

Soils

VOCs by OVA, field description by ASTM Visual-Manual Method

Sample Collection Equipment

Soils

Geoprobe® sampling probe or stainless steel hand auger

Terracore sampling kits

Sample Collection Technique

Refer to Section 3.0 of Draft Wormald Site Investigation Work Plan for sampling procedures

Completeness Goals for Sample Collection

Greater than or equal to 95% for soil samples.

Analytical Program

Groundwater samples will be analyzed according to Section 3.6 of the Draft Wormald Site Investigation Work Plan.

All analyses will be according to EPA methodologies. EPA methods referenced are for the most recent version. Methods included in this analytical sampling program are:

Media	Parameter	Method
Soil	Dinoseb	8151A
Solid IDW	TCLP VOCs	8260B
Solid IDW	TCLP SVOCs	8270C
Solid IDW	TCLP Herbicides	8151A
Solid IDW	TCLP Pesticides	8081A
Solid IDW	TCLP Metals	6010B/7470A

Reporting Limits

Analytical results between the respective reporting limit and detection limit will be reported as estimated concentrations. The purpose of this reporting procedure is to be able to meet the low MDLs.

Precision

Sampling Program

Collection and analysis of Field Duplicates for soil.

Collection and analysis of Matrix Spike Duplicates for soil.

Analytical Program

Will include laboratory duplicates, duplicate control samples, etc., as specified in the analytical method.

Accuracy

Sampling Program

Collection and analysis of Matrix Spike Samples.

Analytical Program

Will include blanks, surrogates, lab control samples, calibration checks, tuning, as specified in the analytical method.

Representativeness of Samples

The measure of relative percent difference derived by the field duplicate analysis is an indicator of precision of the entire sampling and analytical program. The results of field duplicate data alone will not be used for data qualification or data rejection. Typical relative percent differences for soil and water samples have been provided

Table 1
Wormald Site Investigation Analytical Data Quality Objectives
Former Cedar Chemicals Facility
Helena - West Helena, Arkansas

below for guidance purposes only.

For Soil:	Relative Percent Difference	For IDW Soil:	Relative Percent Difference
Dinoseb	40	TCLP VOCs	35
		TCLP SVOCs	35
		TCLP Herbicides	35
		TCLP Pesticides	35
		TCLP Metals	30

Completeness Goals for Analytical Program

These goals are relative to the analytical laboratory's ability to analyze the sample within method-specific procedures.

	% Completeness
For soil:	90

Notes:

ADEQ - Arkansas Department of Environmental Quality
ASTM - American Society for Testing and Materials
CSA - Comprehensive Site Assessment
IDW - Investigation Derived Waste
MDL - Method Detection Limit
OVA - Organic Vapor Analyzer
SIWP - Site Investigation Work Plan
SVOC - Semivolatile Organic Compound
VOC - Volatile Organic Compound

Table 2
Summary of Wormald Site Investigation Soil Sample Identifications and Analysis
Former Cedar Chemicals Facility
Helena - West Helena, Arkansas

Proposed Soil Boring Location	Sample Depth Interval (ft bgs)	Method 8151A	Method 8151A
		Dinoseb	Dinoseb (Collect and Hold)[1]
TSB-1	1-4		X
TSB-1	4-8	X	
TSB-1-a	4-8	X	
TSB-1-d	4-8	X	
TSB-1-ms	4-8	X	
TSB-1-msd	4-8	X	
TSB-1	8-12		X
TSB-2	4-8	X	
TSB-3	4-8	X	
TSB-4	4-8	X	
TSB-5	4-8	X	

Notes:
TSB - Tyco soil boring
-a - Indicates a field duplicate sample.
-d - Indicates a rinsate blank sample.
ft bgs - feet below ground surface
-ms - Indicates a matrix spike sample.
-msd - Indicates a matrix spike duplicate sample.
1. Dinoseb soil samples from 1-4 ft bgs and 8-12 ft bgs at TSB-1 will be collected, submitted to the analytical laboratory, and held for analysis pending the results of dinoseb analysis from the 4-8 ft interval at TSB-1.

Table 2
Summary of Wormald Site Investigation Soil Sample Identifications and Analysis
Former Cedar Chemicals Facility
Helena - West Helena, Arkansas

Proposed Soil Boring Location	Sample Depth Interval (ft bgs)	Method 8151A	Method 8151A
		Dinoseb	Dinoseb (Collect and Hold)[1]
TSB-1	1-4		X
TSB-1	4-8	X	
TSB-1-a	4-8	X	
TSB-1-d	4-8	X	
TSB-1-ms	4-8	X	
TSB-1-msd	4-8	X	
TSB-1	8-12		X
TSB-2	4-8	X	
TSB-3	4-8	X	
TSB-4	4-8	X	
TSB-5	4-8	X	

Notes:
TSB - Tyco soil boring
-a - Indicates a field duplicate sample.
-d - Indicates a rinsate blank sample.
ft bgs - feet below ground surface
-ms - Indicates a matrix spike sample.
-msd - Indicates a matrix spike duplicate sample.
1. Dinoseb soil samples from 1-4 ft bgs and 8-12 ft bgs at TSB-1 will be collected, submitted to the analytical laboratory, and held for analysis pending the results of dinoseb analysis from the 4-8 ft interval at TSB-1.

APPENDIX A

CONSENT ADMINISTRATIVE ORDER AND SEPARATE AGREEMENT

Consent Administrative Order LIS No. 07-027

Wormald Separate Agreement

EXHIBIT
A

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY

IN THE MATTER OF:	)	
	)	
CEDAR CHEMICAL CORPORATION SITE	)	
HIGHWAY 242 SOUTH	)	
HELENA-WEST HELENA, ARKANSAS	)	LIS NO.

FILED
At 2:20 O'Clock M
MAR 26 2007
LAWELL
PHILLIPS D.C.
BY

CONSENT ADMINISTRATIVE ORDER

I. Introduction

1. This Consent Administrative Order ("CAO") is entered between the Arkansas Department of Environmental Quality ("ADEQ") and Ansul, Incorporated, formerly known as Wormald US, Inc., Helena Chemical Company, and ExxonMobil Chemical Co., a division of Exxon Mobil Corporation (the "Respondents"), pursuant to the authority of the Arkansas Remedial Action Trust Fund Act ("RATFA"), A.C.A. Sections 8-7-501 to 8-7-525 as currently amended, as well as other applicable state law including the Arkansas Water and Air Pollution Control Act, A.C.A. Section 8-4-101 et seq. All terms contained within this CAO shall have the definitions found in RATFA, unless the context plainly indicates otherwise.

2. The subject of this CAO is the Cedar Chemical Corporation Site (the "Cedar Site" or "Site"), which is located in West Helena, Phillips County, Arkansas, and is more fully described in Section IV. The site is subject to a court order directing that it be held in a public trust established pursuant to Ark. Code Ann. 28-72-201 *et seq.* See *In Re: The Cedar Chemical Corporation Property Ownership Public Trust,* No. CV-2006-330 (Phillips County Cir. Ct., Sept. 27, 2006). The current Trustee of the Public Trust is Brad J. Beavers. The

Trustee is a party to this CAO only in his official capacity as Trustee charged with administering the Site, and takes the action set forth herein at the approval, instruction and request of the beneficiary, the State of Arkansas and ADEQ.

3. It is the intent of ADEQ to address the environmental concerns at the Cedar Site as expeditiously as possible in order to ensure the protection of human health and the environment, as well as to make the Site once again a viable alternative for economic growth in the area.

4. By executing this CAO, the Respondents do not admit the allegations, facts or circumstances set forth herein. However, Respondents agree not to contest ADEQ's subject matter jurisdiction to issue this CAO. ADEQ agrees that Respondents' execution of this CAO shall not be considered an admission against interest nor evidence of liability on the part of any Respondent. The CAO shall not be admissible in evidence in any proceeding for any purpose without the consent of all the Respondents, provided however ADEQ may offer the CAO into evidence in any proceeding brought to enforce the terms of the CAO.

5. Despite anything in this CAO to the contrary, the Parties acknowledge the following:

Respondents agree with the purposes and objectives set forth in Section II of this CAO and are willing to comply with the terms of this CAO in order to further said objectives. While Respondents are willing to participate in the Interim Measures pursuant to this CAO, Respondents do not admit any liability or responsibility for any condition or substance on or emanating from the Site. Nothing in this CAO shall be construed as an admission of fact or law by Respondents nor a release or waiver of any rights or defenses available to Respondents under RATFA or other applicable law, with the exception of a

defense involving any applicable statute of limitations, which is subject to a separate tolling agreement entered by the Parties and attached hereto as Exhibit "A". This CAO shall not be admissible in evidence or used as proof against Respondents of any of the facts found or recited herein.

II. Statement of Purpose

By entering into this CAO, the mutual objectives of ADEQ and the Respondents are:

6. To maintain (i) site security, maintenance and (ii) stormwater control measures (collectively "Interim Measures"), as may be necessary, at the Site.

7. To establish a procedure for planning and implementing such additional site investigation and feasibility study as may be necessary.

8. To establish an agreed plan for preservation and custody of documents at or removed from the Site which are in the possession and/or control of ADEQ or the Trustee (the "Documents"), and to provide an agreed plan for access by ADEQ and Respondents to such documents.

III. Parties

9. This CAO shall be binding upon and inure to the benefit of ADEQ, , the Trustee, and each of the Respondents, their successors and assigns.

10. Any contract or agreement entered into by ADEQ, the Trustee, or by any or all of the Respondents or ADEQ for the purpose of carrying out any actions required by this CAO shall incorporate to the extent applicable the requirements of this CAO pertaining to the work to be performed or services or materials to be supplied.

IV. Factual Background

The following factual background is based upon information available to the Parties at this time regarding the Site. The factual statements made below are neither admissions by or binding upon, nor conclusive with respect, to the Parties.

11. The Site is located on 48 acres within the Helena-West Helena Industrial Park, approximately 1 ¼ miles southwest of the intersection of U.S. Highway 49 and State Highway 242. From approximately 1971 to 2002, under various owners and operators, agricultural and organic chemicals were manufactured or processed at-production units at the plant. The most recent owner and operator of the Site was Cedar Chemical Corporation ("Cedar").

12. During the years of Site operations, various constituents containing hazardous substances have been released or have come to be located at the Site, resulting in contamination of the Site.

13. In 2002, Cedar filed for bankruptcy protection in the United States Bankruptcy Court for the Southern District of New York. On October 18, 2002, the bankruptcy court authorized abandonment of the Site, at which time ADEQ assumed control of the Site. Since that time to the present, ADEQ has provided security for the Site and conducted storm water control operations at the Site.

14. ADEQ has alleged that the Respondents and other private parties not yet participating in response actions at the Site are or may be liable parties with respect to the Site under RATFA and other applicable state law.

15. On July 26, 2006, ADEQ filed a complaint against the Respondents in the Circuit Court of Phillips County, Arkansas, Civil Division, styled *ADEQ v. Wormald USA,*

Inc., successor to Ansul, Inc., Helena Chemical Co. and Exxon Mobil Chemical Co., successor to Mobil Chemical Co., Case No CIV 2006-246. Contemporaneously with the entry of this CAO the ADEQ complaint has been dismissed without prejudice.

V. Order

In light of the foregoing, ADEQ, the Trustee, and the Respondents agree as follows:

16. For a period of three (3) years, beginning on the effective date of this CAO (the "Interim Period,") the Respondents will reimburse ADEQ for its actual expenditures in maintaining the Interim Measures during the Interim Period at the Site. During the first year of this CAO, the obligation of Respondents to provide reimbursement shall not exceed 110% of the current average monthly amount ($14,260.43) paid by ADEQ. On the anniversary of this CAO, and each subsequent anniversary of this CAO, the financial obligation of Respondents under this paragraph may be adjusted by the federally published cost of living adjustment ("COLA"). Respondents shall, no later than 60 days after the entry of this CAO, provide acceptable financial assurance of their combined ability to pay the aforementioned costs through an appropriate financial assurance mechanism that has been approved for use by the Arkansas Pollution Control and Ecology Commission in Regulation 23. Further, Respondents agree to maintain an escrow account in which an amount that shall never be less than Forty-Five Thousand Dollars ($45,000.00) will be maintained to pay the aforementioned costs. The escrow account will be held at a financial institution acceptable to ADEQ under provisions that will provide for timely payment of the aforementioned costs. The Parties agree to negotiate in good faith the payment of any extraordinary costs exceeding the amounts provided for above, which may arise in the necessary maintenance of interim measures.

17. During the Interim Period, the Parties will agree to a joint plan for document preservation, custody, and joint access for inspection and copying. ADEQ considers the documents to be public records and ADEQ will preserve, safeguard and provide all reasonable access to all of the documents to the citizens of the State of Arkansas. In order to achieve this purpose, access to all original documents will be managed by ADEQ. No documents shall be removed or destroyed without the authorization of ADEQ.

18. All Parties agree that ADEQ and each of the Respondents have reserved all rights, claims, and defenses that they may have against one another or against any other Party, person, or entity under RATFA or under any other statutory or common law provision.

19. The Parties shall each have reasonable access to the Site for inspection, investigation, and Interim Measures purposes during the term of this CAO. Any Party conducting an investigation or sampling at the Site (unless an Emergency) will provide at least two (2) weeks' written notice to the other Parties, with an opportunity provided to each Party to obtain, at each Party's own expense, split samples, and to obtain copies, at each Party's own expense, of all data derived from any sampling of environmental media at or near the Site as soon as those data are released in final form by the laboratory. All investigation or sampling will be done in accordance with ADEQ guidelines and authorization. Nothing in this provision shall be construed as a waiver of Respondents' attorney-client or attorney work-product privileges.

20. The Parties agree to negotiate in good faith to reach a separate agreement for the conduct of a Site Investigation ("SI") and feasibility study as may be necessary. The SI may use the existing Site data, studies and assessment work to the maximum extent possible. The Parties agree that negotiations for the conduct of the SI and feasibility study as

necessary should commence immediately upon execution of this CAO, with a goal of initiating those SI and feasibility study activities that are reasonably necessary within ninety (90) days of the effective date of this CAO.

21. ADEQ shall exercise reasonable efforts to locate and take appropriate enforcement action against other persons and entities who are or may be liable with respect to the Site, but who are not parties to this CAO.

22. ADEQ and the Respondents shall designate respective Project Coordinators who shall be the official point of contact for the Party they represent in the implementation of this CAO. To the maximum extent possible, communications between the Respondents and ADEQ that concern technical issues and/or matters shall be directed through the Project Coordinators. To the extent practicable, ADEQ and Respondents shall use good faith efforts to resolve informally any differences between Parties via their respective appointed Project Coordinators. The Respondents and ADEQ may change their respective Project Coordinator(s) by notifying the other Party in writing. The initial Project Coordinators shall be:

For ADEQ:

Ryan Benefield
Chief, Hazardous Waste Division
Arkansas Department of Environmental Quality
P.O. Box 8913
Little Rock, AR 72219

For Respondent Ansul, Inc.:

Deborah D. Kuchler
Abbott, Simses & Kulcher
400 Lafayette St., Suite 200
New Orleans, LA 70130

For Respondent Helena Chemical Company, Inc.:

Edward Brister
Director of Engineering,Safety, Health& Environment
225 Schilling Blvd., Ste. 300
Collierville, TN 38017

For Respondent ExxonMobil Chemical Co.:
Dan Burnham
3225 Gallows Road, Ste. 8B 0607
Fairfax, VA 22037

23. In the event any disagreement not resolved by the Project Coordinators arises regarding the interpretation or application of this CAO, the Parties agree to negotiate in good faith to resolve the matter. The period of mandatory good faith negotiations shall begin on the date any Party delivers to the others a written notice requesting negotiations under this paragraph and shall continue for thirty (30) calendar days, or such additional time as the Parties may agree. If the Parties are unable to resolve the matter by good faith negotiations, any Party may seek resolution of the matter by seeking a declaratory order under APCEC Regulation No. 8. In the event the disagreement involves a claim by ADEQ for reimbursement of expenditures under paragraph 16 above, ADEQ shall also have the right, in its sole discretion, to seek enforcement of the CAO reimbursement obligation in Circuit Court.

24. All correspondence, reports, plans and other writings required under the terms of this CAO to ADEQ shall be sent to the following:

For ADEQ:
Dara Hall
Attorney
Arkansas Department of Environmental Quality
P.O. Box 8913
Little Rock, AR 72219

For Respondent, Ansul, Inc.:
Deborah D. Kuchler

Abbott, Simses & Kulcher
400 Lafayette St., Suite 200
New Orleans, LA 70130

and

Charles R. Nestrud
Chisenhall, Nestrud & Julian
400 W. Capitol Ave., Ste. 2840
Little Rock, AR 72201

For Respondent Helena Chemical Company, Inc.:
David W. Hawkins
General Counsel & Assistant Secretary
225 Schilling Blvd., Ste. 300
Collierville, TN 38017

and

Kim Burke
Taft, Stettinius & Hollister LLP
425 Walnut Street, Ste. 1800
Cincinnati, Ohio 45202-3957

For Respondent ExxonMobil Chemical Co.:
Mark A. Zuschek
3225 Gallows Road, Ste. 3D 2110
Fairfax, VA 22039

and

Dan Burnham
3225 Gallows Road, Ste. 8B 0607
Fairfax, VA 22037

25. Respondents may designate an additional representative for each Respondent for the purposes of receiving notices.

VI. Liability.

26. Nothing in this CAO shall be an admission of fact or law, nor an estoppel or waiver of defenses for any purpose, including but not limited to, defenses raised by insurance

carriers on behalf of Respondents. Likewise, nothing in this CAO shall be construed to confer third-party rights or benefits in favor of any entity or individual not a Party to this CAO.

27. The payments made and the actions taken by Respondents in complying with the provisions of this CAO shall constitute remedial actions within the meaning of RATFA and shall not be construed as fines or penalties.

VII. Applicable Law

28. All actions required to be taken pursuant to this CAO shall be undertaken in accordance with the requirements of all applicable local, state and federal laws and regulations.

VIII. Subsequent Modification or Amendment

29. This CAO may be amended or modified in any respect, including the orders, directives and time schedules provided herein, but only upon the written agreement of ADEQ and all Respondents. Such amendments or modifications shall be in writing and shall have as their Effective Date the date on which such amendments or modifications are signed by ADEQ and Respondents.

30. This CAO may be amended to include additional Respondents. Such amendment shall be accomplished by the addition of the authorized signature of such additional Respondent to this CAO and the delivery of such amended CAO to ADEQ and all Respondents, after approval by all Parties.

IX. Reservation of Rights

31. ADEQ expressly reserves all rights and defenses that it may have, including the right to initiate further proceedings to compel the performance of tasks in addition to

those detailed herein, following termination of this CAO, and Respondents reserve all rights and defenses that they may have with respect to such further proceedings, with the exception of any affirmative defense based upon any applicable statute of limitations pursuant to the tolling agreement attached hereto as Exhibit "B".

32. Respondents each reserve all rights each may have to object to, contest, or defend against any alleged violation of this CAO.

33. Nothing in this CAO shall constitute or be construed as a release by ADEQ or Respondents of any claim, cause of action, or demand, in law or equity, against any Party not a signatory to this document for any liability relating to this Site arising out of the generation, storage, treatment, handling, transportation, release, or disposal of any hazardous substances, pollutants, or contaminants.

X. Covenant Not to Sue

34. Subject only to an ADEQ Director's finding that there is an Emergency at the Site requiring immediate action, ADEQ shall not commence, initiate or prosecute any civil, judicial or administrative action against Respondents concerning the Site before the termination date of this CAO, for as long as Respondents are in compliance with this CAO.

XI. Sale of Assets

35. Nothing in this CAO shall prevent ADEQ from selling or disposing of assets maintained at the Site and placing any proceeds from the sale or disposal of those assets into the Arkansas Remedial Action Trust Fund account.

XII. Termination Date

36. This CAO shall terminate on its third anniversary unless extended or terminated earlier in writing by the Parties.

XIII. Effective Date

37. This CAO shall become effective immediately upon the date of execution by the Director of ADEQ.

IT IS SO AGREED AND ORDERED.

March 22, 2007
Date

Teresa Marks

Teresa Marks
Director
Arkansas Department of
Environmental Quality

TRUSTEE of the Cedar Chemical Corporation Property Ownership Public Trust

Date: March 16, 2007

By: _____
Brad J. Beavers, Trustee

DEFENDANT: Ansul, Incorporated

Date: March 22, 2007

By: [illegible]

Position: Sr. Corp. Counsel

RESPONDENT: Helena Chemical Company, ~~Inc.~~

Date: March 22, 2007

By: _____

Position: Asst Sec + G.C.

RESPONDENT: ExxonMobil Chemical Co.

Date: March 20, 2007

By: A.T. WINDELL

Position: GLOBAL REMEDIATION MGR

Wormald Separate Agreement

Pursuant to Consent Administrative Order LIS No. 07-027

For the Conduct of a Site Investigation and Feasibility Study

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1. On or about March 22, 2007, Wormald U.S., Inc, currently known as Ansul, Incorporated ("Wormald"); Helena Chemical Company (HCC); ExxonMobil Chemical Co., a division of Exxon Mobil Corporation ("ExxonMobil"); and the Arkansas Department of Environmental Quality entered into a Consent Administrative Order entitled, in part, *In the Matter of Cedar Chemical Corporation Site*, LIS No. 07-027 (hereafter the "CAO").

2. Paragraph 7 of the CAO provides that the mutual objectives of the Parties to the CAO are, among other things:

> "To establish a procedure for planning and implementing such additional site investigation and feasibility study as may be necessary."

3. Paragraph 20 of the CAO provides in pertinent part, as follows:

> "The Parties agree to negotiate in good faith to reach a separate agreement for the conduct of a Site Investigation ("SI") and feasibility study as may be necessary. The SI may use the existing site data, studies and assessment work to the maximum extent possible."

4. On August 8, 2007, representatives of Wormald, Helena Chemical Company, ExxonMobil, and ADEQ met and discussed the work that should be performed under the CAO. Wormald, Helena Chemical Company, and ExxonMobil proposed, and ADEQ agreed, that the following work should be performed under the CAO:

A. <u>Current Conditions Report</u>

The Current Conditions Report will compile all available data regarding environmental conditions at the Site and identify any critical data gaps.

B. Site Investigation Work Plan

The Site Investigation Work Plan will be designed to fill any critical data gaps identified in the Current Conditions Report. The Site Investigation Work Plan will include a description of proposed sample locations and sampling and analytical methods. The Site Investigation Work Plan will also include a proposed schedule for the implementation of the Work Plan. The due date for submitting the Site Investigation Work Plan to ADEQ is 60 days following the date the Current Conditions Report is submitted.

C. Site Investigation

The Site Investigation will implement the work called for by the Site Investigation Work Plan, as approved by ADEQ. The schedule for completing the Site Investigation will be that specified in the Site Investigation Work Plan approved by ADEQ, subject to possible delays due to weather, access, and other similar considerations beyond the reasonable control of the parties performing the work.

D. Site Investigation Report

The Site Investigation Report will report the additional data collected during the Site Investigation and summarize findings regarding the character and extent of contamination. The Site Investigation Report will include an identification of all sample locations and analytical results. The due date for submitting the Site Investigation Report to ADEQ will be 60 days following receipt of the final analytical results on all samples.

E. Feasibility Study

The Feasibility Study will identify the proposed final remedial measures for the Site. The Feasibility Study will also identify any interim actions that appear appropriate and necessary. The due date for submitting the Feasibility Study to ADEQ will be 60 days after ADEQ approval of the Site Investigation Report.

5. The undersigned parties to the CAO hereby agree that:

A. The work enumerated in Paragraph 4 of this Separate Agreement either was or is being conducted by Exxon and HCC under their own Separate Agreement with ADEQ which was executed in March 2008; Wormald seeks to undertake its own work under this Agreement

B. Previous investigations and risk assessments have been undertaken at this Site, including, without limitation the following:

(i) EnSafe, Inc. *Risk Assessment-Cedar Chemical Corporation, West Helena, Arkansas*. March 21, 2001.

(ii) EnSafe *Risk Assessment Addendum-Cedar Chemical Corporation, West Helena, Arkansas*. January 22, 2002.

(iii) ADEQ *Comprehensive Site Assessment-Cedar Chemical Corporation Plant Site* May 2003, Revised April 2004 (CSA).

C. Within 15 days of the effective date of this Separate Agreement, Wormald shall prepare a Site Investigation Work Plan (Wormald SIWP) to fill in any critical data gaps identified by Wormald in the CSA and/or not addressed in the site investigation for soil contamination for Site 3 as described in the RAs and the CSA. The Wormald SIWP will include a description of proposed sample locations and sampling and analytical methods. The Wormald SIWP will also include a proposed schedule for its implementation.

D. Wormald will implement the work called for by the Wormald SIWP, as approved by ADEQ. The schedule for completing a separate site investigation will be as specified in the Wormald SIWP approved by ADEQ, subject to possible delays due to weather, access, and other similar considerations beyond the reasonable control of the parties performing the work.

E. Wormald will submit to ADEQ on or before March 31, 2009 a Site Investigation Report (Wormald SIR) to report the additional data collected during the site investigation and summarize those findings regarding the contamination. The Wormald SIR will include identification of all sample locations and analytical results.

F. Wormald will submit a Feasibility Study to ADEQ that identifies proposed final remedial measures for those areas investigated pursuant to the SIWP on or before June 30, 2009. The Feasibility Study will also identify any interim actions that appear appropriate and necessary.

G. Performance of the work enumerated in Paragraph 5 of this Separate Agreement shall be subject to, and governed by the terms of the CAO, including without limitation:

- CAO Paragraph 4 (no admissions against interest),
- CAO Paragraphs 5 and 26 (no admissions of liability),
- CAO Paragraphs 18, 31-33 (reservation of rights, claims, and defenses)
- CAO Paragraph 21 (enforcement against non-participants)
- CAO Paragraph 22 (designation of Project Coordinators)
- CAO Paragraph 23 (notice)
- CAO Paragraphs 27 and 28 (status of work under RATFA and other laws)
- CAO Paragraph 36 (Termination)

6. Notwithstanding any other provision of this Separate Agreement or the CAO, ADEQ may grant, upon written request, reasonable extensions of time for the performance of the work required by Paragraph 5 of this Separate Agreement.

7. The undersigned agree that this Separate Agreement may be amended to include additional parties upon the written consent of all of the undersigned. Such amendment shall be accomplished by the addition of the authorized signature of such additional party to this Separate Agreement and the delivery of such amended Separate Agreement to each of the undersigned.

8. This Separate Agreement shall be deemed a supplement to the CAO, and not a replacement, amendment, or rescission thereof. All of the provisions of the CAO shall remain in full effect. The work contemplated by this Separate Agreement shall be deemed work required by the CAO.

9. This Separate Agreement shall become effective immediately upon the date of execution by a representative of ADEQ.

IT IS SO AGREED.

Date: 1/9/09

Ryan Benefield
Chief, Hazardous Waste Division
Arkansas Department of
Environmental Quality

Wormald U.S., Inc., currently known as Ansul, Incorporated

Date: 1/5/09

By: William S. Hewitt Jr.

Position: VP and Asst. Secretary

APPENDIX B

CHRONOLOGICAL LIST OF KEY DOCUMENTS

Chronological List of Key Documents
Cedar Chemical Corporation Facility
Helena - West Helena, Arkansas

Grubbs, Garner, & Hoskyn, Inc., 1988, 1989. Letter Report.

Arkansas Department of Pollution Control and Ecology (ADPC&E), December 12, 1991. Memo to Cedar Chemical.

Ensafe, Inc., March 2, 1995. Facility Investigation, Cedar Chemical Company. (Phase I and II).

Ensafe, Inc., June 28, 1996. Facility Investigation, Cedar Chemical Company. (Phase I through III).

EnSafe, Inc., March 21, 2001. Risk Assessment-Cedar Chemical Corporation, West Helena, Arkansas.

EnSafe, Inc., January 22, 2002. Risk Assessment Addendum-Cedar Chemical Corporation, West Helena, Arkansas.

ADEQ, May 2003. Comprehensive Site Assessment-Cedar Chemical Corporation Plant Site. Revised April 2004.

United States Department of Health and Human Services, 2005. Health Consultation, Health Implications of Farm Workers Exposed to Groundwater Adjacent to Cedar Chemical Corporation.

United States Department of Health and Human Services, 2006. Health Consultation Follow-Up Report on the Health Implications of Farm Workers Exposed to 1,2-DCA Contaminated Groundwater Adjacent to Cedar Chemical Corporation.

ADEQ, March 22, 2007. Consent Administrative Order LIS No. 07-027.

Geomatrix Consultants, Inc., November 2007. Current Conditions Report, Cedar Chemical Corporation Facility, Helena – West Helena, Arkansas.

Geomatrix Consultants, Inc., January 2008. Facility Investigation Workplan, Cedar Chemical Corporation Facility, Helena – West Helena, Arkansas.

Geomatrix Consultants, Inc., January 21, 2008. Fifth Monthly Status Report (December 1st to 31st, 2007), Cedar Chemical Company Facility ("the Site"), Helena – West Helena, Arkansas, State EPA ID No. ARD990660649.

Geomatrix Consultants, Inc., February 11, 2008. Sixth Monthly Status Report (January 1st – 31st, 2008), Cedar Chemical Company Facility ("the Site"), Helena – West Helena, Arkansas, State EPA ID No. ARD990660649.

Geomatrix Consultants, Inc., March 2008. Quality Assurance Project Plan, Cedar Chemical Corporation Facility, Helena – West Helena, Arkansas.

Chronological List of Key Documents
Cedar Chemical Corporation Facility
Helena - West Helena, Arkansas

Geomatrix Consultants, Inc., March 2008. Site Health and Safety Plan, Cedar Chemical Corporation Facility, Helena – West Helena, Arkansas.

Geomatrix Consultants, Inc., March 17, 2008. Seventh Monthly Status Report (February 1st – 29th, 2008), Cedar Chemical Company Facility ("the Site"), Helena – West Helena, Arkansas, State EPA ID No. ARD990660649.

Geomatrix Consultants, Inc., May 16, 2008. Ninth Monthly Status Report (April 1st – 30th, 2008), Cedar Chemical Company Facility ("the Site"), Helena – West Helena, Arkansas, State EPA ID No. ARD990660649.

Geomatrix Consultants, Inc., May 27, 2008. Facility Investigation Work Plan Supplement, Perched and Alluvial Aquifer Monitoring Well Installation Program, Cedar Chemical Company Site.

AMEC Geomatrix, Inc., August 28, 2008. Facility Investigation (FI) Workplan Supplement No. 2, Installation of Additional Alluvial Aquifer Monitoring Wells, Cedar Chemical Company Facility ("the Site"),West Helena, Arkansas, State EPA ID No. ARD990660649.

AMEC Geomatrix, Inc., August 28, 2008. Facility Investigation (FI) Workplan Supplement No. 3, Interim Measure – Waste Removal for the Drum Vault, Cedar Chemical Company Facility ("the Site"),West Helena, Arkansas, State EPA ID No. ARD990660649.

ADEQ, September 12, 2008. Facility Investigation (FI) Workplan Supplement No. 3 – Interim Measure of Waste Removal from the Drum Vault for Cedar Chemical Company (August 28, 2008). EPA ID Number ARD990660649; AFIN 54-00068.

AMEC Geomatrix, Inc., September 18, 2008. Thirteenth Monthly Status Report (August 1st – 31st, 2008), Cedar Chemical Company Facility ("the Site"), Helena – West Helena, Arkansas, State EPA ID No. ARD990660649.

AMEC Geomatrix, Inc., October 10, 2008. Fourteenth Monthly Status Report (September 1st – 30th, 2008), Cedar Chemical Company Facility ("the Site"), Helena – West Helena, Arkansas, State EPA ID No. ARD990660649.

AMEC Geomatrix, Inc., October 13, 2008. Interim Facility Investigation Report, Cedar Chemical Company Facility, Helena – West Helena, Arkansas.

ADEQ, January 9, 2009. Wormald Separate Agreement, Pursuant to Consent Administrative Order (CAO) No. LIS 86-027 for the Conduct of a Site Investigation and Feasibility Study.

APPENDIX C

FIELD FORMS

Test Boring Report

Chain of Custody and Analytical Request

Investigation-Derived Waste Management Form

Daily Quality Control Report

AECOM

Test Boring Report

BORING NO. _____

PAGE _____ OF _____

PROJECT: _____

CLIENT: _____

CONTRACTOR: _____

EQUIPMENT: _____

PROJECT NO: _____

LOCATION: _____

ELEVATION: _____

DATE START: _____

DATE FINISH: _____

DRILLER: _____

PREPARED BY: _____

GROUND WATER		DEPTH TO:				CASING	SAMPLER	CORE BARREL
DATE	HRS AFTER COMP	WATER	BOTTOM OF CASING	BOTTOM OF HOLE	TYPE			
					SIZE ID			
					HAMMER WT			
					HAMMER FALL			

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
5.0					
10.0					
15.0					
20.0					

BLOWS/FT.	DENSITY	BLOWS/FT.	CONSISTENCY	SAMPLER ID.		DESCRIPTIONS		NOTES	
0-4	VERY LOOSE	0-2	VERY SOFT	SS	SPLIT SPOON	MOSTLY	50-100%	WD	WHILE DRILLING
5-10	LOOSE	3-4	SOFT	ST	SHELBY TUBE	SOME	30-45%	NE	NOT ENCOUNTERED
11-30	MEDIUM DENSE	5-8	MEDIUM STIFF	G	GRAB SAMPLE	LITTLE	15-25%	UR	NOT READ
31-50	DENSE	9-15	STIFF	MC	MACRO-CORE	FEW	5-10%	NR	NO RECOVERY
50+	VERY DENSE	16-30	VERY STIFF			TRACE	<5%		
		31+	HARD						

AECOM

Test Boring Report

BORING NO. _____

PAGE _____ OF _____

DEPTH IN FEET	ORGANIC VAPOR SCREENING (PPM)	SAMPLER BLOWS PER 6 INCHES	SAMPLE NUMBER	SAMPLE DEPTH RANGE	FIELD CLASSIFICATION AND REMARKS
20.0					
25.0					
30.0					
35.0					
40.0					
45.0					

BLOWS/FT.	DENSITY
0-4	VERY LOOSE
5-10	LOOSE
11-30	MEDIUM DENSE
31-50	DENSE
50+	VERY DENSE

BLOWS/FT.	CONSISTENCY
0-2	VERY SOFT
3-4	SOFT
5-8	MEDIUM STIFF
9-15	STIFF
16-30	VERY STIFF
31+	HARD

SAMPLER ID.	
SS	SPLIT SPOON
ST	SHELBY TUBE
G	GRAB SAMPLE
MC	MACRO-CORE

DESCRIPTIONS	
MOSTLY	50-100%
SOME	30-45%
LITTLE	15-25%
FEW	5-10%
TRACE	<5%

NOTES	
WD	WHILE DRILLING
NE	NOT ENCOUNTERED
UR	NOT READ
NR	NO RECOVERY

AECOM

Chain of Custody and Analytical Request

Page: _____
Project Number: _____
WBS Number: _____
Chain of Custody Number [1]: _____
LIMS Number:

Facility ID (5 Characters Max):

Project Name / Site Name:

Client Name:

Collected by:

Field Sample ID (30 Characters Max)	ERPIMS LOCID (15 Characters Max)	Date Collected (dd-MMM-yyyy)	Time Collected (Military) (hhmm)	Sample Depth (beginning - ending)	SA Code [2]	Sample Number [3]	Sample Matrix [4]	Sample Analysis Requested [5]												Quality Assurance Samples [6]			
								Number of containers												Ambient Blank Lot Control Number	Equipment Blank Lot Control Number	Trip Blank Lot Control Number	Cooler ID
				-																			
				-																			
				-																			
				-																			
				-																			
				-																			
				-																			
				-																			
				-																			
				-																			
				-																			
				-																			

Comments:

Earth Tech Contact:

Custody Transfers Prior to Receipt by Laboratory

Relinquished By (Signed)	Date	Time	Received by (signed)	Date	Time
1.			1.		
2.			2.		
3.			3.		

Sample Delivery Details / Laboratory Receipt

Delivered Directly to Lab: Yes _____ No _____ Shipped: Yes _____ No _____

Analytical Lab: _____ Method of Shipment: _____

Location: _____ Airbill #: _____

Lab Recipient: _____ **Date:** _____ **Time:** _____

1.) Chain of Custody Number = date collected + custody number (e.g. 09-02-1999-01, then -02, etc for additional COCs that day)

2.) Sample Type (SA) Codes: N = Normal Sample, TB = Trip Blank (-c) Sample, FD = Field Duplicate (-a) Sample, FR = Field Replicate (-b) Sample, EB = Equipment Blank (-d) Sample, MS = Matrix Spike Sample, SD = Matrix Spike Duplicate Sample

3.) Sample Number: Unique sample number collected from a particular location per day. (e.g. Groundwater sample collected from MW-1 on 10/10/99 = 01, if sampled again on 10/10/99 = 02, etc.). Enter 01 unless on a single day you collect either: a) multiple samples from the sample location, or b) multiple QA samples of the same type. In that case enter 02 for the second sample, 03 for the third, etc.

4.) Matrix Codes: GS = Soil Gas, WG = Groundwater, WS = Surface Water, WQ = Water Quality Blank (trip, equipment, ambient, etc) SO = Soil, SE = Sediment, SL = Sludge, SS = Surface Soil Samples, SQ = Soil Quality Blank

5.) Sample Analysis Requested: Analytical method requested and number of containers provided for each.

6.) Quality Assurance Lot Control Numbers are produced by adding the sample number tot eh date collected without spaces or dashes (e.g., Enter 10050401 in the Equipment Blank Lot Control column for every sample that was associated with the first equipment blank collected on May 10, 2004). collected on May 10, 2004).

AECOM

IDW MANAGEMENT FORM

COMPANY_____ PROJECT_____

SITE NAME_____ LOCATION_____

CONTAINER NUMBER	MEDIA DESCRIPTION	MEDIA ORIGIN	DATE FILLED	DATE SAMPLED	DATE DISPOSED	COMMENTS

AECOM

DAILY QUALITY CONTROL REPORT

JOB NUMBER _____ DATE _____ REPORT NUMBER _____

PROJECT & LOCATION _____

WEATHER _____ TEMPERATURE RANGE _____ WIND _____

EARTH TECH PERSONNEL ON SITE _____ TIME ON SITE _____

SUMMARY OF SITE ACTIVITIES _____

LEVEL OF HEALTH & SAFETY PROTECTION _____

INSTRUMENTATION USED _____

CALIBRATION(S) PERFORMED _____

INSTRUMENT PROBLEMS/REMEDIES _____

SAMPLES COLLECTED* _____

SAMPLE COLLECTION METHOD(S) _____

QUALITY CONTROL SAMPLES* _____

ADDITIONAL REMARKS _____

SIGNATURE: _____

* INDICATE SAMPLE MEDIA: SOIL OR QA/QC.

AECOM

DAILY QUALITY CONTROL REPORT

SIGNATURE: _____

* INDICATE SAMPLE MEDIA: SOIL OR QA/QC.

31

400

FedEx Express *USA Airbill* FedEx Tracking Number 8409 7121 7817

KN

Form I.D. No. 0215

MUR21

Recipient's Copy

1 From This portion can be removed for Recipient's records.

Date 1-22-09 FedEx Tracking Number 8409 7121 7817 4

Sender's Name L. Alexander Phone 864 234-3000

Company EARTH TECH

Address 10 PATEWOOD DR STE 500 Dept./Floor/Suite/Room

City GREENVILLE State SC ZIP 29615-3517

2 Your Internal Billing Reference 104336.03

3 To

Recipient's Name MR. RYAN BENEFIELD Phone 501 682-0744

Company ARKANSAS DEPT. ENVIRONMENTAL QUALITY

Address 5301 NORTHSHORE DR.

To "HOLD" at FedEx location, print FedEx address. We cannot deliver to P.O. boxes or P.O. ZIP codes.

Address Dept./Floor/Suite/Room

City N. LITTLE ROCK State AR ZIP 72118-5317

RECIPIENT: PEEL HERE

NO POUCH NEEDED. for peel and stick application instructions.

8409 7121 7817

L

0247633397

4a Express Package Service *Packages up to 150 lbs.* Delivery commitment may be later in some areas.

- [X] FedEx Priority Overnight — Next business morning
- [ ] FedEx Standard Overnight — Next business afternoon
- [ ] FedEx First Overnight — Earliest next business morning delivery to select locations
- [ ] FedEx 2Day — Second business day
- [ ] FedEx Express Saver — Third business day

FedEx Envelope rate not available. Minimum charge: One-pound rate

4b Express Freight Service *Packages over 150 lbs.* Delivery commitment may be later in some areas.

- [ ] FedEx 1Day Freight* — Next business day
- [ ] FedEx 2Day Freight — Second business day
- [ ] FedEx 3Day Freight — Third business day

* Call for Confirmation:

5 Packaging * Declared value limit $500

- [ ] FedEx Envelope*
- [ ] FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak
- [X] Other

6 Special Handling Include FedEx address in Section 3.

- [ ] **SATURDAY Delivery** — Available only for FedEx Priority Overnight and FedEx 2Day to select ZIP codes
- [ ] **HOLD Weekday** at FedEx Location — Not available for FedEx First Overnight
- [ ] **HOLD Saturday** at FedEx Location — Available only for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

- [X] No
- [ ] Yes — As per attached Shipper's Declaration
- [ ] Yes — Shipper's Declaration not required
- [ ] Dry Ice — Dry Ice, 9, UN 1845 ____ x ____ kg

Dangerous Goods (including Dry Ice) cannot be shipped in FedEx packaging.

- [ ] Cargo Aircraft Only

7 Payment *Bill to:* Enter FedEx Acct. No. or Credit Card No. below.

- [X] Sender — Acct. No. in Section 1 will be billed.
- [ ] Recipient
- [ ] Third Party
- [ ] Credit Card
- [ ] Cash/Check

Obtain Recip. Acct. No. [ ]

Total Packages 1

Total Weight 2.00

Total Charges

Credit Card Auth.

†Our liability is limited to $100 unless you declare a higher value. See the *FedEx Service Guide* for details.

8 Release Signature *Sign to authorize delivery without obtaining signature.*

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.

Questions? Visit our Web site at fedex.com or call 1.800.Go.FedEx® 800.463.3339.

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447