KY Dept. for Environmental Protec
Division of Waste Management

BGRO Arsenic Complaint-TEMPO#2383199, A

November 2014

Department for Environmental Protection
Energy and Environment Cabinet

To Protect and Enhance Kentucky's Environment

Kentucky
UNBRIDLED SPIRIT

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Complaint Description as receive

- Division received a complaint and forwarded to th Regional Office for investigation

- Complainant stated that from Dec 2008 until Nov 2013 she 10 acre plot located at ***2709 Shinkle Castle Rd*** in Hartford, County)

- After further investigation, the site was determined to be located at 209 Shinkle Chapel Rd near Hartford

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Complainant Description as received

- Complainant stated "that at some point, prior to her living t portion of the property was used as a disposal site for some materials. The materials were reportedly kept in a pole bar some point burned to the ground."
  - Little to no vegetation growing around the disposal area.
  - Reported an above ground storage tank on property with a powdery substance around the tank.
  - Complainant bred labradoodles while living on property (a 60)
    - » Females were sterile & multiple dogs suffered from tumors
  - Concerned for her now 16 year old daughter who lived on
- Complainant also stated that Wells Fargo now owned the p

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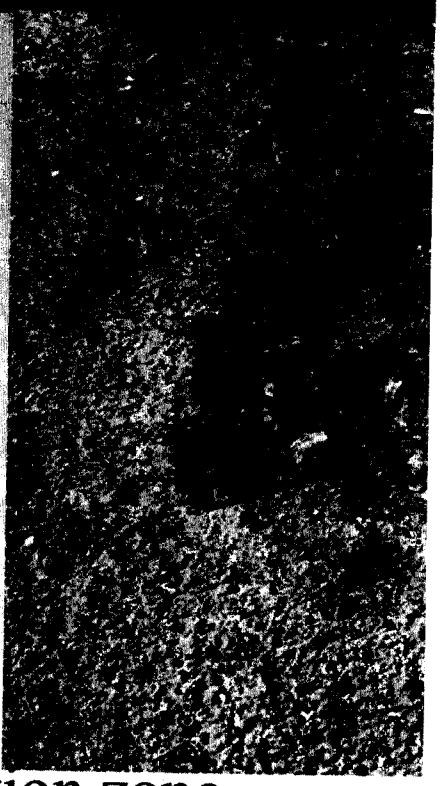
Investigation Process



- Initial investigation conducted 09/25/14
  - White residue visible ~25' x 30'
    - Resembled a site where an old crude oil tank battery previously staged
    - Complainant previously mentioned aboveground tank
  - Dead vegetation observed down gradient
- This area of Ohio County in an oil production zone
- Google Earth images reviewed appeared to have roads into wooded area in a radius pattern indicative of crude oil prod

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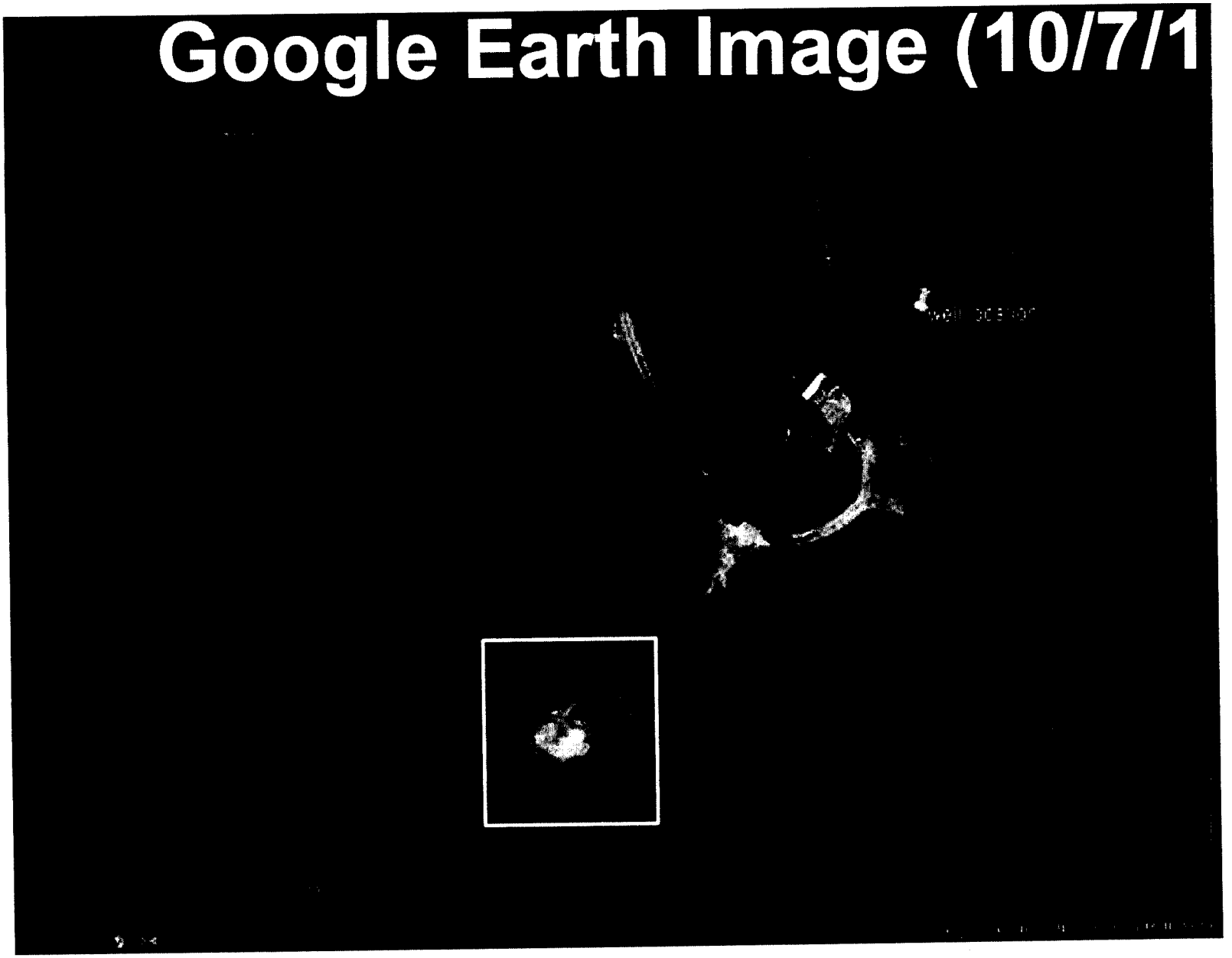
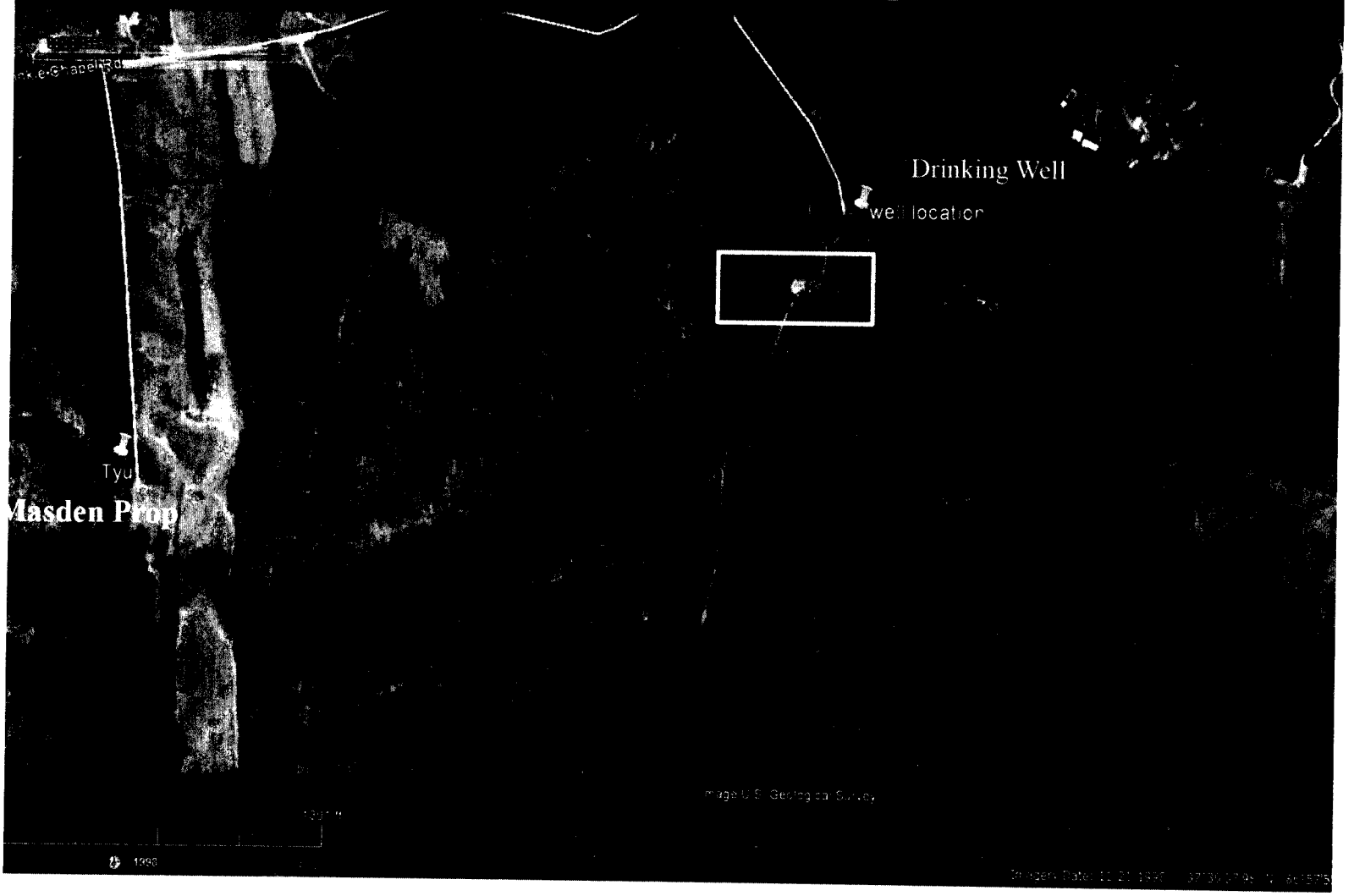
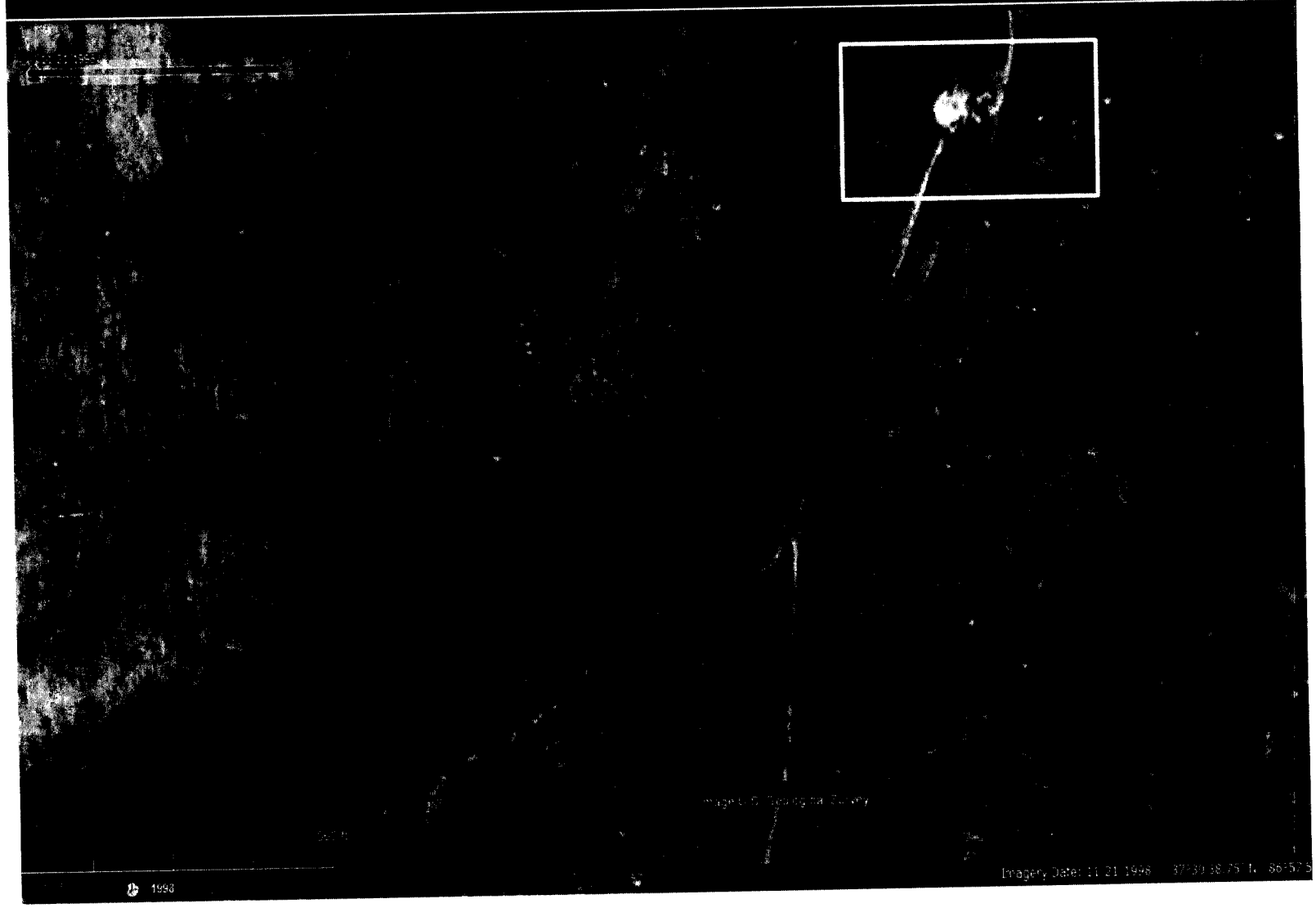
Google Earth Image (10/7/1



Shinkle Chapel 1998



Google Earth Image (11/21/9



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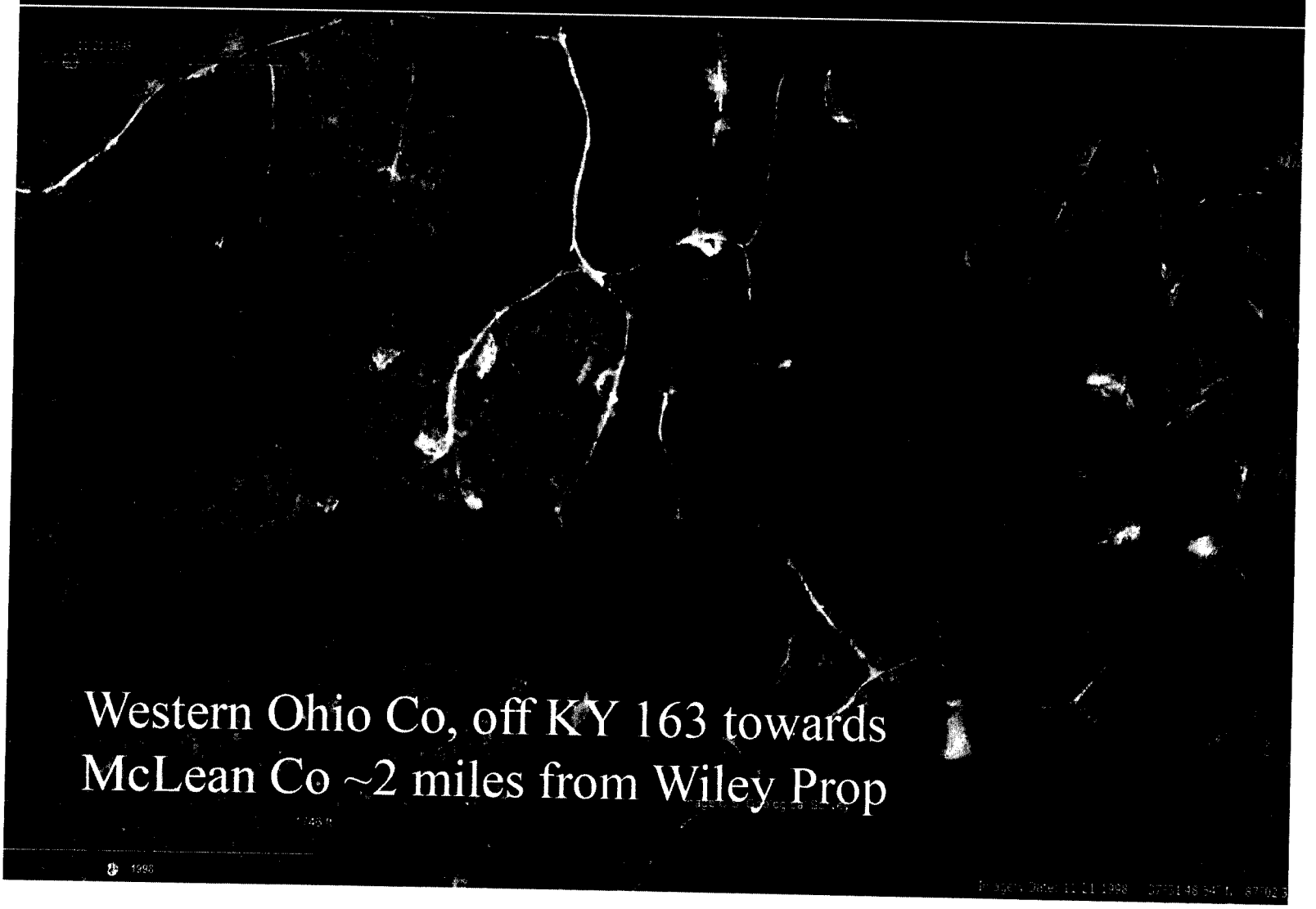
Oil Well Example



Contact with the Complainant and Neig

- After initial investigation complainant was called to ob additional information
  - She stated she saw 2 large tanks next the Shinkle Chape her driveway
  - *She advised that she was told an old barn had been on t was burned down with possible chemical containers ins waste or product may have been in drums. Years ago s a chemical company store materials in the now burned*
- The decision was made by BGRO to collect samples fo Chlorides, total metals, and TCLP metals, PAHs
- Contact made with previous property owner who didn' what dead area was but it was there when he bought pr

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Initial Sampling (10/2/14)

- Samples collected samples from four locatic
  - Analysis for Chlorides, TCLP metals, Total Me VOCs, and PAHs
  - Finals were only TCLP and Totals
    - Lab employee exposure risk was a concern

- Samples shipped to Environmental Services

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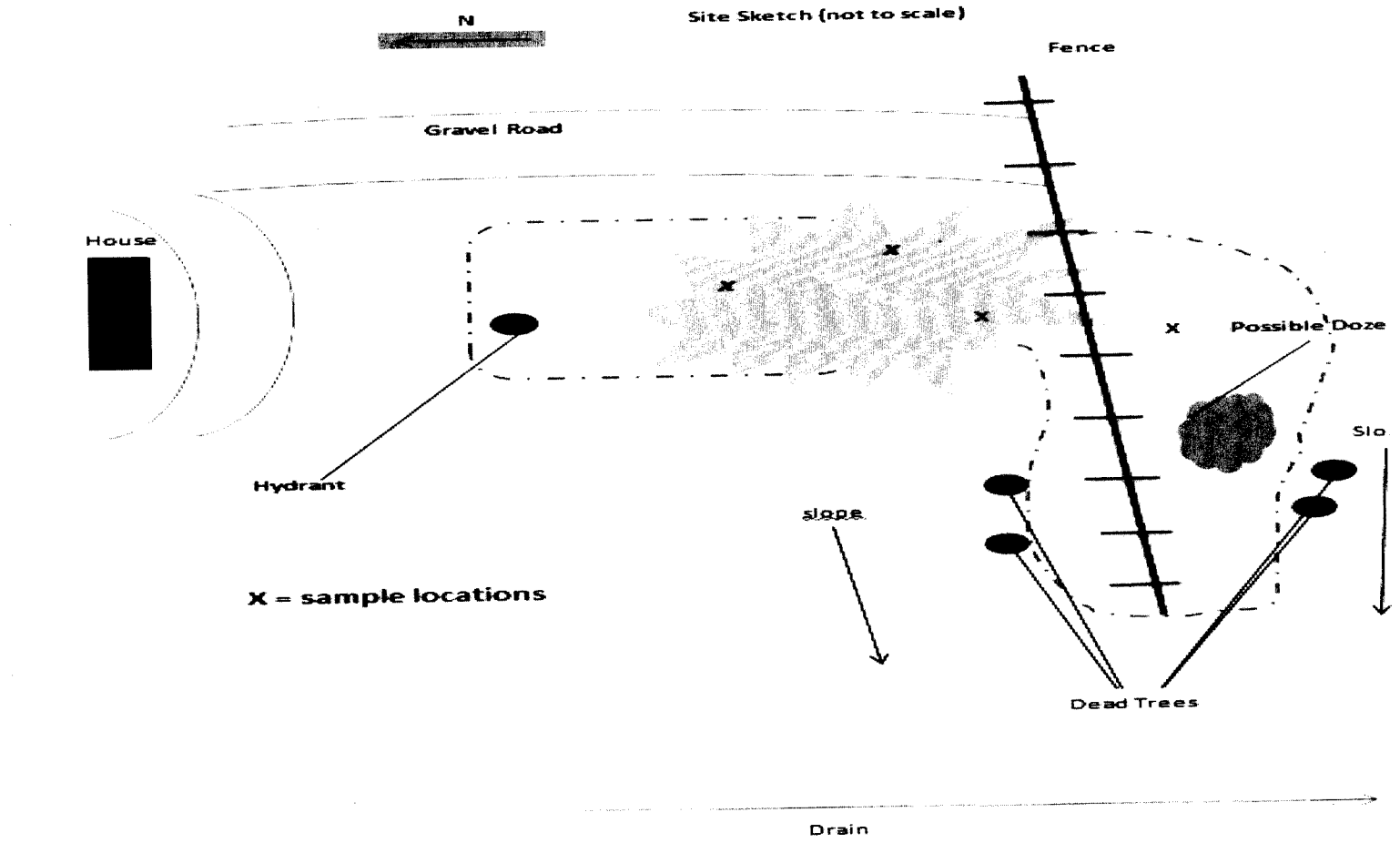
Initial Sampling Location 10/2/14



LABORATORY RESULTS

- Lab contacted BGRO via email inquiring ab sample locations
  - Concerned about high levels of arsenic

- Preliminary results (total metals & TCLP):
  - **Sample A—arsenic 361,000 ppm, 246 ppm**
  - **Sample B—arsenic 525,000 ppm, 618 ppm**
  - **Sample C—arsenic 195,000 ppm, 385 ppm**
  - **Sample D—arsenic 58,000 ppm, 51.4 ppm**

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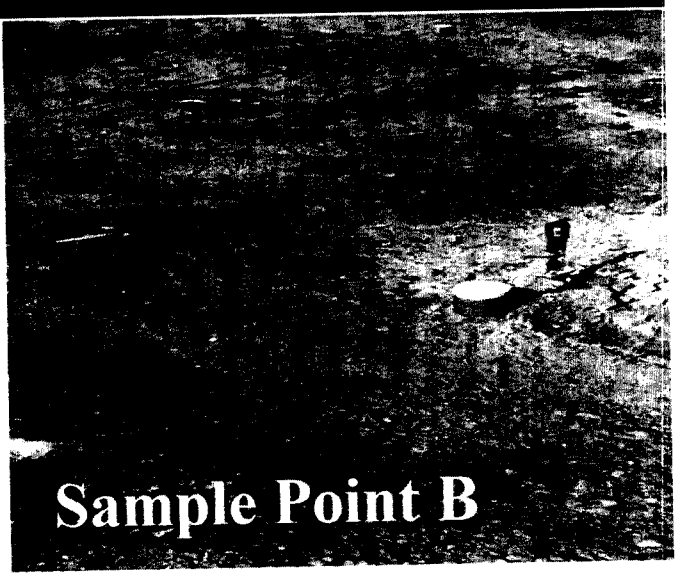
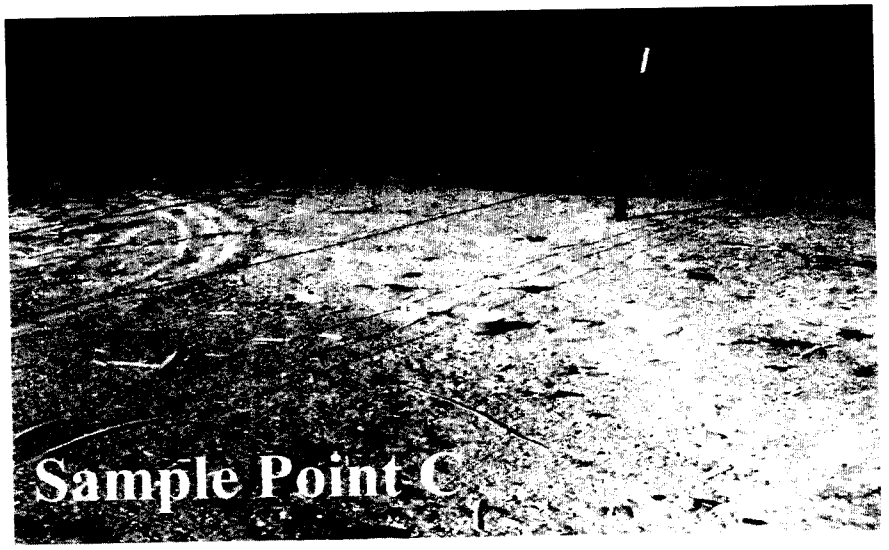
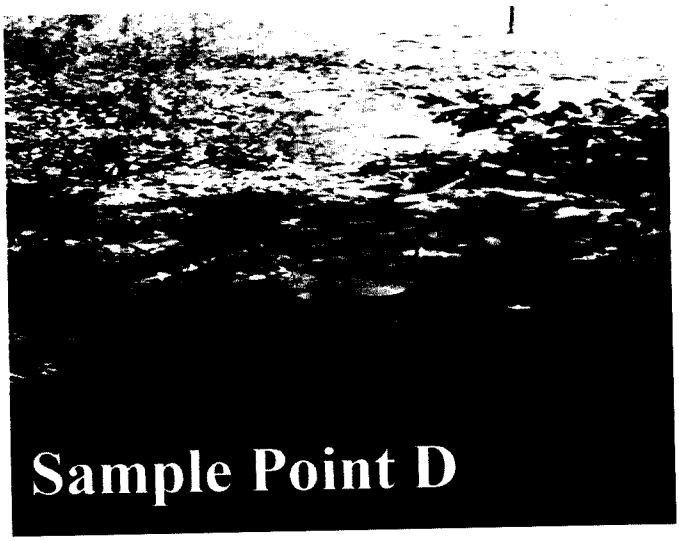
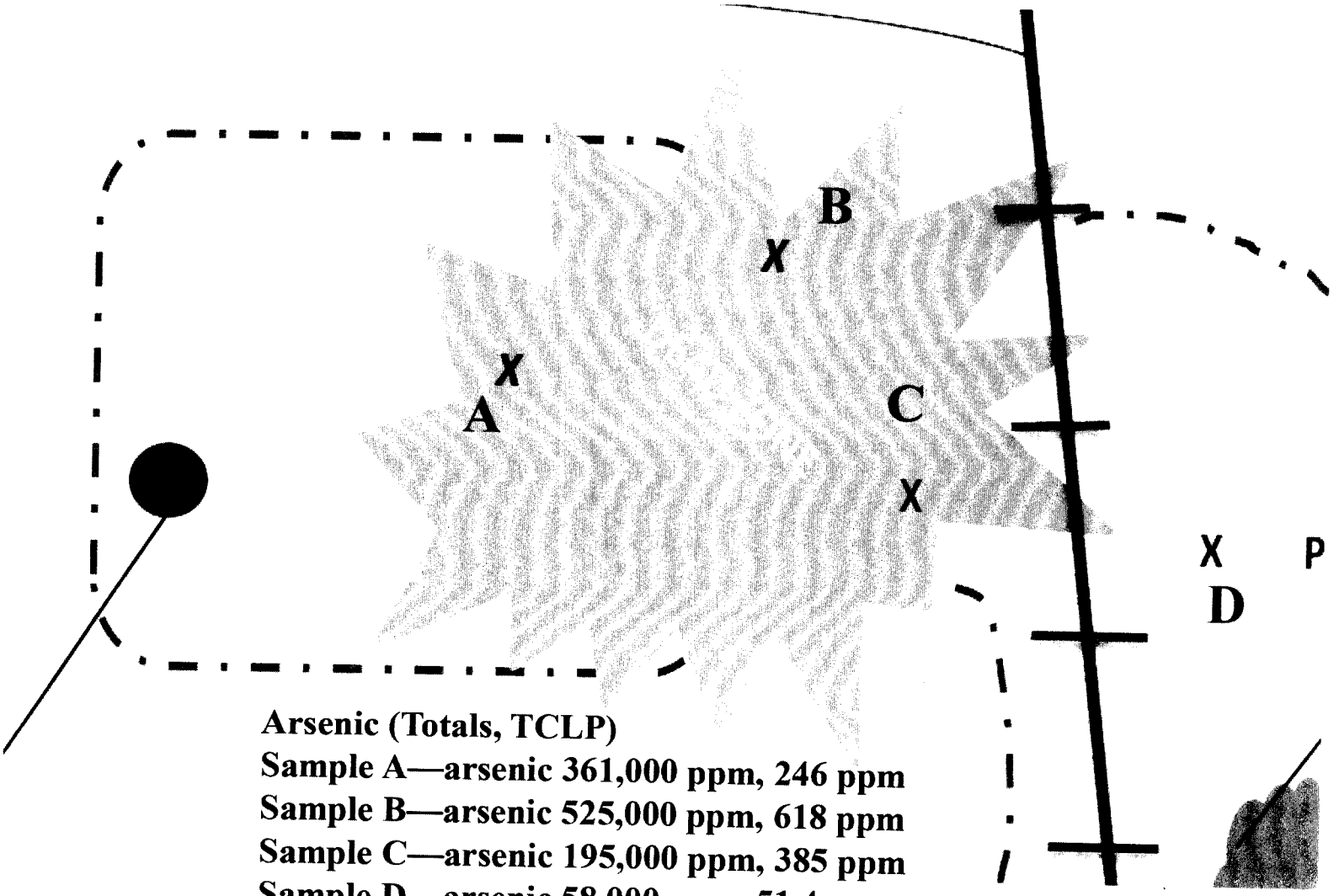
Images of Sample Location







Sample Locations



Arsenic (Totals, TCLP)
Sample A—arsenic 361,000 ppm, 246 ppm
Sample B—arsenic 525,000 ppm, 618 ppm
Sample C—arsenic 195,000 ppm, 385 ppm
Sample D—arsenic 58,000 ppm, 51.4 ppm

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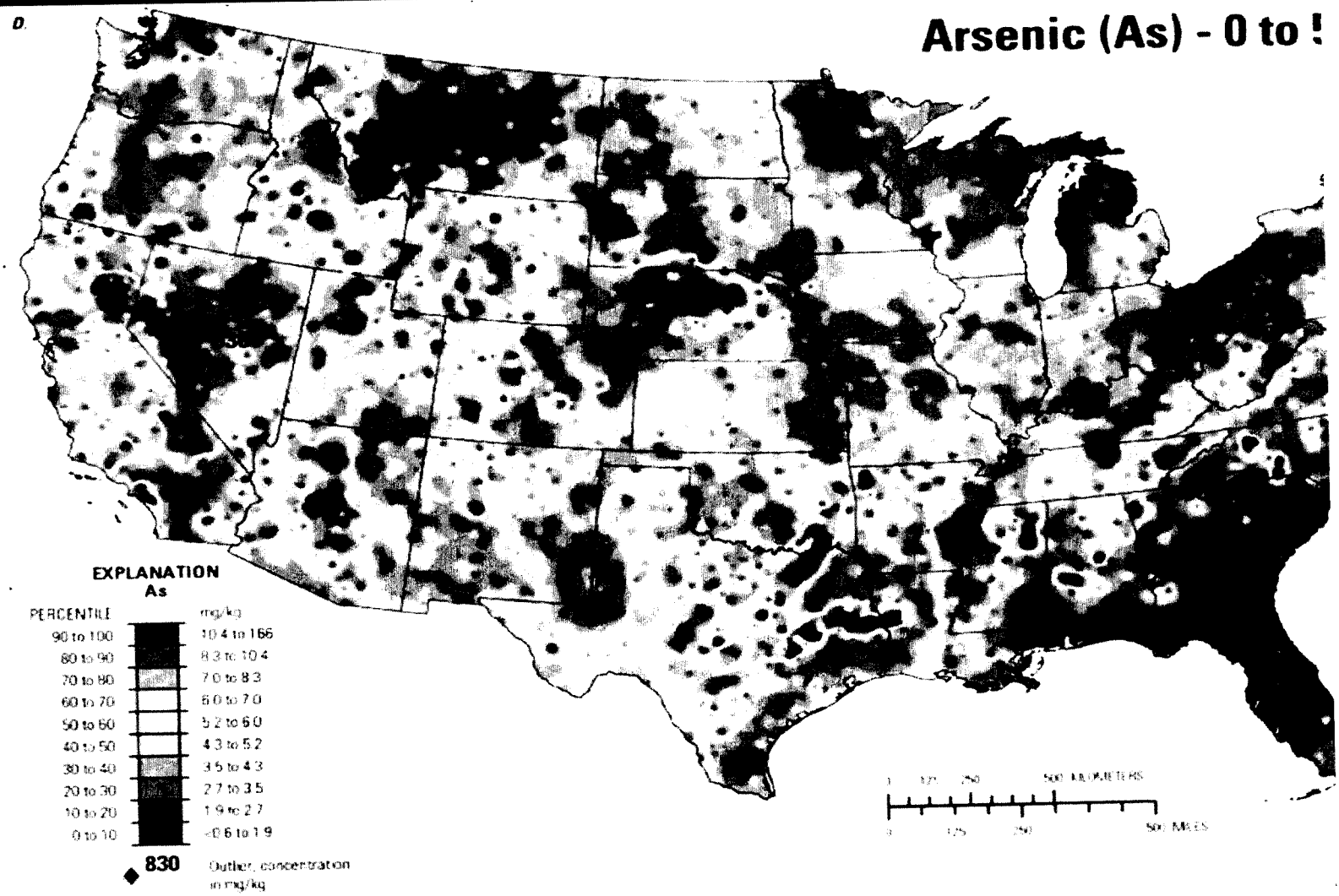
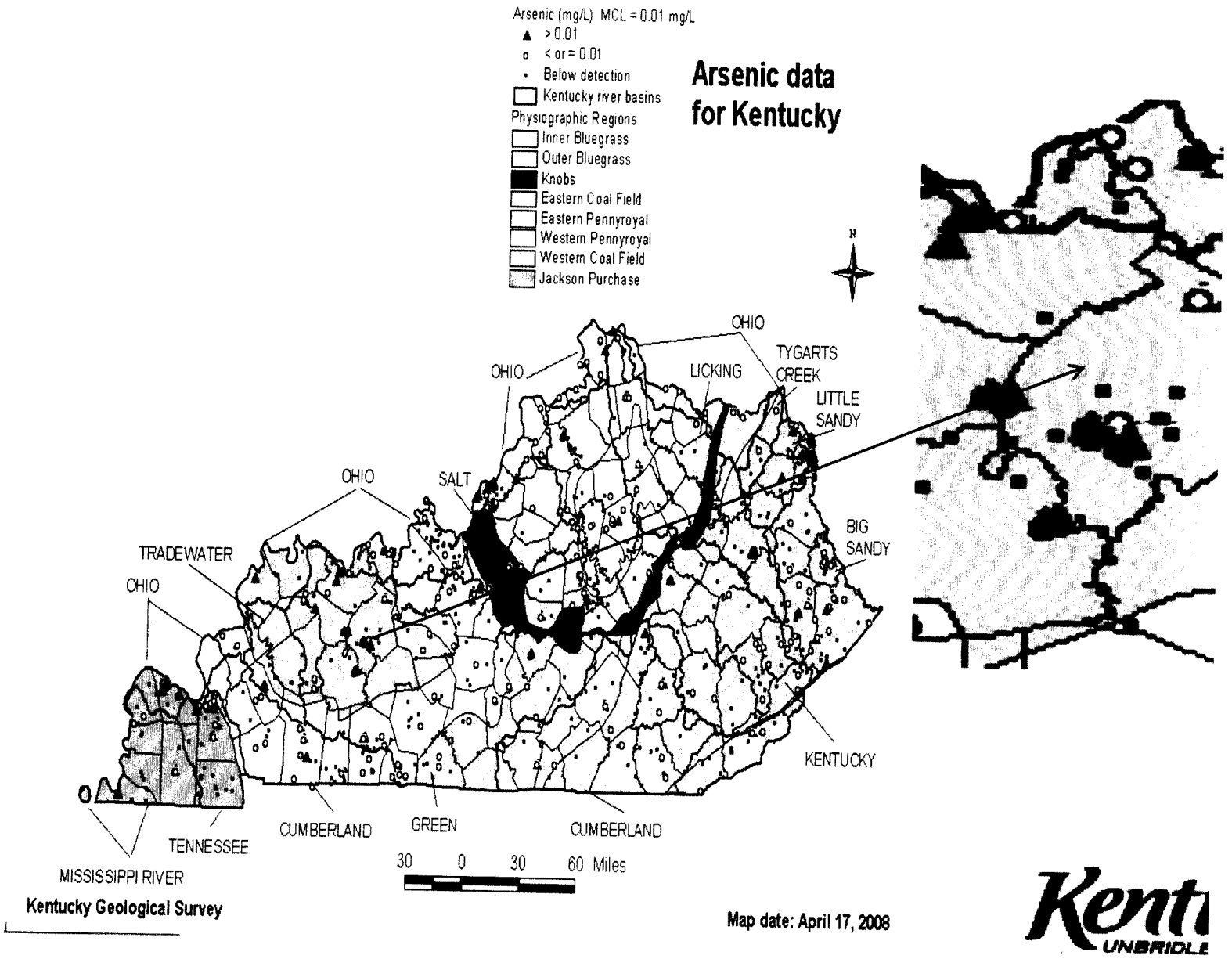
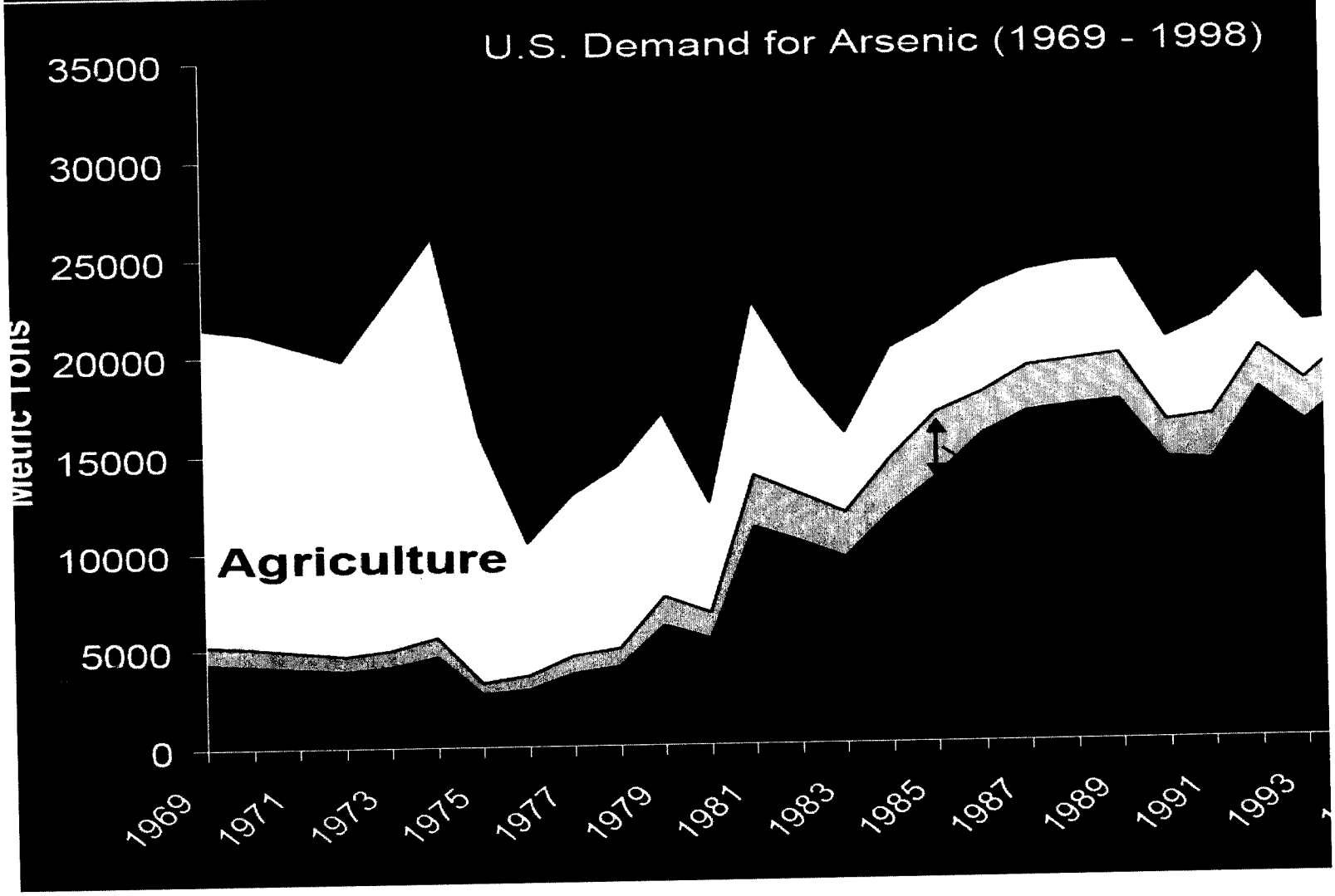
Arsenic in Soils



Arsenic in KY



Historical Data for Arsenic U



2nd Sample Collection Event (10/2

- PVA record and deed search conducted

- 2nd Sample Collection with analysis expande include herbicide/pesticide
  - Samples collected from down to up gradient
  - 55-gallon drum for used PPE left onsite

***Maintain safety and hazard taping of area of c

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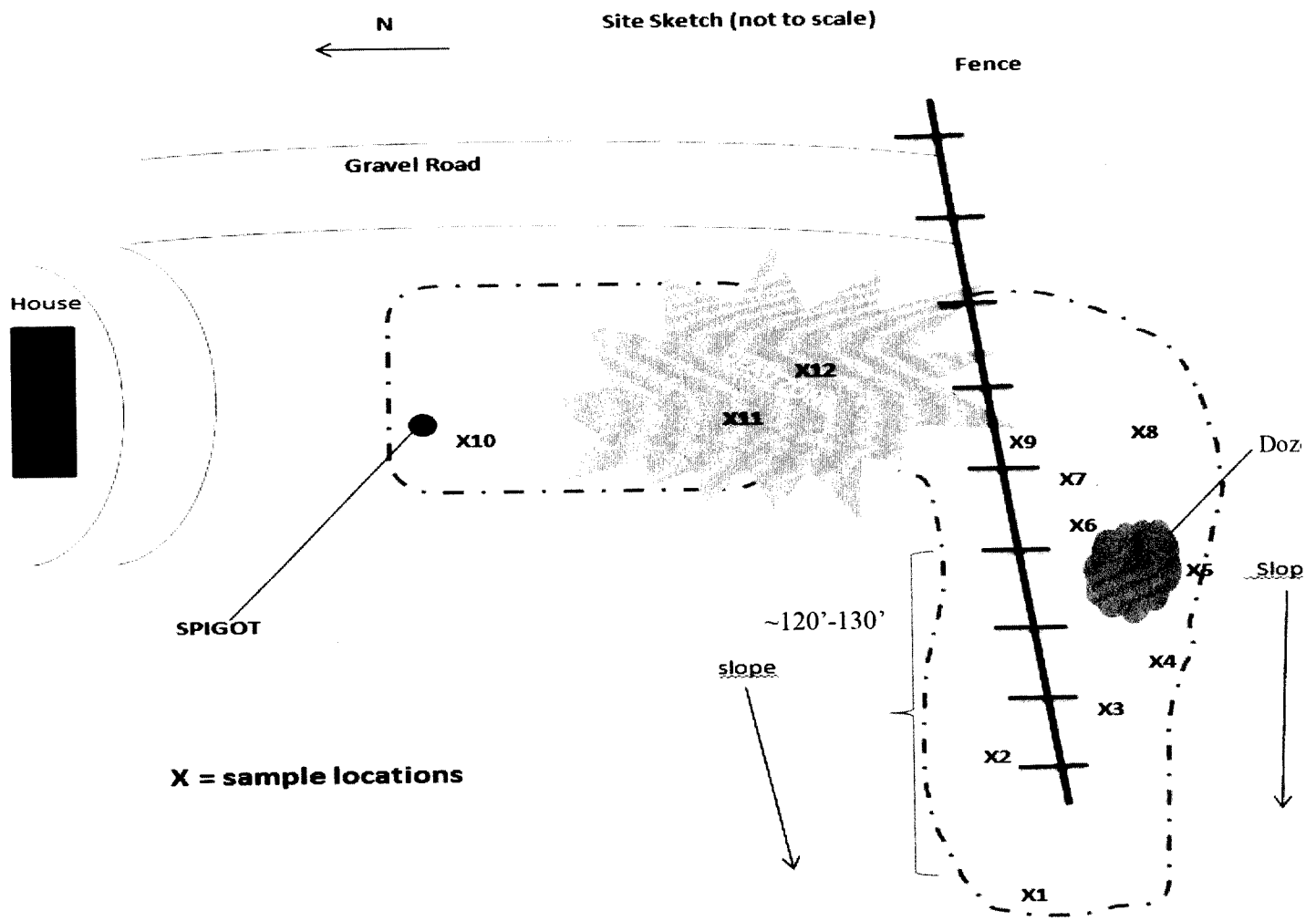
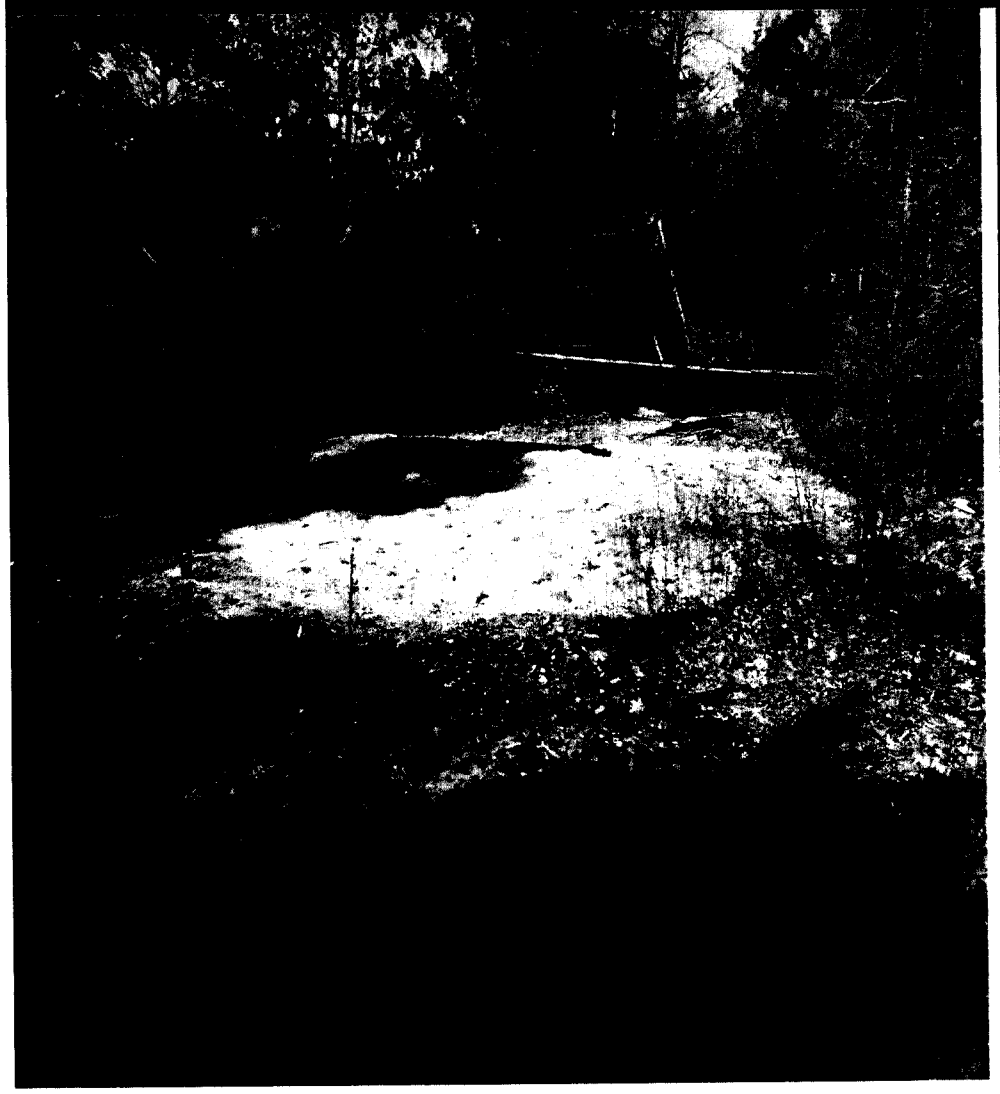
2nd Sample Collection Points (10/22

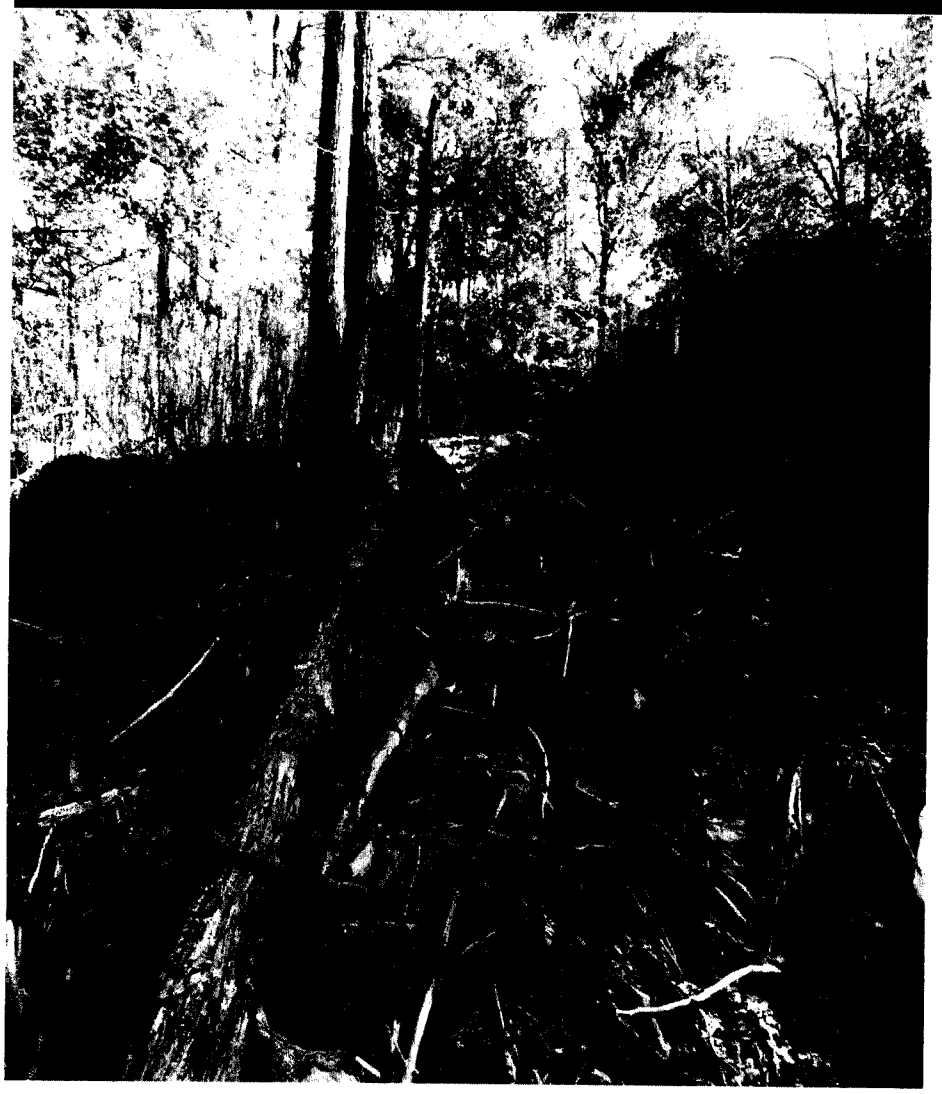


Wiley Property

Wiley Property



View of slope and Limited Vegeta



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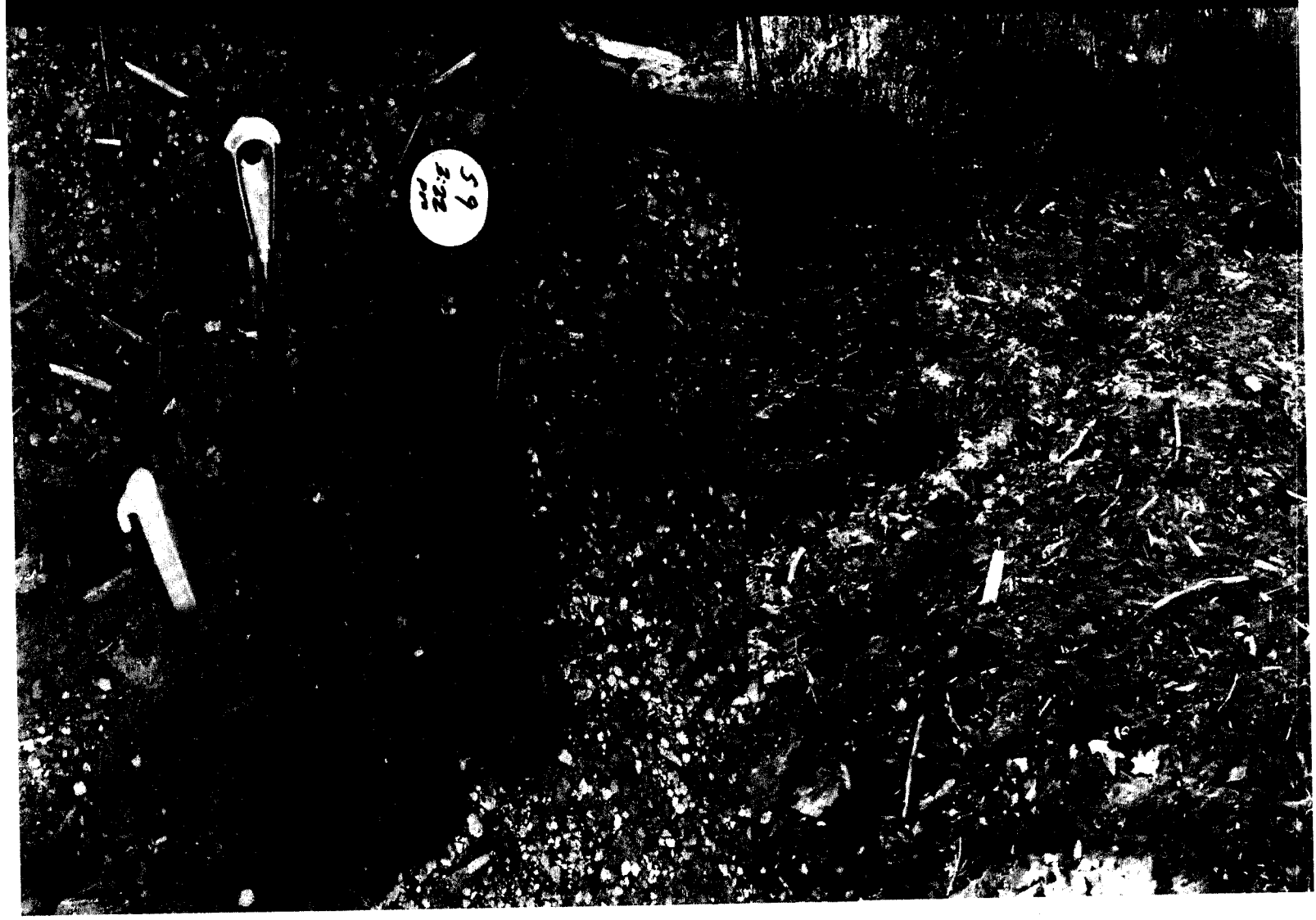
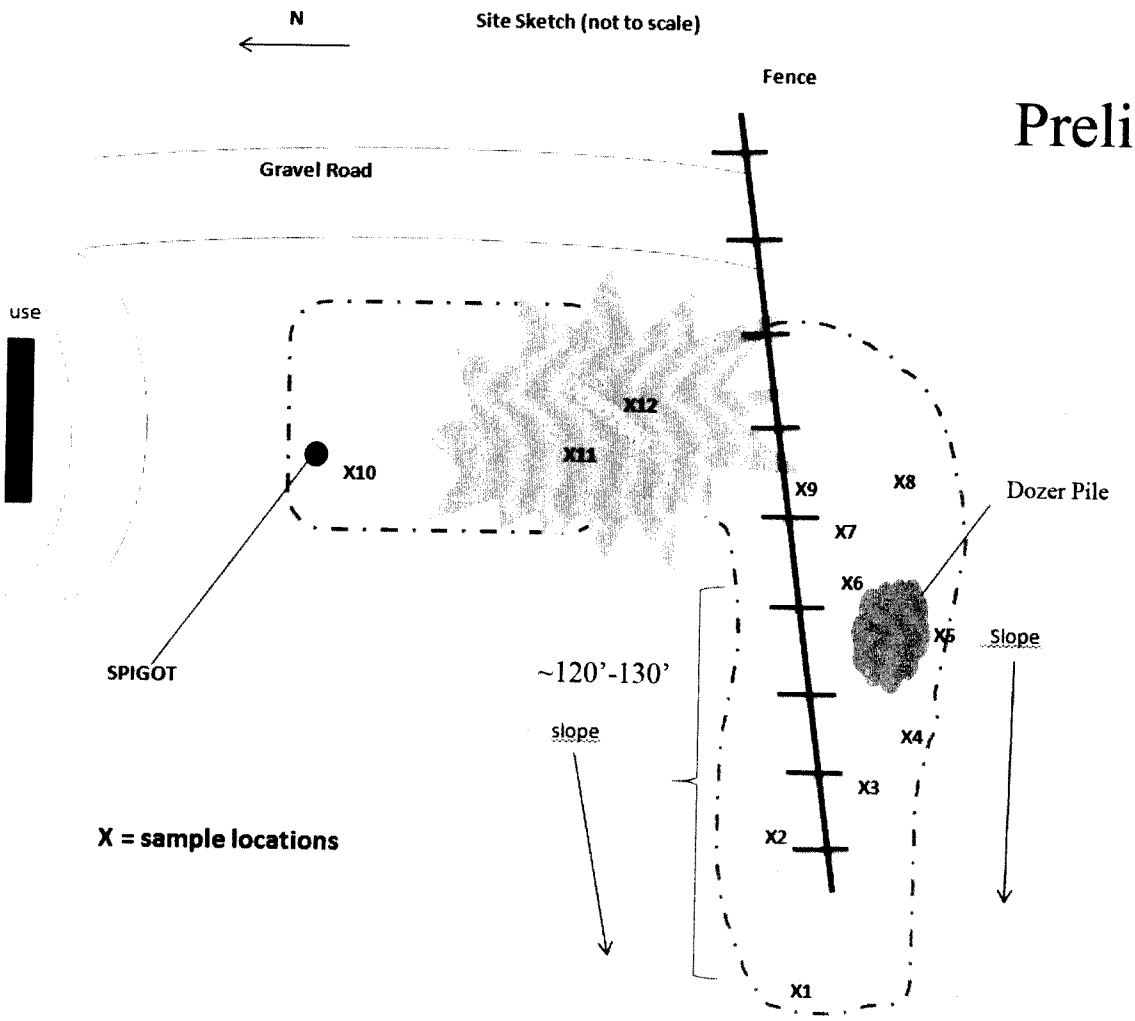
Sampling



2nd Sample Collection Points (10/22



Preliminary Arsenic (t

X1	13,900
X2	13,300
X3	14,600
X4	12,200
X5	167,000
X6	4,080
X7	23,900
X8	24,600
X9	49,700
X10	164
X11	57,200
X12	458

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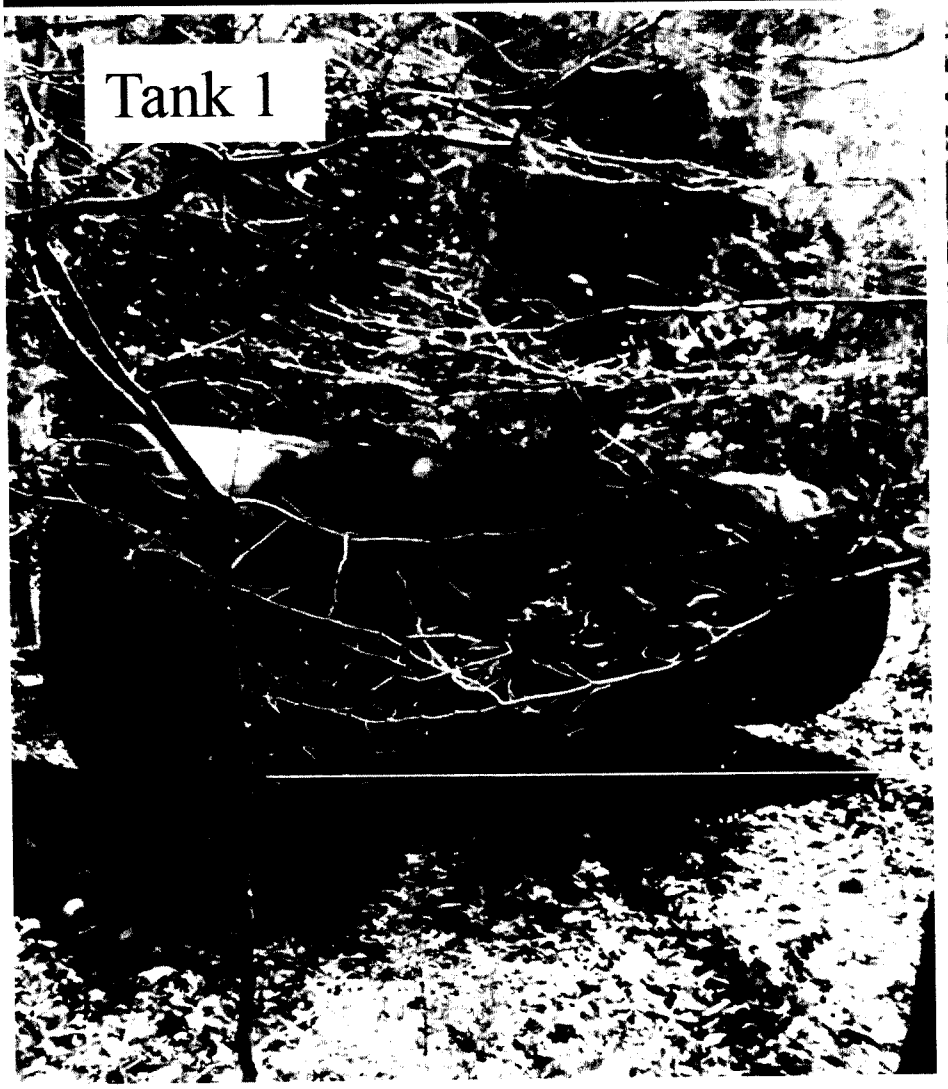
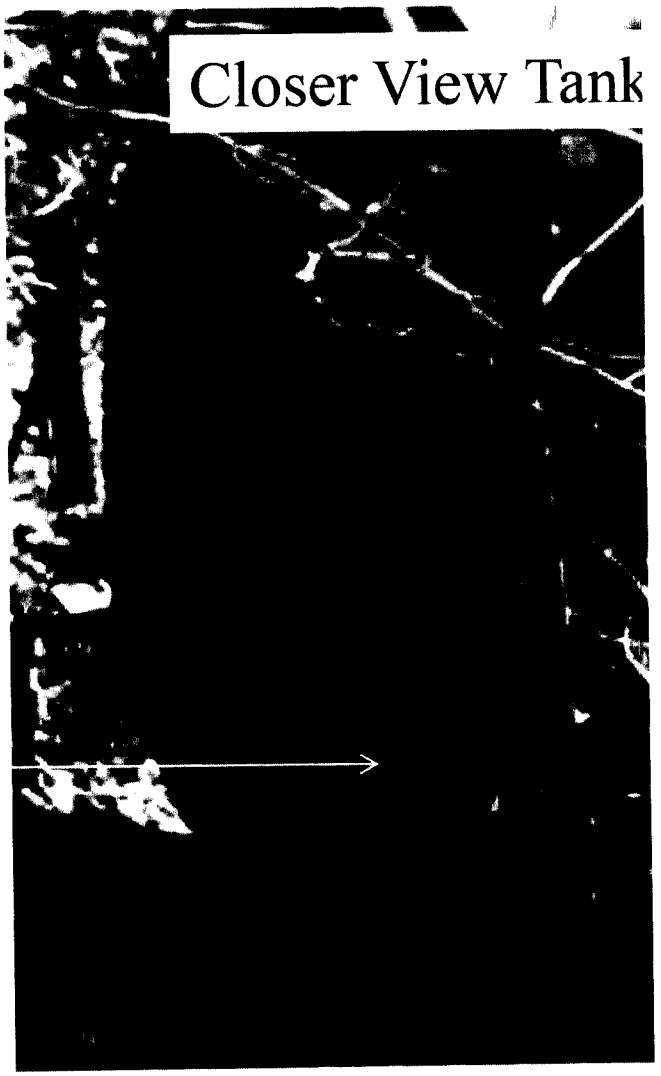
Off-Site Tanks Found 11/03/



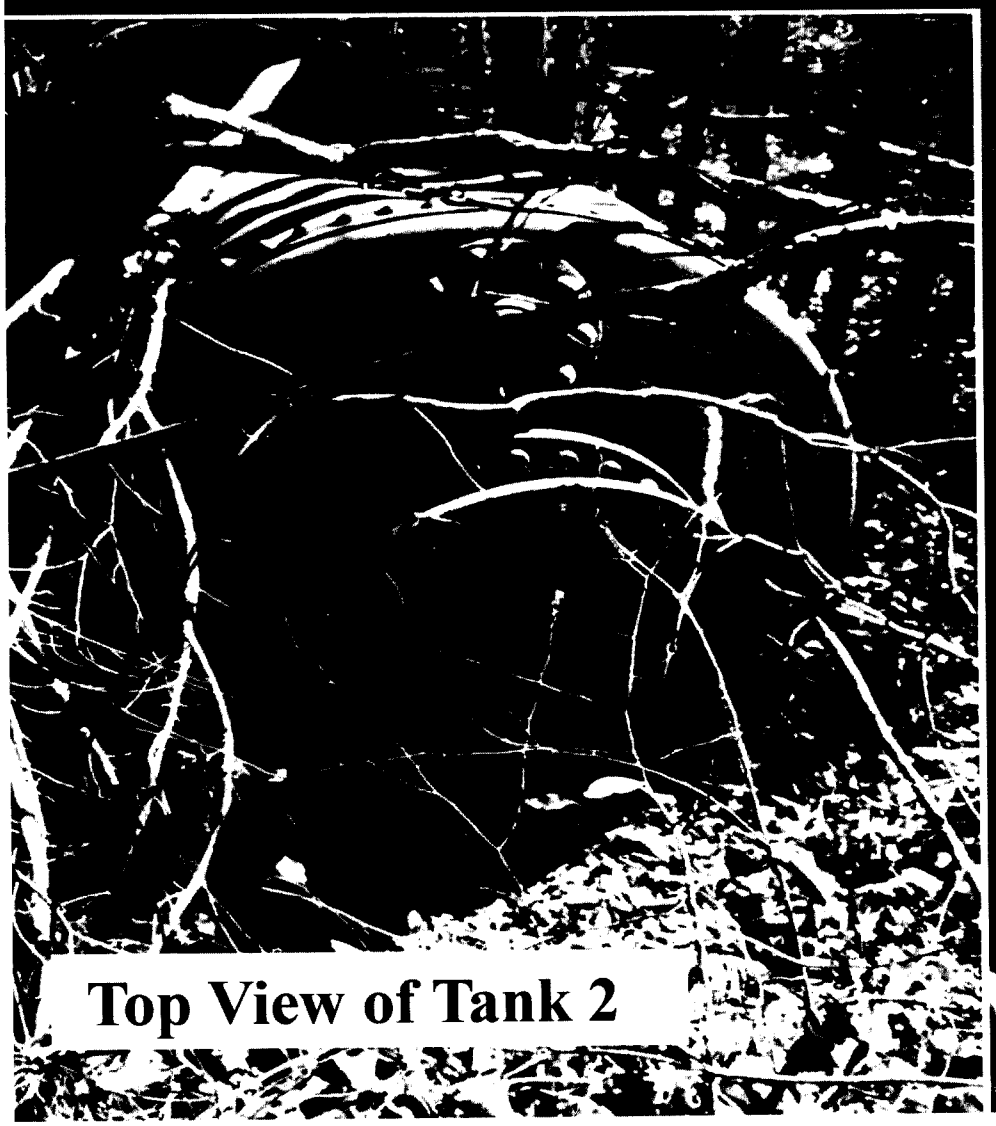


Tanks Found 11/03/14

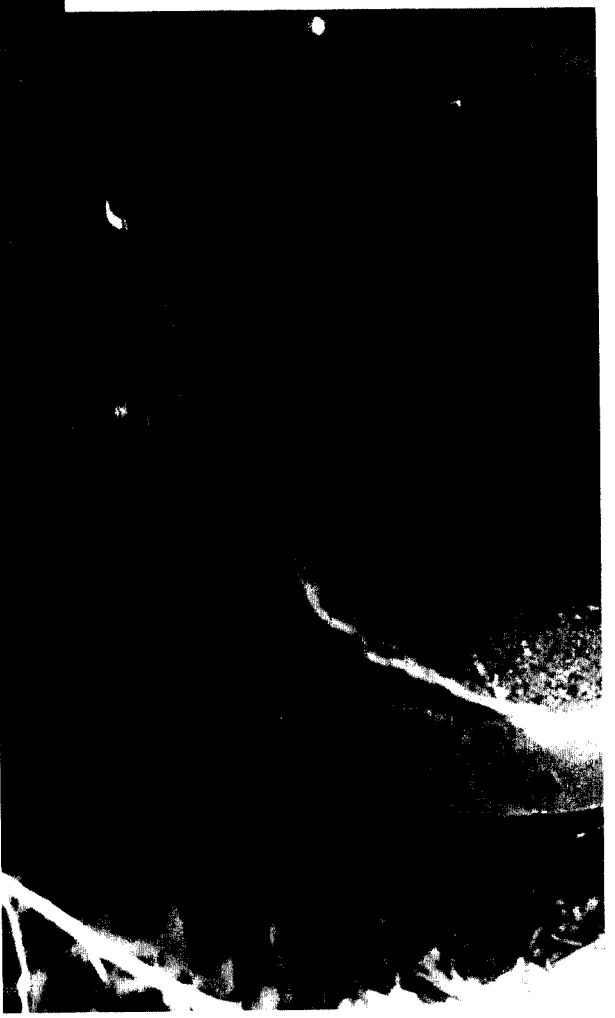
Side View of Tank 2

Dispensing end of Tank

Tank 2

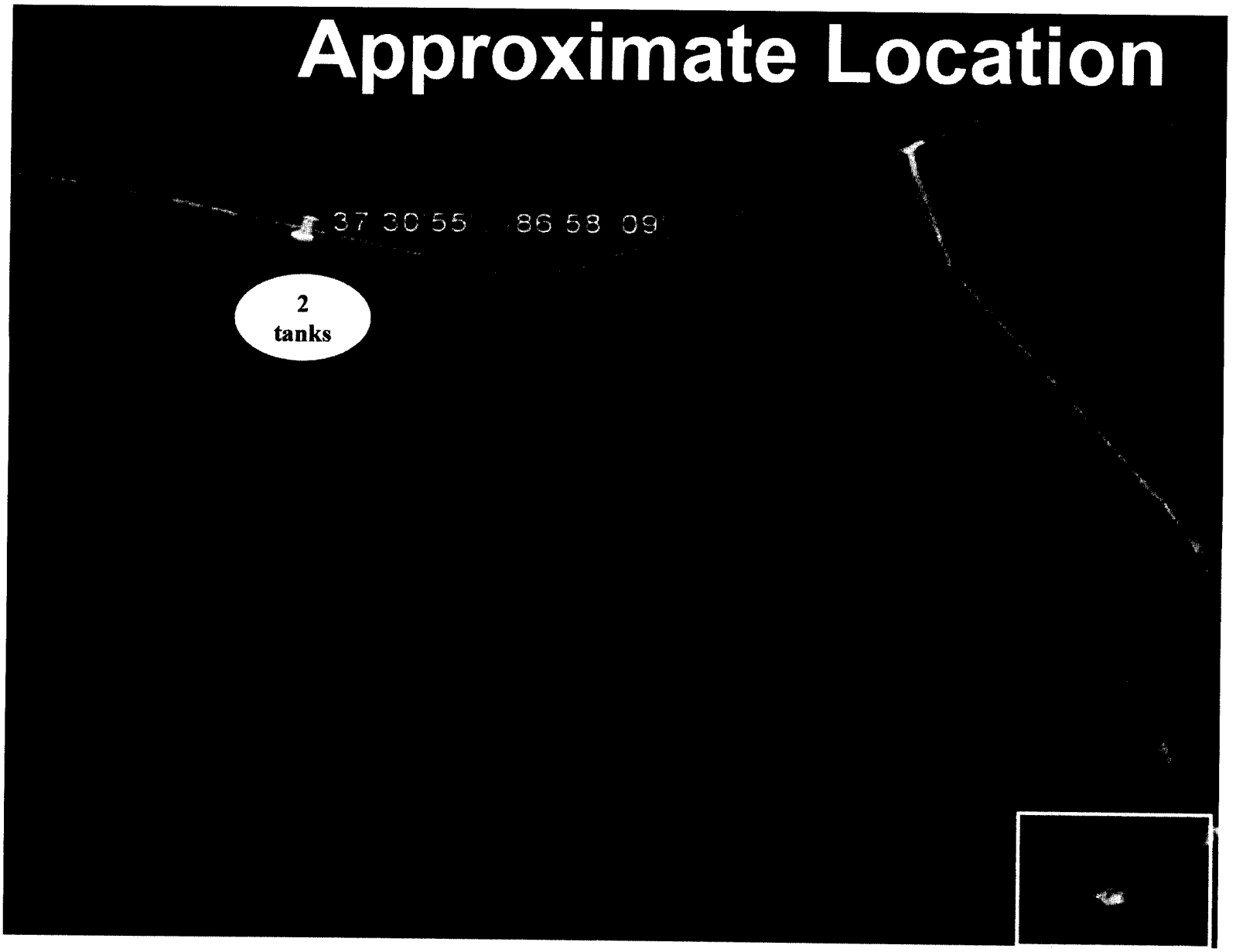


Top View of Tank 2



Closer View Tank

Approximate Location



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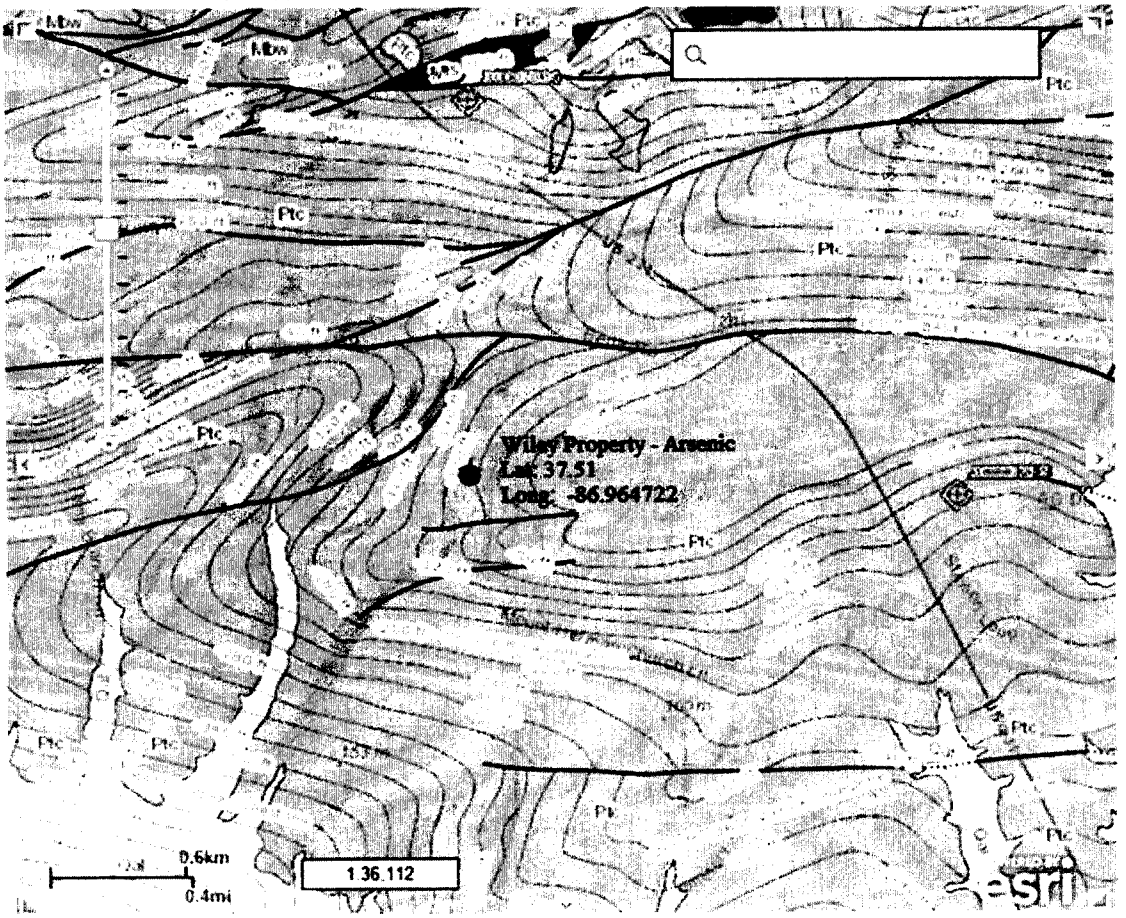
Geologic Quadrangle

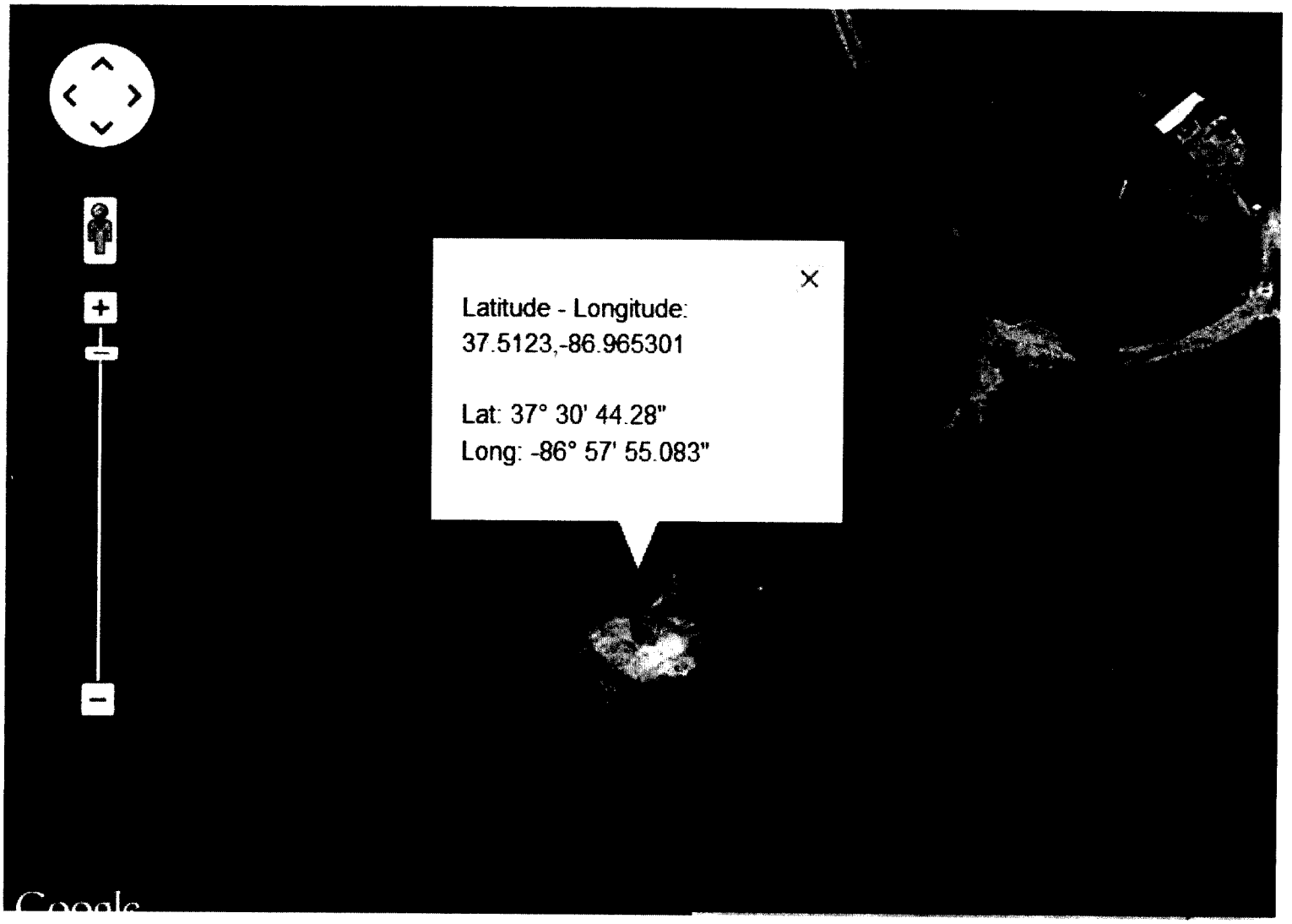
Tradewater and Caseyville Formations
(Lower Pennsylvanian - Middle Pennsylvanian)
Ptc TRADEWATER AND CASEYVILLE FORMATIONS
Pleasant Ridge 7.5 Minute GQ
Primary Lithology: Sandstone, shale, siltstone, coal, and limestone
Sandstone, shale, siltstone, coal, and limestone: Sandstone, light-brown to brown and light-gray, fine to medium grained, locally massive and cros shale; in places contains ferruginous lenses and concretions. Shale, light- to dark gray and light-brown, locally carbonaceous. Siltstone, light-gray a several thin discontinuous coal beds from 1/2 foot to as much as 4 feet thick. A thin coal bed overlain by a 4-foot-thick limestone bed about 850 fe Limestone was locally mapped. Limestone, light gray and yellowish-brown, dense, discontinuous, locally underlain by carbonaceous shale or coal.

Sandstone, shale, siltstone, and coal: Sandstone, light-brown and light-gray, fine- to medium-grained, massive; locally grades into siltstone anc feet below top of the Kinkaid Limestone. Shale, gray, sandy to clayey. Siltstone, light-gray, thin-bedded.

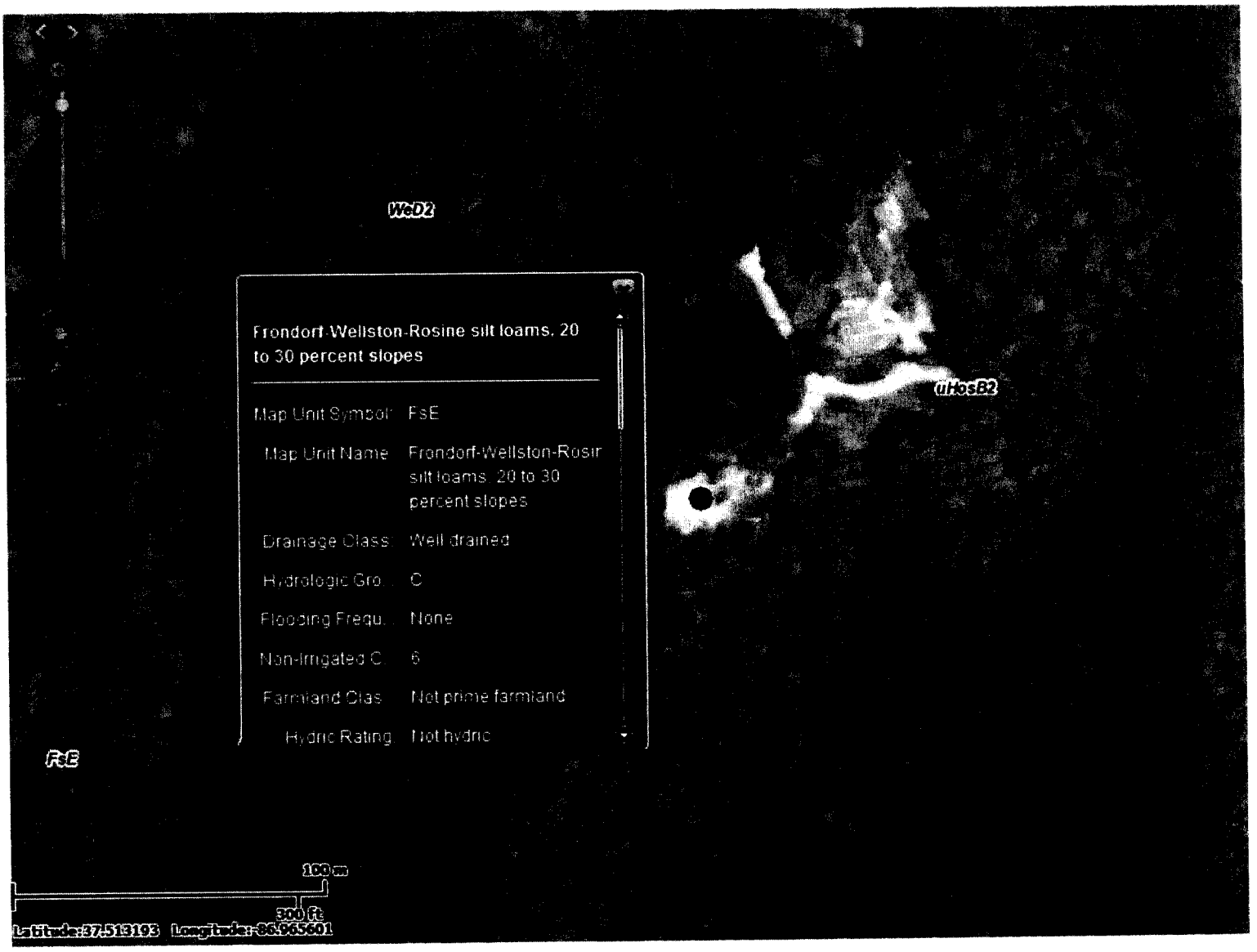
Sandstone, shale, siltstone, coal, and limestone: Sandstone, light-brown to brown and light-gray, fine to medium grained, locally massive anc shale; in places contains ferruginous lenses and concretions. Shale, light- to dark gray and light-brown, locally carbonaceous. Siltstone, light-g several thin discontinuous coal beds from 1/2 foot to as much as 4 feet thick. A thin coal bed overlain by a 4-foot-thick limestone bed about Limestone was locally mapped. Limestone, light gray and yellowish-brown, dense, discontinuous, locally underlain by carbonaceous shale or coal.



Aerial Map View

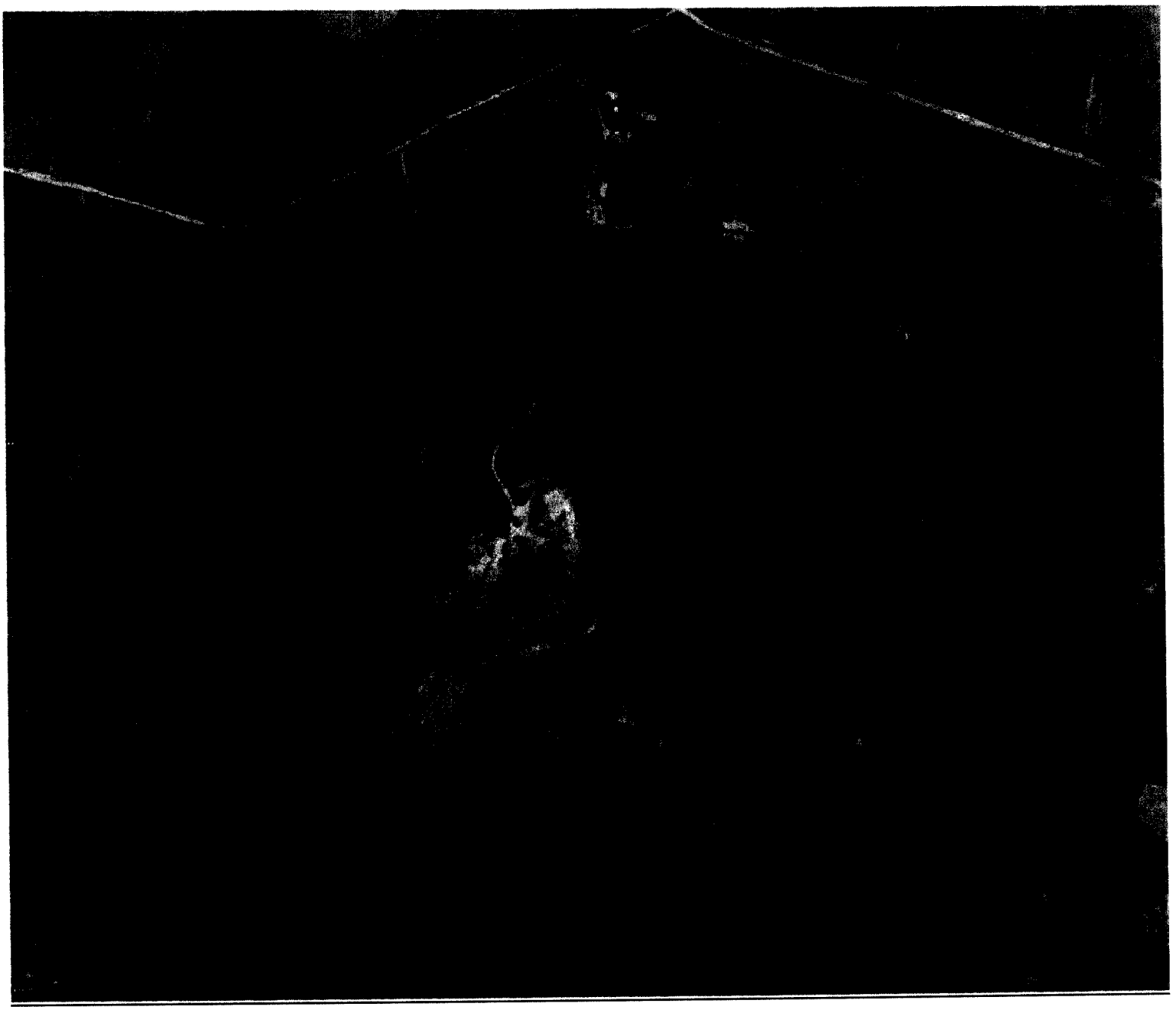


Soil Map Overlay

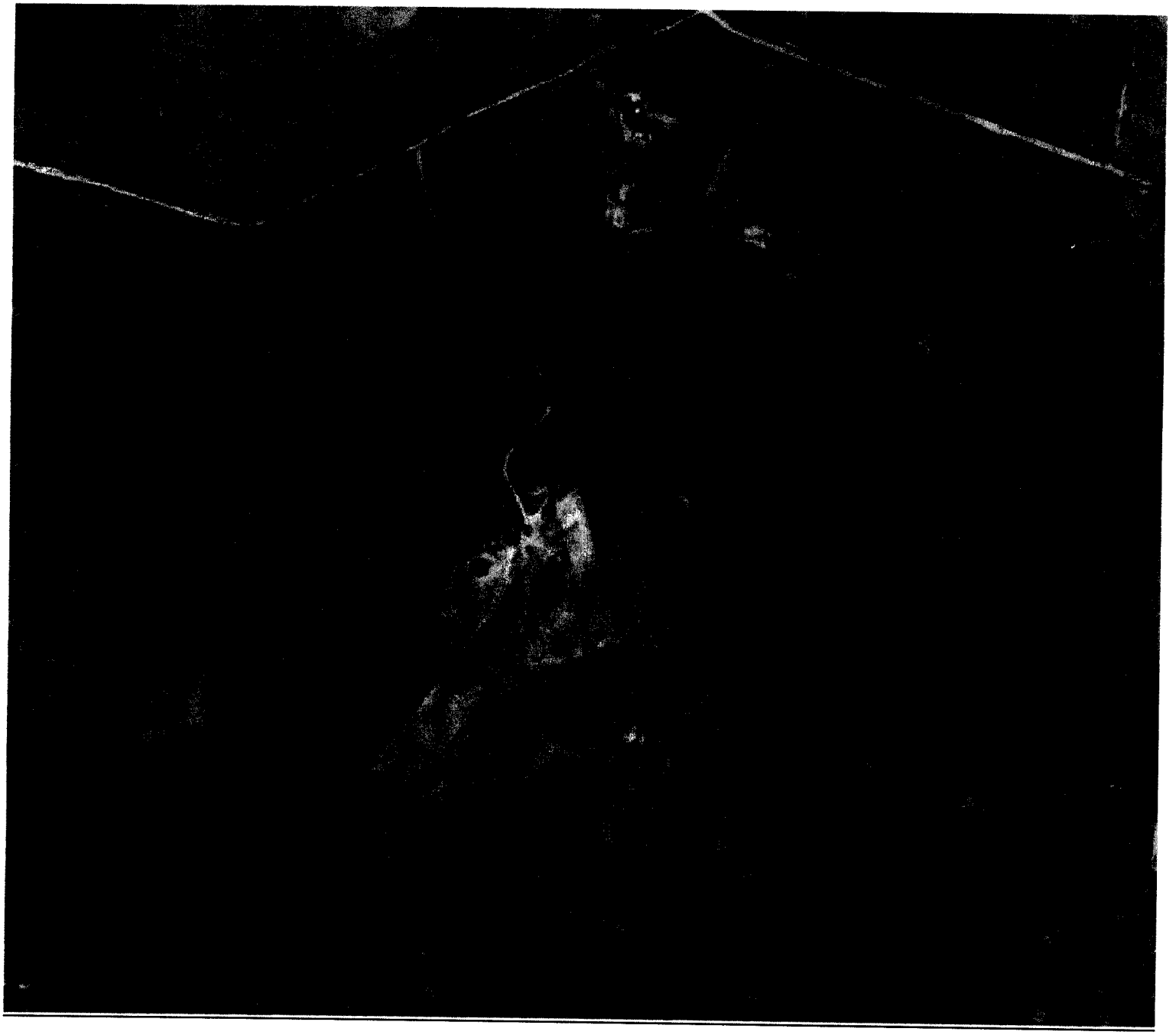


Topographic Quadrangle

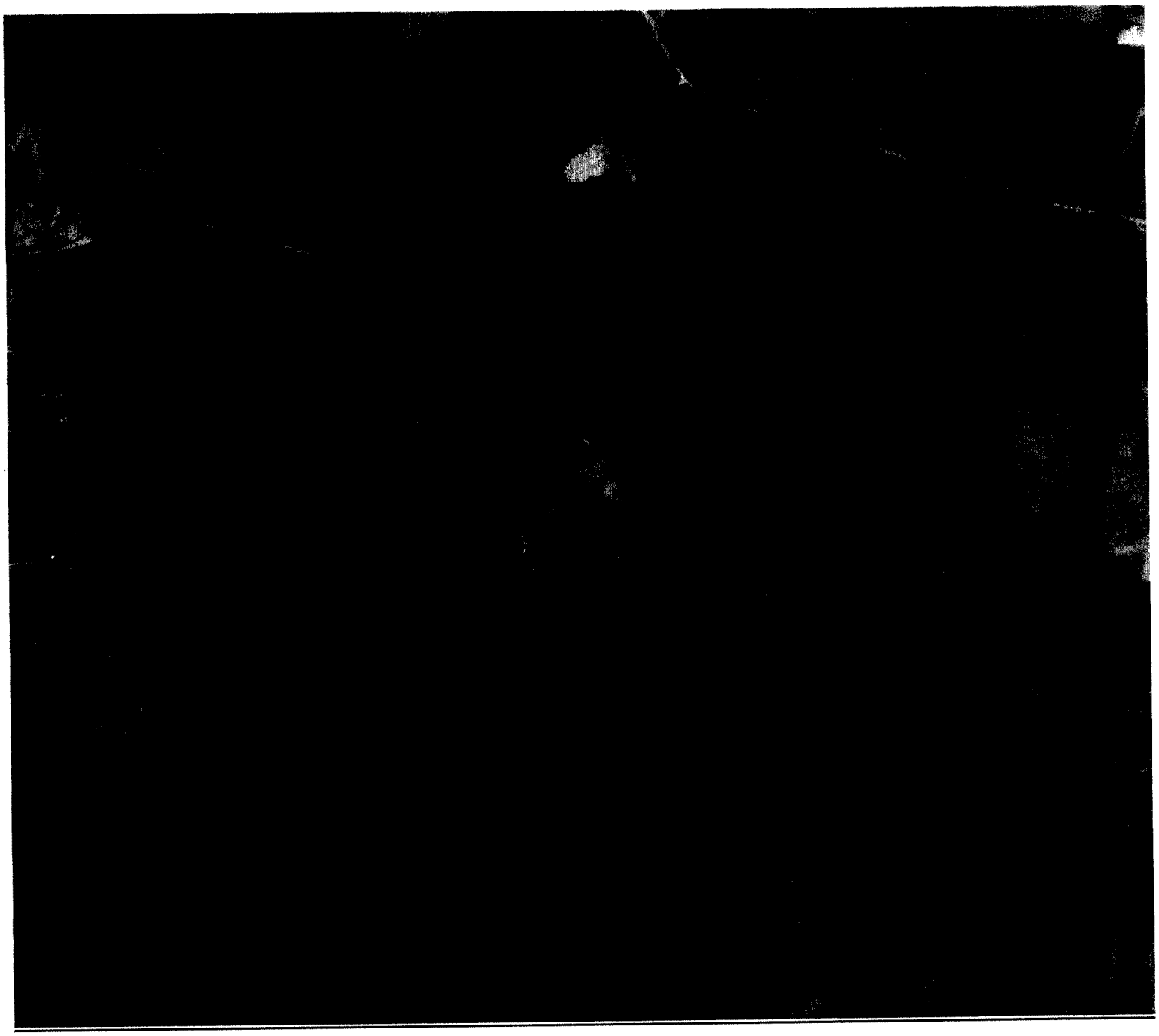
Historic Aerial Map April 8, 1950



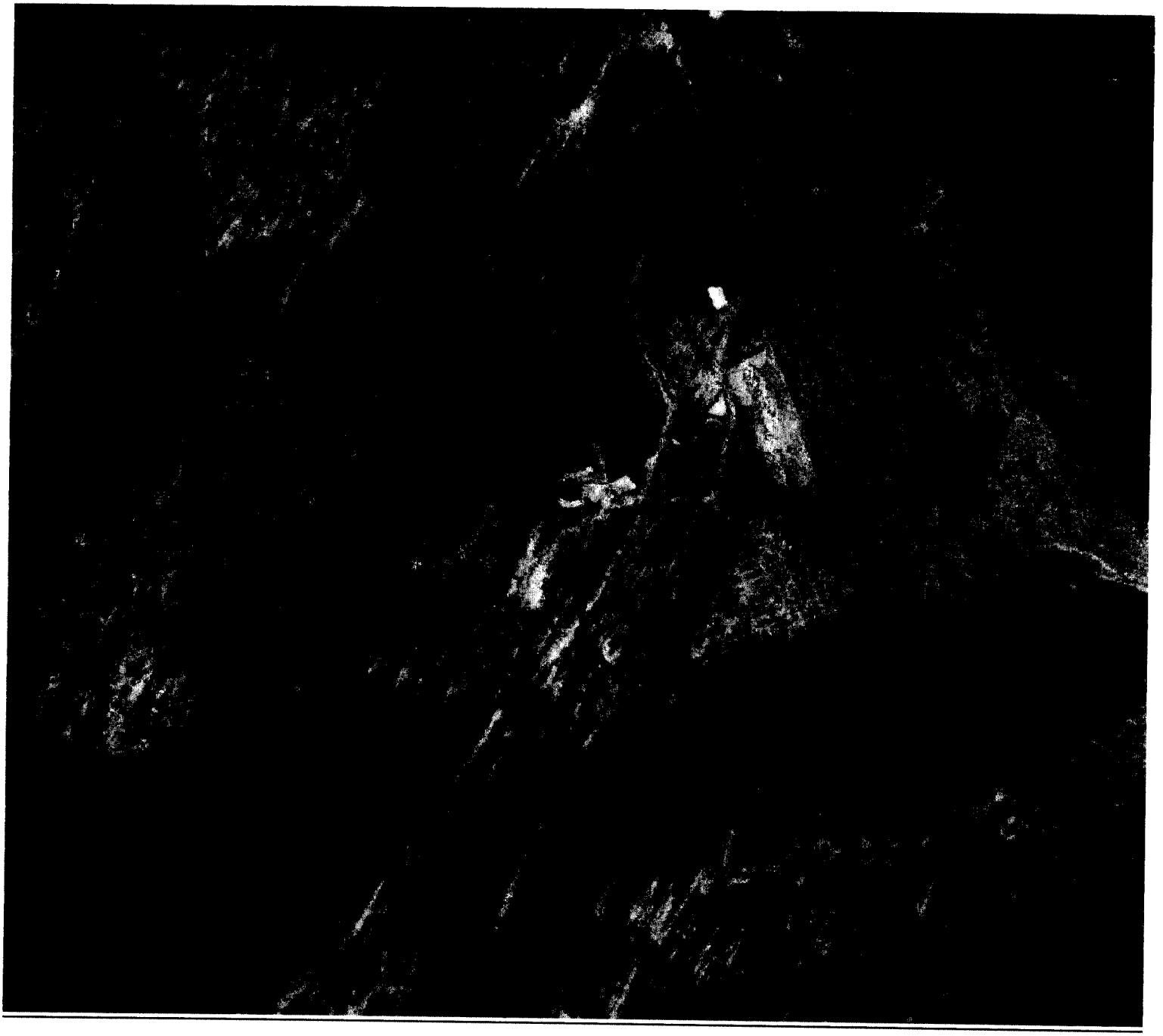
Historic Aerial Map April 18, 1951



Historic Aerial Map November 29, 1972



Historic Aerial Map From Earth Explorer 1972



Historic Aerial Map From Google Earth 1998

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WILEY PROPERTY SITE

HARTFORD, KY

FACT SHEET

No. 1 January 2015

This Site information sheet summarizes the history of the Site, activities presently underway at the Site, and future activities planned for the Site.

If you have questions or comments about the Site, please contact us at the numbers listed below:

Contact Info:

U.S. EPA

Art Smith
On-Scene Coordinator
(502) 582-5161
smith.art@epa.gov

KDEP:

Eric Brown
Project Manager
(502) 564-6716
Eric.Brown@ky.gov

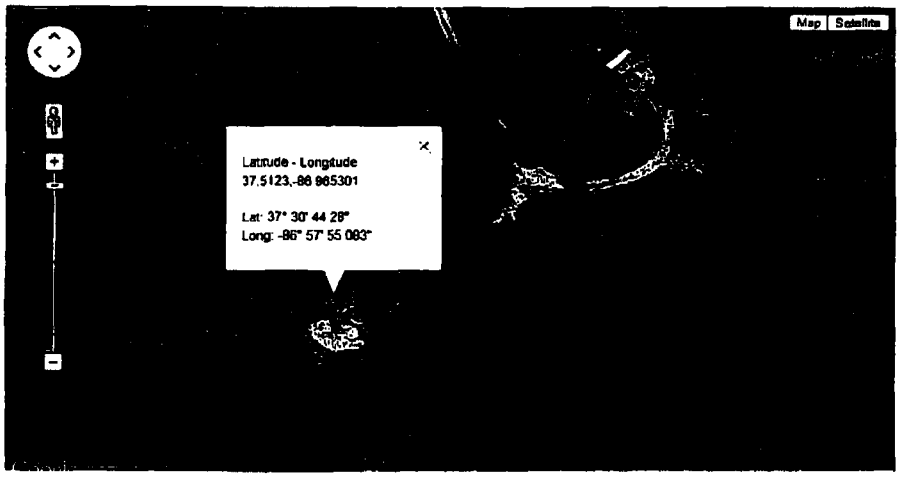
Green River District Health Department:
Clayton Horton
Environmental Health Director
(270) 852-5569
clayton.horton@grdhd.org

For Additional Info:

www.epaosc.org/wileyproperty

Site Background

In October 2014, the Kentucky Department for Environmental Protection (KDEP) responded to a complaint at a residential property along Shinkle Chapel Road in Hartford, KY. The analyses revealed high concentrations of arsenic in surface soil in a barren area where a white powder material was discovered.



Current Status and Future Actions

In November 2014, KDEP requested that the United States Environmental Protection Agency (EPA) perform a time-critical removal action at this location, due to the high concentrations which were discovered. The average arsenic concentration at this site is 150,000 milligrams per kilogram (mg/kg) or 15% arsenic in soil. Both EPA and KDEP consider arsenic at concentrations exceeding 50 mg/kg for this area to be unusual, and the high concentrations indicate significant soil contamination. There is evidence that the contamination has migrated downhill to a nearby stream which has the potential to impact natural resources.

Arsenic is known to cause cancer and exposure to these soils may represent a health hazard. It is recommended that people avoid contact with these soils and report any exposures to the ~~local health department.~~Green River District Health Department. Anyone believing they are experiencing a medical problem should see a physician.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
61 Forsyth Street, S.W.
Atlanta, GA 30303
Phone: 404/562-8836
http://www.epa.gov/region4

ENFORCEMENT CONFIDENTIAL
FOIA EXEMPTED

Ref: Wiley Property/B45H

MEMORANDUM

DATE: January 26, 2015

SUBJECT: PRP Search Plan

FROM: James W. Snow, Civil Investigator
Superfund Removal Enforcement and Information Management Section

THRU: Fernando Rivera, Enforcement Project Manager
Superfund Removal Enforcement and Information Management Section

TO: Paula Painter, Environmental Protection Specialist
Superfund Enforcement and Information Management Branch

Tony Moore, Section Chief
Superfund Removal Enforcement and Information Management Section

EFFORTS TO IDENTIFY PRPs MEMORANDUM
(Current and Former Owners/Operators, Generators, and/or Transporters)

Note: (Check the tasks below that you plan to undertake).

Start Date of Search: 1/12/15

Title Searches:

Legal Description of the Site: Parcels 73-17-1, 73-17, and 73-2 in Hartford, Ohio County, Kentucky.

10989579

☒ SIMPLE TITLE SEARCH *(Site involves less than five parcels and the site does not have a long history of industrial use.)*

☐ COMPLEX TITLE SEARCH *(Site involves more than five parcels and/or has a long history of industrial use.)*

☒ TITLE SEARCH FOR RECORDED INSTRUMENTS *(Includes deeds, leases, mortgages, liens, plate maps, contracts, certified copies.)*

All instruments affecting the site property will be collected.

☒ CHAIN OF TITLE *(A chronological list of title instruments, e.g. title tree.)*

The contractor is to provide the chain of title in narrative form as well as presented in a title tree.

☒ PROPERTY HISTORY NARRATIVE *(Detailed narrative description of property history.)*

A detailed narrative will be prepared of the ownership history of all of the site property.

Major Investigative Steps:

☒ INTERVIEWS: *(Interviews related to persons known or suspected to possess pertinent information about the Site.)*

☒ RECORDS REVIEW: *(To include compliance history, non CBI corporate information, internet/public information, person locator checks, real property checks, lien checks, non CBI technical/scientific information, enforcement history, state/local permits, and governmental, regulatory & legal information.)*

A review records from federal (USEPA and State (KDEP, etc.) agencies. In addition, local officials (fire department, police department, sheriff's office, mapping and zoning, etc.) may also be contacted to locate additional material.

☒ PRP STATUS/HISTORY/WHEREABOUTS: (Identify PRPs' names, aliases, addresses, registered agents, predecessors, successors, names changes, mergers.)

Research on corporate successorship as well as identify current contact information for each PRP identified.

☒ CERCLA 104(E) LETTERS: *(Requests, mailings, and responses.)*

☒ HISTORY OF SITE OPERATIONS: *(A narrative report that focuses on activities, operations, and parties involved at the site.)*

On November 14, 2014 the, Kentucky Department of Environmental Protection (KDEP) requested that the United States Environmental Protection Agency (EPA) conduct a time-critical removal action at a site located at 209 Shinkle Chapel Road in Hartford, Ohio County, Kentucky. According to KDEP the site has extraordinary concentrations of arsenic present in the surface soils and are also likely at depth and the in the surrounding area. The site is located on a 10 acre parcel currently owned by Wells Fargo Bank. The immediate and surrounding area is rural, wooded, and agricultural.

The KDEP received a complaint from the former property owner of the site. The complainant said that they were told of an old barn that had been on the property and that it had burned down with possible chemical containers inside. The complainant indicated that years ago someone let a chemical company store materials in the now burned down barn. The complainant further indicated that there were 2 large tanks next to the Shinkle Chapel Road near her old driveway.

On September 25, 2014, an initial KDEP investigation was conducted at the site. This investigation identified a visible white residue in a circular area approximately 30 feet in diameter in the former barn area of the site property. From this area, dead vegetation was observed immediately down gradient in an ephemeral drainage stream. The sampling event took place on October 2, 2014. These initial sample were collected from four locations within the former barn area (primary source zone).

A decision was made to conduct a second sampling event of surface soils in the visibly distressed area and further down gradient in the ephemeral drainage stream. This sampling event took place on October 22, 2014. The second sampling event was expanded to include herbicides and pesticides. Samples were collected from the down gradient zone and one up gradient approaching the former occupied residence. During this event, two aged, dilapidated, industrial design above ground tanks containing a white substance were identified at the location away from the residence. The substance in the tanks were not sampled during the event.

The KDEP's sampling results show that extraordinary concentrations of arsenic are present in the surface soil ranging from 458 to 525,000 mg/Kg in the identified primary source zone and ranging from 4,080 to 167,000 mg/Kg in the identified immediate linear downgradient ephemeral drainage stream. The full nature and extent of the arsenic concentrations have not yet been identified nor has the impact on the groundwater.

Financial Status/Assessment:

☐ CBI INFORMATION *(Identify, Mark, and Safeguard)*

☐ FINANCIAL INFORMATION: *(Information relating to financial status, officers, operations, partnerships, corporation, exempt organizations, other.)*

☐ FINANCIAL ASSESSMENT: *(Financial Records, income tax records, ability to pay analysis.)*

Note:

Other Investigative Steps:

- ☐ AERIAL PHOTOGRAPHS AND SANBORN MAPS
- ☐ CERCLIS (comprehensive printout)
- ☐ LIENS {*CERCLA 107(l) and/or CERCLA 107(r)*)
- ☐ PROPERTY APPRAISAL/PROPERTY SURVEY: *(Appraisal or Tax Assessments of site property owned by a PRP.)*
- ☐ EPA INVESTIGATIONS: *(CID, State, IG or other enforcement involvement.)*
- ☐ DEVELOPMENT OF WASTE-IN LISTS, VOLUMETRIC RANKING REPORTS, AND WASTE-IN TRANSACTIONAL REPORTS FROM PRP SEARCH ACTIVITIES.
- ☐ WASTE STREAM INVENTORY: *(Inventory of wastes disposed of at the site by reviewing logbooks, records, and reports.)*
- ☐ PROCESS CHEMISTRY ANALYSIS: *(This analysis is performed after a waste stream analysis. It attempts to link industries (PRPs) with waste at the site.)*
- ☐ ACCESS AGREEMENTS
- ☐ DATABASE CHECKS
- ☐ STATE AND/OR LOCAL PERMITS
- ☐ INSURANCE POLICY INFORMATION
- ☐ OTHER: BUSINESS CARD

References:

Attachments:

cc: Tony Moore, Section Chief
Fernando Rivera, EPM
Stedman Southall, Attorney
Site File

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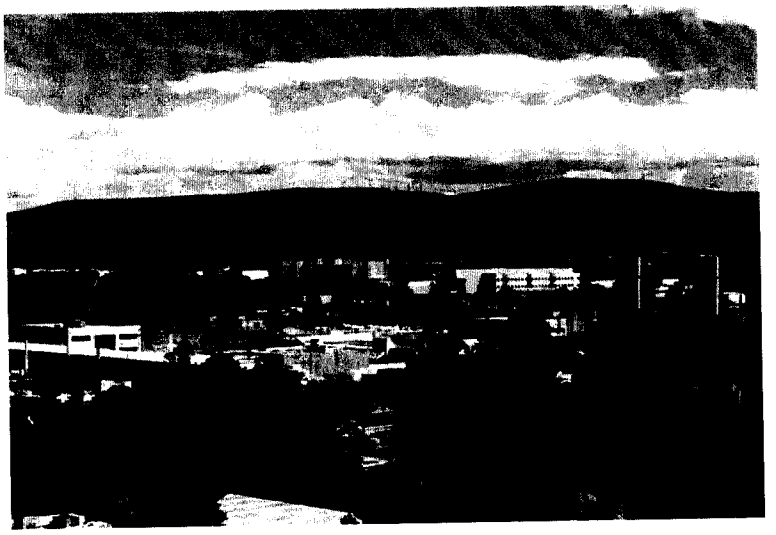
LLNL-TR-671897

Lawrence Livermore National Laboratory

Analysis of Arsenic Containing Samples from Kentucky

May 6, 2015



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Executive summary

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Background

On March 31, 2015 three samples and a blank container were received at Lawrence Livermore National Laboratory (LLNL), sent by Sherry Weedman of Tetra Tech, Louisville, Kentucky; see Figure 1. All samples were shipped at ambient conditions and arrived intact, although the outside of the sample containers were wet. According to S. Weedman, the samples were collected from an area of stressed vegetation, where previously there stood a barn. The soil/material was wet and looked similar to a fine, uniform, tan clay. Previous analysis of this soil/material had shown that arsenic (As) concentrations were greater than 500 parts-per-million. Because arsenic can be used as an additive in chicken feed and because historical information suggested past Lewisite production in the region, there was concern that the As present in the sample might be attributed to chemical warfare agent(s) or degradation products. Thus, analyses were performed to determine if Lewisite, Lewisite oxide, or other organo-arsenic compounds were present in the samples.

Figure 1. Samples received.

Figure 2 shows the analytical strategy used to analyze the samples. All samples were taken from a single jar (container 1201198056). The first priority was to verify the concentrations of As in the sample. This was done, in part, to guide the safety protocols used in subsequent sub-sampling for other analyses and also to determine appropriate sample sizes and dilution factors to prevent saturation of instrument detectors and to minimize any issues that might be associated with carry-over of high concentrations of analyte(s). Once data from inductively coupled plasma mass spectrometry (ICP/MS) analyses were available, the next step was to analyze the samples by gas chromatography/mass

spectrometry (GC/MS) to look specifically for Lewisite and its degradation products. Chemical derivatization with *N,O-bis*(trimethylsilyl)-trifluoroacetamide (BSTFA), *N-tert*-butyldimethylsilyl-*N*-methyl-trifluoroacetamide (MTBSTFA), and 1-propanethiol was performed to facilitate detection of Lewisite and its degradation products, as well as to provide other information about the sample. Direct extraction of the sample with dichloromethane was also performed to determine if any organic compounds of interest were present in the sample. Finally, the sample was also extracted with 50/50 (v/v) methanol/10 mM hydrochloric acid, per a procedure developed in previous work with Lewisite[1], and analyzed by both GC/MS and liquid chromatography/mass spectrometry (LC/MS) using a high resolution mass spectrometer.

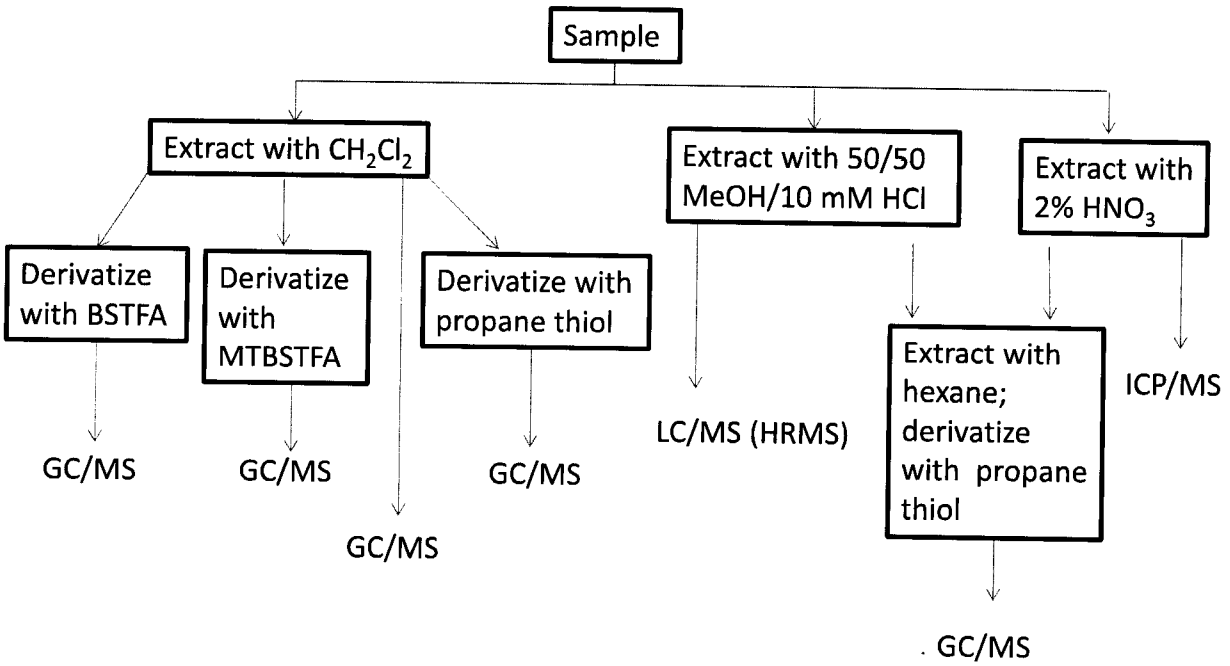

Figure 2. Analytical strategy.

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ICP/MS. Three aliquots of sample, ranging in size from 2 to 5 grams and taken from a single jar, were weighed (wet) and placed in 20-mL VOA vials. To the samples were added 10.00 mL of 2% HNO_3 and the resulting mixture was agitated using a vortex mixer for about a minute. The mixture was allowed to settle by gravity. To 10.00 mL-aliquots of 18 MΩ water were added 5.0 µL of each extract and the resulting samples were analyzed by ICP-MS, using standard laboratory protocols. An empty VOA vial, treated identically to the samples, served as a method blank.

GC/MS after extraction with dichloromethane. A 1.23-g sample was added to a 20-mL VOA vial. Then, 0.5 g of anhydrous sodium sulfate was added and mixed in the sample. 10.00 mL of

[1] *EXTRACTION AND ANALYSIS OF LEWISITE 1, BY ITS DEGRADATION PRODUCTS, USING LIQUID CHROMATOGRAPHY TANDEM MASS SPECTROMETRY (LC-MS/MS,* Standard Operating Procedure, Revision 1 United States Environmental Protection Agency, National Homeland Security Research Center, 26 W. Martin Luther King Jr. Drive, Cincinnati, OH 45268 (2015).

dichloromethane were added and the sample was extracted by agitating on a vortex mixer for a minute. The resulting extract was filtered using a 0.45-μm PTFE filter and a 1.00-mL aliquot was analyzed by GC/MS, using standard laboratory protocols (30 m, HP-5MS, GC column) and electron ionization. An empty VOA vial, treated identically to the sample, served as a method blank.

Another 1.00-mL aliquot of the dichloromethane extract was placed in an autosampler vial and 100 μL of BSTFA were added. The sample was heated at 65 °C for 30 minutes and analyzed by GC/MS. 1.00 mL of dichloromethane, placed in an autosampler vial and treated identically to the sample, served as a method blank.

A 1.00-mL aliquot of the dichloromethane extract was placed in an autosampler vial and 100 μL of MTBSTFA were added. The sample was analyzed by GC/MS. 1.00 mL of dichloromethane, placed in an autosampler vial and treated identically to the sample, served as a method blank.

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Extraction with methanol and dilute HCl followed by GC/MS and LC/MS. A final 0.5-g sample was placed in a 20-mL VOA vial and extracted with 10.00 mL of 50/50 methanol/10 mM HCl, using a shaker table set at 600 rpm for 30 minutes. 10.00 mL of 50/50 methanol/10 mM HCl in a VOA vial served as a method blank. Both sample and blank were filtered through a 0.45-μm PTFE membrane with glass microfiber filter in a polypropylene housing. For GC/MS analysis, 100 μL of the resulting extracts were shaken with 1.00 mL of hexane and 10 μL of 1-propanethiol and heated at 60 °C for 30 minutes prior to GC/MS analysis. For LC/MS analyses, the filtered extracts were 1) analyzed directly and 2) analyzed after dilution with an equal volume of 30% H_2O_2.

Instrumentation. Samples were analyzed on an Agilent 5973 GC/MS system operated in the electron ionization mode, with a DB-5MS column of 30 m x 0.25 mm id x 0.25 μm film thickness. Standard laboratory GC/MS conditions were used. Samples were also analyzed on an Agilent Q-TOF (high resolution mass spectrometer), operated in positive electrospray mode, using a C_{18} column (150 mm x 2.1 mm x 3 μm), with an acetonitrile/water gradient with 0.1% formic acid as a modifier. Standard laboratory LC/MS conditions were used for all analyses.

Results

ICP/MS. Analysis by ICP/MS showed that As concentrations in the three subsamples were fairly uniform. Measured As concentrations of three subsamples (assuming 100% recovery) were 4.37 mg As/g sample, 5.16 mg As/g sample, and 4.63 mg As/g sample (all wet weights).

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AMDIS to detect chemicals that were present in the Organisation for the Prohibition of Chemical Weapons (OPCW) database. No compounds of significance were detected in the dichloromethane extract of the samples. No compounds of significant concentration were detected in the propanethiol-derivatized sample; perhaps this reflected the poor solubility of inorganic arsenic in dichloromethane. A small peak in the total ion chromatogram of the BSTFA-derivatized extract was identified by AMDIS to be a silylated arsenade compound in the OPCW database; however, the OPCW database does not contain trimethylsilyl derivatives of As-containing compounds. Thus, another aliquot of the dichloromethane extract of the soil was then derivatized with MTBSTFA, as *tert*-butyldimethylsilyl derivatives of As-containing compounds are in the OPCW database. When the extract derivatized with MTBSTFA was screened by AMDIS, an excellent match (>900 out of a perfect 999) with the *tert*-butyldimethylsilyl derivative of $As(OH)_3$ was detected.

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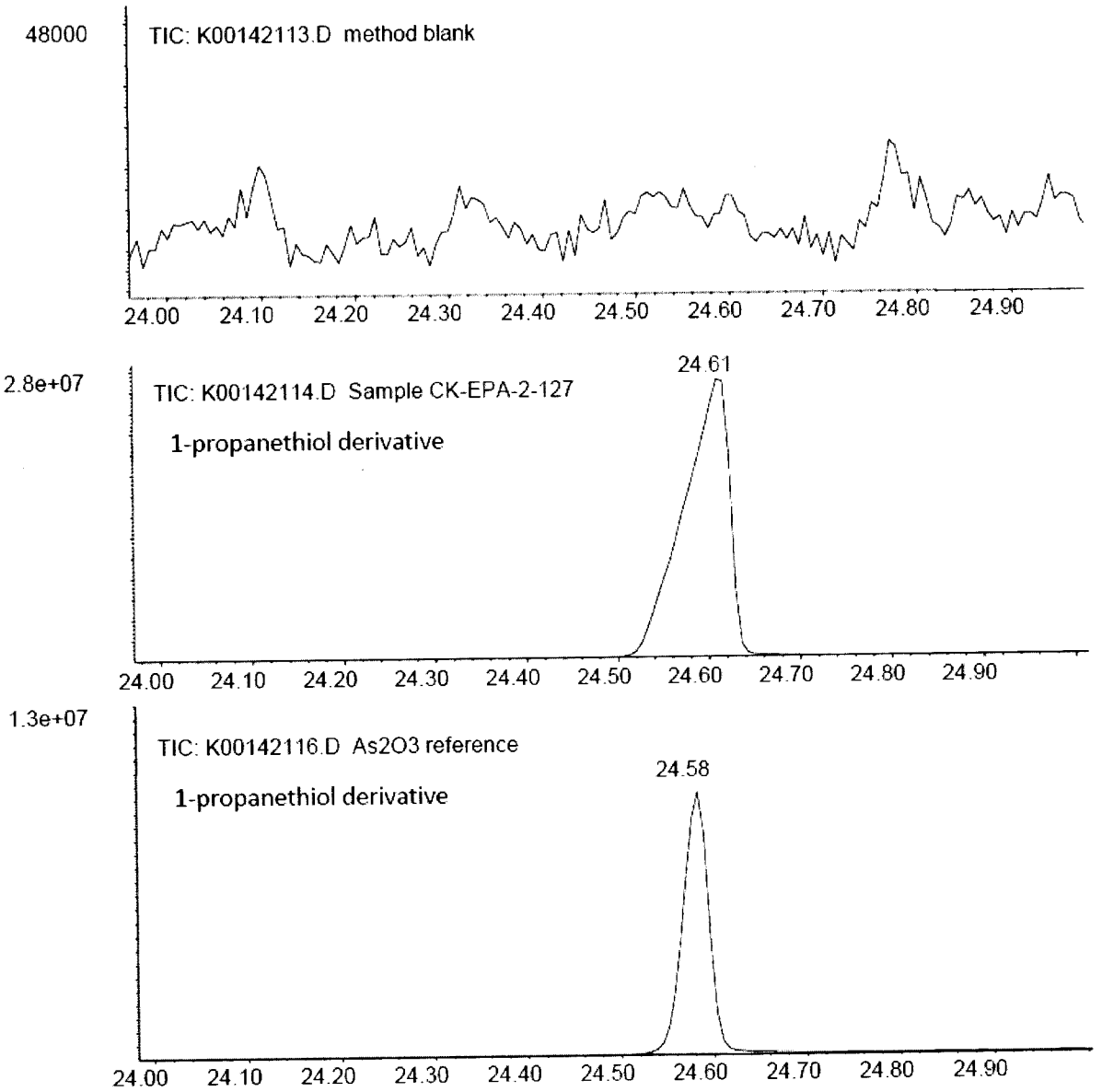
LC/MS analyses detected the $AsO(OH)_3$. This was detected in both the sample extracts with and without hydrogen peroxide treatment. The exact mass of the $[M+H]^+$ ion for $AsO(OH)_3H^+$ measured by LC/MS was 142.9320, which matched the calculated exact mass almost exactly (difference of -4.18 ppm). Because there are no LC/MS libraries, we calculated exact masses for the $[M+H]^+$ ions of several As-containing target compounds and performed extracted ion searches to determine if these compounds were present in the sample extracts. Compounds that were considered for targeted analyses were Lewisite, Lewisite oxide, chlorovinylarsonous acid, chlorovinylarsonic acid, roxarsone, 4-hydroxy phenylarsonic acid, 3-amino-4-hydroxy phenylarsonic acid, *p*-arsanilic acid, methyl arsenic acid, dimethyl arsenic acid, bis(diphenylarsine)oxide, phenylarsonic acid, and diphenylarsinic acid. In addition, using a feature of Agilent's Mass Hunter software, we searched for compounds with a characteristic mass defect of ~0.05 Da, as this is a characteristic of many chemical formulas that contain the element As. When performing this data analysis, we detected the $AsO(OH)_3$ and did not identify any other compounds that contained As.



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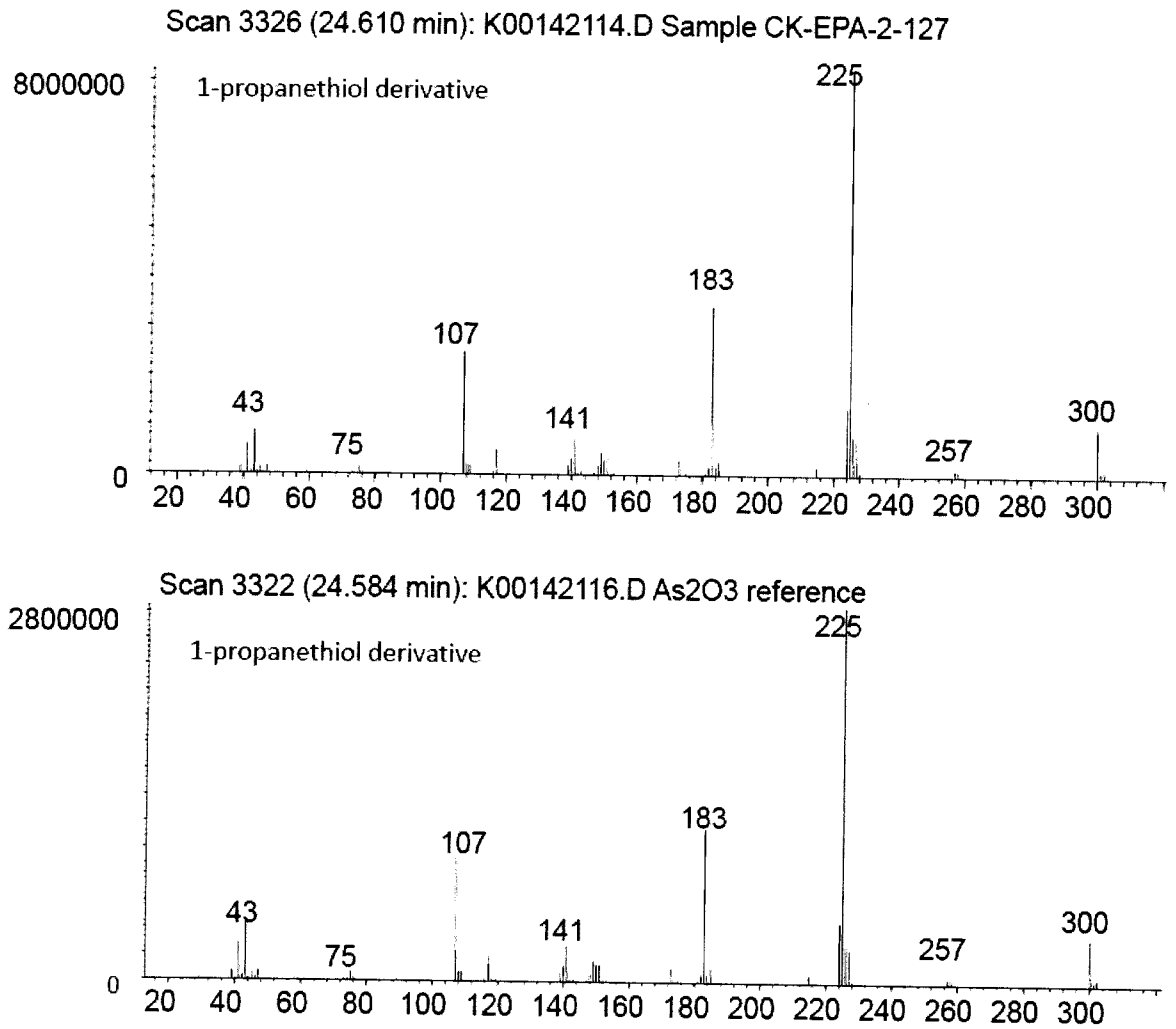

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LLNL-TR-671897

Lawrence Livermore National Laboratory

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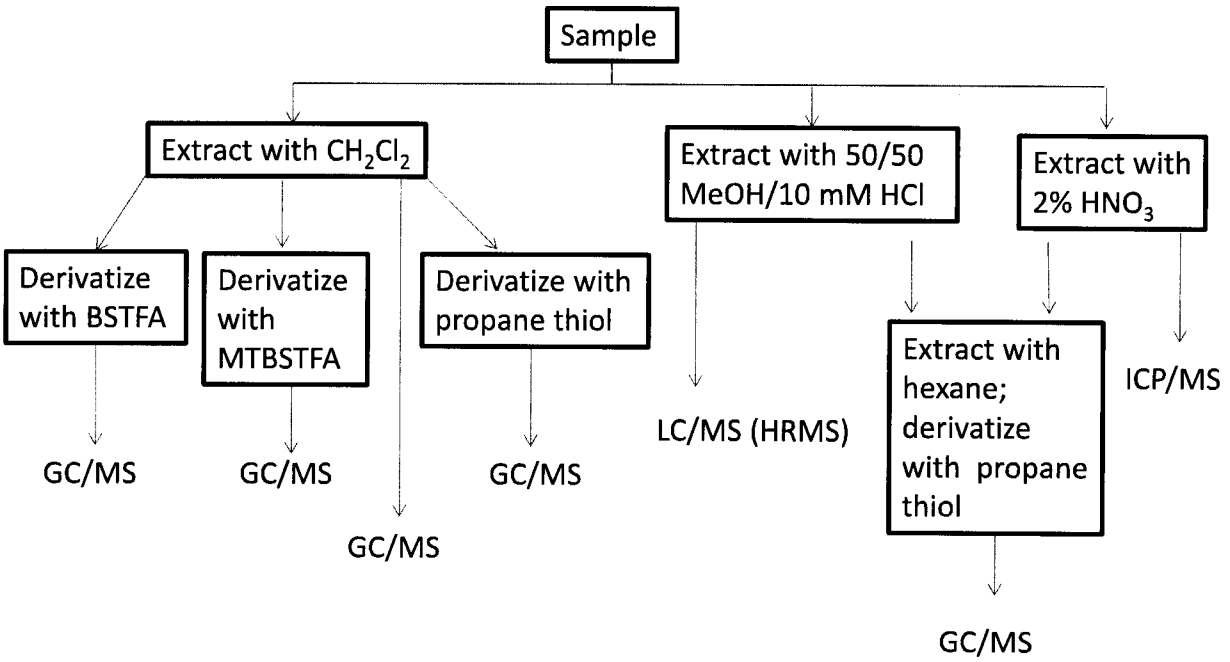

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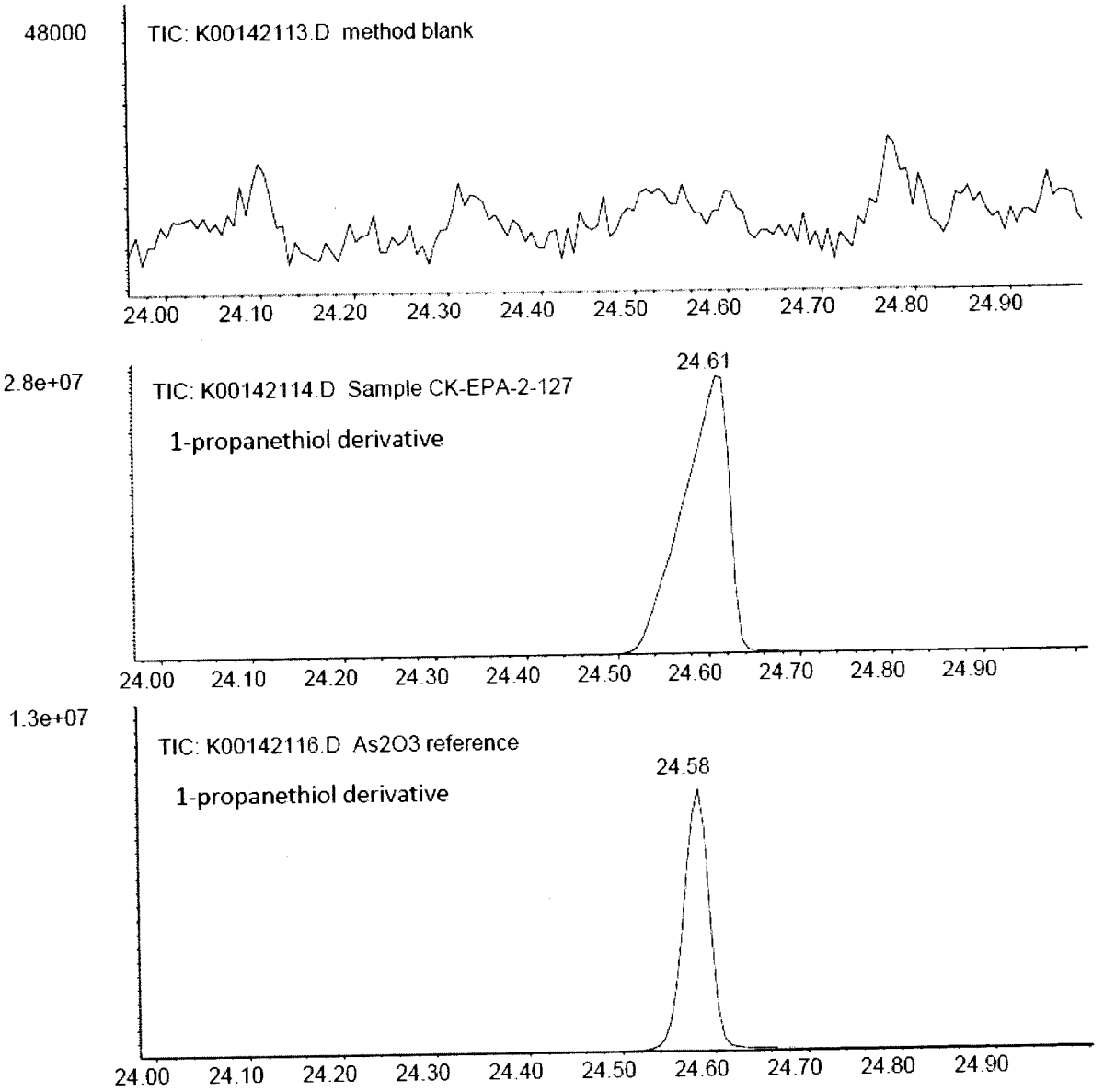

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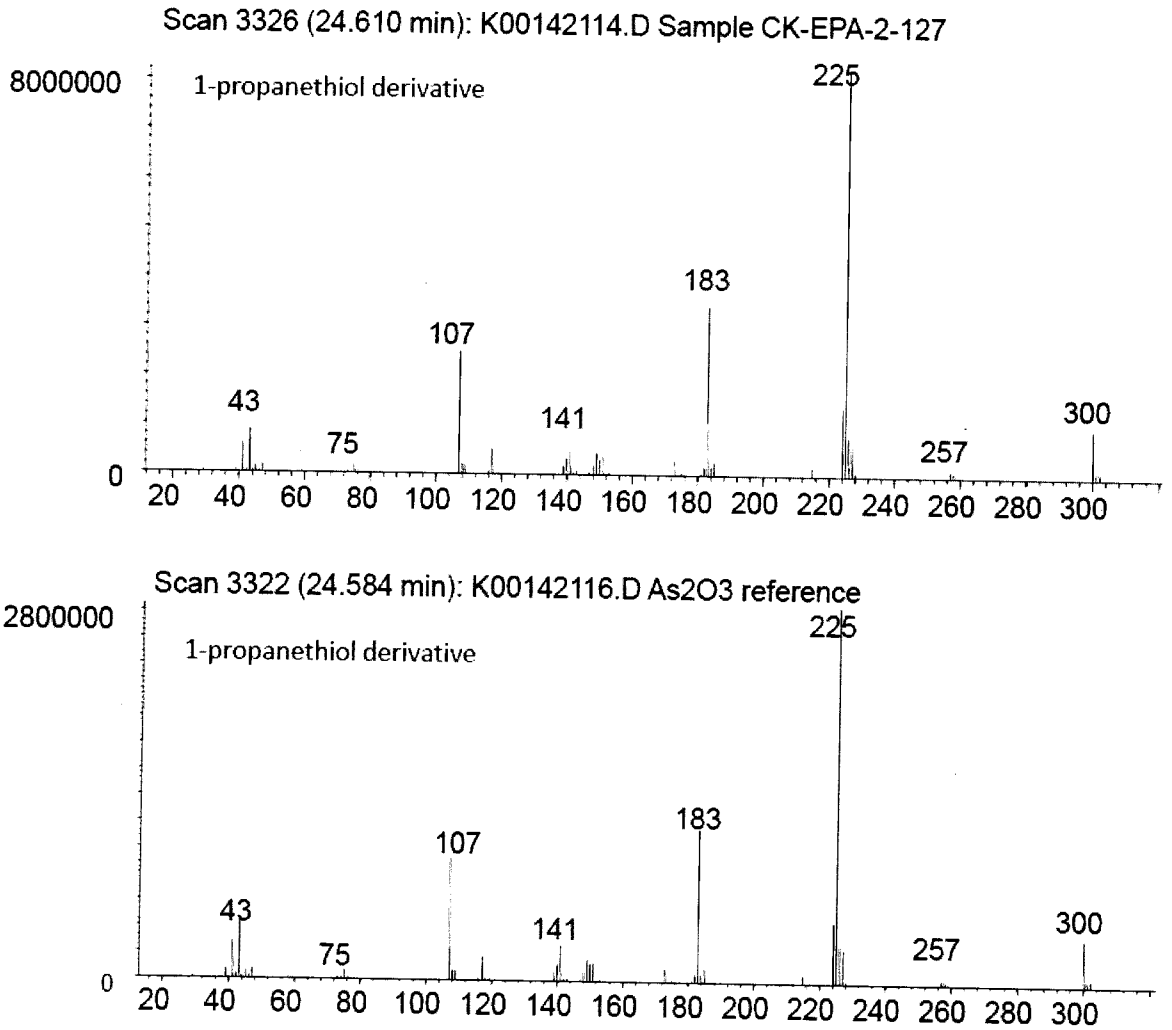

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

JUN 09 2015

Mr. Tim Hubbard
Kentucky Department for Environmental Protection
200 Fair Oaks Lane
Frankfort, KY 40601

Subject: Wiley Property Site
Hartford, Ohio County, Kentucky

Dear Mr. Hubbard:

The U.S. Environmental Protection Agency's Emergency Response, Removal and Prevention Branch (ERRPB) conducted a Removal Site Evaluation (RSE) at the above referenced Site for potential removal action eligibility under the National Contingency Plan (NCP).

Based on the information collected during the RSE, the On-Scene Coordinator (OSC) recommends this **Site be given priority** for removal eligibility contingent upon availability of approved funds under the EPA's Superfund Removal Program (see enclosed RSE memo). Concurrent with this recommendation, the EPA may also begin its enforcement activities to determine potentially responsible parties for this Site.

A final determination of removal eligibility will be made by the OSC assigned to the Site. A decision to conduct a removal action will be documented in an Action Memorandum and a copy will be forwarded to the State. Should the OSC make a final determination that a removal action is not warranted you will be subsequently notified of this determination.

Should you have any questions concerning ERRPB's determination, please contact Art Smith, OSC, at (502) 905-7559, or Matt Taylor, Chief of Removal Operations Section, at (404) 562-8759.

Sincerely,

James W. Webster, Chief
Emergency Response, Removal and Prevention Branch

Enclosure

cc: Dawn Taylor, Tony Moore, James Webster, Matt Taylor, Kerri Sanders, Art Smith, Subash Patel, Anita Davis, Ronald Saskowski, Richard Hammond

U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Wiley Property Site
Removal Site Evaluation POLREP

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IV

Subject: POLREP
Removal Site Evaluation
Wiley Property Site
209 Shinkle Chapel Road, Hartford, Ohio County, Kentucky.

Latitude: 37.5123000° North
Longitude: 86.9653010° West

To: Matt Taylor, USEPA R4 ERRB
From: Art Smith, On-Scene Coordinator
Date: May 26, 2015
Reporting Period: 11/14/2014 – 5/8/2015

1. Introduction

Site Number: B45H
Response Authority: CERCLA
Response Type: Time-Critical
Response Lead: EPA
Incident Category: Removal Assessment
NPL Status: Non NPL

1.1 Site Description

The Wiley Property Site consists of two residential parcels in Hartford, Ohio County, Kentucky. The first residential tract designated as Tax/Parcel ID 73-17-1 in the records for Ohio County, KY comprising 10.2 acres and is located at 209 Shinkle Chapel Road. This property is currently held by Wells Fargo Bank, following a foreclosure and Master Commissioner's sale in 2014. There are two improvements on Tax/Parcel ID 73-17-1: a single family home and an outbuilding.

The second tract making up the Site is designated as Tax/Parcel ID 73-17 in the records for Ohio County, KY. This parcel is privately owned and a portion of this property was subdivided to sell Parcel 73-17-1 in 2007. There are reports of an old barn on this property which was subsequently destroyed, thus suggesting that the past use of the property was for agricultural purposes.

Both of these tracts are heavily wooded and the surrounding area is rural in nature.

1.2 Preliminary Removal Assessment/Removal Site Inspection Results

In August 2014, the last known occupant of the residence at 209 Shinkle Chapel Road contacted the Kentucky Department for Environmental Protection (KDEP) with a concern about an unknown white powdery substance at the Site. KDEP reported that the former occupant bred dogs at the Site and that the females were found to be sterile while others suffered from tumors. The former occupant was concerned about potential exposure to her family members while they lived at the property.

In September 2014, KDEP performed an initial visual investigation at the Site. They confirmed an area where the white substance was located in an area devoid of vegetation and approximately 30 feet in diameter. Samples were collected in October 2014, and analysis of the samples collected from this area revealed total arsenic at levels up to 525,000 milligrams/kilogram (mg/kg). The Toxicity Characteristic Leaching Procedure (TCLP) was performed on the sample with the highest total arsenic level and the result came back as 618 milligrams/liter (mg/L) leachable arsenic. Additional investigation and sampling in October 2014 documented that the arsenic contamination had migrated downhill a distance of approximately 120 feet to the north and west of the source area.

1.3 Site Location

The Site is located on 10.2 acres of property at 209 Shinkle Chapel Road in Hartford, Ohio County, Kentucky. The geographic coordinates of the Site are 37.5123000° North and 86.9653010° West. The Site is bordered to the north by Shinkle Chapel Road, and by wooded, rural, and agricultural lands to the east, south, and west. There are 10 homes located within a half-mile radius of the Site.

2. Removal Site Evaluation

On November 14, 2104, the KDEP Superfund Branch formally requested that the U.S. EPA conduct a Removal Site Evaluation (RSE) at the Site. On March 24, 2015, the Region 4 Superfund Technical Assistance and Response Team (START) contractor mobilized to the Site to collect samples. The purpose was to confirm the 2014 KDEP findings and to explore the potential for additional migration pathways at the Site. Also, a subset of samples were run for arsenic speciation in an attempt to identify the specific arsenic compound at the Site. See Figure X attached to this report as a map of the Site, and locations of areas which were surveyed for total arsenic.

The sample collected from the source area was analyzed for total arsenic and the analysis revealed the concentration of arsenic to be 747,000 mg/kg. The arsenic speciation determined that the arsenic is an arsenite compound (As+3). The analysis for total metals revealed a relative absence of calcium, lead, sodium and other metals which would help to pinpoint the specific compound. By a process of elimination, the compound is most likely arsenic trioxide, which was used historically as an herbicide, which may explain its presence in the predominantly agricultural area surrounding the site.

The KDEP referral cited the possibility that a portion of the land was once used as a plant nursery or fruit orchard based on historical aerial photography. The START contractors utilized an X-Ray Fluorescence (XRF) instrument for real-time detection of metals in soil. XRF readings for this area were within normal range for background, and the previous existence of a plant nursery or fruit

orchard could not be confirmed. However, further XRF readings at the Site did confirm the presence of arsenic dust inside the single family home at an estimated concentration of 770 mg/kg.

3. Recommendation

Part 302.4 of Title 40 of the Code of Federal Regulations lists arsenic as a hazardous substance under section 102(a) of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). Based on analytical results provided by KDEP, arsenic present at this Site may also be a hazardous waste pursuant to the Resource Conservation and Recovery Act (RCRA) by virtue of its toxicity characteristic (EPA HW No. D004 in 40 CFR § 261.24(b)).

According to the EPA Air Toxics website http://www.epa.gov/ttnatw01/hlthef/arsenic.html "Acute (short-term) high-level inhalation exposure to arsenic dust or fumes has resulted in gastrointestinal effects (nausea, diarrhea, abdominal pain); central and peripheral nervous system disorders have occurred in workers acutely exposed to inorganic arsenic. Chronic (long-term) inhalation exposure to inorganic arsenic of humans is associated with irritation of the skin and mucous membranes and effects in the brain and nervous system. Chronic oral exposure to elevated levels of inorganic arsenic has resulted in gastrointestinal effects, anemia, peripheral neuropathy, skin lesions, hyperpigmentation, and liver or kidney damage in humans. Inorganic arsenic exposure of humans, by the inhalation route, has been shown to be strongly associated with lung cancer, while ingestion of inorganic arsenic by humans has been linked to a form of skin cancer and also to bladder, liver, and lung cancer. EPA has classified inorganic arsenic as a known human carcinogen."

Section 300.415 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) lists factors to be considered in determining the appropriateness of a removal action. Paragraphs (b)(2)(i), (ii), (iv), (v), and (vii) directly apply to the Site:

300.415(b)(2)(i): Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants.

Although the home isn't presently occupied, the extremely high total arsenic concentrations in the source area constitutes a potential human exposure pathway. As mentioned previously, there is documented evidence of arsenic migration into the home. Furthermore, there are limited controls on access to the Site, and the threat of direct contact with the arsenic compound and potential exposure to animals is significant.

300.415(b)(2)(ii): Actual or potential contamination of drinking water supplies or sensitive ecosystems.

There is documented evidence of a drinking water well at the Site. It is unknown whether the arsenic contamination has migrated downward to an extent where the drinking water supply would be impacted, but the potential is there due to the high concentrations of arsenic at the surface.

300.415(b)(2)(iv): High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate.

The evidence of arsenic migration at the surface is documented by the KDEP discovery that arsenic wastes were discovered at distances up to 120 feet away from the source area.

300.415(b)(2)(v): Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

The arsenic deposited at the surface is in a physical state that would allow migration to other areas via runoff from significant rain events and high winds.

300.415(b)(2)(vii): The availability of other appropriate federal or state response mechanisms to respond to the release.

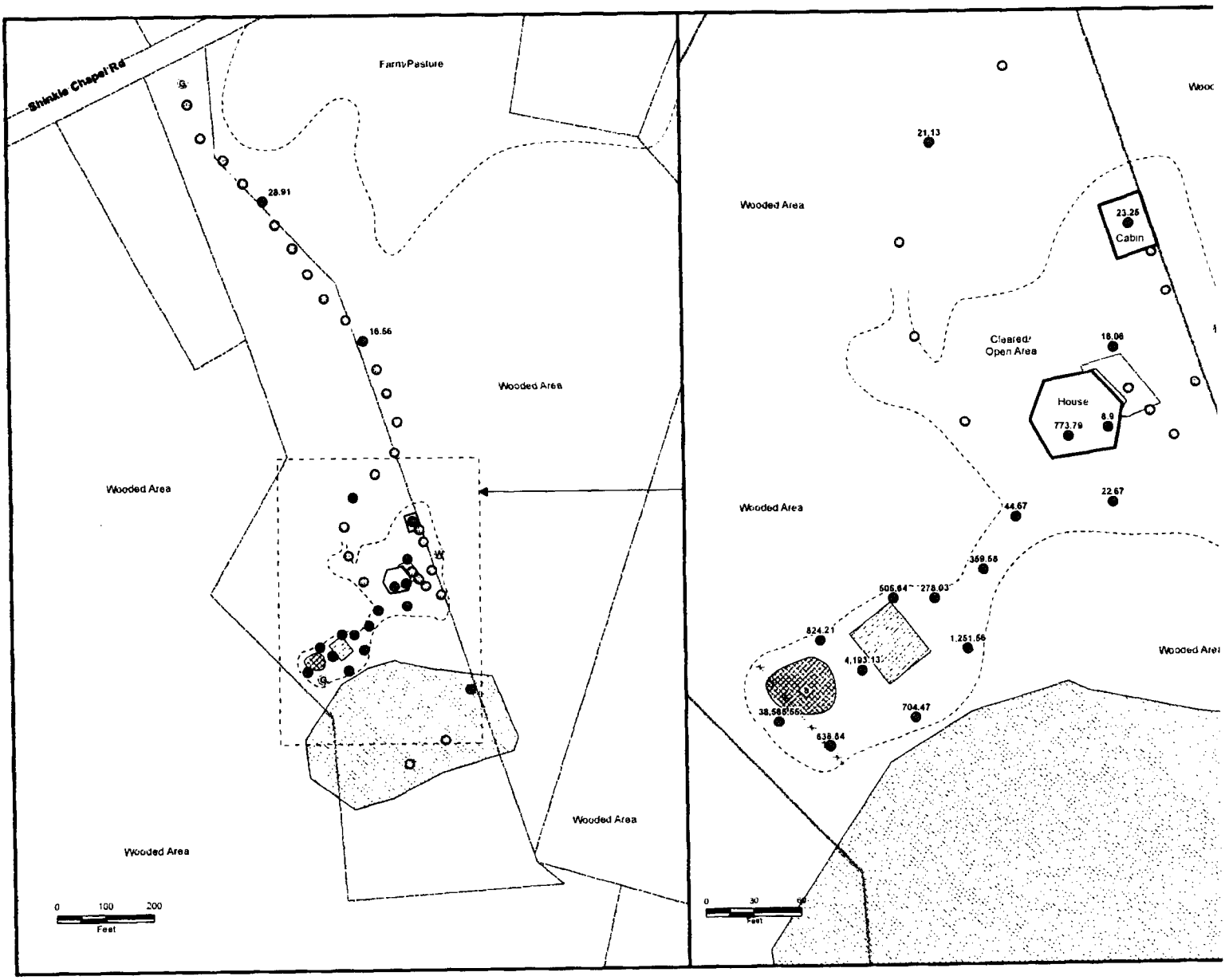
At this time, there are no other federal or state government mechanisms that are able to respond to this incident in a timely manner and with the resources needed to assume the cleanup.

Actual or threatened releases of hazardous substances and/or pollutants from this Site, if not addressed, may present an imminent and substantial endangerment to public health, welfare, or the environment. As such, I recommend that a time-critical removal action be taken at this Site to mitigate the potential threats human health and the environment.

Concur - Matt Taylor

6-8-2015

Figure X – Site Layout with XRF Screening Results and Sample Location


Shinkle Chapel Rd
Farm/Pasture
28.91
16.56
Wooded Area
Wooded Area
Wooded Area
Wooded Area
0
100
200
Feet
21.13
Wooded Area
23.26
Cabin
Cleared/
Open Area
18.06
House
773.79
6.9
22.67
Wooded Area
44.67
359.56
505.64
278.03
824.21
1,251.56
4,193.13
704.47
638.84
0
30
Feet

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September 1, 2015

4WD-ERRPB

ACTION MEMORANDUM

SUBJECT: Action Memorandum for a Removal Action at the Wiley Property Site pursuant to the On-Scene Coordinator's delegated authority under CERCLA Section 104.

FROM: Art Smith, On-Scene Coordinator (OSC)
Emergency Response and Removal Branch

THRU: James Webster, Chief
Emergency Response, Removal and Prevention Branch

TO: Site File

I. Purpose

The purpose of this Action Memorandum is to document the decision to initiate the time-critical removal action described herein for the Wiley Property Site (the Site) located in Hartford, Ohio County, Kentucky. This removal action is pursuant to the OSC's $50,000 programmatic authority under CERCLA Regional Delegation 14-2 for a time-critical removal action where site conditions do not constitute an emergency.

II. Site Information

A. Site Description

Site Name: Wiley Property
Superfund Site ID (SSID): B45H
NRC Case Number: None
CERCLIS Number: KYN000403430
Site Location: Shinkle Chapel Road, Hartford, KY 40210
Lat/Long: 37.5123000° North 86.9653010° West
Potentially Responsible Party (PRP): Unknown
NPL Status: Non-NPL

B. Site Background

1. Removal Site Evaluation

In August 2014, the last known occupant of the residence at 209 Shinkle Chapel Road contacted the Kentucky Department for Environmental Protection (KDEP) with a concern about an unknown white powdery substance at the Site. KDEP reported that the former occupant bred dogs at the Site and that the females were found to be sterile while others suffered from tumors. The former occupant was concerned about potential exposure to her family members while they lived at the property.

In September 2014, KDEP performed an initial visual investigation at the Site. They confirmed an area where the white substance was located in an area devoid of vegetation and approximately 30 feet in diameter. Samples were collected in October 2014, and analysis of the samples collected from this area revealed total arsenic at levels up to 525,000 milligrams/kilogram (mg/kg). The Toxicity Characteristic Leaching Procedure (TCLP) was performed on the sample with the highest total arsenic level and the result came back as 618 milligrams/liter (mg/L) leachable arsenic. Additional investigation and sampling in October 2014 documented that the arsenic contamination had migrated downhill a distance of approximately 120 feet to the north and west of the source area.

On November 14, 2104, the KDEP Superfund Branch formally requested that the U.S. EPA conduct a Removal Site Evaluation (RSE) at the Site. On March 24, 2015, the Region 4 Superfund Technical Assistance and Response Team (START) contractor mobilized to the Site to collect samples. The purpose was to confirm the 2014 KDEP findings and to explore the potential for additional migration pathways at the Site. Also, a subset of samples were run for arsenic speciation in an attempt to identify the specific arsenic compound at the Site.

The sample collected from the source area was analyzed for total arsenic and the analysis revealed the concentration of arsenic to be 747,000 mg/kg. The arsenic speciation determined that the arsenic is an arsenite compound (As+3).

Based on this information, the OSC completed the removal site evaluation under 40 CFR Section 300.410, and concluded that the site meets the National Contingency Plan (NCP) criteria for a time-critical removal action.

2. Physical location and Site characteristics

The Site is located on 10.2 acres of property at 209 Shinkle Chapel Road in Hartford, Ohio County, Kentucky. The geographic coordinates of the Site are

37.5123000° North and 86.9653010° West. The Site is bordered to the north by Shinkle Chapel Road, and by wooded, rural, and agricultural lands to the east, south, and west. There are 10 homes located within a half-mile radius of the Site.

The Site has a single family home which is currently unoccupied.

3. Release or threatened release into the environment of a hazardous substance, pollutant or contaminant

Arsenic is a hazardous substance as defined by section 101(14) of CERCLA

III. Threats to Public Health Welfare or the Environment

A. Nature of Actual or Threatened Release of Hazardous Substances, Pollutants or Contaminants.

Threats are present at this Site in the form of potential direct contact with identified hazardous substances due to lack of controls on access. Damage to the single family home documents the fact that trespassing is ongoing and represents the existence of a completed exposure pathway. In addition, the KDEP investigation documented that the arsenic compound has migrated down a hillside toward a surface water feature. There is a threat of a release of arsenic to the nearby stream.

B. Check applicable factors (from 40 CFR 300.415) which were considered in determining the appropriateness of a removal action:

_x_ Actual or potential exposure to nearby human populations, animals or the food chain from hazardous substances or pollutants or contaminants [300.415(b)(2)(i)].

x_ Actual or potential contamination of drinking water supplies or sensitive ecosystems [300.415(b)(2)(ii)].

__ Hazardous substances or pollutants or contaminants in drums, barrels, tanks, or other bulk storage containers, that pose a threat of release [300.415(b)(2)(iii)].

_x_ High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate [300.415(b)(2)(iv)].

_x_ Weather conditions that may cause hazardous substances or pollutants to migrate or to be released [300.415(b)(2)(v)].

__ Threat of fire or explosion [300.415(b)(2)(vi)].

_x_ The availability of other appropriate federal or state response mechanisms to respond to the release [300.415(b)(2)(vii)].

__ Other situations or factors that may pose threats to the public health or welfare of the United States or the environment [300.415(b)(2)(viii)].

IV. Selected Removal Action and Estimated Costs

A. Situation and Removal Activities to Date

1. Current Situation

The Site is currently unoccupied. The arsenic source is uncovered and exposed to the elements. In addition, arsenic waste has migrated down the hillside away from the source toward a nearby stream.

2. Removal activities to date: None

3. Enforcement

The preliminary title search is inconclusive as to who were the previous owners and operators of the Site during the period when hazardous substances were released to the environment. A full PRP search is currently underway. However, the threats are related to the uncontrolled release of arsenic and its potential to migrate away from the source. The scope of this removal action is limited to controlling the release and migration of arsenic to the environment.

B. Planned Removal Actions

1. Proposed action description

The removal action will involve limited excavation and removal in visibly contaminated areas followed by consolidation and stockpiling of the arsenic compound. The stockpile will be covered and a construction fence installed with signs warning trespassers to stay away. Crushed rock and gravel will also be delivered and placed on the site to construct a clean work area for a decontamination pad and a command post.

2. Contribution to remedial performance

The proposed actions will, to the extent practicable, contribute to the efficient performance of any long-term remedial action at the site.

3. ARARs

Removal actions conducted under CERCLA are required to attain ARARs to the extent practicable. The OSC will consult with KDEP to identify if any ARARs are in effect for this removal action.

4. Project Schedule

The removal action will begin within 72 hours of notification to the OSC that contractual arrangements have been approved and funded. It is expected that the removal activities covered under this Action Memo will be completed within 7-8 working days of mobilization to the Site.

C. **Estimated Costs***

Contractor costs (ERRS/START staff, travel, equipment)	**$43,571**
Other Extramural Costs (Strike Team, other Fed Agencies)	
Contingency costs (up to 20% of subtotal)	**$6,429**
Total Removal Project Ceiling	**$50,000**

*EPA direct and indirect costs, although cost recoverable, do not count toward the Removal Ceiling for this removal action. Liable parties may be held financially responsible for costs incurred by the EPA as set forth in Section 107 of CERCLA. "

V. **Expected Change in the Situation Should Action Be Delayed or Not Taken**

A delay in action or no action at this Site would increase the actual or potential threats to the public health and/or the environment.

VI. **Outstanding Policy Issues:** None

VII. **Approvals**

This decision document represents the selected removal action for this Site, developed in accordance with CERCLA as amended, and not inconsistent with the National Contingency Plan. This decision is based on the administrative record for the Site.

Conditions at the site meet the NCP section 300.415(b) criteria for a removal action and through this document, I am approving the proposed removal actions. The total project ceiling is $50,000, and this amount will be funded from the Regional removal allowance.

Art Smith

Art Smith
On-Scene Coordinator

9/1/2015
Date

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U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Wiley Property (aka Ohio County Arsenic Site) - Removal Polrep
Initial Removal Polrep

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IV

Subject:	**POLREP #1** **Initial Polrep** **Wiley Property (aka Ohio County Arsenic Site)** **Hartford, KY** **Latitude: 37.5123000 Longitude: -86.9653010**
To:	James Webster, USEPA R4 ERRB Larry Hughes, KYDEP
From:	Art Smith, On-Scene Coordinator
Date:	10/14/2015
Reporting Period:	3/24/2015 through 10/14/2015

1. Introduction

1.1 Background

Site Number:	B45H	**Contract Number:**	EP-S4-15-04
D.O. Number:	0007	**Action Memo Date:**	9/1/2015
Response Authority:	CERCLA	**Response Type:**	Time-Critical
Response Lead:	EPA	**Incident Category:**	Removal Action
NPL Status:	Non NPL	**Operable Unit:**	
Mobilization Date:	10/13/2015	**Start Date:**	10/13/2015
Demob Date:		**Completion Date:**	
CERCLIS ID:	KYN000403430	**RCRIS ID:**	
ERNS No.:		**State Notification:**	
FPN#:		**Reimbursable Account #:**	

1.1.1 Incident Category

CERCLA Incident Category: Abandoned Residential Property

1.1.2 Site Description

1.1.2.1 Location

The Wiley Property Site is located at 209 Shinkle Chapel Road in Hartford, Ohio County,Kentucky. The geographic coordinates of the Site are 37.5123000° North and 86.9653010° West. The Site consists of two parcels of land. The first residential tract is designated as Tax/Parcel ID 73-17-1 in the records for Ohio County, KY comprising 10.2 acres. This property is currently held by Wells Fargo Bank, following a

foreclosure and Master Commissioner's sale in 2014. There are two improvements on Tax/Parcel ID 73-17-1: a single family home and an outbuilding.

The second tract making up the Site is designated as Tax/Parcel ID 73-17 in the records for Ohio County, KY. This parcel is privately owned and a portion of this property was subdivided to sell Parcel 73-17-1 in 2007. There are reports of an old barn on this property which was subsequently destroyed, thus suggesting that the past use of the property was for agricultural purposes.

The Site is bordered to the north by Shinkle Chapel Road, and by wooded, rural, and agricultural lands to the east, south, and west. There is an abandoned single family dwelling on the property, and there are 10 homes located within a half-mile radius of the Site.

1.1.2.2 Description of Threat

Direct contact with high concentrations of arsenic trioxide, a listed hazardous substance

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

In August 2014, the last known occupant of the residence at 209 Shinkle Chapel Road contacted the Kentucky Department for Environmental Protection (KDEP) with a concern about an unknown white powdery substance at the Site. KDEP reported that the former occupant bred dogs at the Site and that the females were found to be sterile while others suffered from tumors. The former occupant was concerned about potential exposure to her family members while they lived at the property.

In September 2014, KDEP performed an initial visual investigation at the Site. They confirmed an area where the white substance was located in an area devoid of vegetation and approximately 30 feet in diameter. Samples were collected in October 2014, and analysis of the samples collected from this area revealed total arsenic at levels up to 525,000 milligrams/kilogram (mg/kg). The Toxicity Characteristic Leaching Procedure (TCLP) was performed on the sample with the highest total arsenic level and the result came back as 618 milligrams/liter (mg/L) leachable arsenic. Additional investigation and sampling in October 2014 documented that the arsenic contamination had migrated downhill a distance of approximately 120 feet to the north and west of the source area.

On November 14, 2104, the KDEP Superfund Branch formally requested that the U.S. EPA conduct a Removal Site Evaluation (RSE) at the Site.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

2.1.2 Response Actions to Date

On March 24, 2015, the Region 4 Superfund Technical Assistance and Response Team (START) contractor Tetra Tech EMI mobilized to the Site to collect samples. The purpose was to confirm the 2014 KDEP findings and to explore the potential for additional migration pathways at the Site. Also, a subset of samples were run for arsenic speciation in an attempt to identify the specific arsenic compound at the Site. (See Figure X located under the Documents tab of the website: www.epaosc.org/wileyproperty for locations of areas which were surveyed for total arsenic and leachable arsenic by both EPA and KDEP).

The sample collected from the source area was analyzed for total arsenic and the analysis revealed the concentration of arsenic to be 747,000 mg/kg. The arsenic speciation determined that the arsenic is an arsenite compound (As+3). The analysis for total metals revealed a relative absence of calcium, lead, sodium and other metals which would help to pinpoint the specific compound. By a process of elimination, the compound is most likely arsenic trioxide, which was used historically as an herbicide, which may explain its presence in the predominantly agricultural area surrounding the site.

The KDEP referral cited the possibility that a portion of the land was once used as a plant nursery or fruit orchard based on historical aerial photography. The START contractors utilized an X-Ray Fluorescence

(XRF) instrument for real-time detection of metals in soil. XRF readings for this area were within normal range for background, and the previous existence of a plant nursery or fruit orchard could not be confirmed. However, further XRF readings at the Site did confirm the presence of arsenic dust inside the single family home at an estimated concentration of 770 mg/kg.

2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

The preliminary title search is inconclusive as to who were the previous owners and operators of the Site during the period when hazardous substances were released to the environment. A full PRP search is currently underway.

2.1.4 Progress Metrics

Waste Stream	*Medium*	*Quantity*	*Manifest #*	*Treatment*	*Disposal*

2.2 Planning Section

2.2.1 Anticipated Activities

2.2.1.1 Planned Response Activities

On 10/13/2015, the OSC and the Emergency and Rapid Response Services (ERRS) contractor CMC, Inc. mobilized to the Site to begin a time -critical removal action. The initial phase of this removal action is being conducted pursuant to the OSC's $50,000 programmatic authority under CERCLA Regional Delegation 14-2 for a time-critical removal action where site conditions do not constitute an emergency.

The first phase of the removal action mainly consists of site preparation work. The activities include re-building the access road into the Site, constructing a staging area for personnel and equipment, and clearing the overgrown weeds. It will also involve consolidating waste materials in a covered stockpile, and erecting a fence with signs to warn of the arsenic hazard. This phase of the work should be completed within a week's time.

2.2.1.2 Next Steps

Beginning on 10/20/2015, additional environmental samples will be collected by the START contractor in order to complete the removal site evaluation. The samples will be collected from areas downhill of the place where the waste was initially discovered. This will help to determine the volumes of waste material and contaminated soils to be removed at a later date. In addition, air and dust samples will be collected inside the home to evaluate the potential exposure risk to arsenic in a residential setting.

2.2.2 Issues

The high arsenic concentrations at the surface may pose an airborne particulate exposure threat to site workers. During the initial phase of the removal action, ERRS personnel will wear personal sampling devices while managing the waste stockpile. The results will be evaluated to determine if compliance with the OSHA Arsenic Standard will be required for full-scale cleanup activities.

2.3 Logistics Section

No information available at this time.

2.4 Finance Section

Estimated Costs *

	Budgeted	Total To Date	Remaining	% Remaining
Extramural Costs				
ERRS - Cleanup Contractor	$50,000.00	$0.00	$50,000.00	100.00%
Intramural Costs				
Total Site Costs	$50,000.00	$0.00	$50,000.00	100.00%

* The above accounting of expenditures is an estimate based on figures known to the OSC at the time this report was written. The OSC does not necessarily receive specific figures on final payments made to any contractor(s). Other financial data which the OSC must rely upon may not be entirely up-to-date. The cost accounting provided in this report does not necessarily represent an exact monetary figure which the government may include in any claim for cost recovery.

2.5 Other Command Staff

No information available at this time.

3. Participating Entities

No information available at this time.

4. Personnel On Site

No information available at this time.

5. Definition of Terms

No information available at this time.

6. Additional sources of information

No information available at this time.

7. Situational Reference Materials

No information available at this time.

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ENERGY AND ENVIRONMENT CABINET

Matthew G. Bevin
Governor

DEPARTMENT FOR ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
200 FAIR OAKS LANE, 2ND FLOOR
FRANKFORT, KENTUCKY 40601
PHONE (502) 564-6716
www.dep.ky.gov

Charles G. Snavely
Secretary

March 30, 2016

Mr. Art Smith, OSC
U.S. EPA, Region IV
Emergency Response and Removal Branch
61 Forsyth Street, SW
Atlanta, GA 30303

Re: **Request for Identification of State ARARs Response**
WILEY PROPERTY
Agency Interest Number (AI #): 124089
209 SHINKLE CHAPEL ROAD
HARTFORD, KY 42347
OHIO COUNTY

Dear Mr. Smith:

The Kentucky Division of Waste Management (KDWM) Superfund Branch (SFB) has received your letter dated February 25, 2016, in which you requested that KDWM identify any state environmental statutes and regulations that are potential Applicable or Relevant and Appropriate Requirements (ARARs) for the above referenced site.

Since it is likely that any responsible party would only be an owner-possessor responsibility party and not financially solvent, a formal corrective action plan for the site is not expected to be submitted. Therefore, KDWM can only provide you with a list of ARARs that we believe could potentially apply to future remedial activities at the site.

KDWM has prepared a list of statutes and regulations which we believe may be ARARs for the site. This information has been provided in tabular form.

Kentucky avers that the environmental statutes and regulations listed in the attached table do meet the definition of ARARs as stated in Section 300.5 of the National Contingency Plan (NPC). They have all been promulgated and are legally enforceable, are more stringent than Federal requirements, and have been identified in a timely manner. For your information, the Legistlative Research Commission has Kentucky regulations and statutes on the Internet. The

website address for **regulations** is http://www.lrc.ky.gov/kar/title401.htm and for **statutes**, the address is http://www.lrc.ky.gov/krs/titles.htm.

We appreciate your consideration of this submittal and we trust that you will agree with Kentucky that the identified statues and regulations are ARARs for the above referenced site. Should you have any questions or need additional information, please contact us at 502-564-6716.

Sincerely,

Larry D. Hughes, P.G.
Registered Geologist Branch Manager
Superfund Branch

LDH/sg

ec: Tony Hatton, P.G. Director KDWM
Tim Hubbard, P.G. Asst. Director KDWM
Larry Hughes, P.G. Branch Manger Superfund Branch, KDWM
Cliff Hall, P.G. State Lead Section Supervisor, Superfund Branch, KDWM
Christoph Uhlenbruch, P.G. Federal Section Supervisor, Superfund Branch KDWM
Eric Brown, State Lead Section Project Manager, Superfund Branch KDWM

Wiley Property Site--List of Kentucky ARARs
AI# 124089
Prepared March 30, 2016

Standard, Requirement, Criteria or Limitation	Citation	Description	Applicable or Relevant and Appropriate	Commen
Remedial Action to Restore the Environment	KRS 224.1-400	Regulates releases to the environment and corrective action	Applicable	
Remediation Requirements	401 KAR 100:030	Regulates characterization and remediation requirements;	Applicable	
Kentucky Guidance fo Ambient Background Assessment	401 KAR 100:030	Establishes guidance for determining background levels	Relevant and Appropriate	
Prohibitions relating to practice of geology by person who is not a registered geologist	KRS 322A.090	Establishes requirement for persons practicing geology to be registered in Kentucky	Relevant and Appropriate	
Screening levels relating to remediation--Tiered remediation management--Administrative Regulations	KRS 224.01-530	Establishes screening levels for remediation in Kentucky	Applicable	Kentucky RSLs
Environmental Covenants	KRS 224.80	Provides for institutional control property use restrictions for managing contamination in place	Relevant and Appropriate	Applicabl unrestric residenti managec
Environmental Performance Standards	401 KAR 30:031	Minimum environmental performance standards for a waste site or facility	Applicable	
RCRA	401 KAR 30-40	Establishes hazardous waste regulations	Applicable	Kentucky Federal F

Air Quality	401 KAR 58	Establishes asbestos regulations	Applicable	Kentucky federal A regulatio
Groundwater protection plan	401 KAR 5:037	Requires written plan to ensure protection of groundwater from site activities.	Applicable	
Certification of water well drillers	401 KAR 6:320	Establishes requirement that well drillers in Kentucky be certified by the Division of Water	Relevant and Appropriate	
Monitoring well construction practices and standards.	401 KAR 6:350	Regulates monitoring well construction, modification, and abandonment	Applicable	
Water supply well construction practices and standards	401 KAR 6:310	Regulates water well construction, modification, and abandonment –Drinking, irrigation, geothermal open loop wells, etc	Applicable	
Scope and applicability of the KPDES program	401 KAR 5:055	Requires KPDES permit for disturbance of land > 1 acre	Applicable	

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

JUN 28 2016

Mr. Larry Hughes
Kentucky Department for Environmental Protection
200 Fair Oaks Lane
Frankfort, KY 40601

Dear Mr. Hughes:

We are pleased to provide a copy of the Ceiling Increase Action Memorandum for the Wiley Property Site (the Site) located in Hartford, Ohio County, Kentucky. If you have any questions or comments concerning this document or the continuation of the removal activities at this Site, please contact the On-Scene Coordinator at the following address:

Art Smith, OSC USEPA
600 MLK Jr. Place
Ramano L. Mazzoli Federal Building
Room 172A
Louisville, KY 40202

Sincerely,

06/28/2016

James W. Webster, Chief
Emergency Response, Removal and Prevention Branch

Enclosure

cc: Dawn Taylor
James Webster
Matt Taylor
Subash Patel
Kerri Sanders
Art Smith
Lloyd Bates
Anita Davis
Ronald Saskowski
Chris Masterson
Paula Painter
Katrina Jones
Dora Ann Johnson
Charlotte Whitley

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

ACTION MEMORANDUM

SUBJECT: Request for a Change of Scope and Ceiling Increase for a Removal Action at the Wiley Property Site, Hartford, Ohio County, Kentucky

FROM: Art Smith
On-Scene Coordinator

THRU: James W. Webster, Chief
Emergency Response, Removal and Prevention Branch

04/14/2016

TO: Franklin E. Hill, Director
Superfund Division

I. PURPOSE

The purpose of this Action Memorandum pursuant to Section 104 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) is to request authorization for a change in scope and an increase in the project ceiling for the time-critical removal action initiated previously at the Wiley Property Site (the Site), located in Hartford, Ohio County, Kentucky. The Site continues to pose a threat to public health and the environment that meets the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) Section 300.415(b)(2) criteria for removal actions. A change in the scope of the project and a ceiling increase are necessary to complete the removal of contaminated soils at residential locations where arsenic concentrations at the surface exceed the U.S. Environmental Protection Agency's Removal Management Levels (RML) for residential areas.

The new total project ceiling, if approved, will be $1,850,000, of which an estimated $1,450,000 will be funded through the Regional Removal Allowance. This ceiling includes the costs for all the actions contemplated in this Action Memorandum.

II. SITE CONDITIONS AND BACKGROUND

Site ID (SSID):	B45H
CERCLIS ID:	KYN000403430
NPL Status:	Non-NPL
Removal Category:	Time-Critical Removal

A. Site Description

1. Removal Site Evaluation

In August 2014, the last known occupant of the residence at 209 Shinkle Chapel Road contacted the Kentucky Department for Environmental Protection (KDEP) with a concern about an unknown white powdery substance at the Site. KDEP reported that the former occupant bred dogs at the Site and that the females were found to be sterile while others suffered from tumors. The former occupant was concerned about potential exposure to her family members while they lived at the property.

In September 2014, KDEP performed an initial visual investigation at the Site. They confirmed an area where the white substance was located in an area devoid of vegetation and approximately 30 feet in diameter. Samples were collected in October 2014, and analysis of the samples collected from this area revealed total arsenic at levels up to 525,000 milligrams/kilogram (mg/kg). The Toxicity Characteristic Leaching Procedure (TCLP) was performed on the sample with the highest total arsenic level and the result came back as 618 milligrams/liter (mg/L) leachable arsenic. Additional investigation and sampling in October 2014 documented that the arsenic contamination had migrated downhill a distance of approximately 120 feet to the north and west of the source area.

On November 14, 2014, the KDEP Superfund Branch formally requested that the EPA conduct a Removal Site Evaluation (RSE) at the Site. On March 24, 2015, the Region 4 Superfund Technical Assessment and Response Team (START) contractor mobilized to the Site to collect samples. The purpose was to confirm the 2014 KDEP findings and to explore the potential for additional migration pathways at the Site. Also, a subset of samples were run for arsenic speciation in an attempt to identify the specific arsenic compound at the Site.

The sample collected from the source area was analyzed for total arsenic and the analysis revealed the concentration of arsenic to be 747,000 mg/kg. The arsenic speciation determined that the arsenic is an arsenite compound (As+3).

Based on this information, the On-Scene Coordinator (OSC) completed the RSE under 40 CFR Section 300.410, and concluded that the Site meets the National Contingency Plan (NCP) criteria for a time-critical removal action.

On October 20 and 21, 2015, START's Tetra Tech and OTIE contractors conducted the following sampling activities at the Site:

- X-ray fluorescence (XRF) soil and sediment screening
- Vacuum sampling and air sampling from within the interior of the single family residence

- Surface and subsurface soil sampling at various locations on-site
- Surface sediment sampling from a dry creek bed located directly down-gradient of the source area

All samples collected from the inside of the residence were analyzed for the presence of arsenic and were found to be non-detect.

However, arsenic was detected in sediments along the entire 1,800-foot segment of the dry creek bed that was surveyed in concentrations ranging from 130 mg/kg to 4,200 mg/kg. Approximately 700 feet of the dry creek leading to the confluence with Little No Creek remains uncharacterized due to access issues encountered during the October 2015 sampling investigation.

(See Attachment A for maps detailing the sample locations and results obtained during the RSE).

In February 2016, the OSC directed the OTIE START contractor to collect samples of surface water runoff in the stream beds which drain the Site to the north and south. The surface water sample in the northern drainage feature was revealed to contain 0.507 milligrams per liter (mg/l) of arsenic. This exceeds the Water Quality Criteria (WQC) adopted by the Commonwealth of Kentucky of 0.340 mg/l, based on acute toxicity to aquatic species. The surface water feature in the southern drainage feature was discovered to be non-detect for arsenic.

2. Physical Location and Site Characteristics

The Wiley Property Site consists of two parcels in Hartford, Ohio County, Kentucky. The first tract is designated as Tax/Parcel ID 73-17-1 in the records for Ohio County, KY. This tract comprises 10.2 acres and is located at 209 Shinkle Chapel Road. This property is currently held by Wells Fargo Bank, following a foreclosure and Master Commissioner's sale in 2014. There are two improvements on Tax/Parcel ID 73-17-1: a single-family home (currently unoccupied) and an outbuilding.

The second tract making up the Site is designated as Tax/Parcel ID 73-17 in the records for Ohio County, KY. This parcel is privately owned, and a portion of this property was subdivided to sell Parcel 73-17-1 in 2007. There are reports of an old barn on this property which was subsequently destroyed, thus suggesting that the past use of the property was for agricultural purposes.

The Site is bordered to the north by Shinkle Chapel Road, and by wooded, rural and agricultural lands to the east, south and west. There are 10 homes located within a half-mile radius of the Site.

3. Release or Threatened Release Into the Environment of a Hazardous Substance, Pollutant or Contaminant

Part 302.4 of Title 40 of the Code of Federal Regulations lists arsenic as a hazardous substance under section 102(a) of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA). Based on analytical results provided by KDEP, arsenic present at this Site may also be a hazardous waste pursuant to the Resource Conservation and Recovery Act (RCRA) by virtue of its toxicity characteristic (EPA HW No. D004 in 40 CFR § 261.24(b)).

4. NPL Status

The Site is not proposed for the National Priorities List (NPL). The Site was screened for inclusion on the NPL, but it will not score.

B. Other Actions to Date

1. Previous actions

On October 13, 2015, the OSC mobilized to the Site with Emergency and Rapid Response Services (ERRS) contractor CMC, Inc. to begin a time-critical removal action under his $50,000 programmatic authority. Actions taken at that time were focused on consolidation and stockpiling of the arsenic compound. The area was fenced, and signs warning of the arsenic hazard were posted at the Site. The initial Action Memo is provided as Attachment B for reference.

C. State and Local Authorities' Roles

1. State and local actions to date

KDEP's initial referral to the EPA included two former storage tanks which were found abandoned at a nearby location along Shinkle Chapel Road. These tanks were sampled by KDEP and found to contain the same arsenic compound discovered at the Site. In January 2015, KDEP informed the EPA that it will dispose of the arsenic waste found in the two storage tanks. The tanks were removed in March 2015. Subsequently, KDEP has tracked arsenic contamination in sediments in a drainage ditch downstream of the former storage tank location, and is currently developing a remediation plan for that Site.

2. Potential for continued state/local response

As cited previously, KDEP requested that the EPA Region 4 take a time-critical removal action at this Site. State and local agencies do not have sufficient funds to conduct additional site response activities in a timely manner.

III. THREATS TO PUBLIC HEALTH WELFARE OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES

Conditions at the Site may present a threat to public health or welfare, and meet the criteria for initiating a removal action under 40 CFR Section 300.415(b)(2) of the NCP. The following factors from Section 300.415(b)(2) of the NCP form the basis for the EPA's determination of the threat presented, and the appropriate actions to be taken:

300.415(b)(2)(i): Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants.

Although the home is not presently occupied, the extremely high total arsenic concentrations in the source area constitutes a potential human exposure pathway. As mentioned previously, there is documented evidence of arsenic migration into the home. Furthermore, there are limited controls on access to the Site, and the threat of direct contact with the arsenic compound and potential exposure to animals and the food chain is significant.

According to the EPA Air Toxics website (http://www.epa.gov/ttnatw01/hlthef/arsenic.html), "Acute (short-term) high-level inhalation exposure to arsenic dust or fumes has resulted in gastrointestinal effects (nausea, diarrhea, abdominal pain); central and peripheral nervous system disorders have occurred in workers acutely exposed to inorganic arsenic. Chronic (long-term) inhalation exposure to inorganic arsenic of humans is associated with irritation of the skin and mucous membranes and effects in the brain and nervous system. Chronic oral exposure to elevated levels of inorganic arsenic has resulted in gastrointestinal effects, anemia, peripheral neuropathy, skin lesions, hyperpigmentation, and liver or kidney damage in humans. Inorganic arsenic exposure of humans, by the inhalation route, has been shown to be strongly associated with lung cancer, while ingestion of inorganic arsenic by humans has been linked to a form of skin cancer and also to bladder, liver and lung cancer. The EPA has classified inorganic arsenic as a known human carcinogen."

In order to be protective of both human health and the environment, the OSC solicited input from the EPA Region 4 Office of Technical Services (OTS). The following cleanup criteria has been developed for this time-critical removal action:

Residential Property:

Areas found to have arsenic concentrations at the surface at 68 mg/kg or above will be excavated to a depth of 1.5 feet below land surface (BLS) and backfilled with clean soil.

Non-Residential Property:

Areas found to have arsenic concentrations at the surface at 420 mg/kg or above will be excavated to a depth of 1.5 feet BLS.

These cleanup goals for soil removal are based on limiting the excess cancer risk associated with potential exposure to arsenic to a probability of less than 1 in 10,000 people. (1×10^{-4}).

In addition, there is a segment of the dry creek bed along the northern boundary of the Site that is significantly contaminated with arsenic. In order to be protective of species inhabiting this area, an 800-foot segment will be excavated to an average residual arsenic concentration of 50 mg/kg in creek sediments. The parallel goal will be to remove arsenic-contaminated creek sediments such that the WQC of < 0.340 mg/l of arsenic in surface water is attained.

The two risk memos which detail the basis for selection of the cleanup criteria for this Site are provided as Attachment C to this Action Memorandum.

300.415(b)(2)(ii): Actual or potential contamination of drinking water supplies or sensitive ecosystems.

Although there are no known private well users in the vicinity of the Site, there is documented evidence of a drinking water well on the Wiley Property. It is unknown whether the arsenic contamination has migrated downward to an extent where the drinking water supply would be impacted, but the potential is there due to the high concentrations of arsenic at the surface.

300.415(b)(2)(iv): High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate.

The evidence of arsenic migration at the surface is documented by the discovery that arsenic wastes were discovered at distances of up to 1,800 feet away from the source area in creek sediments.

300.415(b)(2)(v): Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

The arsenic deposited at the surface is in a physical state that would allow migration to other areas via runoff from significant rain events and high winds.

300.415(b)(2)(vii): The availability of other appropriate federal or state response mechanisms to respond to the release.

At this time, there are no other federal or state government mechanisms that are able to respond to this incident in a timely manner and with the resources needed to assume the cleanup.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the Removal Action described in this Action Memorandum, may present an imminent and substantial endangerment to public health, welfare or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

The proposed actions are designed to mitigate the current and on-going releases of hazardous substances from the Site, as follows:

a. Remove stockpiled waste materials and dispose of at an approved hazardous waste management facility.
b. Excavate soils on the residential property to an approximate depth of 1.5 feet BLS where arsenic concentrations at the surface are at 68 mg/kg or above and dispose of at a permitted off-site facility.
c. Excavate soils on the non-residential property to an approximate depth of 1.5 feet BLS where arsenic concentrations at the surface are at 420 mg/kg or above and dispose of at a permitted off-site facility.
d. Excavate sediments along an 800-foot segment of the dry creek bed draining the Site along its northern boundary. Excavation will be carried out along this segment until a residual arsenic concentration of 50 mg/kg and compliance with the WQC of 0.340 mg/l for acute toxicity is achieved.
e. Backfill excavated areas on the residential property with clean soil to re-establish vegetative cover and re-grade the areas to promote positive drainage.
f. Re-establish vegetative cover on the non-residential property and re-grade the area to promote positive drainage.

(Note: Please see Attachment D to this Action Memorandum for a map showing the proposed locations of soil and sediment removal at the Site.)

2. Post-Removal Site Controls

This removal action will not require post-removal site controls.

3. Contribution to Remedial Performance

The proposed removal action is intended to mitigate immediate threats to human health and the environment posed by this Site. The removal action proposed by the EPA will not impede future remedial investigations or responses.

4. Description of Alternative Technologies

No alternative technologies are currently proposed for this removal action.

5. EE/CA

The proposed actions herein are considered time-critical, and hence, no EE/CA is required.

6. Applicable or Relevant and Appropriate Requirements (ARARs)

In accordance with the NCP at 40 CFR Section 300.415(j), on-site removal actions conducted under the CERCLA are required to attain applicable or relevant and appropriate requirements (ARAR) to the extent practicable considering the exigencies of the situation or provide grounds for invoking a CERCLA waiver under Section 121(d)(4). In determining whether compliance with ARARs is practicable; the lead agency may consider appropriate factors, including (1) the urgency of the situation; and (2) scope of the removal action to be conducted. Additionally, under 40 CFR Section 300.405(g)(3), other advisories, criteria, or guidance may also be considered (so-called To-Be-Considered or TBC) when conducting the removal action. The site-specific ARARs for this time-critical removal action are listed in Attachment E.

Under CERCLA Section 121(e)(1), federal, state or local permits are not required for the portion of any removal or remedial action conducted entirely on-site as defined in 40 CFR Section 300.5. See also 40 CFR Section 300.400(e)(1) & (2). On-site means the areal extent of contamination and all suitable areas in very close proximity to the contamination necessary for implementation of the response action. On-site response actions must comply, to the extent practicable, with substantive but not administrative requirements of ARARs. Off-site activities such as transportation and disposal of wastes are required to comply with all applicable requirements, including the administrative portions.

As provided in CERCLA Section 121(d)(3) and the Off-site Rule at 40 CFR Section 300.440 *et seq.*, the off-site transfer of any hazardous substance, pollutant or contaminant generated during the response action will be sent to a treatment, storage or disposal facility that is in compliance with applicable federal and state laws and has been approved by the EPA for acceptance of CERCLA waste.

A letter was sent to the Commonwealth of Kentucky on February 25, 2016, requesting identification of any State ARARs for the EPA's consideration prior to continuation of a response action at the Site.

7. **Project schedule**

The removal action will begin as soon as possible after authorization is received to conduct the removal action. It is anticipated that the field work will take approximately 30 days to complete from initiation of soil removal on the residential properties.

B. **Estimated Costs**

Extramural Cost Description	Current Ceiling	Increased Costs	Proposed Ceiling
Regional Removal Allowance Costs:			
Total Cleanup Contractor Costs: (ERRS costs plus 15% contingency)	$ 50,000	$1,400,000	$1,450,000
Other Extramural Costs Not Funded from the Regional Allowance:			
Total START, including multiplier costs	$ 0	$ 100,000	$ 100,000
Subtotal, Extramural Costs	$ 50,000	$1,500,000	$1,550,000
Extramural Costs Contingency (20% of Subtotal, Extramural Costs; round to nearest thousand)		+ $ 300,000	
TOTAL, REMOVAL ACTION PROJECT CEILING	$ 50,000	$1,800,000	$1,850,000

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

A delay in action or no action at this Site would increase the actual or potential threats to the public health and/or the environment.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT

A confidential Enforcement Addendum is included with this Action Memorandum as Attachment F.

The total EPA costs for this removal action based on full-cost accounting practices that will be eligible for cost recovery are estimated at:

Total Removal Project Ceiling	$1,850,000.00
EPA's Direct Intramural Costs	$70,000.00
Subtotal	$1,920,000.00
Regional Indirect Cost (55.33%)*	$1,062,336.00
ESTIMATED TOTAL EPA COSTS	**$2,982,336.00**

IX. RECOMMENDATION

This decision document represents the selected Removal Action for the Wiley Property Site in Hartford, Ohio County, Kentucky, developed in accordance with CERCLA, as amended, and consistent with the NCP. This decision is based on the administrative record for the Site.

Conditions at the Site meet the NCP Section 300.415(b)(2) criteria for a removal, and I recommend your approval of the proposed Removal Action. The total project ceiling if approved will be $1,850,000. This includes the costs for all the actions contemplated in this Action Memorandum. Of this, an estimated $1,450,000 comes from the Regional Removal Allowance.

APPROVED: _____ DATE: 6/22/16
Franklin E. Hill, Director
for Superfund Division

DISAPPROVED: _____ DATE: _____
Franklin E. Hill, Director
Superfund Division

Attachments

*Direct Costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of the removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of total cost estimates nor deviation of actual costs from this estimate will affect the United States' right to cost recovery.

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QUALITY ASSURANCE PROJECT PLAN/SITE SAMPLING PLAN

WILEY PROPERTY REMOVAL SITE
HARTFORD, OHIO COUNTY, KENTUCKY

Revision 1

Prepared for:

U.S. ENVIRONMENTAL PROTECTION AGENCY
Region 4
61 Forsyth Street
Atlanta, Georgia 30303

Prepared by:

Oneida Total Integrated Enterprises
1220 Kennestone Circle, Suite 106
Marietta, Georgia 30066

Contract No.	:	EP-S4-15-01
Task Order No.	:	0001/OT-01-008
Date Submitted	:	July 22, 2016
EPA Task Monitor	:	Art Smith
Telephone No.	:	502-582-5161
Prepared by	:	Stacey DeLaReintrie
Telephone No.	:	678-255-7764

QUALITY ASSURANCE PROJECT PLAN/SITE SAMPLING PLAN
U.S. ENVIRONMENTAL PROTECTION AGENCY (USEPA)
REGION 4 SUPERFUND TECHNICAL ASSESSMENT AND RESPONSE TEAM (START)
ONEIDA TOTAL INTEGRATED ENTERPRISES (OTIE) – CONTRACT EP-S4-15-01

SECTION A: Project Planning Elements	
A1. Title (*Project Name*):	Wiley Property Removal
Project Location:	The Wiley Property is located at 209 Shinkle Chapel Road in Hartford, Ohio County, Kentucky. (Figure 1) The geographic coordinates for an approximate center point of the site are 37.512748 North latitude and -86.964615 West longitude.
Location Description:	The removal area for the site is a residential property surrounded by wooded areas. It encompasses approximately 2 parcels located south of Shinkle Chapel Road and east of Little No Creek. The adjoining property is not residential and is heavily wooded and rural in nature. This removal action will focus on one residential and one non-residential-use parcels where surface soils and sediments were found to be contaminated with levels of arsenic above the Removal Management Level (RML) for direct contact with soil during the 2015 EPA Emergency Response and Removal Branch (ERRB) Removal Investigation.
Originating Organization:	OTIE, 1220 Kennestone Circle, Suite 106, Marietta, Georgia (GA)
Document Version/Date:	Revision 1 / July 22, 2016

Approvals

Approved By: Title	Stacey DeLaReintrie OTIE Project Manager	Date: 07/22/2016	Signature:
Approved By: Title	Limari Krebs OTIE QA/QC Manager	Date: 07/22/2016	Signature:
Approved By: Title	Greg Kowalski OTIE START III Program Manager	Date: 07/22/2016	Signature:
Approved By: Title	Art Smith USEPA On Scene Coordinator (OSC)	Date: 7/25/16	Signature:

A2. Table of Contents	See Page i	
A3. Distribution List	Katrina Jones	USEPA Region 4 Contract Manager
	Art Smith	USEPA Region 4 OSC
	OTIE Files	OTIE, Marietta, GA

A4. Project/Task Organization

Project Personnel	Organization	Responsibilities
See attached organizational chart		

A5. Project Definition and Background

The Kentucky Department for Environmental Protection (KDEP) received a complaint regarding the property. An investigation was conducted in September 2014. Investigation findings included an area approximately 30 feet in diameter covered with white residue. In another area, approximately 75 feet downgradient, dead vegetation was noted.

On March 20, 2015; October 15, 2015, and October 20 and 21, 2015 the surface soils and sediments of one residential and one non-residential-use parcel were screened and sampled as part of the EPA ERRB Removal Investigation. Sampling was conducted to identify the nature and extent of contamination in the surface soils (0-4 inches below ground surface [bgs]) and sediments of the two parcels. A total of 23 grab surface soil and 5 sediment samples were collected for arsenic analysis. Over 300 field samples were screened in situ for Resource Conservation and Recovery Act (RCRA) metals concentrations using a Niton XL3t X-Ray Fluorescence (XRF) instrument to efficiently identify areas with elevated arsenic concentrations in soil. XRF field screening results and laboratory analytical data showed arsenic concentrations exceeding the RMLs for direct contact with residential soil at many locations on both properties. Analytical data show arsenic at 747,000 milligrams per kilogram (mg/kg) at the source pile.

The purpose of this removal action is to remove contaminated soil from the residential-use property where previous sampling by EPA ERRB indicate arsenic contamination in the surface soils at concentrations exceeding the 10^{-4} risk levels (68 parts per million [ppm]), and the adjacent parcel where non-residential use exceedances (420 ppm) were noted. Removal of sediments in the tributary to Little No Creek will also be included in this removal action.

A6. Project Description:

START will provide oversight of removal activities. Soil and sediments will be excavated down to pre-determined depths unless field evidence indicates further excavation is warranted.

It was determined that for the residential property that all areas at 68 ppm arsenic or above at the surface will be excavated to 18-inches bgs and backfilled with clean soil. For the source pile area, excavation will be carried out to a maximum of 60-inches in depth or to less than 68 ppm arsenic, whichever comes first. Excavating down to 18 inches bgs is considered protective of human health and the environment, however if contamination is observed at depths less than or greater than the pre-determined depth, it will be at the discretion of the On-Scene Coordinator (OSC) to designate the depth sufficient to remove contaminated material. Composite soil samples will be collected at the completed excavations at a depth not to exceed 18-inches bgs in the non-source areas and not to exceed 60-inches bgs in the source areas. Soil samples will be collected for documentation purposes only and not as confirmation samples.

For the non-residential parcel, all areas exceeding 420 ppm arsenic at the surface will be excavated to depth of 18-inches bgs and backfilled with clean soil. The adjoining property is not residential and is heavily wooded and rural in nature. The arsenic cleanup goal of less than 420 ppm arsenic at the surface is based on recommendations from the EPA Region 4 Office of Technical Support Services (TSS), which factors in recreational land use. Soil

samples will be collected at the completed excavations at depth not to exceed 18-inches bgs. Soil samples will be collected for documentation purposes only and not as confirmation samples.

Horizontal delineation will be determined via screening with a Niton XL3t XRF analyzer while in the field. This will be done to aid in the decision making process to determine the necessary horizontal extent of excavation. Any confirmatory samples collected during excavation will be at the discretion of the OSC.

Sediments in the 800 foot segment of the tributary to Little No Creek will be excavated to the established cleanup objective of 50 ppm. Confirmatory sediment samples will be collected in 100-foot intervals from the bottom and sidewalls of the excavated creek bed.

Surface water in the tributary to Little No Creek will be sampled following excavation activities at two locations to be determined in the field.

Soil and sediment will be stockpiled on site pending disposal. OTIE will also collect stockpile samples to determine proper disposal.

Applicable regulatory information, actions levels, etc.	**SOIL:**		
	Compound Arsenic	10^{-4} Risk Levels (res) 68 mg/kg	Non-residential 420 mg/kg
	SEDIMENT:		
	Compound Arsenic	50 mg/kg	50 mg/kg
	SURFACE WATER:		
	Compound Arsenic	340 micrograms per liter (µg/L)	340 µg/L
Removal Operations Date(s):	Removal operations will commence July 25, 2016 through TBD.		
Projected Lab Completion Date:	TBD		
Final Report Completion Date:	Final report will be available for review 6 weeks following the completion of this phase of the Removal Action		

A7. Quality Objectives and Criteria

Problem Statement	Elevated concentrations of inorganic arsenic have been identified in the surface soils and sediments of a residential and non-residential property comprising the site. Surface soils were found to have concentrations of arsenic exceeding 10^{-4} risk levels for direct contact. Concentrations of arsenic in creek sediments were discovered which poses an unacceptable risk to the environment.

Identify the Decisions	This removal action will focus on excavation of soils and sediments where elevated levels of arsenic were identified during the EPA ERRB Removal Investigation. The following decisions will be made as follows: (1) Is arsenic present on the residential parcel in surface soils at a concentration of ≥ 68 mg/kg? These areas will require excavation to a depth of 1.5 feet below land surface (BLS) and backfilled with clean soils. (2) Is arsenic present on the non-residential parcel in surface soils at a concentration of ≥420 mg/kg? These areas will require excavation to a depth of 1.5 feet BLS and backfilled with clean soils. (3) Is arsenic present in creek sediments over the 800 foot segment downgradient of the source area at residual average concentrations of ≤50 mg/kg? This will determine when excavation of creek sediments is complete. (4) Is arsenic present in surface water at concentrations exceeding 340 µg/L? This will determine whether additional excavation of creek sediments is required in order to meet the Acute Water Quality criteria established by the Commonwealth of Kentucky. (5) Is arsenic present in soil stockpiles at concentrations exceeding 5.0 milligrams per liter (mg/L), as measured by the Toxicity Characteristic Leaching Procedure (TCLP). This will determine if additional treatment is required in order for the hazardous waste to meet the Land Disposal Restrictions (LDRs).
Decision Inputs	The primary input needed to support the decision making process are the grab samples collected from the previous surface soil and sediment sample event. Secondary decision inputs will be based upon XRF results and may be supported by laboratory samples at the discretion of the OSC.
Study Boundary	The study boundary is shown in Figure 2.
Decision Rule	The decision relating to creek sediments at this Site is what volume requires removal in order to protect the environment and to minimize toxicity impacts to aquatic species.
Error Limits	This sampling effort is designed to sample in areas where surface soil contamination in known to exist based on evidence gathered during previous investigations. However, random and systematic errors could be introduced during sample collection, sample handling and storage, sample analysis and data reduction. The QC measures set forth in this QAPP and the specific analytical methods will serve to minimize these errors. QC samples will be used to monitor the accuracy and precision of the sampling activity as well as the analytical process.

Optimize Sampling Design	The data collection activities will focus on confirmation of residual arsenic concentrations in areas where excavation occurs, and that the waste soils are classified properly with respect to their ultimate form of treatment and disposal. Section B will describe sampling design in detail.

A8. Special Training/Certifications

Individuals implementing this QAPP must receive, at a minimum, orientation to the project's purpose, scope, and methods of implementation. This orientation is the responsibility of the Project Manager or designee.

Any field team members involved with sample collection or handling will have received 40-hour hazardous waste operations and emergency response (HAZWOPER – 29 CFR 1910.120) training.

The Health and Safety Officer will have received 8-hour supervisor training course (HAZWOPER – 29 CFR 1910.120). Any other safety-related training is defined in the project HASP.

The laboratory performing the analysis for this project is certified under the National Environmental Laboratory Accreditation Counsel (NELAC) in the Commonwealth of Kentucky. The laboratory managers are responsible for ensuring that personnel training are current and documented as defined in the laboratory's SOPs. It is the laboratory's manager's responsibility to determine specific training and certification needs, and for ensuring that any required training is documented.

A9. Documents and Records

Field records that may be generated include the following:

☒	Chains-of-Custody Forms	☐	Field Instrument Calibration Logs
☐	Field Monitoring and Screening Results	☐	Soil Borings and Well Logs
☒	Site Maps and Drawings	☒	Health and Safety Plan
☒	Photographic Log	☒	Site Logbook
☒	Waste Manifests	☒	Access Agreements

Field documentation and records will be generated and maintained in accordance with the requirements presented in the following EPA SESD Field Branches Quality System and Technical Procedures: Control of Records (SESDPROC-002-R6), October 2014; Sample and Evidence Management (SESDPROC-005-R2), January 2013; and Logbooks (SESDPROC-010-R5), May 2013. These documents can be found at the following web address: http://www.epa.gov/region4/sesd/fbqstp/index.html.

START will retain all file information related to the site in the Marietta, Georgia, OTIE office. Upon EPA request, the entire site file, including all documents generated under the work assignment, will be inventoried and submitted to EPA or to an EPA-designated location within three weeks of the request. In addition, START will provide digital copies of all documents generated under the work assignment, including reports, e-mails, and figures if requested by EPA. All documents generated for the work assignment are the property of EPA and will be retained as part of EPA files. All EPA files will be delivered to EPA at the conclusion of the START contract.

START will use the information collected at the site to complete a Removal Action Event report, which summarizes the removal activities. QA/QC analytical data will be evaluated and data tables will be attached to the report. Significant QA/QC issues regarding sample collection, handling, and analysis will be identified in the

report.

A draft version of the report will be available for review and commenting by EPA within six weeks following the completion of the removal action. A final version of the report will be available within two weeks following receipt of comments by EPA.

SECTION B: Data Generation and Acquisition

B1. Sampling Design

OTIE has developed a sampling design to ensure that Data Quality Objectives (DQO) are fulfilled for the removal action. Specifically, the design takes into account data needs, key decisions, and environmental variables, such as physical and site constraints, and how the spatial and temporal boundaries of the contamination and population at risk will be identified. The sampling design presented in the following sections has been developed based on information obtained from historical investigations performed within the site boundary.

OTIE will use bowls and spoons to collect composite soil samples from completed excavation areas) for documentation purposes. Composite soil samples will be collected from the floor of the excavation. Composite soil samples will be collected from five aliquots, similar to the number five on a dice. OTIE anticipates collecting 12 soil samples for total arsenic analysis. Global position system (GPS) coordinates will be collected at each sampling location during the field event.

OTIE will use bowls and spoons to collect composite sediment samples from the tributary to Little No Creek. A composite sample of the excavation bottom and the excavation sidewalls will be collected approximately every 100 linear feet of creek for confirmatory purposes. OTIE anticipates collecting 8 sediment samples for total arsenic analysis. GPS coordinates will be collected at each sampling location during the field event.

OTIE will use bowls and spoons to collect composite soil samples from the stockpile material. OTIE anticipates collecting a maximum of 5 composite stockpile samples for total and TCLP arsenic analysis.

OTIE will use dedicated sampling scoops to collect surface water samples from the tributary to Little No Creek. OTIE anticipates collecting a maximum of 2 surface water samples for total arsenic analysis

OTIE anticipates collecting a maximum of 12 soil, 8 sediment and two surface water samples for total arsenic analysis. In addition, OTIE anticipates collecting a maximum of 5 stockpile samples for total and TCLP arsenic analysis. Additional quality assurance/quality control (QA/QC) samples including two soil field duplicates, two sediment field duplicate, one surface water field duplicate and two rinsate blanks will also be collected.

B2. Sampling Methods, General Procedures

Sampling will be conducted in accordance with the following SESD FBSQTP:

- ☐ Ambient Air Sampling (SESDPROC-303-R4)
- ☐ Dye Tracer Measurements (SESDPROC-504-R0)
- ☐ Fluvial Sediment Sampling (SESDPROC-500-R2)
- ☐ Hydrologic Studies (SESDPROC-501-R2)
- ☐ Multi-Habitat Macroinvertebrate Sampling (SESDPROC-508-R2)
- ☐ Potable Water Supply Sampling (SESDPROC-305-R1)
- ☐ Reaeration Measurement By Diffusion Dome (SESDPROC-505-R2)
- ☐ Benthic Macroinvertebrate Sorting and Taxonomic Identification (SESDPROC-509-R1)
- ☐ Fish Field Sampling (SESDPROC-512-R3)
- ☐ Groundwater Sampling (SESDPROC-301-R2)
- ☐ Marine Macroinvertebrates (SESDPROC-511-R2)
- ☐ Porewater Sampling (SESDPROC-513-R0)
- ☐ Pump Operation (SESDPROC-203-R2)
- ☐ Reaeration Measurement Using Krypton Gas (SESDPROC-506-R2)

☐ Sediment Oxygen Demand (SESDPROC-507-R2)	☒ Sediment Sampling (SESDPROC-200-R2)
☐ Soil Gas Sampling (SESDPROC-307-R2)	☒ Soil Sampling (SESDPROC-300-R3)
☒ Surface Water Sampling (SESDPROC-201-R1)	☐ Total Community Metabolism (SESDPROC-503-R2)
☐ Trace Contaminant Sampling (SESDPROC-502-R2)	☐ Waste Sampling (SESDPROC-302-R1
☐ Wastewater Sampling (SESDPROC-306-R2)	☐ Water Column Oxygen Metabolism (SESDPROC-504-R2)
☐ Wipe Sampling (SESDPROC-304-R2	☐ Other:

Field measurements will be collected in accordance with the following SESD FBSQTP:

☐ Field DO Measurement (SESDPROC-106-R3)	☐ Field Measurement of ORP (SESDPROC-113-R1)
☐ Field Measurement of Total Residue Chlorine (SESDPROC-112-R2)	☐ Field pH Measurement (SESDPROC-100-R3)
☐ Field Specific Conductance (SESDPROC-101-R5)	☐ Field Temperature Measurement (SESDPROC-102-R4)
☐ Field Turbidity Measurement (SESDPROC-103-R3)	☒ Field XRF Measurement (SESDPROC-107-R2)
☒ Global Positioning System (SESDPROC- 110-R3)	☐ Groundwater Level Measurement (SESDPROC-105-R2)
☐ In Situ Water Quality Mon (SESDPROC-111-R2)	☐ Wastewater Flow Measurement (SESDPROC-109-R3)
☐ Other:	

All equipment will be handled in accordance with the FBQSTP Equipment Inventory and Management procedure (SESDPROC-108-R5).

Non-dedicated equipment will be decontaminated in accordance with FBQSTP Field Equipment Cleaning and Decontamination (SESDPROC-205-R2) prior to mobilization to the site.

Sample containers used for sample collection will be QC grade purchased from ESS and will be prepared according to the procedures contained in the EPA Specifications and Guidance for Obtaining Contaminant-Free Sample Containers (OSWER Directive 93240.0-05).

The following lists the sampling equipment and supplies to be used during this investigation:

Sampling instruments

- Handheld GPS - Trimble GeoXT
- Niton XL3t XRF analyzer

sampling supplies

- Dedicated Stainless Steel bowls
- Dedicated Stainless Steel spoons
- Nitric preservative
- Ultra Pure Water
- Coolers
- Ice

- Strapping tape
- Custody seals
- Sample Jar labels

Decontamination supplies

- Buckets
- Brushes
- Water
- Aluminum foil
- Distilled water
- Paper towels

PPE

- Respirator
- Tyvek
- Rubber booties
- Nitrile gloves
- hand sanitizer
- hand soap
- water
- insect repellent
- hand wipes
- sunscreen

Other Items

- Logbooks

All investigation derived waste (IDW) will be managed according to the procedures found in the FBQSTP Management of Investigation-Derived Waste procedure (SESDPROC-202-R3). All IDW will be properly disposed of according to best management practices and regulatory requirements.

B3. Sampling Handling and Custody

All samples will be handled and custody maintained in accordance with the FBQSTP Operating Procedure for Sample Evidence Management (SESDPROC-005-R2) and Packing, Marking, Labeling and Shipping of Environmental and Waste Samples (SESDPROC-209-R3).

Sample identification numbers will be assigned using the following format:

WPR-SB##- for soil documentation samples

WPR-SD##- for sediment samples

WPR-SW## - for surface water samples

WPR-ST## - for stockpile soil samples

The duplicate samples will follow the same naming convention but with the number "100" extension. Equipment blanks will be labeled "WPR-EB-MMDDYY", where MMDDYY is the sample collection date.

Once collected, all samples will be placed in a custody-sealed container and held in a secure location. The Field Project Leader (FPL) or his designee will ensure that custody of samples is maintained until they are shipped to the laboratory.

Chain-of-custody and associated field records will be used to document the samples from collection through

delivery to the laboratory.

B4. Analytical Methods

The analytical parameters and associated laboratory analytical methods that will be used for this project are presented in Table 2.

The laboratory analytical data packages will be validated by a START Sr. Chemist.

SESD:	N/A
CLP:	N/A
Other:	Arsenic in accordance with SW846-6010C and TCLP in accordance with 1311.

B5. Quality Control

Field:	Quality control for field monitoring and measurements will be conducted in accordance with FBQSTP Field Sampling Quality Control (SESDPROC-011-R4). The following QC samples will be collected as part of this investigation: • Field duplicates at a rate of 1 per 10 samples
Laboratory:	SW846 methods describe the required accuracy, precision, sensitivity of the analysis required for this project. The MDL/RLs for Analytical Environmental Services, Inc. (AES) are provided as Table 3.

B6. Instrument/Equipment Testing, Inspection and Maintenance

All equipment will be handled in accordance with the FBQSTP Equipment Inventory and Management procedure (SESDPROC-108-R5).

B7. Instrument/Equipment Calibration and Frequency

All equipment will be calibrated according to the manufacturer's instructions. In addition, all equipment will be handled in accordance with the FBQSTP Equipment Inventory and Management procedure (SESDPROC-108-R5).

B8. Inspection/Acceptance for Supplies and Consumables

All critical supplies and consumables for this field investigation are inspected and maintained by the OTIE Field Team Leader.

B9. Non-direct Measurements:

Optional (Applicability of this item is site-specific).

B10. Data Management

The project manager will be responsible for ensuring that all requirements for data management are met. The reference materials generated during this investigation and included in the final reports will be submitted to the EPA TM in electronic format on compact disc, and a Scribe database will be created for the analytical results. The Scribe database will be submitted to the EPA TM at the completion of the project. All field-generated data will be managed as part of the permanent field record for the project. All laboratory analytical data will be managed in accordance with the requirements of the methods, as well as the EPA Region 4 policy and applicable federal regulations. Finally, all field-generated data and other records generated or obtained during this project will be

managed according to the requirements of EPA START 4 Contract No. EP-S4-15-01, and entered into the EQUIS database for EPA management of data..

SECTION C: Assessment/Oversight

C1. Assessments and Response Actions

Assessments will be conducted during the removal action according to the SESD Operating Procedure for Project Planning; SESDPROC-016-R4 to ensure the QAPP is being implemented as approved. The Project Manager is responsible for all corrective actions while in the field.

C2. Reports to Management

The Project Manager will be responsible for notifying the EPA Project Manager if any circumstances arise during the field activities that may adversely impact the quality of the data collected.

SECTION D: Data Validation and Usability

D1. Data Review, Verification, and Validation

OTIE START will perform data assessment on laboratories' hardcopy (and electronic, where applicable) deliverables based on contractual and technical requirements outlined in the analytical method. The PM will review the data qualifier report to determine any data limitations and the impact of any qualified data on overall data usability for the project. Detailed guidance for data assessment may be found in the Guidance for Data Quality Assessment (EPA QA/G-9 2000).

D2. Verification and Validation Methods

The laboratory analytical data packages will be validated by an experienced START Sr. Chemist in accordance with the National Functional Guidelines (NFG). The following guidance documents shall serve as the basis for all data validation:

- USEPA National Functional Guidelines for Superfund Organic Methods Data Review, ((EPA-540-R-014-002, August 2014)
- USEPA National Functional Guidelines for Superfund Inorganic Methods Data Review, ((EPA 540-R-013-001, August 2014)

The USEPA performs data validation using a "tiered" approach. The data packages will be evaluated and qualified for all quantitative QC elements e.g., spike recoveries, method and field blank contamination, duplicate sample %RSD, and instrument stability and performance (e.g., initial and continuing calibration results, instrument tuning and internal standard areas) using hard-copy summary forms. This Summary Validation of 100% of the data is equivalent to an EPA CLP "QA Level III" validation and is considered Tier 1. Specific QC elements that will be reviewed during the Summary Validation include:

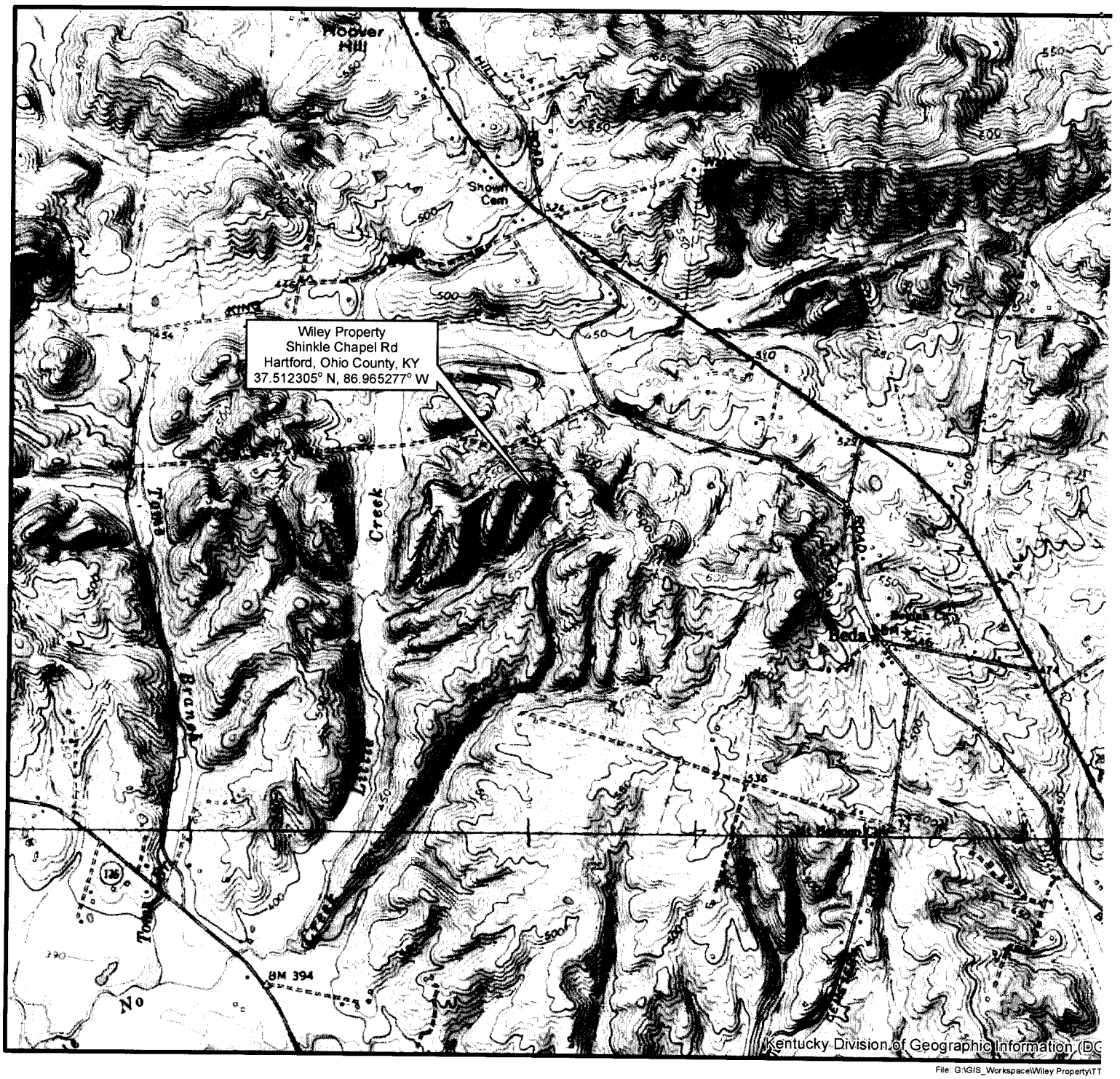
- Presence and completeness of COC and "cooler receipt form" (also known as sample receipt form) documentation
- Sample Index (correlation of field sample ID to laboratory sample ID)
- Laboratory Case Narrative (method deviations and QC anomalies)
- Analytical holding times
- Where applicable, laboratory control standard recoveries
- Method blank contamination
- Surrogate spike recoveries
- Matrix spike compound recoveries
- Matrix spike/matrix spike duplicate RPD values
- Field duplicate RPD values
- Laboratory Duplicate RPD values
- Summaries of initial and continuing Calibration
- Summaries of instrument blanks (e.g., initial calibration blank, CCB, if specified in method)
- Review of reagent/preparation blanks (inorganics)
- Review of Laboratory Control Standards (LCS)
- Instrument stability and performance (e.g., tuning, serial dilution)
- Summaries of internal standards

D3. Reconciliation with User Requirements

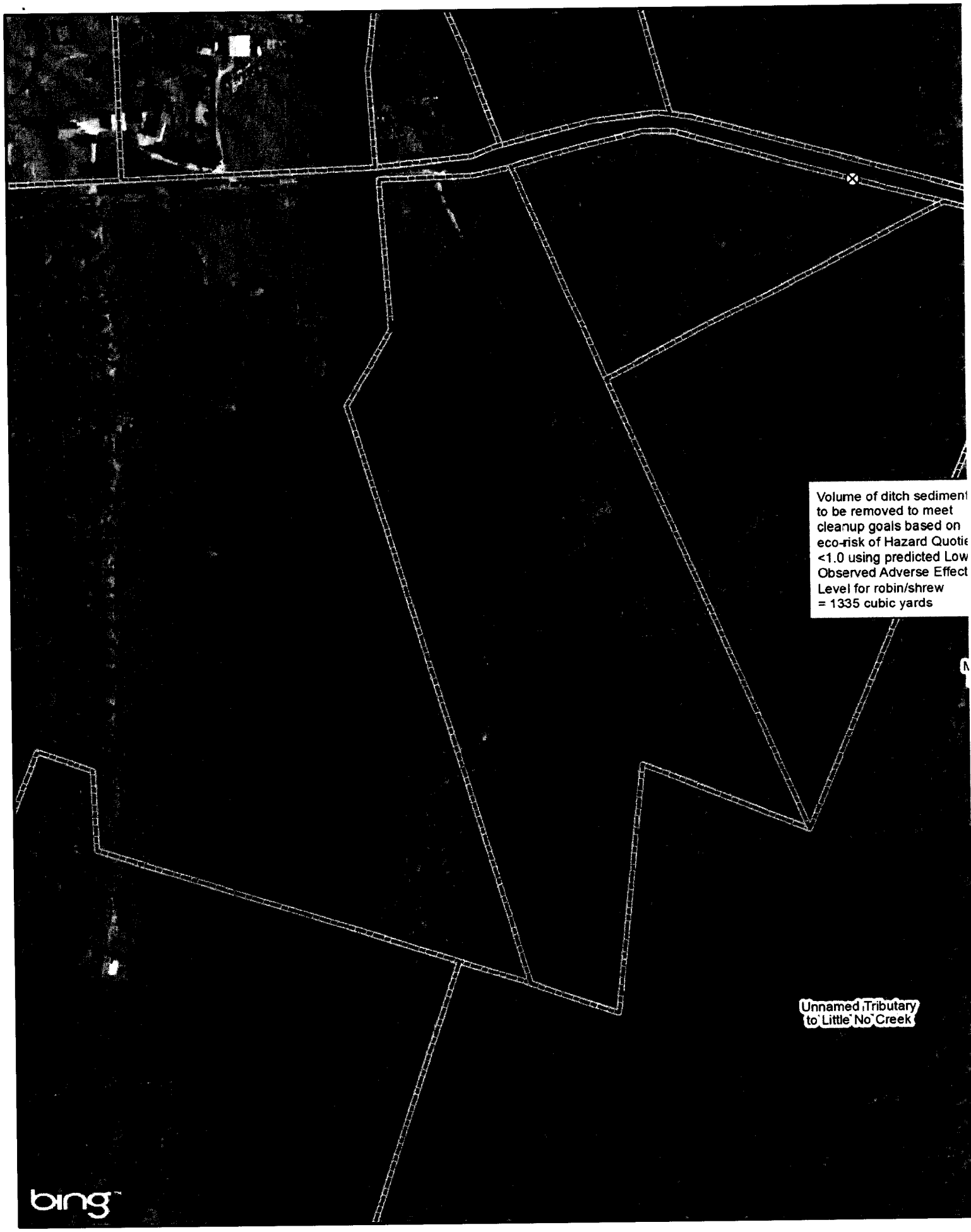
Data results and site findings are intended to be used by USEPA to make a determination regarding the impact of contaminants to the local environment. OTIE START will perform a review of contaminant concentrations and will summarize these findings in a final report to the USEPA.

****Footnotes**: This Quality Assurance Project Plan (QAPP) has been prepared and approved according to the EPA *Requirements for Quality Assurance Project Plans (EPA QA/R5 EPA/240/B-01/003)*, U.S. Environmental Protection Agency, Office of Environmental Information, Washington, DC, March 2001(USEPA, 2001). This document will be used to ensure that the environmental data collected for this project are of the type and quality for the intended purposes.

APPENDIX A
FIGURES



File: G:\GIS_Workspace\Wiley Property\TT


Volume of ditch sediment
to be removed to meet
cleanup goals based on
eco-risk of Hazard Quotie
<1.0 using predicted Low
Observed Adverse Effect
Level for robin/shrew
= 1335 cubic yards
Unnamed Tributary
to Little No Creek
bing

APPENDIX B
TABLES

TABLE 1
SAMPLE SUMMARY
LEY PROPERTY REMOVAL SITE, HARTFORD, OHIO COUNTY, KENTUCKY

alysis	Field Samples	Field Duplicates	Equipment Blanks	Trip Blank	Field Blank	Total Number of Samples
al Arsenic	12	2	0	0	0	14
al Arsenic	8	1	0	0	0	9
al Arsenic	2	1	0	0	0	3
al and TCLP Arsenic	5	0	0	0	0	5
al Arsenic	0	0	1	0	0	1

icity characteristic leaching procedure

TABLE 2

THODOLOGY, SAMPLE CONTAINERS, PRESERVATIVES, AND HOLDING TIME FOR SAMPLES
WILEY PROPERTY REMOVAL, HARTFORD, OHIO COUNTY, KENTUCKY

EPA Method	Sample Container	Sample Only	Sample + MS/MSD	Preservative	Holding Time
SW846-6010C	4-oz glass Jar	1	1 (No Extra Vol)	Cool to 4 °C	6 months
SW846-6010C	4-oz glass Jar	1	1 (No Extra Vol)	Cool to 4 °C	6 months
SW846-6010C	500-mL plastic bottle	1	1 (No Extra Vol)	HNO_3 to PH < 2	30 Days
SW846-6010C	4-oz glass Jar	1	1 (No Extra Vol)	Cool to 4 °C	6 months

Methods
istic leaching procedure

TABLE 3
PROJECT TARGET PARAMETERS AND REPORTING LIMITS
VILEY PROPERTY REMOVAL, HARTFORD, OHIO COUNTY, KENTUCKY

Cas No	Soil RL (mg/kg)	Soil MDL (mg/kg)	Water RL (ug/L)	Water MDL (ug/L)
7440-38-2	5	0.148	50	6.6

ıimum Detection Limit
ligrams per kilogram
orting Limit
rograms per liter

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U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Wiley Property (aka Ohio County Arsenic Site) - Removal Polrep

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IV

Subject:	**POLREP #2** **Phase 2 Removal Begins** **Wiley Property (aka Ohio County Arsenic Site)** **Hartford, KY** **Latitude: 37.5123000 Longitude: -86.9653010**
To:	James Webster, USEPA R4 ERRB Larry Hughes, KYDEP
From:	Art Smith, On-Scene Coordinator
Date:	8/1/2016
Reporting Period:	10/15/2015 through 8/1/2016

1. Introduction

1.1 Background

Site Number:	B45H	**Contract Number:**	EP-S4-15-04
D.O. Number:	0007	**Action Memo Date:**	6/28/2016
Response Authority:	CERCLA	**Response Type:**	Time-Critical
Response Lead:	EPA	**Incident Category:**	Removal Action
NPL Status:	Non NPL	**Operable Unit:**	
Mobilization Date:	10/13/2015	**Start Date:**	10/13/2015
Demob Date:		**Completion Date:**	
CERCLIS ID:	KYN000403430	**RCRIS ID:**	
ERNS No.:		**State Notification:**	
FPN#:		**Reimbursable Account #:**	

1.1.1 Incident Category

CERCLA Incident Category: Abandoned Residential Property

1.1.2 Site Description

1.1.2.1 Location

The Wiley Property Site is located at 209 Shinkle Chapel Road in Hartford, Ohio County,Kentucky. The geographic coordinates of the Site are 37.5123000° North and 86.9653010° West. The Site consists of two parcels of land. The first residential tract is designated as Tax/Parcel ID 73-17-1 in the records for Ohio County, KY comprising 10.2 acres. This property is currently held by Wells Fargo Bank, following a foreclosure and Master Commissioner's sale in 2014. There are two improvements on Tax/Parcel ID 73-17-1: a single family home and an outbuilding.

The second tract making up the Site is designated as Tax/Parcel ID 73-17 in the records for Ohio County, KY. This parcel is privately owned and a portion of this property was subdivided to sell Parcel 73-17-1 in 2007. There are reports of an old barn on this property which was subsequently destroyed, thus suggesting that the past use of the property was for agricultural purposes.

The Site is bordered to the north by Shinkle Chapel Road, and by wooded, rural, and agricultural lands to the east, south, and west. There is an abandoned single family dwelling on the property, and there are 10 homes located within a half-mile radius of the Site.

1.1.2.2 Description of Threat

Direct contact with high concentrations of inorganic arsenic, a listed hazardous substance

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

In August 2014, the last known occupant of the residence at 209 Shinkle Chapel Road contacted the Kentucky Department for Environmental Protection (KDEP) with a concern about an unknown white powdery substance at the Site. KDEP reported that the former occupant bred dogs at the Site and that the females were found to be sterile while others suffered from tumors. The former occupant was concerned about potential exposure to her family members while they lived at the property.

In September 2014, KDEP performed an initial visual investigation at the Site. They confirmed an area where the white substance was located in an area devoid of vegetation and approximately 30 feet in diameter. Samples were collected in October 2014, and analysis of the samples collected from this area revealed total arsenic at levels up to 525,000 milligrams/kilogram (mg/kg). The Toxicity Characteristic Leaching Procedure (TCLP) was performed on the sample with the highest total arsenic level and the result came back as 618 milligrams/liter (mg/L) leachable arsenic. Additional investigation and sampling in October 2014 documented that the arsenic contamination had migrated downhill a distance of approximately 120 feet to the north and west of the source area.

On November 14, 2104, the KDEP Superfund Branch formally requested that the U.S. EPA conduct a Removal Site Evaluation (RSE) at the Site.

On March 24, 2015, the Region 4 Superfund Technical Assessment and Response Team (START) contractor mobilized to the Site to collect samples. The purpose was to confirm the 2014 KDEP findings and to explore the potential for additional migration pathways at the Site. Also, a subset of samples were run for arsenic speciation in an attempt to identify the specific arsenic compound at the Site. The sample collected from the source area was analyzed for total arsenic and the analysis revealed the concentration of arsenic to be 747,000 mg/kg. The arsenic speciation determined that the arsenic is an arsenite compound (As+3).

Based on this information, the On-Scene Coordinator (OSC) completed the RSE under 40 CFR Section 300.410, and concluded that the Site meets the National Contingency Plan (NCP) criteria for a time-critical removal action. (See the Documents tab of the website: www.epaosc.org/wileyproperty for the June 9, 2015 RSE Report)

On October 20 and 21, 2015, START's Tetra Tech and OTIE contractors conducted the following sampling activities at the Site:

- X-ray fluorescence (XRF) soil and sediment screening
- Vacuum sampling and air sampling from within the interior of the single family residence
- Surface and subsurface soil sampling at various locations on-site
- Surface sediment sampling from a dry creek bed located directly down-gradient of the source area

All samples collected from the inside of the residence were analyzed for the presence of arsenic and were found to be non-detect. However, arsenic was detected in sediments along the entire 1,800-foot segment of the dry creek bed that was surveyed in concentrations ranging from 130 mg/kg to 4,200 mg/kg. Approximately 700 feet of the dry creek leading to the confluence with Little No Creek remains uncharacterized due to access issues encountered during the October 2015 sampling investigation. (See

the Documents tab of the website: www.epaosc.org/wileyproperty for the January 7, 2016 Final Removal Assessment Report).

In February 2016, the OSC directed the OTIE START contractor to collect samples of surface water runoff in the stream beds which drain the Site to the north and south. The surface water sample in the northern drainage feature was revealed to contain 0.507 milligrams per liter (mg/l) of arsenic. This exceeds the Water Quality Criteria (WQC) adopted by the Commonwealth of Kentucky of 0.340 mg/l, based on acute toxicity to aquatic species. The surface water feature in the southern drainage feature was discovered to be non-detect for arsenic.

On June 28, 2016, the EPA Region 4 Superfund Division Director signed an Action Memorandum for the Wiley Property Site, authorizing a project ceiling of $1,850,000 for removal of arsenic contamination. The proposed activities are as follows:

1. Remove stockpiled waste materials and dispose of at an approved hazardous waste management facility.
2. Excavate soils on the residential property to an approximate depth of 1.5 feet BLS where arsenic concentrations at the surface are at 68 mg/kg or above and dispose of at a permitted off-site facility.
3. Excavate soils on the non-residential property to an approximate depth of 1.5 feet BLS where arsenic concentrations at the surface are at 420 mg/kg or above and dispose of at a permitted off-site facility.
4. Excavate sediments along an 800-foot segment of the dry creek bed draining the Site along its northern boundary. Excavation will be carried out along this segment until a residual arsenic concentration of 50 mg/kg and compliance with the WQC of 0.340 mg/l for acute toxicity is achieved.
5. Backfill excavated areas on the residential property with clean soil to re-establish vegetative cover and re-grade the areas to promote positive drainage
6. Re-establish vegetative cover on the non-residential property and re-grade the area to promote positive drainage.

(See the Documents tab of the website: www.epaosc.org/wileyproperty for the June 28, 2016 Action Memo).

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

2.1.2 Response Actions to Date

On 7/5/2016, the Region 4 Emergency and Rapid Response Services (ERRS) Contractor CMC, Inc. mobilized to the Site to begin Phase 2 of the removal action. From 7/5/2016 through 7/29/2016, the activities consisted of site preparation tasks such as installation of temporary utility services, repair and construction of roads, establishing the site command post, and construction of a decon shower facility..

2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

All of the previous and current land owners have been designated as PRPs for this Site. However, none have been identified for purposes of conducting the removal action as there is no direct evidence that any of the land owners contributed to a release of hazardous substances during their period of ownership.

Wells Fargo N.A. is currently responsible for the Wiley property but is not considered a PRP because it acquired title to the property via a foreclosure proceeding and thus has no liability under CERCLA.

2.1.4 Progress Metrics

Waste Stream	*Medium*	*Quantity*	*Manifest #*	*Treatment*	*Disposal*

2.2 Planning Section

2.2.1 Anticipated Activities

2.2.1.1 Planned Response Activities

Beginning the first week of August 2016, removal work will begin in the hot zone. There is currently about 15 tons of source material with high arsenic concentrations which will be transferred into a rolloff box while disposal plans are finalized. Bids for transportation and disposal of characteristic hazardous waste are due on 8/4/2016. Full-scale excavation of arsenic contaminated soils is expected to begin during the first week of August 2016.

2.2.1.2 Next Steps

On 8/4/2016, the OSC and the ERRS Project Manager will meet with local emergency services representatives to brief them on site activities.

2.2.2 Issues None at this time.

2.3 Logistics Section

No information available at this time.

2.4 Finance Section

Estimated Costs *

	Budgeted	Total To Date	Remaining	% Remaining
Extramural Costs				
ERRS - Cleanup Contractor	$800,000.00	$129,086.00	$670,914.00	83.86%
TAT/START	$99,700.00	$4,800.00	$94,900.00	95.19%
Intramural Costs				
Total Site Costs	$899,700.00	$133,886.00	$765,814.00	85.12%

* The above accounting of expenditures is an estimate based on figures known to the OSC at the time this report was written. The OSC does not necessarily receive specific figures on final payments made to any contractor(s). Other financial data which the OSC must rely upon may not be entirely up-to-date. The cost accounting provided in this report does not necessarily represent an exact monetary figure which the government may include in any claim for cost recovery.

2.5 Other Command Staff

No information available at this time.

3. Participating Entities

No information available at this time.

4. Personnel On Site

No information available at this time.

5. Definition of Terms

No information available at this time.

6. Additional sources of information

No information available at this time.

7. Situational Reference Materials

No information available at this time.

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U.S. Environmental Protection Agency

Wiley Property Site

Hartford, Kentucky

August 2016

Introduction

This site information sheet summarizes the history of the Site, provides an overview of removal activities, and highlights remaining future activities. Associated documents related to the Wiley Property Site activities can be found at www.epaosc.org/wileyproperty.

Background

In September 2014, the Kentucky Department for Environmental Protection (KDEP) responded to a complaint of a white powdery substance at a residential property along Shinkle Chapel Road in Hartford, Kentucky. In October 2014, KDEP sampled the area and discovered high arsenic concentrations in surface soil in a barren area. On November 14, 2014, KDEP requested that the United States Environmental Protection Agency (EPA) perform a time-critical removal action at this location, due to the findings of high concentrations.

EPA Actions Taken

EPA has conducted several actions to address contamination at the Wiley Property Site:

2015 – The Superfund Technical Assessment and Response Team (START) contractor mobilized to the Site to collect samples to confirm the KDEP 2014 findings and to explore the potential for additional migration pathways at the Site.

- EPA contractors conducted vacuum and air sampling from within the interior of the single family residence, surface and subsurface soil sampling at various locations on-site, and sediment sampling from a creek bed located directly down-gradient of the source area.
- No arsenic was detected within the single family residence.
- Arsenic was detected in soil samples on the residential property at concentrations exceeding EPA's criteria for acceptable risk.
- Arsenic was detected in sediments along the entire 1,800 foot segment of the dry creek bed.
- Based on the findings, EPA determined that a removal action was warranted to protect human health and the environment.
- EPA contractors consolidated waste materials into a covered stockpile and installed a fence with signs to warn of the arsenic hazard.

2016 – EPA contractors collected samples of surface water runoff in the streambeds that drain the Site to the north and south.

- The surface water sample in the northern drainage feature contained a level of arsenic that exceeds the Water Quality Criteria (WQC) adopted by the Commonwealth of Kentucky.
- The surface water sample in the southern drainage feature did not measurable arsenic levels.

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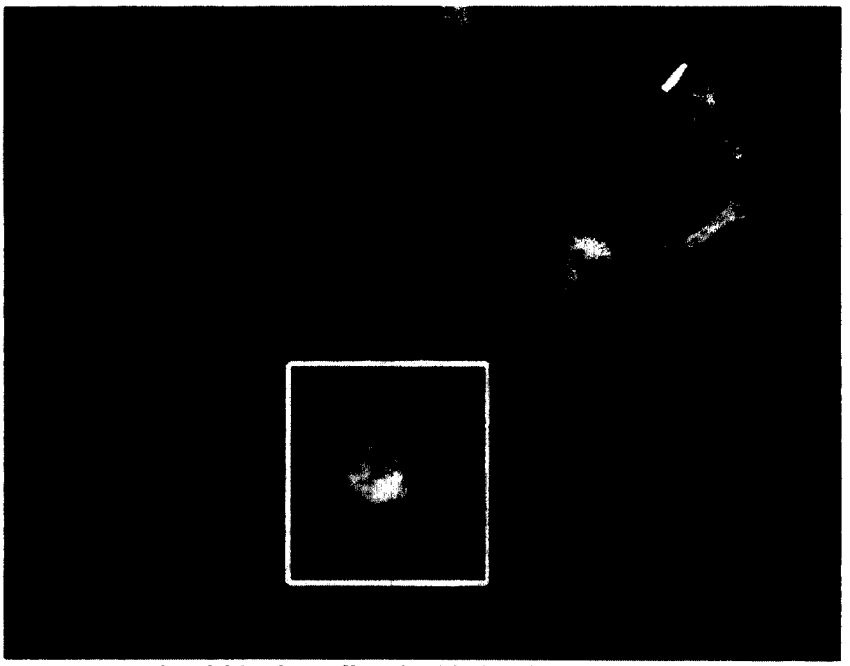
Next Steps

In June 2016, an Action Memorandum for the Site authorizing $1,850,000 in federal funding for removal of arsenic contamination was signed by the EPA Region 4 Superfund Division Director. The proposed activities are as follows:

- Remove stockpiled waste materials and dispose of at an approved hazardous waste management facility.
- Excavate soils on both the residential and non-residential property and dispose at a permitted off-site facility.
- Excavate sediments along an 800-foot segment of the dry creek bed draining the Site along its northern boundary.
- Backfill excavated areas with clean soil to re-establish vegetative cover and promote positive drainage.



The source area is within the yellow highlighted section – Google Earth 2013

Estimated Schedule

Excavation of contaminated soil began the week of August 1, 2016. EPA anticipates that the removal action will take approximately 18 weeks to complete. EPA will provide regular updates to inform the community on the progress of the removal action.

FOR MORE INFORMATION

EPA On-Scene Coordinator
Art Smith (502) 582-5161
smith.art@epa.gov

KDEP Project Manager
Eric Brown (502) 564-6716
eric.brown@ky.gov

EPA Community Involvement Coordinator
Abena Ajanaku (404) 562-8834
ajanaku.abena@epa.gov

Green River District Health Department
Clayton Horton (270) 852-5569
clayton.horton@grdhd.org

www.epaosc.org/wileyproperty

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U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Wiley Property (aka Ohio County Arsenic Site) - Removal Polrep

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IV

Subject:	**POLREP #3** **Removal Progress** **Wiley Property (aka Ohio County Arsenic Site)** **Hartford, KY** **Latitude: 37.5123000 Longitude: -86.9653010**
To:	James Webster, USEPA R4 ERRB Larry Hughes, KYDEP
From:	Art Smith, On-Scene Coordinator
Date:	8/16/2016
Reporting Period:	8/2/2016-8/15/2016

1. Introduction

1.1 Background

Site Number:	B45H	**Contract Number:**	EP-S4-15-04
D.O. Number:	0007	**Action Memo Date:**	6/28/2016
Response Authority:	CERCLA	**Response Type:**	Time-Critical
Response Lead:	EPA	**Incident Category:**	Removal Action
NPL Status:	Non NPL	**Operable Unit:**	
Mobilization Date:	10/13/2015	**Start Date:**	10/13/2015
Demob Date:		**Completion Date:**	
CERCLIS ID:	KYN000403430	**RCRIS ID:**	
ERNS No.:		**State Notification:**	
FPN#:		**Reimbursable Account #:**	

1.1.1 Incident Category

CERCLA Incident Category: Abandoned Residential Property

1.1.2 Site Description

1.1.2.1 Location

The Wiley Property Site is located at 209 Shinkle Chapel Road in Hartford, Ohio County,Kentucky. The geographic coordinates of the Site are 37.5123000° North and 86.9653010° West. The Site consists of two parcels of land. The first residential tract is designated as Tax/Parcel ID 73-17-1 in the records for Ohio County, KY comprising 10.2 acres. This property is currently held by Wells Fargo Bank, following a foreclosure and Master Commissioner's sale in 2014. There are two improvements on Tax/Parcel ID 73-17-1: a single family home and an outbuilding.

The second tract making up the Site is designated as Tax/Parcel ID 73-17 in the records for Ohio County, KY. This parcel is privately owned and a portion of this property was subdivided to sell Parcel 73-17-1 in 2007. There are reports of an old barn on this property which was subsequently destroyed, thus suggesting that the past use of the property was for agricultural purposes.

The Site is bordered to the north by Shinkle Chapel Road, and by wooded, rural, and agricultural lands to the east, south, and west. There is an abandoned single family dwelling on the property, and there are 10 homes located within a half-mile radius of the Site.

1.1.2.2 Description of Threat

Direct contact with high concentrations of inorganic arsenic, a listed hazardous substance

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

See Polreps 1-2 and the Documents tab of the website: www.epaosc.org/wileyproperty for additional information.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

2.1.2 Response Actions to Date

On 8/3/2016, ERRS began clearing and soil excavation activities. As the ERRSs contractor excavates they stockpile and segregate non-hazardous from hazardous soil in preparation for disposal. START utilizing a XRF has delineated hazardous (>5,000 ppm As) soil from non-hazardous (<5,000 ppm As) and also delineated 420 ppm and 68 ppm contours where appropriate.

On 08/09/2016, START collected treatability samples from the hazardous stockpile and shipped off to 3 different labs for bench scale studies.

On 08/11/2016, the OSC and the EPA Community Involvement Coordinator concluded interviews with nearby residents and local elected officials.

As of 8/12/2016, approximately 660 cubic yards of soil have been excavated and stockpiled awaiting disposal.

On 08/15/16, START collected and shipped off samples from both stockpiles (non-haz and haz) for lab analysis for purposes of creating waste disposal profiles.

2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

All of the previous and current land owners have been designated as PRPs for this Site. However, none have been identified for purposes of conducting the removal action as there is no direct evidence that any of the land owners contributed to a release of hazardous substances during their period of ownership.

Wells Fargo N.A. is currently responsible for the Wiley property but is not considered a PRP because it acquired title to the property via a foreclosure proceeding and thus has no liability under CERCLA.

2.1.4 Progress Metrics (through 08/11/16)

Waste Stream	Medium	Quantity	Manifest #	Treatment	Disposal

2.2 Planning Section

2.2.1 Anticipated Activities

2.2.1.1 Planned Response Activities

Erosion control devices are being constructed to minimize migration of contaminant-laden sediments form areas which have been exposed through excavation

2.2.1.2 Next Steps

A haul road will be constructed in order to remove creek sediments from the low-lying areas of the Site.

2.2.2 Issues

Soil stockpiles are accumulating at a rate that will require disposal as soon as it becomes feasible. Currently, all viable disposal facilities have been identified. Selection of the disposal facility is pending a review of their CERCLA Off-Site compliance status, followed by subcontractor consent by the EPA CO.

2.3 Logistics Section

No information available at this time.

2.4 Finance Section

Estimated Costs *

	Budgeted	Total To Date	Remaining	% Remaining
Extramural Costs				
ERRS - Cleanup Contractor	$800,000.00	$210,810.00	$589,190.00	73.65%
TAT/START	$99,700.00	$9,307.00	$90,393.00	90.66%
Intramural Costs				
Total Site Costs	$899,700.00	$220,117.00	$679,583.00	75.53%

* The above accounting of expenditures is an estimate based on figures known to the OSC at the time this report was written. The OSC does not necessarily receive specific figures on final payments made to any contractor(s). Other financial data which the OSC must rely upon may not be entirely up-to-date. The cost accounting provided in this report does not necessarily represent an exact monetary figure which the government may include in any claim for cost recovery.

2.5 Other Command Staff

No information available at this time.

3. Participating Entities

No information available at this time.

4. Personnel On Site

EPA - 1

ERRS - 6

START - 1

5. Definition of Terms

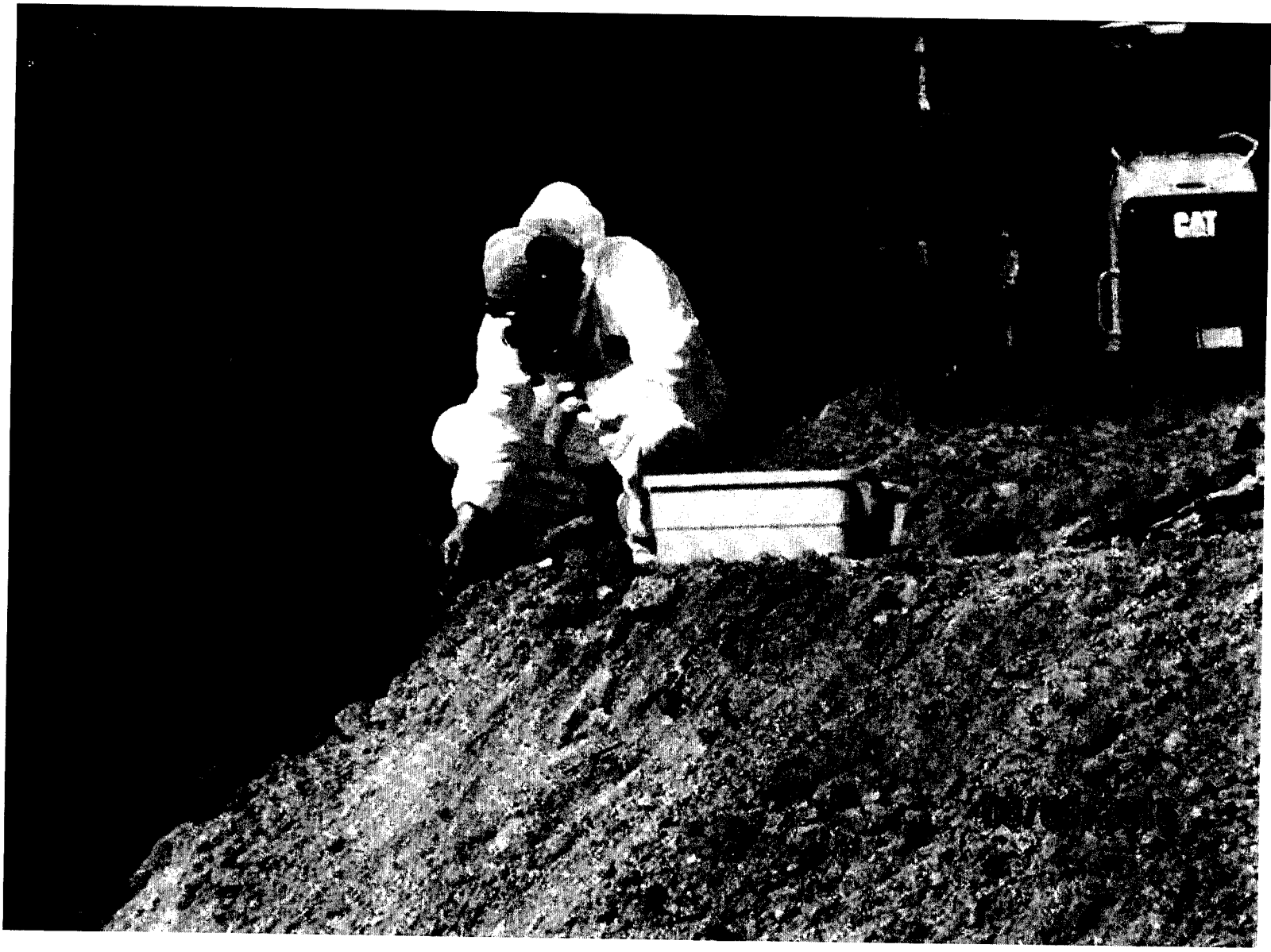
No information available at this time.

6. Additional sources of information

No information available at this time.

7. Situational Reference Materials

No information available at this time.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INTRODUCTION

This is the Administrative Record for The Wiley Property Removal Site, Hartford, Ohio County, Kentucky.

The Administrative Record is available for public review from the EPA Region 4 Office in Atlanta, Georgia and at the Ohio County Public Library, 413 S. Main Street, Hartford, Kentucky.

Questions concerning the Administrative Record should be addressed to the EPA Region 4 On-Scene Coordinator for The Wiley Property Removal Site.

The Administrative Record is required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA).

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Administrative Record Index for the THE WILEY PROPERTY Removal Site

KYN000403430

2.0 REMOVAL RESPONSE

2. 1 Correspondence

1. Memorandum from Larry Hughes, KYDEP to Addressees. Subject: Request for Time Critical Removal Action. (November 14, 2014) [Redacted pursuant to FOIA Exemption 6].
2. Letter from James Webster, USEPA to Tim Hubbard, KYDEP. Subject: Removal Site Evaluation (RSE). (June 09, 2015)

2. 7 Applicable or Relevant and Appropriate Requirements (ARARs)

1. Memorandum from Larry Hughes, KYDEP to Art Smith, USEPA. Subject: Request for Identification of State ARARs Response. (March 30, 2016)

2. 8 Removal Response Reports

1. Letter from Paul Prys and Andrew Johnson, Tetra Tech to Art Smith, USEPA. Subject: Final Removal Assessment Report. (January 07, 2016) [Redacted pursuant to FOIA Exemption 6].

2. 9 Action Memoranda

1. Action Memorandum from Art Smith, USEPA to File. Subject: Documenting the Decision to Initiate a Time-Critical Removal Action. (September 01, 2015)
2. Action Memorandum from Art Smith, USEPA to Franklin Hill, USEPA. Subject: Request for a Change of Scope and Ceiling Increase for a Removal Action. (June 22, 2016) [Due to the Confidential nature, the Enforcement Addendum has been withheld. Withheld material is available, for Judicial review only, at EPA Region 4, Atlanta, GA].

2.10 Pollution Reports (POLREPs)

1. Pollution Report (POLREP) No. 1 (Initial). (October 14, 2015)

17.0 SITE MANAGEMENT RECORDS

17. 4 Site Audio-Visuals

1. Site Sketch. (October 22, 2014) [Redacted pursuant to FOIA Exemption 6].

17. 7 Reference Documents

1. "Analysis of Arsenic Containing Samples from Kentucky," Lawrence Livermore National Laboratory. (May 06, 2015)

17. 8 State and Local Technical Records

1. Presentation - BGRO Arsenic Complaint - TEMPO #238199. AI #124089, KYDEP. (November 2014)
2. Basic Geology, Soil and Water Synopsis. (November 14, 2014)
3. Summary of Wiley Complaint. (November 14, 2014) [Redacted pursuant to FOIA Exemption 6].

11050718

U.S. ENVIRONMENTAL PROTECTION AGENCY
POLLUTION/SITUATION REPORT
Wiley Property (aka Ohio County Arsenic Site) - Removal Polrep

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IV

Subject:	**POLREP #4** **Progress Polrep** **Wiley Property (aka Ohio County Arsenic Site)** **Hartford, KY** **Latitude: 37.5123000 Longitude: -86.9653010**
To:	James Webster, USEPA R4 ERRB Larry Hughes, KYDEP
From:	Art Smith, On-Scene Coordinator
Date:	8/31/2016
Reporting Period:	8/16/2016 through 8/27/2016

1. Introduction

1.1 Background

Site Number:	B45H	**Contract Number:**	EP-S4-15-04
D.O. Number:	0007	**Action Memo Date:**	6/28/2016
Response Authority:	CERCLA	**Response Type:**	Time-Critical
Response Lead:	EPA	**Incident Category:**	Removal Action
NPL Status:	Non NPL	**Operable Unit:**	
Mobilization Date:	10/13/2015	**Start Date:**	10/13/2015
Demob Date:		**Completion Date:**	
CERCLIS ID:	KYN000403430	**RCRIS ID:**	
ERNS No.:		**State Notification:**	
FPN#:		**Reimbursable Account #:**	

1.1.1 Incident Category

CERCLA Incident Category: Abandoned Residential Property

1.1.2 Site Description

1.1.2.1 Location

The Wiley Property Site is located at 209 Shinkle Chapel Road in Hartford, Ohio County,Kentucky. The geographic coordinates of the Site are 37.5123000° North and 86.9653010° West. The Site consists of two parcels of land. The first residential tract is designated as Tax/Parcel ID 73-17-1 in the records for Ohio County, KY comprising 10.2 acres. This property is currently held by Wells Fargo Bank, following a foreclosure and Master Commissioner's sale in 2014. There are two improvements on Tax/Parcel ID 73-17-1: a single family home and an outbuilding.

The second tract making up the Site is designated as Tax/Parcel ID 73-17 in the records for Ohio County, KY. This parcel is privately owned and a portion of this property was subdivided to sell Parcel 73-17-1 in 2007. There are reports of an old barn on this property which was subsequently destroyed, thus suggesting that the past use of the property was for agricultural purposes.

The Site is bordered to the north by Shinkle Chapel Road, and by wooded, rural, and agricultural lands to the east, south, and west. There is an abandoned single family dwelling on the property, and there are 10 homes located within a half-mile radius of the Site.

1.1.2.2 Description of Threat

Direct contact with high concentrations of inorganic arsenic, a listed hazardous substance

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

See Polreps 1-2 and the Documents tab of the website: www.epaosc.org/wileyproperty for additional information.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

2.1.2 Response Actions to Date

On 8/3/2016, the Emergency and Rapid Response Services (ERRS) contractor CMC, Inc.began clearing and soil excavation activities. As the ERRS contractor excavates they stockpile and segregate "non-hazardous" from "hazardous soil" in preparation for disposal. The Superfund Technical Assistance and Response Team (START) contractor utilizing a XRF has delineated hazardous (>5,000 ppm As) soil from non-hazardous (<5,000 ppm As) at the surface. Also, the XRF has been used to delineate areas on the surface requiring removal (68 ppm As on the residential tract, and 420 ppm As on the non-residential tract, respectively).

On 08/19,2016, the ERRS crew completed construction of erosion control devices designed to minimize migration of contaminant-laden sediments form areas which have been exposed through excavation.

Two of the three vendors have responded back to indicate that they can successfully treat the soils which fail the Toxicity Characteristic Leaching Procedure (TCLP) for As. The third vendor was unsuccessful initially. On 08/22/2016, that party collected a sample from the hazardous stockpile for bench scale studies.

A local Subtitle D landfill has been designated as acceptable under EPA's Off-Site Rule and selected for disposal of soils which pass the TCLP. These soils must be shipped as a DOT hazardous material, and on 08/31/2016, the ERRS contractor submitted a package for Contracting Officer (CO) consent.

As of 8/27/2016, approximately 1725 cubic yards of soil have been excavated and stockpiled awaiting disposal.

2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

All of the previous and current land owners have been designated as PRPs for this Site. However, none have been identified for purposes of conducting the removal action as there is no direct evidence that any of the land owners contributed to a release of hazardous substances during their period of ownership.

Wells Fargo N.A. is currently responsible for the Wiley property but is not considered a PRP because it acquired title to the property via a foreclosure proceeding and thus has no liability under CERCLA.

2.1.4 Progress Metrics

Waste Stream	*Medium*	*Quantity*	*Manifest #*	*Treatment*	*Disposal*

2.2 Planning Section

2.2.1 Anticipated Activities

2.2.1.1 Planned Response Activities

2.2.1.2 Next Steps

Construction of a haul road will be completed in order to remove creek sediments from the low-lying areas of the Site.

2.2.2 Issues

Soil stockpiles are accumulating at a rate that will require disposal as soon as it becomes feasible. Selection of a sub-contractor to haul and dispose of hazardous wastes is pending the outcome of a treatability study.

2.3 Logistics Section

No information available at this time.

2.4 Finance Section

Estimated Costs *

	Budgeted	Total To Date	Remaining	% Remaining
Extramural Costs				
ERRS - Cleanup Contractor	$800,000.00	$285,824.00	$514,176.00	64.27%
TAT/START	$99,700.00	$21,458.00	$78,242.00	78.48%
Intramural Costs				
Total Site Costs	$899,700.00	$307,282.00	$592,418.00	65.85%

* The above accounting of expenditures is an estimate based on figures known to the OSC at the time this report was written. The OSC does not necessarily receive specific figures on final payments made to any contractor(s). Other financial data which the OSC must rely upon may not be entirely up-to-date. The

cost accounting provided in this report does not necessarily represent an exact monetary figure which the government may include in any claim for cost recovery.

2.5 Other Command Staff

No information available at this time.

3. Participating Entities

No information available at this time.

4. Personnel On Site

EPA - 1

ERRS - 6

START - 1

5. Definition of Terms

No information available at this time.

6. Additional sources of information

No information available at this time.

7. Situational Reference Materials

No information available at this time.

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

September 21, 2016

Melissa Acquaviva
Ohio County Public Library
413 S. Main Street
Hartford, Kentucky 42347

SUBJ: Administrative Record for The Wiley Property Removal Site, Hartford, Ohio County, Kentucky

Dear Ms. Acquaviva:

The U.S. Environmental Protection Agency is required by law to establish Administrative Records at or near a facility at issue. This Administrative Record consists of information upon which the Agency bases its selection of a response action for a particular site.

By providing the public with greater access to these records, it is our hope that they will be better equipped to comment constructively on site activities and to understand the appropriate issues.

We appreciate having the Ohio County Public Library as the designated Administrative Record Facility for They Wiley Property Removal Site. The enclosed record is available for public review. We recommend that it be treated as non-circulating reference material - it should not be removed from your facility. This will protect the documents and permit all interested parties easy access.

In addition to the Administrative Record, I have enclosed the Guide to Superfund Administrative Records Maintained in Field Repositories, to assist you and your staff in answering questions posed by the public concerning Administrative Records. Please feel free to copy and distribute this guide to the public.

To ensure receipt of the Administrative Record, I would appreciate your completion of the attached Document Transmittal Acknowledgment form. Please return this form in the enclosed self-addressed, stamped envelope.

Again, I would like to thank you for your cooperation with the U.S. EPA in serving as a Field Repository. If you have any questions or comments, please contact me at (404)562-8835.

Sincerely,

Tina Terrell
Administrative Record Coordinator

Enclosures

11050746

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IV

Subject:	**POLREP #5** **Progress Polrep** **Wiley Property (aka Ohio County Arsenic Site)** **Hartford, KY** **Latitude: 37.5123000 Longitude: -86.9653010**
To:	James Webster, USEPA R4 ERRB Larry Hughes, KYDEP
From:	Art Smith, On-Scene Coordinator
Date:	9/21/2016
Reporting Period:	8/28/2016 through 9/16/2016

1. Introduction

1.1 Background

Site Number:	B45H	**Contract Number:**	EP-S4-15-04
D.O. Number:	0007	**Action Memo Date:**	6/28/2016
Response Authority:	CERCLA	**Response Type:**	Time-Critical
Response Lead:	EPA	**Incident Category:**	Removal Action
NPL Status:	Non NPL	**Operable Unit:**	
Mobilization Date:	10/13/2015	**Start Date:**	10/13/2015
Demob Date:		**Completion Date:**	
CERCLIS ID:	KYN000403430	**RCRIS ID:**	
ERNS No.:		**State Notification:**	
FPN#:		**Reimbursable Account #:**	

1.1.1 Incident Category

CERCLA Incident Category: Abandoned Residential Property

1.1.2 Site Description

1.1.2.1 Location

The Wiley Property Site is located at 209 Shinkle Chapel Road in Hartford, Ohio County,Kentucky. The geographic coordinates of the Site are 37.5123000° North and 86.9653010° West. The Site consists of two parcels of land. The first residential tract is designated as Tax/Parcel ID 73-17-1 in the records for Ohio County, KY comprising 10.2 acres. This property is currently held by Wells Fargo Bank, following a foreclosure and Master Commissioner's sale in 2014. There are two improvements on Tax/Parcel ID 73-17-1: a single family home and an outbuilding.

The second tract making up the Site is designated as Tax/Parcel ID 73-17 in the records for Ohio County, KY. This parcel is privately owned and a portion of this property was subdivided to sell Parcel 73-17-1 in 2007. There are reports of an old barn on this property which was subsequently destroyed, thus suggesting that the past use of the property was for agricultural purposes.

The Site is bordered to the north by Shinkle Chapel Road, and by wooded, rural, and agricultural lands to the east, south, and west. There is an abandoned single family dwelling on the property, and there are 10 homes located within a half-mile radius of the Site.

1.1.2.2 Description of Threat

Direct contact with high concentrations of inorganic arsenic, a listed hazardous substance

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

See Polreps 1-2 and the Documents tab of the website: www.epaosc.org/wileyproperty for additional information.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

2.1.2 Response Actions to Date

On 8/3/2016, the Emergency and Rapid Response Services (ERRS) contractor CMC, Inc. began clearing

Response Team (START) contractor delineates areas at the surface with the XRF where total arsenic concentrations soils are >5,000 parts per million (ppm). Using historical data collected from this site, these soils are likely to fail the Toxicity Characteristic Leaching Procedure (TCLP) and are managed as a hazardous waste. These soils will be shipped to a RCRA Subtitle C landfill in Indianapolis, IN for disposal. Soils which test below 5,000 ppm are placed in a separate stockpile and will be shipped as a DOT hazardous material to the Republic Services Ohio County landfill in Beaver Dam, KY. As of the date of this report, approximately 2570 cubic yards of arsenic-contaminated soils have been excavated and stockpiled.

Off-site disposal of the DOT-regulated materials began on 09/14/2016, and as of the date of this report, over 280 tons has been disposed of at the Ohio County landfill.

On 08/30/2016, air samples were collected to evaluate the potential exposure of site workers to airborne arsenic particulate matter. The results indicated that the maximum arsenic concentrations detected were 1.2 micrograms per cubic meter of air (ug/m3). This is below the OSHA limit of 10 ug/m3 by an order of magnitude. Site workers continue to wear Level C respiratory protection until another round of samples is collected to justify a downgrade in personal protection.

Also during this reporting period, additional funding in the amount of $900,000 was placed on the ERRS Task Order..

2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

All of the previous and current land owners have been designated as PRPs for this Site. However, none have been identified for purposes of conducting the removal action as there is no direct evidence that any of the land owners contributed to a release of hazardous substances during their period of ownership.

Wells Fargo N.A. is currently responsible for the Wiley property but is not considered a PRP because it acquired title to the property via a foreclosure proceeding and thus has no liability under CERCLA.

2.1.4 Progress Metrics

Waste Stream	*Medium*	*Quantity*	*Manifest #*	*Treatment*	*Disposal*
UN 3077	soil	280 tons			Ohio County Landfill

2.2 Planning Section

2.2.1 Anticipated Activities

2.2.1.1 Planned Response Activities

2.2.1.2 Next Steps

Disposal of soils classified as hazardous wastes are pending the approval of the subcontracting consent package submitted to the EPA Contracting Officer.

2.2.2 Issues

The Action Memo authorizes excavation to 1.5 feet below land surface (BLS), followed by backfilling with clean soil and establishing vegetative cover. Composite soil samples were collected on 09/07/2016 from the subgrade depth on the hillside area of the site following excavation. Results revealed total arsenic at 1530 ppm on the residential property and 1930 ppm on the non-residential property at subgrade depth along the hillside located down-gradient of the former source area. A plastic barrier will be placed on all excavated areas as a marker before backfilling with clean soils. This will facilitate identification of areas which may exceed the Kentucky Department of Environmental Protection (KDEP) remediation objectives for this site.

2.3 Logistics Section

No information available at this time.

2.4 Finance Section

Estimated Costs *

	Budgeted	Total To Date	Remaining	% Remaining
Extramural Costs				
ERRS - Cleanup Contractor	$1,700,000.00	$455,200.00	$1,244,800.00	73.22%
TAT/START	$99,700.00	$28,257.00	$71,443.00	71.66%
Intramural Costs				
Total Site Costs	$1,799,700.00	$483,457.00	$1,316,243.00	73.14%

* The above accounting of expenditures is an estimate based on figures known to the OSC at the time this report was written. The OSC does not necessarily receive specific figures on final payments made to any contractor(s). Other financial data which the OSC must rely upon may not be entirely up-to-date. The cost accounting provided in this report does not necessarily represent an exact monetary figure which the government may include in any claim for cost recovery.

2.5 Other Command Staff

No information available at this time.

3. Participating Entities

No information available at this time.

4. Personnel On Site

EPA - 1

ERRS - 6

START - 1

5. Definition of Terms

No information available at this time.

6. Additional sources of information

No information available at this time.

7. Situational Reference Materials

No information available at this time.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region IV

Subject: **POLREP #6**
Progress Polrep
Wiley Property (aka Ohio County Arsenic Site)

Hartford, KY
Latitude: 37.5123000 Longitude: -86.9653010

To: James Webster, USEPA R4 ERRB
Larry Hughes, KYDEP

From: Art Smith, On-Scene Coordinator
Date: 10/12/2016
Reporting Period: 9/17/2016 through 10/07/2016

1. Introduction

1.1 Background

Site Number:	B45H	**Contract Number:**	EP-S4-15-04
D.O. Number:	0007	**Action Memo Date:**	10/11/2016
Response Authority:	CERCLA	**Response Type:**	Time-Critical
Response Lead:	EPA	**Incident Category:**	Removal Action
NPL Status:	Non NPL	**Operable Unit:**	
Mobilization Date:	10/13/2015	**Start Date:**	10/13/2015
Demob Date:		**Completion Date:**	
CERCLIS ID:	KYN000403430	**RCRIS ID:**	
ERNS No.:		**State Notification:**	
FPN#:		**Reimbursable Account #:**	

1.1.1 Incident Category
CERCLA Incident Category: Abandoned Residential Property

1.1.2 Site Description

1.1.2.1 Location

The Wiley Property Site is located at 209 Shinkle Chapel Road in Hartford, Ohio County,Kentucky. The geographic coordinates of the Site are 37.5123000° North and 86.9653010° West. The Site consists of two parcels of land. The first residential tract is designated as Tax/Parcel ID 73-17-1 in the records for Ohio County, KY comprising 10.2 acres. This property is currently held by Wells Fargo Bank, following a foreclosure and Master Commissioner's sale in 2014. There are two improvements on Tax/Parcel ID 73-17-1: a single family home and an outbuilding.

The second tract making up the Site is designated as Tax/Parcel ID 73-17 in the records for Ohio County, KY. This parcel is privately owned and a portion of this property was subdivided to sell Parcel 73-17-1 in 2007. There are reports of an old barn on this property which was subsequently destroyed, thus suggesting that the past use of the property was for agricultural purposes.

The Site is bordered to the north by Shinkle Chapel Road, and by wooded, rural, and agricultural lands to the east, south, and west. There is an abandoned single family dwelling on the property, and there are 10 homes located within a half-mile radius of the Site.

1.1.2.2 Description of Threat
Direct contact with high concentrations of inorganic arsenic, a listed hazardous substance

1.1.3 Preliminary Removal Assessment/Removal Site Inspection Results

See Polreps 1-2 and the Documents tab of the website: www.epaosc.org/wileyproperty for additional information.

2. Current Activities

2.1 Operations Section

2.1.1 Narrative

2.1.2 Response Actions to Date

On 8/3/2016, the Emergency and Rapid Response Services (ERRS) contractor CMC, Inc. began clearing

Response Team (START) contractor delineates areas at the surface with the XRF where total arsenic concentrations soils are >5,000 parts per million (ppm). Using historical data collected from this site, these soils are likely to fail the Toxicity Characteristic Leaching Procedure (TCLP) and are managed as a hazardous waste. These soils are classified as D004 and will be shipped to a RCRA Subtitle C landfill in Roachdale, IN for disposal. Soils which test below 5,000 ppm are placed in a separate stockpile and will be shipped as a DOT hazardous material to the Republic Services Ohio County landfill in Beaver Dam, KY. As of the date of this report, approximately 3520 cubic yards of arsenic-contaminated soils have been excavated and stockpiled.

Off-site disposal of the DOT-regulated materials began on 09/14/2016, and off-site disposal of the D004 wastes began on 10/04/2016. As of the date of this report, over 2168 tons of arsenic-contaminated soils have been disposed of at both off-site locations. See Section 2.1.4 below for a breakdown of wastestream disposal totals.

On 08/30/2016, air samples were collected to evaluate the potential exposure of site workers to airborne arsenic particulate matter. The results indicated that the maximum arsenic concentrations detected were 1.2 micrograms per cubic meter of air (ug/m3). This is below the OSHA limit of 10 ug/m3 by an order of magnitude. This process was repeated on 09/21/2016 All results for this sampling event were below detection limits for arsenic. Upon receipt of the results, the Site Health and Safety Plan was revised on 10/03/2016 to downgrade the level of protection to a Modified Level D ensemble.

Also during this reporting period, ERRS crews filled in sections of Beda Road where dump trucks have created potholes. These costs are tracked separately and the work has been conducted in coordination with the Ohio County KY Roads Department

2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)

All of the previous and current land owners have been designated as PRPs for this Site. However, none have been identified for purposes of conducting the removal action as there is no direct evidence that any of the land owners contributed to a release of hazardous substances during their period of ownership.

Wells Fargo N.A. is currently responsible for the Wiley property but is not considered a PRP because it acquired title to the property via a foreclosure proceeding and thus has no liability under CERCLA.

2.1.4 Progress Metrics

Waste Stream	*Medium*	*Quantity*	*Manifest #*	*Treatment*	*Disposal*
UN 3077	soil	1720 tons			Ohio County Landfill
D004	soil	447 tons			Heritage Env. Services

2.2 Planning Section

2.2.1 Anticipated Activities

2.2.1.1 Planned Response Activities

2.2.1.2 Next Steps

- Continue with backfill and restoration of excavated areas
- Complete excavation of areas on the residential property
- Re-contouring of surface drainage feature forming the northern boundary of the Site

2.2.2 Issues

The Action Memo authorizes excavation to 1.5 feet below land surface (BLS), followed by backfilling with clean soil and establishing vegetative cover. Composite soil samples were collected on 09/07/2016 from the subgrade depth on the hillside area of the site following excavation. Results revealed total arsenic at 1530 ppm on the residential property and 1930 ppm on the non-residential property at subgrade depth along the hillside located down-gradient of the former source area. A plastic barrier will be placed on all excavated areas as a marker before backfilling with clean soils. This will facilitate identification of areas which may exceed the Kentucky Department of Environmental Protection (KDEP) remediation objectives for this site.

2.3 Logistics Section

No information available at this time.

2.4 Finance Section

Estimated Costs *

	Budgeted	Total To Date	Remaining	% Remaining
Extramural Costs				
ERRS - Cleanup Contractor	$1,700,000.00	$803,126.00	$896,874.00	52.76%
TAT/START	$99,700.00	$45,042.00	$54,658.00	54.82%
Intramural Costs				

The above accounting of expenditures is an estimate based on figures known to the OSC at the time this report was written. The OSC does not necessarily receive specific figures on final payments made to any contractor(s). Other financial data which the OSC must rely upon may not be entirely up-to-date. The cost accounting provided in this report does not necessarily represent an exact monetary figure which the government may include in any claim for cost recovery.

2.5 Other Command Staff

No information available at this time.

3. Participating Entities

No information available at this time.

4. Personnel On Site

EPA - 1

ERRS - 6

START - 1

5. Definition of Terms

No information available at this time.

6. Additional sources of information

No information available at this time.

7. Situational Reference Materials

No information available at this time.

08.27.2016

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Arsenic site cleanup to start

BY STEVE VIED
MESSENGER-INQUIRER

Preliminary work signaling the start of a federal Superfund cleanup at an arsenic trioxide contaminated site in Ohio County will begin Wednesday, Oct. 14, but the full-blown cleanup will likely have to wait until next year at an as-yet undetermined cost, a U.S. Environmental Protection Agency official said Tuesday.

Art Smith, an on-site coordinator for the EPA Louisville office, said work scheduled for the rest of this week and next week will consist of preparation at the site to include rebuilding a driveway into the site, constructing a staging area for personnel and equipment, clearing vegetation and moving visible arsenic contamination waste material into a pile and covering it. A fence will be built around the pile as well, he said.

Soil samples at the site and in nearby areas will be taken to measure the amount of contamination that will have to be removed, but be assured there is a lot of it.

"We don't how it got there or when it got there, but it's been there a long time," Smith said. "It's degraded over time, but it's almost pure arsenic trioxide. ... The concentration is sky-high. I've never seen a concentration this high."

The contamination was discovered a year ago. The Kentucky Department of Environmental Protection was first contacted about the possibly contaminated site at 209 Shinkle Chapel Road, six miles south of the Daviess County line, last October. The EPA was brought in for site testing. The results returned in March showed the presence of arsenic trioxide in excess of 150,000 milligrams per kilogram of soil, or 15 percent in the soil. The EPA and the KDEP consider arsenic levels exceeding 50 milligrams per kilogram a high concentration for this area.

EPA investigators said earlier it is believed the arsenic had been stored in containers inside a barn that burned down years ago, releasing the poisonous material into the ground. According to the EPA, exposure to arsenic can cause cancer, and high levels can result in death.

Smith provided a picture of the site that shows an area not far from a house and cabin on the property that is devoid of any vegetation, where the arsenic concentration is the highest. The area downhill from that area will be tested to see how far the contamination has reached, he said.

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BY JAM
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Havener, which often occurred when the victims were alseep. In a May 2009 incident on Wilderness Trace, items were taken from the home and set on fire outside while the occupants were sleeping. In two cases, Havener had used the victims' computers during the night to visit various pornography websites; in one burglary, the female victim told police the person had visited porn sites and visited her Facebook and Myspace pages while he was using the computer.

Havener was released on parole in June. Department of Corrections reports, received through

ARSENIC

FROM THE **FRONT PAGE**

The presence of arsenic dust has been found in the house, and it will be retested, he said, to determine if it can be occupied again. No one is living in the house now.

Eventually, contaminated material considered hazardous will be moved from the property for handling, perhaps out of Kentucky, Smith said. Material considered non-hazardous, may be disposed of locally, he said.

"We'll have a better idea of a time-line by the end of this year," Smith said. "Our goal is for removal in 2016."

The EPA is paying for the cleanup, Smith said.

The contaminated aarea has been surrounded by a fence, gates are locked and the site is off-limits to anyone other than those involved in the cleanup, Smith said.

David Johnston, judge-executive of Ohio County, said he was satisfied that the cleanup is being handled appropriately.

"I'm satisfied there is no threat to anyone else as long as they stay off that property," Johnston said.

Johnston said the closest anyone lives to the contamination is about 400 feet and on the opposite side of a ditch from the site that does not contain arsenic.

The EPA has contracted with CMC Inc. of Nicholasville for the first phase of the remediation.

Steve Vied, 270-691-7297, svied@messenger-inquirer.com

MESSENGER-INQUIRER

(USPS 341-660)

Published seven days a week by the Owensboro Messenger-Inquirer Inc. at 1401 Frederica Street, Owensboro, KY 42301.

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Arsenic—Frequently Asked Questions

This fact sheet answers the most frequently asked questions about arsenic. The effects of exposure to any hazardous substance depend on the dose, the duration, how you are exposed, personal traits and habits, and whether other chemicals are present. For information on the contaminated Ohio County property, please feel free to contact the on-scene coordinator and/or local resources listed on the back of this page. If you have lived on this property, frequented this property, or been in contact with substances on this property, please contact the health department and your physician for further guidance.

What is arsenic?

Arsenic is a natural occurring element found in the Earth's crust. Arsenic is mainly used to make "pressure-treated" lumber as a part of a chemical called copper chromated arsenate (CCA). CCA is not used residentially, but is still used for industrial applications. Other arsenic compounds may be used for pesticides, primarily on cotton fields and orchards.

What happens to arsenic in the environment?

- Because arsenic is naturally occurring, it may enter the air, water, and land from wind blown dust or water runoff
- Arsenic cannot be destroyed in the environment

How might I be exposed to arsenic?

- Ingesting small amounts present in food, water, or breathing air containing arsenic
- Breathing sawdust or burning smoke from wood treated with arsenic
- Living in areas with unusually high natural levels of arsenic in rock
- Working in a job that involves arsenic production or use, such as copper or lead smelting, wood treating, or pesticide application

What are the health effects of arsenic?

Breathing high levels of inorganic arsenic can give you a sore throat or irritated lungs.

Ingesting very high levels of arsenic can result in death. Lower level exposure can cause nausea, vomiting, decreased production of red and white blood cells, abnormal heart rhythm, damage to blood vessels, and a sensation of "pins and needles" in hands and feet. Darkening of skin, appearance of small "corns" or "warts" on the palms, soles, and torso may also occur. Skin contact with inorganic arsenic may cause redness and swelling.

How can arsenic affect children?

There is some evidence that long-term exposure to arsenic in children may result in lower IQ scores. Additionally, there is some evidence that exposure to arsenic in the womb and early childhood may increase mortality in young adults.

Inhaled arsenic may injure pregnant women or their unborn babies. Animal studies show that large doses of arsenic can also cause low birth-weight, fetal malformations, and even fetal death.

Is there a medical test that will show if I have been exposed to arsenic?

- There are tests available to measure arsenic in your blood, urine, hair, and fingernails
- Urine tests are the most reliable test for exposure within the last few days
- Hair and fingernail tests can measure exposure to high levels of arsenic over the past 6-12 months.
- These tests cannot predict whether the arsenic levels in your body will affect your health

Has the federal government made recommendations to protect human health?

The EPA has set limits on the amount of arsenic that industrial sources can release to the environment and has restricted or cancelled many of the uses of arsenic in pesticides. OSHA has also set restrictions for workplace settings.

References

Information was gathered from the Agency for Toxic Substances and Disease Registry (ATSDR) 2007. Toxicological Profile for Arsenic (Update). Atlanta, GA: U.S. Department of Health and Human Services. Public Health Service.

For more information: contact the Agency for Toxic Substances and Disease Registry, Division of Toxicology and Human Health Sciences, 1600 Clifton Road NE, Mailstop F-57, Atlanta, GA 30333. Phone: 1-800-232-4636 Website: http://www.atsdr.cdc.gov

Green River District
HEALTH DE

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