ARKANSAS
ENERGY & ENVIRONMENT

August 16, 2021

Electronic Mail Only

Mr. Philip Ofosu, Site Assessment Manager
U.S. EPA Region 6 (SEDAS)
1201 Elm Street, Suite 500
Dallas, Texas 75270

Re: Task Work Plan for Lewis Lumber and Manufacturing
136 W Mill Street
Cove, Polk County, Arkansas
EPA ID ARD006348353; AFIN 57-00020

Dear Mr. Ofosu:

The Arkansas Department of Energy and Environment, Division of Environmental Quality, Office of Land Resources (DEQ) has completed the Site Inspection (SI) Task Work Plan (TWP) for the Lewis Lumber and Manufacturing site located at 136 W Mill Street in Cove, Polk County, Arkansas. Enclosed is a copy of the SI TWP. DEQ has tentatively scheduled the SI sampling event for October 2021.

If you have any questions or comments, please contact me at (501) 682-0655 or by email at anna.griffiths@adeq.state.ar.us.

Sincerely,

agayle

Anna Gayle Griffiths
Brownfield & Site Assessment Inspector, Division of Environmental Quality
5301 Northshore Drive, North Little Rock, AR 72118

Enclosure: SI TWP

TASK WORK PLAN
FOR
LEWIS LUMBER AND MANUFACTURING
EPA ID No. ARD006348353
COVE, POLK COUNTY, ARKANSAS

Philip Ofosu
EPA Site Assessment Manager

Date

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Environmental Operations Manager
Office of Land Resources
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8/16/2021
Date

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Anna Gayle Griffiths
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Division of Environmental Quality

8/16/2021
Date

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LIST OF ACRONYMS

AFIN	DEQ Facility Identification Number
ANHC	Arkansas Natural Heritage Commission
ANRC	Arkansas Natural Resource Commission
AST	Aboveground Storage Tank
BGS	Below Ground Surface
CCA	Chromium Copper Arsenate
CEI	Compliance Evaluation Inspection
CO	Carbon Monoxide
DEQ	Division of Environmental Quality
HASP	Health and Safety Plan
HRS	Hazard Ranking System
NFRAP	No Further Remedial Action Planned
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
PA	Preliminary Assessment
PDS	Permit Data System
PM/PM_{10}	Particulate Matter
PPE	Probable Point of Entry
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RST	Regulated Storage Tank
SAP	Sampling and Analysis Plan
SDS	Safety Data Sheet
SESSI	Soil Exposure and Subsurface Intrusion
SI	Site Inspection
SIP	Site Inspection Prioritization

SO_2	Sulfur Dioxide
SQG	Small Quantity Generator
SWPPP	Stormwater Pollution Prevention Plan
TDL	Target Distance Limit
TWP	Task Work Plan
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground Storage Tank
VOC	Volatile Organic Compound

1.0 INTRODUCTION

The Division of Environmental Quality (DEQ) has been tasked by the United States Environmental Protection Agency (U.S. EPA) Region 6 to conduct a Site Inspection (SI) at the Lewis Lumber and Manufacturing Company ("Lewis Lumber") site in Cove, Polk County, Arkansas. This Task Work Plan (TWP) provides a description of the site and discusses the objectives and rationale of the SI sampling strategy, health and safety guidelines, quality assurance/quality control (QA/QC) procedures, and project team member responsibilities.

A Preliminary Assessment (PA) investigation to provide information on historical waste generation and disposal, potentially hazardous substance sources, migration pathways, and potential targets was completed for Lewis Lumber on April 10, 2019. The objective of this SI is to determine site waste characteristics, contaminant sources, and exposure pathways by collecting and analyzing samples needed to support the Hazard Ranking System (HRS) evaluation for Lewis Lumber.

The SI is intended to provide sufficient information for DEQ and U.S. EPA to determine whether the site: (a) poses a potentially unacceptable risk to human health or the environment and requires further investigation or (b) is eligible for No Further Remedial Action Planned (NFRAP) documentation.

To meet the objectives of the SI, DEQ personnel will: (1) review available information, (2) conduct fieldwork to inspect the site and collect samples, (3) evaluate analytical data, and (4) prepare the SI report. The exposure and migration pathways of concern for the Lewis Lumber site are soil, surface water, and groundwater. This SI will build on available file information collected by DEQ and U.S. EPA Region 6 and will assist in validating or invalidating assumptions made during the PA investigation.

Section 5.0 contains the Sampling and Analysis Plan (SAP). Section 6.0 contains the Health and Safety Plan (HASP). Section 7.0 contains the Quality Assurance Project Plan (QAPP).

2.0 SITE BACKGROUND

The Lewis Lumber site location, description, waste characteristics, and Areas of Concern (AOCs) are summarized in this section. The site background information presented in this TWP was obtained from information compiled by DEQ and presented in the *Preliminary Assessment for Lewis Lumber and Manufacturing Company* ("2019 Lewis Lumber PA") dated April 2019 (Reference [Ref.] 1).

2.1 Operational History

The Lewis Lumber site is situated in a rural residential and agricultural area on an approximately thirty-seven acre lot in Cove, Polk County, Arkansas. Throughout its operational history, the Lewis Lumber site was used as a lumber mill and wood treating facility. Lewis Lumber began lumber mill operations on-site in 1958 and began wood treating in 1976. Prior to 1976, the majority of operations occurred on the northern portion of the site. Lewis Lumber operated on-

site until 2009 when the property was sold to Jerry Hairrell and Hairrell Lumber began operations. Hairrell Lumber closed and ceased operations on December 30, 2010, due to bankruptcy. The site has remained inactive since this time.

2.2 Waste Characteristics and Regulatory Involvement

This section provides available information from DEQ records regarding waste characteristics and regulatory involvement at the Lewis Lumber site.

While in operation, the Lewis Lumber site was used as a lumber mill and wood treating facility. Lewis Lumber began lumber mill operations on-site in 1958 and began wood treating in 1976. Logs and precut stock, both hardwood and softwood, were received at the Lewis Lumber site by truck. The logs were cut to length and debarked. The debarked logs were either made into posts and poles or cut into timber for making pallets and skids or specialty lumber. The majority of the posts and poles were treated. Softwood needed to be kiln-dried prior to treating; however, the hardwood did not require drying. All wood treatment was done using a waterborne preservative. Once dried, the treated posts and poles were shipped off-site with the other wood products for sale.

DEQ records show that Lewis Lumber stored materials and generated potential waste containing the following contaminants: particulate matter ($PM_{2.5}$/PM_{10}), sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen oxides (NOx), and volatile organic compounds (VOCs). According to the Safety Data Sheet (SDS), the chromium copper acetate (CCA) Type C Wood Preservative used at the Lewis Lumber site was composed of chromic acid, arsenic acid, and copper oxide.

Potential sources of hazardous substances, pollutants, or contaminants observed on the Lewis Lumber site include the following:

- Demolition debris containing empty 5-gallon hydraulic fluid buckets, small-quantity containers of various contents, broken universal waste bulbs, and various wiring and tubing;
- Multiple burn piles and numerous areas of staining on gravel, concrete foundations, and soil, accompanied by hydrocarbon odor;
- Staining in the shape of rings, indicative of former 55-gallon drums, on a concrete foundation;
- Areas of staining accompanied by hydrocarbon and chemical odors in numerous areas in and around the CCA Treatment Building;
- Three large CCA Treatment Tanks and associated concrete containment area with green staining;
- Concrete saddles for additional former ASTs north of the CCA Treatment Tanks;
- The stained concrete catch/recirculation basin with a metal tank and sump on each side;
- Staining on the concrete drip pad and treatment area, in particular, dense green staining on the south portion;
- The approximately 18,000-gallon underground concrete containment area with liquid, presumed to be rainwater, with a sheen on the surface; and

- Two pairs of underground 55-gallon drums with an unknown purpose connected by approximately 6-inch diameter pipes.

Regulatory Information

A review of DEQ PDS indicated that DEQ Facility Identification Number (AFIN) 57-00020 is associated with the Lewis Lumber site. Hairrell Lumber has an inactive hazardous waste EPA identification number (ARD006348353), Regulated Storage Tanks (RST) (Facility ID #57001609), a voided Minor Source Air Permit (2088-A), and a voided National Pollutant Discharge Elimination System (NPDES) Storm Runoff Permit (ARR00B362). In addition, according to DEQ records, the Lewis Lumber site was registered as a Small Quantity Generator (SQG) of hazardous waste.

A review of DEQ PDS indicated that Lewis Lumber was issued Minor Source Air Permit 2088-A on May 12, 2005. Hairrell Lumber was cited in 2007 for exceeding the 2088-A permit limit pertaining to the number of logs received. This permit was voided on April 8, 2013. According to DEQ RST records, three 5,000-gallon diesel underground storage tanks (USTs) were historically located on the Lewis Lumber site. All three tanks were initially installed in 1975 and were removed in 1998.

A review of DEQ records indicated a history of poor hazardous waste management practices at the Lewis Lumber site including the following complaints and violations:

- Failure to submit hazardous waste annual reports by required deadlines;
- Multiple occurrences of exceeding stormwater runoff benchmarks;
- A complaint in May 1989 regarding CCA runoff from the drip pad leaving the site;
- Numerous hazardous waste management violations reported during a March 1993 Compliance Evaluation Inspection (CEI);
- Exceedance of 2088-A permit limit pertaining to the number of logs received during an Air inspection in January 2007; and
- Multiple items of concern noted in an Industrial Stormwater Compliance Inspection in April 2009 including failure to submit permit transfer paperwork, failure to prepare a Stormwater Pollution Prevention Plan (SWPPP), drums containing unknown fluids that needed to be identified and disposed of properly, large piles of discarded timber wastes and solid waste (two of which were directly on the bank of a small creek), and several areas of spilled oil-based fluids.

In addition, approximately fifty drums with varying amounts of unknown liquids and a pile of potentially contaminated debris were documented on-site during a CEI conducted in August 2012.

3.0 SITE CONDITIONS

The information on site conditions presented in this SI TWP was compiled from multiple site reconnaissance visits and the 2019 Lewis Lumber PA.

Cove is located in western Polk County, along the western Arkansas state boundary. According to Google Earth Pro (WGS84), the approximate geographic coordinates for the

center of the Lewis Lumber site are 34.440194º latitude, -94.415292º longitude**. Figure 3-1** provides the county map and site location within Polk County. **Figure 3-2** provides the 1-mile and 4-mile radii around the site. **Figure 3-3** provides an aerial map of the site and significant site features. These figures are provided at the end of this section.

The Lewis Lumber site consists of approximately thirty-seven acres. Land cover consists of concrete foundations, gravel, and vegetated areas. This site is not fenced and is easily accessible to trespassers; however, a locked gate is located at the main property entrance from W Mill Street to the east. During reconnaissance, the gate was locked, making the site inaccessible by vehicle.

Approximately twenty buildings were formerly located on the Lewis Lumber site. The majority of the buildings had been demolished prior to the May 30, 2018, site reconnaissance. Demolition debris is located throughout the site, primarily in the locations of former buildings. Included within the demolition debris are empty 5-gallon hydraulic fluid buckets, small-quantity containers of various contents, broken universal waste bulbs, and various wiring and tubing. The only buildings remaining on-site are portions of the CCA Treatment Building on the southern portion; a former residence on the western portion; and an office, break building, and wooden frame of a plywood storage building on the northern portion of the site. All buildings remaining on-site are in poor condition. In addition to concrete foundations of former buildings, the remaining land cover at the site consists mostly of gravel and vegetated areas.

The CCA Treatment Building is a grouping of buildings on the southern portion of the site that were adjoined over time. Areas of staining accompanied by hydrocarbon and chemical odors were located in numerous areas in and around the CCA Treatment Building. Three large (approximately 10,000 gallons each) aboveground storage tanks (ASTs), one of which is labeled "Wood Chemicals Group CCA-C (50%) Wood Preservative," ("CCA Treatment Tanks") are located within a concrete containment area under a portion of the CCA Treatment Building. During site reconnaissance, all three CCA Treatment Tanks were empty. Green staining was visible on the CCA Treatment Tanks and inside the concrete containment area. In addition, during site reconnaissance, the concrete containment area surrounding the CCA Treatment Tanks contained liquid presumed to be rainwater.

Concrete saddles for additional former ASTs are located north of the CCA Treatment Tanks. A concrete catch/recirculation basin with a metal tank and sump on each side is located south of the CCA Treatment Tanks. The concrete catch/recirculation basin was stained and contained liquid presumed to be rainwater during site reconnaissance. A covered concrete drip pad and treatment area is located south of the catch/recirculation basin. During site reconnaissance, staining was visible on the concrete drip pad and treatment area; in particular, dense green staining was located on the south portion of the concrete drip pad. An approximately 18,000-gallon underground concrete containment area is located east of the CCA Treatment Tanks. During site reconnaissance, the approximately 18,000-gallon underground concrete containment area contained liquid presumed to be rainwater with sheen on the surface.

Near the south site boundary and the location of the former Dry Kiln, two pairs of 55-gallon drums connected by approximately 6-inch diameter pipes are located underground and

surrounded by concrete. During site reconnaissance visits, both pairs of 55-gallon drums contained liquid presumed to be rainwater. The purpose of these drums has not been determined. During site reconnaissance, there were also multiple burn piles and staining found on gravel, concrete foundations, and soil located throughout the site. This staining was also accompanied by hydrocarbon odor. Areas of disturbed soil and a large sawdust pile were located on the north-central part of the site, likely related to demolition debris. One concrete foundation was characterized by staining in the shape of rings, indicative of the former presence of 55-gallon drums.

Some trash debris can be found throughout the site; however, it is unknown if this debris was from trespassers or related to previous activity at the site.

The majority of surface water runoff flows north off the site into Dry Creek approximately 250 feet north of the site. Dry Creek flows west into Mountain Fork approximately thirteen miles downstream from the site.

Current site and area conditions, including topography, soils, geology, hydrogeology, and climatology are characterized in the remainder of this section. The information was obtained from the 2019 Lewis Lumber PA.

3.1 Topography

Cove is located in western Polk County, along the western Arkansas state boundary. According to Google Earth Pro (WGS84), the approximate geographic coordinates for the center of the Lewis Lumber site are 34.440194º latitude, -94.415292º longitude**.** The site slopes down to the north at a grade of approximately five percent, with the center of the site approximately 1,050 feet above mean sea level (Ref. 1).

3.2 Soils

According to the Natural Resources Conservation Service (NRCS) Web Soil Survey for Polk County, Arkansas, (Ref. 2), the soil map unit composition for the Lewis Lumber site is primarily comprised of the following soils (in descending order):

- Sherless gravelly fine sandy loam, 1 to 6 percent slopes
- Dela fine sandy loam, 0 to 2 percent slopes, occasionally flooded
- Sherless-Nashoba-Bismarck complex, 15 to 35 percent slopes, extremely stony.

The majority of the Lewis Lumber site consists of Sherless gravelly fine sandy loam soil. A description of this soil is summarized below:

Sherless gravelly fine sandy loam, 1 to 6 percent slopes:

This moderately deep, well-drained soil is often found on hills and ridges primarily in the southern part of the county. The surface layer is typically dark grayish brown gravelly fine sandy loam, approximately four inches thick. The subsurface layer is light yellowish brown fine sandy loam that extends to approximately ten inches below ground surface (bgs). The upper portion of the subsoil is yellowish red clay loam that extends to a depth of

approximately twenty-one inches bgs. The middle portion is yellowish red, mottled clay loam that extends to a depth of approximately thirty-four inches bgs. The lower portion is yellowish red, yellowish-brown, and gray loam that extends to a depth of approximately thirty-eight inches bgs. The substratum is typically yellowish red, yellowish-brown, and gray fractured and tilted soft acidic sandstone that extends to a depth of approximately forty-five inches bgs. This soil ranges from moderately acidic to extremely acidic, except for areas where amendments have been applied (Ref. 3).

3.3 Geology and Hydrogeology

The following information was obtained from the Arkansas Geological Commission's *Stratigraphic Summary of Arkansas,* (Ref. 4), and the 1993 Geologic Map of Arkansas, (Ref. 5):

Lewis Lumber is located within the Ouachita Mountains physiographic province. The Ouachita Mountains are made up of complexly folded and faulted Paleozoic age sedimentary rocks that were originally deposited in mostly deep marine environments. A structural fabric that trends more or less east-west was produced by a continental collision during the late Paleozoic. The folding was intricate at all scale levels and several local sequences, both complete and partial, are overturned. Throughout the area, compressional faulting is commonly expressed in the sequence. The Ouachita province, in a general sense, can be considered an anticlinorium with late Cambrian and early Ordovician age deposits being exposed in the center and Mississippian and Pennsylvanian age sediments exposed around the margins. The Gulf Coastal Plain and Mississippi Embayment cut off the area to the east.

The Lewis Lumber site is located within the Stanley Shale formation of the Ouachita Mountains physiographic province. This unit is composed of dark gray shale interbedded with fine-grained sandstone. Both plant and invertebrate fossils have been reported in this formation, but preservation is usually poor. The total thickness of the Stanley Shale formation varies from 3,500 to over 10,000 feet.

The following information was obtained from the United States Geological Survey (USGS) *Ground Water Atlas of the United States* (Ref. 6):

The Ouachita Mountains aquifer lies under the Lewis Lumber site. This aquifer consists mostly of shale, sandstone, and chert beds of Cambrian to Pennsylvanian age. The Ouachita Mountains are topographically characterized by alternating mountains and intermontane valleys to the north and a southernmost piedmont area. The Ouachita Mountains Aquifer has a wide extent, with a width of eighty miles along the Arkansas-Oklahoma state border that progressively narrows eastward towards the central part of the state. Despite its large expanse, due to the predominance of shale and low porosity sandstones, this aquifer yields limited quantities of water for domestic and non-irrigation farm uses. Well depths are shallow in the Ouachita Mountains aquifer and often yield less than fifty gallons per minute. Other than for limited quantities of water for domestic and non-irrigative farm purposes, most communities rely on surface water supplies.

Groundwater near the Lewis Lumber site is believed to flow north and northeast toward the Ouachita River, with groundwater elevations influenced by topography. By searching through

the USGS National Water Information System (Ref. 7), two wells were found within a 1-mile radius of the Lewis Lumber site. The static groundwater elevations for these wells ranged from 1.45 feet bgs at the shallowest to 12.70 feet bgs at the deepest. No additional groundwater wells were recorded with the USGS National Water Information System within a 4-mile radius of the Lewis Lumber site.

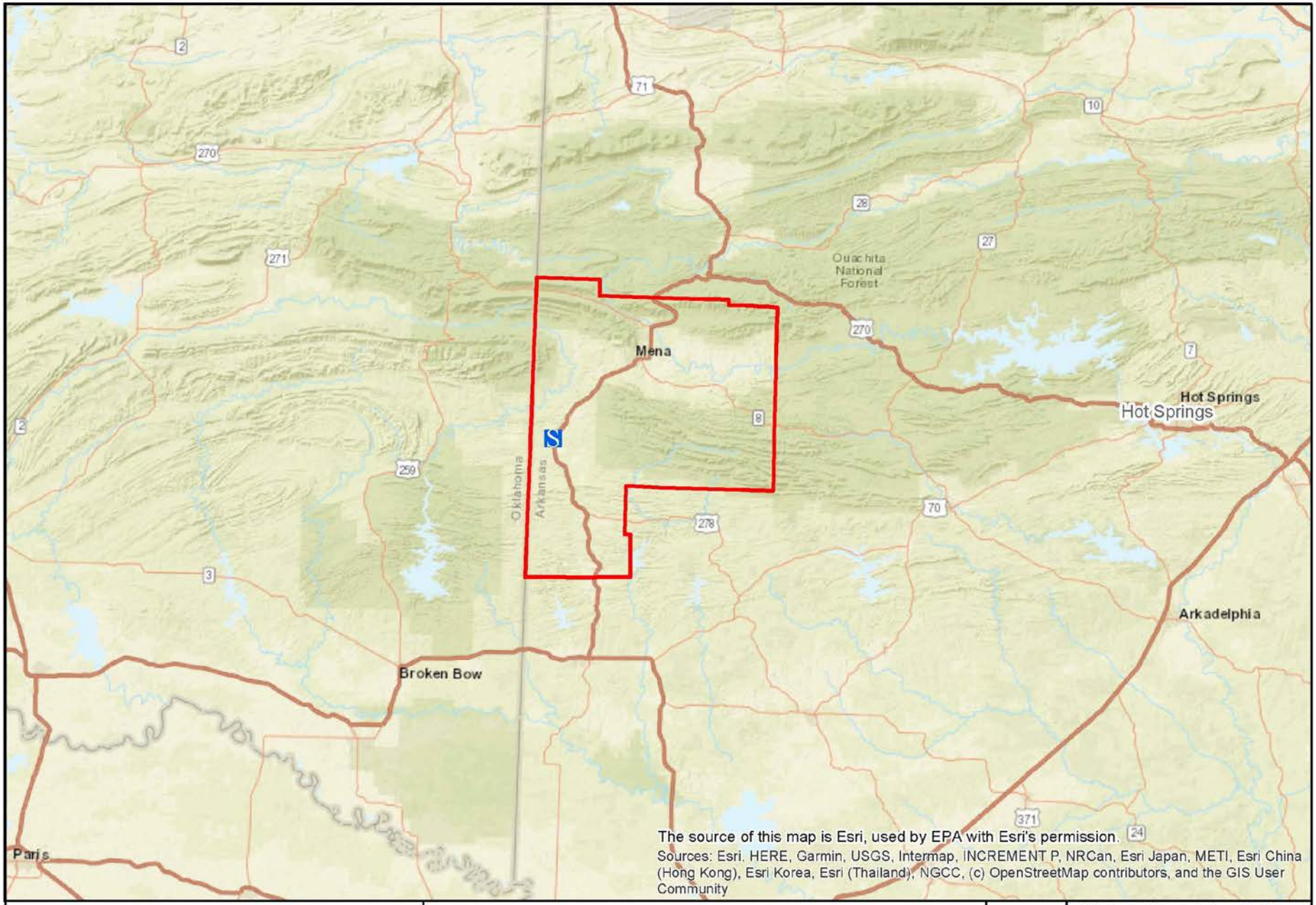
A radius search conducted using the Arkansas Natural Resource Commission (ANRC) Well Construction and Pump Installation Database indicated that eight groundwater wells are located within a 1-mile radius of the Lewis Lumber site. Of the eight wells recorded by ANRC, four are monitoring wells, one is a public supply well, and three are of unknown uses. The public supply well is located on a residential property southeast of the site. One of the wells recorded as having an unknown use is located on the Lewis Lumber site, northwest of the CCA Treatment Building. This well was used as a water supply well on-site. During site reconnaissance on January 16, 2019, the well was capped. The depth to groundwater in this well was 14 feet 8 inches, with a total well depth of 114 feet 5 inches. DEQ obtained this measurement using a Keck Water Level Meter.

A total of seventy-seven groundwater wells are recorded on the ANRC Well Construction and Pump Installation Database within a 4-mile radius of the Lewis Lumber site. Seventy-seven wells are registered with the ANRC, of which forty-two are domestic wells, twenty are of unknown uses, eight are commercial livestock wells, five are monitoring wells, one a public supply well, and one a domestic irrigation well. The static groundwater elevations of these wells range from five feet to fifty-one feet bgs (Ref. 8).

No groundwater wells within a 4-mile radius of the Lewis Lumber site were recorded as drinking water wells on the ANRC Well Construction and Pump Installation Database; however, it is possible that some are being used for this purpose.

3.4 Climatology and Meteorology

Cove is warm during summer when temperatures tend to be in the 70s and very cold during winter when temperatures tend to be in the 30s. The average annual temperature is 58.5 degrees Fahrenheit (ºF), with an average annual low of 45.2ºF and an average annual high of 71.7ºF. The average annual precipitation is 56.87 inches. Precipitation is fairly evenly distributed throughout the year with the wettest month being May at an average of 6.56 inches (Ref. 9).



Lewis Lumber

Site Location and County Map
Figure 3-1

Legend:

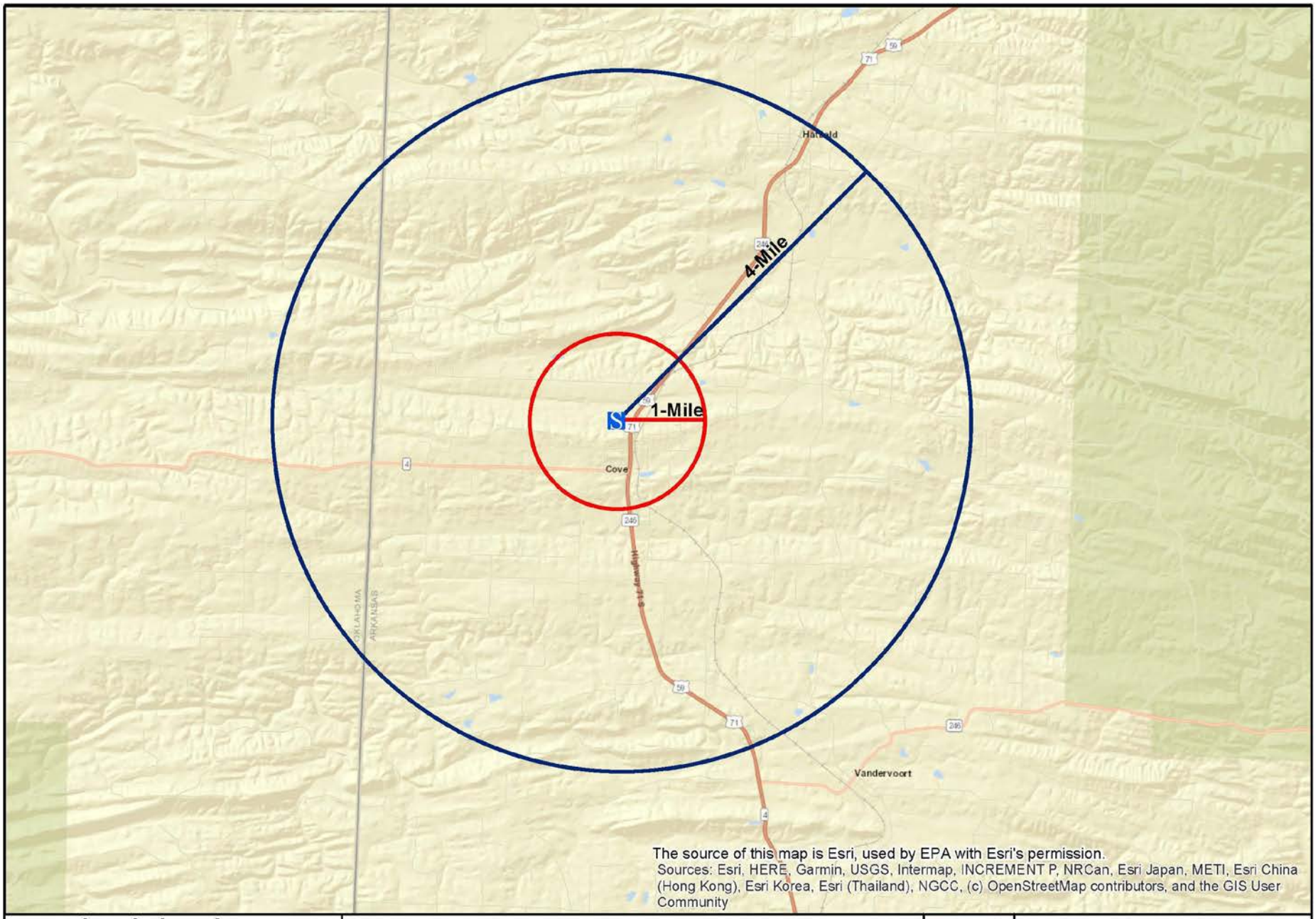
- Polk County
- Site Location

0 5 10 20 Miles

DEQ

AFIN: 57-00020

Site Location and County Map	
Location:	*Cove, Arkansas*
County:	*Polk*
Date:	*May 2020*



Lewis Lumber
1-Mile and 4-Mile Site Radius
Figure 3-2

Legend:

Site Location

0 0.5 1 2 Miles

DEQ

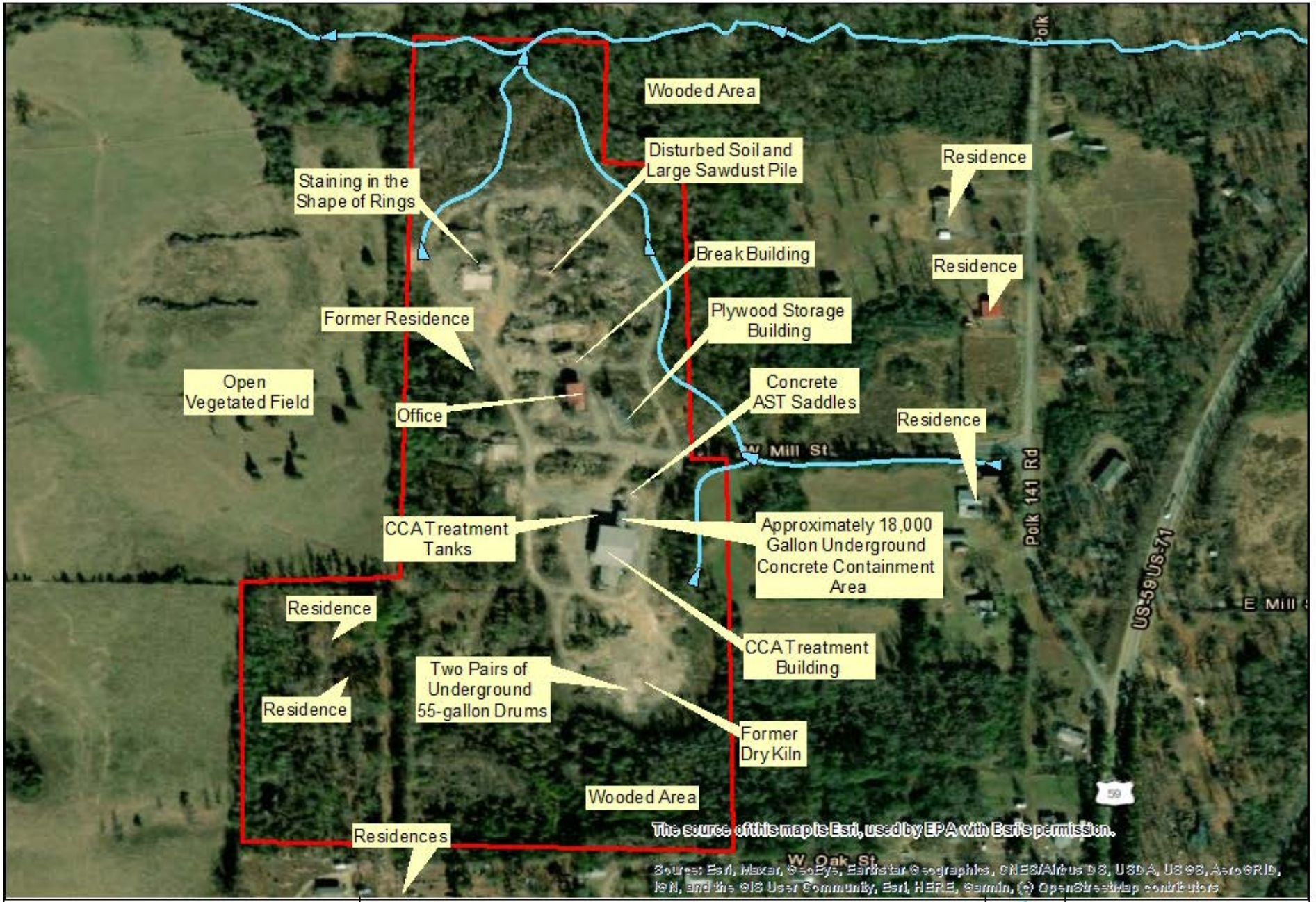
AFIN: 57-00020

1-Mile and 4-Mile Site Radius

Location: *Cove, Arkansas*

County: *Polk*

Date: *May 2020*



Lewis Lumber
Site Map
Figure 3-3

Legend:
- Site Boundary
- Site Drainage

0 115 230 460 Feet

N

	Site Map
	Location: *Cove, Arkansas*
AFIN: 50-00072	County: *Polk*
	Date: *May 2020*

4.0 PATHWAY ASSESSMENT

The HRS, which is used in screening sites for ranking on the National Priorities List (NPL), defines four pathways for hazardous waste, hazardous substance, and hazardous constituent migration and exposure: groundwater migration, surface water migration, soil exposure and subsurface intrusion, and air migration. This section summarizes information specific to the four exposure and migration pathways previously compiled by the DEQ and the U.S. EPA Region 6 and presented in the 2019 Lewis Lumber PA.

4.1 Groundwater Migration

Groundwater near the Lewis Lumber site is believed to flow north and northeast toward the Ouachita River with groundwater elevations influenced by topography.

The residents of Cove are served by Gillham Regional Water District. Gillham Regional Water District's water source is surface water from Gillham Lake, not groundwater (Ref. 10). There are ANRC domestic groundwater wells and a public supply well located within a 4-mile radius of the Lewis Lumber site. No groundwater wells within a 4-mile radius of the Lewis Lumber site were recorded as drinking water wells on the ANRC Well Construction and Pump Installation Database; however, it is possible that some are being used for this purpose.

The public supply well is located on a residential property southeast of the site. One of the wells recorded as having an unknown use is located on the Lewis Lumber site, northwest of the CCA Treatment Building. This well was used as a water supply well on-site. During site reconnaissance on January 16, 2019, the well was capped. The depth to groundwater in this well was approximately 14 feet.

Table 4-1
Population and ANC-recorded Groundwater Wells in Vicinity of Lewis Lumber

Distance Radius (Miles)	Number of Residents	Number of Wells
0.25	6	1
0.50	92	7
1.0	337	8
2.0	779	21
3.0	1,142	51
4.0	1,909	77

Since groundwater is believed to flow north and northeast, and the public supply well is located southeast of the site, the groundwater migration pathway is currently of minimal concern and will not be included in this SI sampling event.

4.2 Surface Water Migration

The Lewis Lumber site slopes down to the north at a grade of approximately five percent (5%). The center of the site is approximately 1,050 feet above mean sea level.

Surface water runoff is moderate based on soil type. The majority of surface water runoff flows into Dry Creek, which is located 250 feet north of the site. Dry Creek flows west into Mountain Fork, approximately 13 miles downstream from the site. The 15-mile Target Distance Limit (TDL) is estimated to occur along Mountain Fork.

The site has one Probable Point of Entry (PPE). The PPE is located on the north side of the site, where surface water runoff flows northward off the site and into Dry Creek. A portion of the Lewis Lumber site is situated within the 100-year floodplain.

The potential sources of surface water migration identified during the PA investigation are potential runoff and discharges associated with areas of potential soil exposure into drainage areas on-site and Dry Creek, which eventually flows into Mountain Fork (Ref. 1).

The surface water migration pathway is included in the SI sampling strategy, as detailed in section 5.0, Sampling and Analysis Plan.

4.3 Soil Exposure and Subsurface Intrusion

The Lewis Lumber site consists of an approximately thirty-seven acre lot of land. The site is situated in a rural residential and agricultural area bordered by a wooded area to the north; residences and North Lewis Street to the east; a wooded area and residences to the south; and residences and an open vegetated field to the west. W Mill Street intersects the site from the east and separates the site into a northern and southern portion. In addition to concrete foundations of former buildings, the remaining cover consists mostly of gravel and vegetated areas. The site is not fenced and is easily accessible to trespassers; however, a gate is located at the entrance to the site on West Mill Street. During reconnaissance, the gate was locked, making the site inaccessible by vehicle. **Figure 5-1** provides an aerial view and shows the site boundary, significant site features, and adjacent properties and roads.

MARPLOT mapping tool, which includes United States Census Bureau data for 2010, was used to analyze populations within certain radii established below. Using the coordinates 34.440194º latitude and -94.415292º longitude, approximately 337 people reside within a 1-mile radius of the Lewis Lumber site (Ref. 1).

Table 4-2
Lewis Lumber Site Population Density

Distance Radius (Miles)	Number of Residents
0.25	6
0.50	92
1.0	337
2.0	779
3.0	1,142
4.0	1,909

The soil exposure and subsurface intrusion pathway is included in the SI sampling strategy, as detailed in Section 5.0, Sampling and Analysis Plan.

4.4 Air Migration

Air migration pathway primary targets identified for the Lewis Lumber site include site visitors, site trespassers, and residences adjacent to the site. Secondary air migration pathway targets include nearby residents and workers at nearby businesses and churches.

In addition to the buildings remaining and concrete foundations of former buildings, land cover at the site consists mostly of gravel and vegetated areas. Although there are some areas of exposed soil on the site, no blowing particulates were noted during site reconnaissance.

Air samples will not be collected for the SI as it does not appear this pathway will contribute significantly to the overall HRS score.

5.0 SAMPLING AND ANALYSIS PLAN

This SAP has been prepared in accordance with methodologies and activities for conducting site inspections outlined in *Guidance for Performing Site Inspections Under CERCLA* (Ref. 12); *Soil Screening Guidance: User's Guide* (Ref. 13); *Contract Laboratory Program Guidance for Field Samplers* (Ref. 14); *Field Sampling Guidance Document #1215, Sediment Sampling* (Ref. 15); and *Guidance on Choosing a Sampling Design for Environmental Data Collection* (Ref. 16). Development of the sampling strategy was based on both known and suspected past operations at the site. The objectives of the field sampling activities are to (1) establish representative background levels, (2) determine site waste characteristics, (3) attribute hazardous substances to on-site operations, (4) investigate the migration of hazardous substances from the site, and (5) provide sufficient data for the HRS package. The number of samples and locations proposed in this SAP are subject to modification based on conditions encountered during the field sampling event and at the discretion of the U.S. EPA Site Assessment Manager.

The DEQ sampling team will be responsible for completing the tasks described in this section. The team will conduct all sample collection activities, perform associated field activities, and

complete sample documentation, preparation, and shipping. The SI sampling event is tentatively scheduled for October 2021.

5.1 On-site Reconnaissance

The DEQ sampling team will conduct an on-site reconnaissance on the day of the field sampling event to familiarize the sampling team with the site. The DEQ sampling team will (1) document current site conditions, (2) survey sampling locations, and (3) mark each sampling location for future identification. The DEQ Project Manager will confirm that the sample locations have been appropriately selected. Alternate or additional sample locations will be selected if one or more proposed locations are inaccessible or a more appropriate sampling location(s) is identified.

SI sampling activities will occur within and outside the boundaries of the Lewis Lumber site. Access to public areas will be gained in accordance with the Arkansas Hazardous Waste Management Act § 8-7-225I. Access to private property, if necessary, will be gained through the owner's permission.

Prior to conducting sampling activities, the DEQ Project Manager will conduct a meeting to review this SAP and the HASP (Section 6.0 of this TWP) with the sampling team. The DEQ Project Manager will be authorized to stop any activities that are not in compliance with the SAP or the HASP.

5.2 Sampling Activities

The SI sampling strategy will focus on the soil exposure, and surface water migration pathway. Surface water samples will not be collected due to Dry Creek being an intermittent water body; however, sediment samples will be collected to assess this pathway. Air samples will not be collected since this pathway does not appear that it will contribute significantly to the overall HRS score.

Duplicate and QA/QC samples will be collected. QA/QC samples will be used to assess the precision, accuracy, representativeness, completeness, and comparability of the analytical laboratory.

Background samples will be collected to determine levels of both potentially naturally occurring ambient levels of substances in the environment (e.g., metals found in soils) and anthropogenic levels of substances in the area due to non-site-related sources. The background sample analytical results will be used to attribute substances detected in the soil, sediment, and surface water samples collected during the SI to site sources.

All samples will be collected and analyzed for Target Compound List (TCL) organics (base/neutral/acid (BNA) fractions only) and Target Analyte List (TAL) metals, including mercury by the U.S. EPA Contract Laboratory Program (CLP) or U.S. EPA Region 6 laboratory in accordance with U.S. EPA Routine Analytical Services procedures. In addition, all sediment, surface soil, and subsurface soil samples will be analyzed for polychlorinated biphenyls (PCBs).

All sampling activities will be documented in a designated bound field logbook. Any deviation from the procedures in the SAP will be documented. The location, depth, time, station number, sample number, and any field observations will be recorded for each sample. Additionally, each sample location will be documented with a RICOH G700SE GPS camera. The sampling team will also take photographs of the sample locations to document site conditions and support the observations made in the logbook.

A judgmental, or biased, sampling design was used to select the sampling locations. As noted in Section 2.2 of this TWP, the 2019 Lewis Lumber PA Report identified multiple potential sources or AOCs. The AOCs and associated sampling media considered in the sampling design are provided below and shown in **Figure 5-1**.

AOC-1 – Northern Portion of Site: The portion of the site north of W Mill Street includes an office, break building, wooden frame of a plywood storage building, areas of disturbed soil, and a large sawdust pile.

AOC-2 – Southern Portion of Site: The portion of the site south of W Mill Street includes the CCA Treatment Building, CCA Treatment Tanks, concrete AST saddles, approximately 18,000 gallon concrete underground containment area, former Dry Kiln, and two pairs of underground 55-gallon drums.

The proposed background sample locations are shown in **Figure 5-2** and **Figure 5-3,** proposed sample locations within AOC-1 are shown in **Figure 5-4**, and proposed sample locations within AOC-2 are shown in **Figure 5-5.** Proposed sample locations are approximate, not to scale, and subject to modification based on field conditions and the discretion of the U.S. EPA Site Assessment Manager. If the U.S. EPA Site Assessment Manager is not present during sampling, they will be contacted via phone.

Sample station descriptions and rationales are summarized in **Table 5-1**. A summary of the samples and QA/QC information is listed in **Table 5-2**. The sample container and preservation specifications are listed in **Table 5-3**. The figures and tables are provided at the end of this section.

The procedure to be used by the field sampling team for sampling activities at each AOC is described in the following subsections.

5.2.1 Soil Sampling

Surface and subsurface soil will be sampled to assess the soil exposure and subsurface intrusion pathway. DEQ will collect a total of thirty two surface/subsurface soil samples, including four duplicates and three background samples.

Surface soil samples will be collected from depths ranging from zero to six inches. Subsurface soil samples will be collected from depths ranging from six to eighteen (18) inches. Samples will be collected using clean nitrile gloves and dedicated, pre-sterilized disposable plastic scoops at

each location and a metal auger at subsurface sampling locations. DEQ personnel will wear clean nitrile gloves during all sampling activities.

Background samples will be collected in areas assumed to be unaffected by potential site, off-site, or upgradient sources. The designated background samples are located off-site and the assumed upgradient location to ensure that none of the samples have been impacted by site sources.

Three field duplicate samples will be collected as surface soil split samples and one field duplicate sample will be collected as subsurface soil split samples. Analysis of the field duplicate samples will allow for the evaluation of precision of the sample collection and analytical process.

5.2.2 Sediment Sampling

Sediment will be sampled to assess the surface water migration pathway. DEQ will collect a total of ten sediment samples, including one duplicate and one background.

This PPE is located on the north side of the site where surface water flows northward, off the site, and into Dry Creek.

Background samples will be collected in areas assumed to be unaffected by potential on-site, off-site, or upgradient sources. The designated background sample is located off-site and upstream to ensure that none of the samples have been impacted by on-site sources.

One field duplicate sediment sample will be collected as a sediment split sample. Analysis of the field duplicate sample will allow for the evaluation of precision of the sample collection and analytical process.

5.3 Decontamination

All sampling equipment, unless single-use and pre-sterilized, will be decontaminated before and after collection of each sample. The following decontamination procedures will be performed for sampling equipment used:

1) Scrub with a brush to remove any excess material
2) Wash in Liquinox® (phosphate-free detergent) and water solution
3) Rinse with potable water
4) Rinse with deionized water

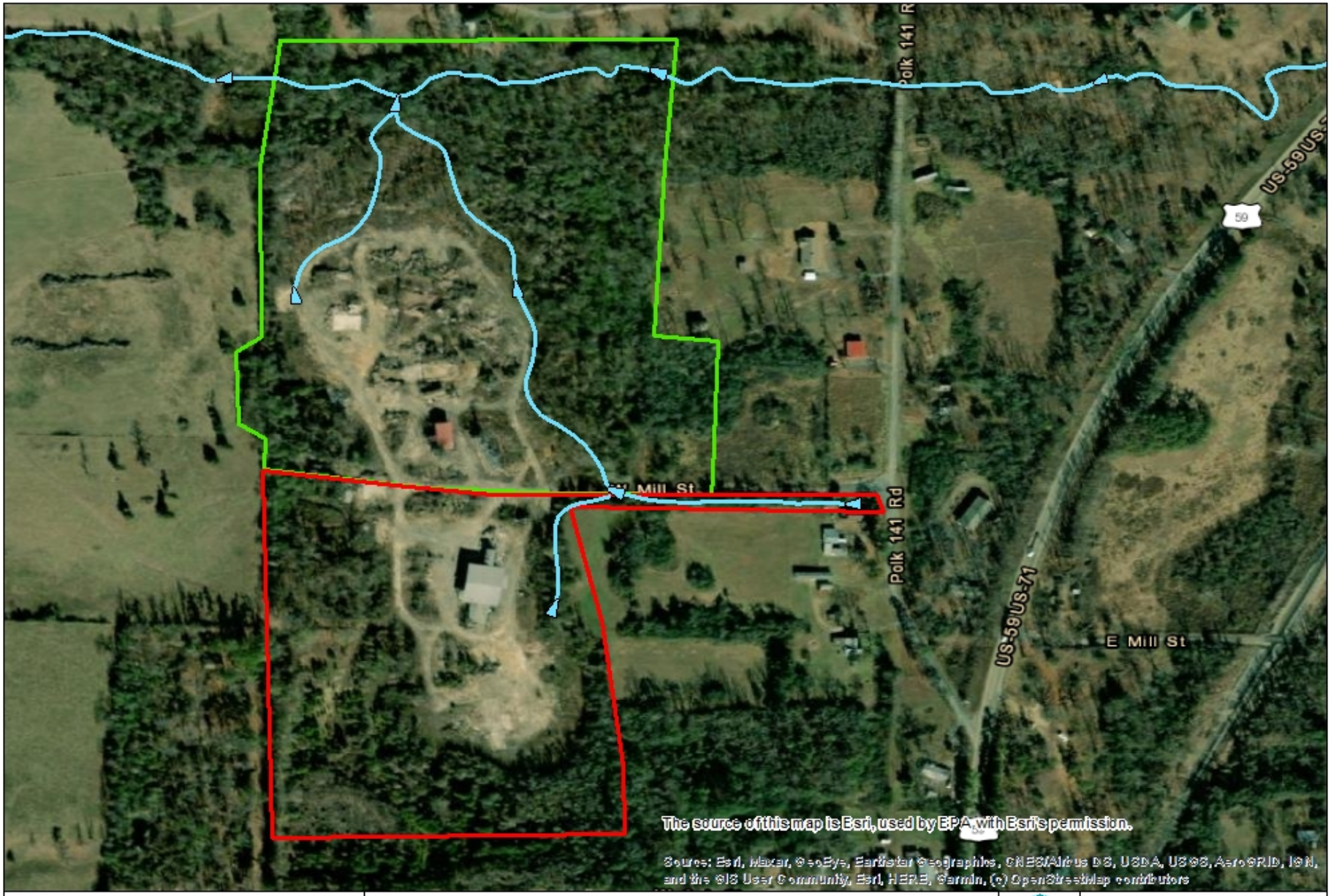
Decontaminated sampling equipment will be placed on clean plastic sheeting or on surfaces covered with aluminum foil. Sampling personnel will wear clean nitrile gloves during the decontamination of equipment. All decontamination procedures performed during sampling events will be documented in the field logbook. Any deviations from the standard decontamination procedures will be noted in the field logbook.

5.4 Post Sampling Activities

All samples will be sealed and labeled in the field immediately after collection. The DEQ Project Manager will assure that each sample is properly documented and identified by using the appropriate seals and chain-of-custody forms. Filled sample containers will be sealed in padded plastic bags and placed in ice-filled coolers for preservation to 4° Celsius.

The appropriate copies of the chain-of-custody forms will be submitted with the samples to the assigned CLP or U.S. EPA Region 6 laboratory. The remaining copies will be submitted to the CLP sample management officer and U.S. EPA Region 6. The documentation records accompanying each cooler will be sealed in a plastic bag and taped securely to the inside of the cooler lid. Each cooler will be labeled with a clearly visible return address. The cooler lids will be secured with strapping tape encircling the cooler's ends at least twice. A chain-of-custody seal will be placed at the front left and rear right sides of the cooler so that opening the lid will break the seal. The samples will be promptly shipped through Federal Express overnight service to the designated CLP or U.S. EPA Region 6 laboratory for analysis.

The following types of investigation derived waste (IDW) will be generated during DEQ's field activities: excess soil samples, disposable sampling equipment, and used Personal Protective Equipment. The unused portions of the soil/sediment samples generated from the sampling activities will be returned to the sampling location. Disposable sampling equipment and Personal Protective Equipment will be collected, double-bagged, and disposed of in accordance with U.S. EPA guidance on IDW.



Lewis Lumber
Areas of Concern
Figure 5-1

Legend:
AOC 1
AOC 2
Site Drainage

0 120 240 480 Feet

AFIN: 57-00020

Areas of Concern
Location: Cove, Arkansas
County: Polk
Date: May 2020

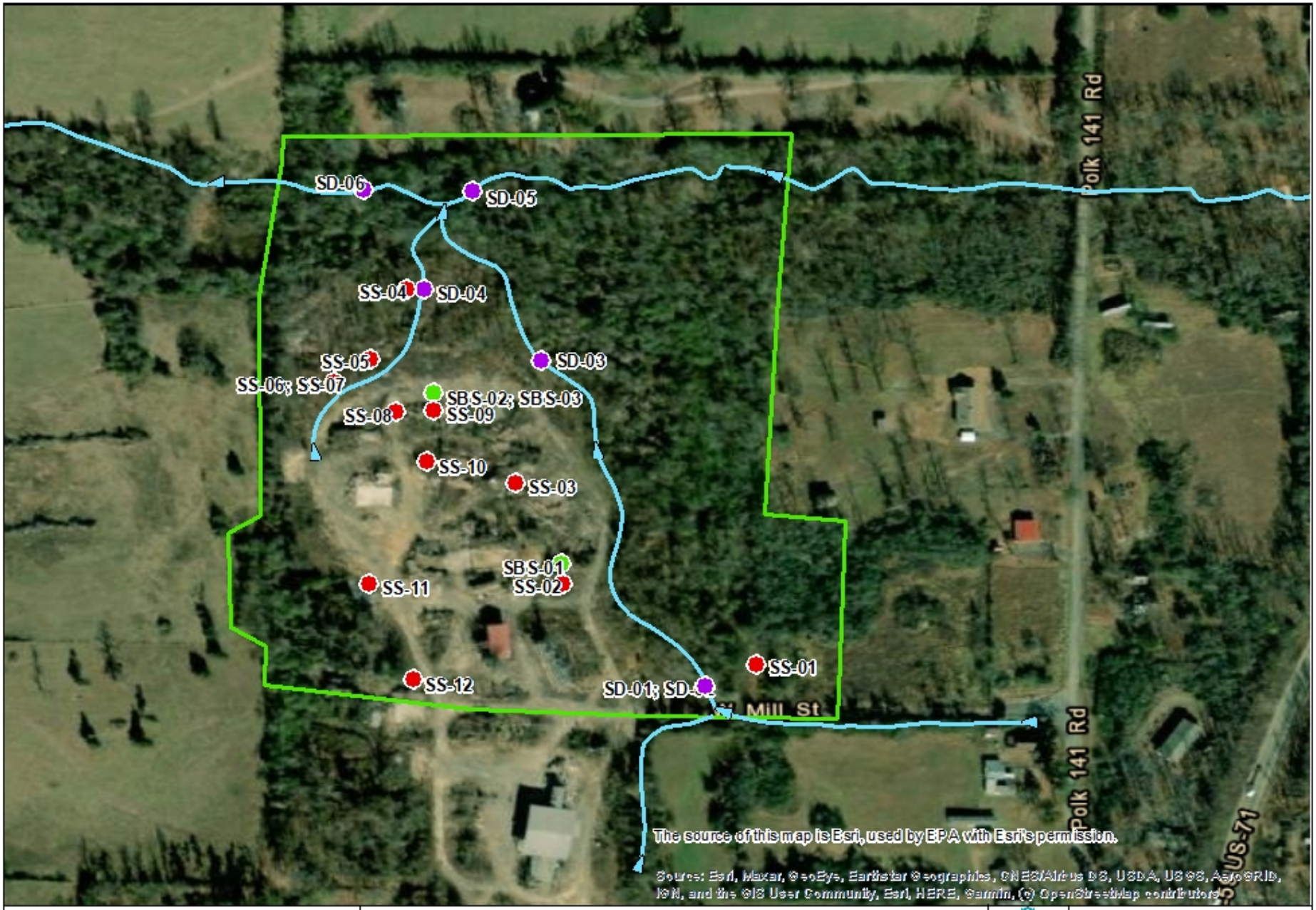
Lewis Lumber
Proposed Background Sample Locations
Figure 5-2

Legend:
- AOC 1
- AOC 2
- Subsurface Soil Sample
- Surface Soil Sample
- Sediment Sample
- Site Drainage

0 105 210 420 Feet

AFIN: 57-00020

Proposed Bakcground Sample Locations	
Location:	Cove, Arkansas
County:	Polk
Date:	May 2020



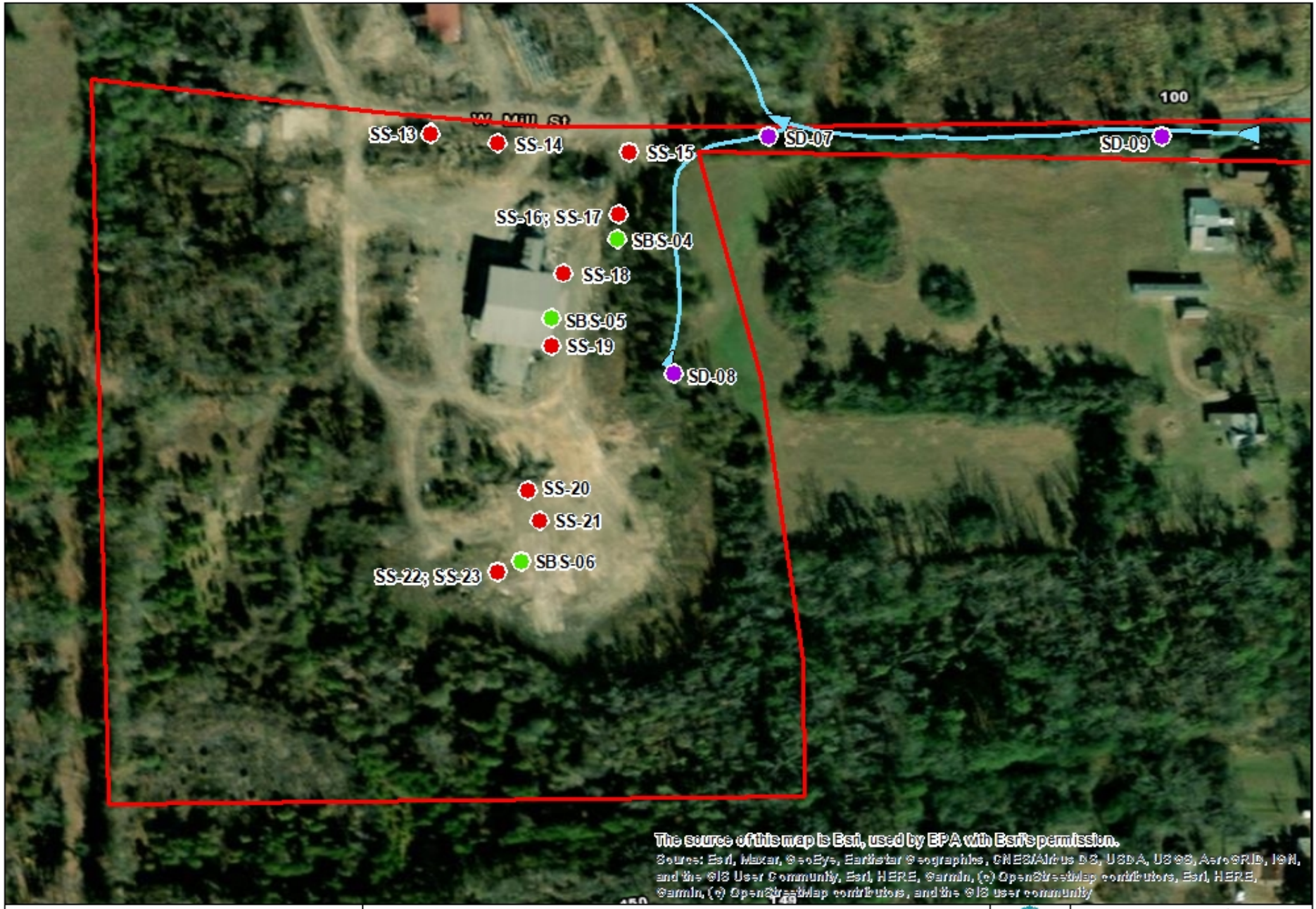
Lewis Lumber
Proposed Sampling Locations
AOC 1
Figure 5-3

Legend:
- AOC 1
- Site Drainage
- Surface Soil Sample
- Subsurface Soil Sample
- Sediment Sample

0 50 100 200 Feet

AFIN: 57-00020

Proposed Sampling Locations-AOC 1
Location: Cove, Arkansas
County: Polk
Date: May 2020



Lewis Lumber

Proposed Sampling Locations
AOC 2
Figure 5-4

Legend:

- Site Drainage
- AOC 2
- Subsurface Soil Sample
- Surface Soil Sample
- Sediment Sample

0 40 80 160 Feet

AFIN: 57-00020

Proposed Sampling Locations-AOC 2

Location: *Cove, Arkansas*

County: *Polk*

Date: *May 2020*

Table 5-1.
Sampling Station Descriptions and Rationales

Station Identification/Type	Description	Rationale	Sample Identification/QC Type
SSBK-01 Background Surface Soil	Off-site area presumed to be representative; northeast of the site in a vegetated area off of Polk 141.	Low concentration sample collected to document background conditions in the soil exposure and subsurface intrusion pathway.	Background
SSBK-02 Background Surface Soil	Off-site area presumed to be representative; southeast of the site in an open area between US 59 and Polk 141.	Low concentration sample collected to document background conditions in the soil exposure and subsurface intrusion pathway.	Background
SBSBK-01 Background Subsurface Soil	Off-site area presumed to be representative; northeast of the site in a vegetated area off of Polk 141.	Low concentration sample collected to document background conditions in the soil exposure and subsurface intrusion pathway.	Background
SDBK-01 Background Sediment	Off-site area presumed to be representative; northeast of the site in Dry Creek in a vegetated area off of Polk 141.	Low concentration sample collected to document background conditions in the soil exposure and subsurface intrusion pathway.	Background
SS-01 Surface Soil	AOC 1–Northern Half of Site; in vegetated field to the east.	Low sample collected to document potential on-site contamination.	Normal
SS-02 Surface Soil	AOC 1–Northern Half of Site; located east of concrete AST saddles.	Low sample collected to document potential on-site contamination.	Normal
SS-03 Surface Soil	AOC 1–Northern Half of Site; along northern side of previous Plywood Storage Building.	Low sample collected to document potential on-site contamination.	Normal
SS-04 Surface Soil	AOC 1–Northern Half of Site; Located along northern PPE drainage ditch.	Low sample collected to document potential on-site contamination.	Normal
SS-05 Surface Soil	AOC 1–Northern Half of Site; North of slab with staining in the shape of rings.	Low concentration sample collected to document potential on-site contamination.	Normal
SS-06 Surface Soil	AOC 1–Northern Half of Site; West of slab with staining in the shape of rings.	Low concentration sample collected to document potential on-site contamination.	Normal

Table 5-1. (cont.)
Sampling Station Descriptions and Rationales

Station Identification/Type	Description	Rationale	Sample Identification/QC Type
SS-07 Surface Soil	Duplicate of SS-06.	Field Duplicate	Field Duplicate
SS-08 Surface Soil	AOC 1–Northern Half of Site; West of disturbed soil and large sawdust pile.	Low concentration sample collected to document potential on-site contamination.	Normal
SS-09 Surface Soil	AOC 1–Northern Half of Site; disturbed soil and large sawdust pile.	Low concentration sample collected to document potential on-site contamination.	Normal
SS-10 Surface Soil	AOC 1–Northern Half of Site; Northeast of slab containing staining in the shape of rings.	Low concentration sample collected to document potential on-site contamination.	Normal
SS-11 Surface Soil	AOC 1–Northern Half of Site; Western edge of area along wooded area.	Low concentration sample collected to document potential on-site contamination.	Normal
SS-12 Surface Soil	AOC 1–Northern Half of Site; Southwestern edge of area along wooded area.	Low concentration sample collected to document potential on-site contamination.	Normal
SS-13 Surface Soil	AOC 2 – Southern Half of Site; Directly south of W Mill Street in western portion of a small vegetated area.	Low concentration sample collected to document potential on-site contamination.	Normal
SS-14 Surface Soil	AOC 2 – Southern Half of Site; Directly south of W Mill Street in eastern portion of a small vegetated area.	Low concentration sample collected to document potential on-site contamination.	Normal
SS-15 Surface Soil	AOC 2 – Southern Half of Site; Located between the Plywood Storage Building and concrete AST saddles.	Low concentration sample collected to document potential on-site contamination.	Normal
SS-16 Surface Soil	AOC 2 – Southern Half of Site; Located along vegetated area east of the concrete AST saddles.	Low concentration sample collected to document potential on-site contamination.	Normal
SS-17 Surface Soil	Duplicate of SS-16.	Field Duplicate	Field Duplicate
SS-18 Surface Soil	AOC 2 – Southern Half of Site; Along eastern edge of the Underground Containment Area.	Low concentration sample collected to document potential on-site contamination.	Normal
SS-19 Surface Soil	AOC 2 – Southern Half of Site; At southeastern corner of the CCA Treatment Building.	Low concentration sample collected to document potential on-site contamination.	Normal

Table 5-1. (cont.)
Sampling Station Descriptions and Rationales

Station Identification/Type	Description	Rationale	Sample Identification/QC Type
SS-20 Surface Soil	AOC 2 – Southern Half of Site; In vegetated area south of the CCA Treatment Building.	Low concentration sample collected to document potential on-site contamination.	Normal
SS-21 Surface Soil	AOC 2 – Southern Half of Site; Open area north of the location of the Former Dry Kiln.	Low concentration sample collected to document potential on-site contamination.	Normal
SS-22 Surface Soil	AOC 2 – Southern Half of Site; Located directly west of the two pairs of underground 55-gallon drums.	Low concentration sample collected to document potential on-site contamination.	Normal
SS-23 Surface Soil	Duplicate of SS-22.	Field Duplicate	Field Duplicate
SBS-01 Subsurface Soil	AOC 1–Northern Half of Site; along southern edge of the Plywood Storage Building.	Low concentration sample collected to document potential on-site contamination.	Normal
SBS-02 Subsurface Soil	AOC 1–Northern Half of Site; directly north of disturbed soil and large sawdust pile.	Low concentration sample collected to document potential on-site contamination.	Normal
SBS-03 Subsurface Soil	Duplicate of SBS-02.	Field Duplicate	Field Duplicate
SBS-04 Subsurface Soil	AOC 2 – Southern Half of Site; Located along vegetated area east of the concrete AST saddles.	Low concentration sample collected to document potential on-site contamination.	Normal
SBS-05 Subsurface Soil	AOC 2 – Southern Half of Site; Along eastern edge of the CCA Treatment Building.	Low concentration sample collected to document potential on-site contamination.	Normal
SBS-06 Subsurface Soil	AOC 2 – Southern Half of Site; Directly west of the two pairs of underground 55-gallon drums.	Low concentration sample collected to document potential on-site contamination.	Normal
SD-01 Sediment	AOC 1–Northern Half of Site; Northern portion of drainage ditch running perpendicular to W Mill Street.	Low concentration sample collected to document potential on and off-site contamination.	Normal
SD-02 Sediment	Duplicate of SD-01.	Field Duplicate	Field Duplicate
SD-03 Sediment	AOC 1–Northern Half of Site; PPE and drainage ditch running northwest to Dry Creek.	Low concentration sample collected to document potential on-site contamination.	Normal

Table 5-1. (cont.)
Sampling Station Descriptions and Rationales

Station Identification/Type	Description	Rationale	Sample Identification/QC Type
SD-04 Sediment	AOC 1–Northern Half of Site; Convergence of site drainage in northernmost portion leading into Dry Creek.	Low concentration sample collected to document potential on-site contamination.	Normal
SD-05 Sediment	AOC 1–Northern Half of Site; Eastern portion of Dry Creek before site drainage.	Low concentration sample collected to document potential on-site contamination.	Normal
SD-06 Sediment	AOC 1–Northern Half of Site; Western portion of Dry Creek after site drainage.	Low concentration sample collected to document potential on-site contamination.	Normal
SD-07 Sediment	AOC 2 – Southern Half of Site; Southern portion of drainage ditch running perpendicular to W Mill Street.	Low concentration sample collected to document potential on-site contamination.	Normal
SD-08 Sediment	AOC 2 – Southern Half of Site; Eastern drainage ditch located east of the CCA Treatment Building.	Low concentration sample collected to document potential on-site contamination.	Normal
SD-09 Sediment	AOC 2 – Southern Half of Site; Easternmost drainage ditch located near entrance to site along W Mill Street.	Low concentration sample collected to document potential on-site contamination.	Normal

Table 5-2.
Summary of Samples

Sample Matrix	Number of Samples [(a)]	Number of Field Duplicates [(b)]	Number of Lab QA/QC Matrix Samples
Surface Soil (0 to 6 inches)	22	3	0
Subsurface Soil (6 to 18 inches)	6	1	0
Sediment	9	1	0

(a) The number of samples includes background samples but does not include field or laboratory QA/QC samples.
(b) Field duplicate samples are based on a sampling frequency of one per ten samples, or 10%, of collected per matrix or concentration level.

Table 5-3.
Sample Container and Preservation Specifications

Constituents for Analysis	Analytical Matrix	Container Type	Sample Preservation	Holding Times
TAL Metals + Mercury	Soil/sediment	8 oz. glass jar	Ice to 4°C	180 days
Extractable Organics	Soil/sediment	8 oz. glass jar	Ice to 4°C	7 days
PCBs	Soil/sediment	8 oz. glass jar	Ice to 4°C	14 days

6.0 HEALTH AND SAFETY PLAN

This section contains specific health, safety, and emergency response requirements necessary to perform the SI sampling activities. The purpose of this plan is to provide the site and task-specific operating procedures that will ensure the health and safety of DEQ personnel and any official visitors. This plan includes provisions for preventing, responding to, and reporting injuries, illnesses, and environmental emergencies. Before any fieldwork begins, all field personnel will be briefed on their work assignments and safety procedures contained in this HASP. Each person will have access to a copy of this document and will sign a form stating that they have read, understood, and will abide by the information presented in this document.

6.1 Hazard Assessment

Moderate safety risks are associated with the sampling activities that will be conducted during the SI. Risks include materials handling risks (i.e., lifting, hand and foot injuries), and possible exposure to unknown substances and extreme temperatures.

6.2 Authorities and Responsibilities

The key contacts for the Lewis Lumber site are:

U.S. EPA Contact
Philip Ofosu
Site Assessment Manager
U.S. EPA Region 6 (SEDAS)
1201 Elm Street, Suite 500
Dallas, Texas 75270
Telephone No: 214-665-8332

DEQ Contact
Anna Gayle Griffiths, Project Manager
Office of Land Resources
5301 Northshore Drive
North Little Rock, Arkansas 72118
Telephone No: 501-682-0655

The Project Manager, Anna Gayle Griffiths, will be responsible for ensuring that all work performed during the SI sampling event is in accordance with the site HASP, SAP, TWP, and QAPP. The Project Manager will conduct field activities, enforce health and safety requirements, and oversee work practices to verify they are in accordance with this document.

The Project Manager will be present during all the sampling activities and will be responsible for all health and safety issues. The Project Manager will be responsible for implementing this document, monitoring compliance with safety and emergency procedures, giving the safety briefing, and ensuring sampling equipment is properly maintained. The Project Manager is responsible for maintaining a log book reflecting potential hazards, exposures, and implementing

control procedures. Work activities will be suspended if the health and safety of personnel are compromised. A safety briefing will be conducted by the Project Manager at the start of each field day.

6.3 Site Control

Access to potentially hazardous areas of the site must be controlled to reduce the occurrence of physical injury and chemical exposure to field personnel, visitors, and the public. The following site control measures will be followed at all times:

- The Project Manager must ensure that no unofficial visitors enter the area being sampled and discourage official visitors from entering hazardous areas. Only DEQ personnel and persons authorized by DEQ personnel will be allowed in this area. Authorized persons may be permitted to enter the support zone only if they agree to abide by the provisions of the HASP and sign a safety briefing form. Official visitors must be informed of the potential dangers that could be encountered at this site. If they enter the exclusion zone, they must be accompanied by DEQ personnel trained according to Occupational Safety and Health Administration (OSHA) (29 CFR 1910.120). Official visitors entering the exclusion zone will be expected to wear the appropriate level of protection.

- Any personnel not required for specific site tasks being performed in the sampling areas will remain in the support zone. Vehicles, clean equipment, first aid equipment, and a portable eyewash station will remain in the support zone unless they are needed in the exclusion zone. Prior to initiating field activities, the Project Manager will plan emergency routes and discuss them with all personnel conducting fieldwork for this project.

The Mena Regional Health System – Polk County is the nearest hospital to the site and is located at 311 Morrow St N, Mena, Polk County, Arkansas. A map providing the Mena Regional Health System location and driving directions to the site is provided in **Appendix A** of this TWP. The telephone number for the Mena Regional Health System is (479) 394-6100 (Ref. 17). In addition, 911 should be dialed for all emergencies.

6.4 Personal Protective Equipment

Sampling activities at Lewis Lumber will be conducted in modified Level D personal protection. Personnel working within the actual sampling areas will be required to wear long pants, steel-toed boots, and chemical resistant gloves. In the event field conditions change, the level of protection will be upgraded to an appropriate level. All contaminated disposable personal protective equipment and sampling equipment will be placed in containers and disposed of in accordance with U.S. EPA guidance on IDW.

6.5 Employee Training Requirements

Workers within the sampling areas are required to have:

- Forty hours of health and safety training for hazardous waste sites

- Eight hours of refresher training within the last twelve months
- Respirator fit test within the last twelve months
- Three days of supervised field experience on a hazardous waste site

6.6 Medical Surveillance

All personnel involved in field sampling will have a medical examination within the past year, including a:

- Physical examination
- Pulmonary function test
- Blood chemistry evaluation
- Urine chemistry evaluation
- Review of employee occupational and medical history

Employees who are clearly unable to perform the required tasks based on medical history and physical examination will be prohibited from working in contaminated areas. Additional medical examinations will be performed whenever there has been actual or suspected exposure to contaminants following injuries or temperature stresses, or upon the experience of exposure symptoms. All medical examinations will be performed by an occupational designated or approved physician.

7.0 QUALITY ASSURANCE PROJECT PLAN

This QAPP has been prepared to provide guidance to DEQ personnel for sampling activities specific to Lewis Lumber. All QA issues will be conducted according to *Uniform Federal Policy for Quality Assurance Project Plans, EPA QA/G-5* (Ref. 18) and the DEQ *CERCLA Quality Assurance Project Plan* (Ref. 19). All personnel involved in the sampling event will be required to review the DEQ *CERCLA Quality Assurance Project Plan.* Sections 7.1 through 7.8 of this TWP address site-specific QA issues.

7.1 Quality Assurance Objectives

The QA program objective is to provide data that complies with U.S. EPA analytical criteria for environmental measurements. In addition to the documents listed above in Section 7.0, guidelines are found in *Test Methods for Evaluating Solid Waste Physical/Chemical Methods* (Ref. 20). As discussed in Section 5.0, Sampling and Analysis Plan of this TWP, chain-of-custody control is required for (1) all samples and records, (2) all data transmissions, reductions, and transcriptions, and (3) all other types of documentation.

7.2 Quality Assurance and Quality Control

QA/QC samples will be used to assess the precision, accuracy, representativeness, completeness, and comparability of analytical laboratory data. Guidelines for collecting QA/QC samples and achieving Data Quality Objectives are provided in *Systematic Planning: A Case Study for Hazardous Waste Investigations* (Ref. 21). The QA/QC samples will be collected at the frequency specified in Section 5.0, Table 3 of this TWP. Field duplicate samples will be

collected at specified frequencies and used for precision evaluation of sampling. The laboratory will be required to analyze inter-laboratory split samples to assure the precision and accuracy of the analytical laboratory instruments, as specified by the CLP Statement of Work.

For sample data to be valid, samples must be traceable from the time of collection through chemical analysis and final disposition. The U.S. EPA has developed CLP chain-of-custody forms for this purpose. DEQ will obtain the necessary paperwork from U.S. EPA Region 6 and complete the chain-of-custody forms. The CLP sample labeling and shipping guidelines will be referenced for detailed information on completing this activity.

7.3 Analytical Procedures

The Contract Laboratory Analytical Services Support Laboratory will be responsible for following specified quality assurance requirements according to the CLP Scope of Work. Strict adherence to the QA guidelines ensures the highest quality of data possible from the laboratory.

7.4 Data Reduction, Validation, and Reporting

Data reduction and validation will be performed by the CLP laboratory in accordance with the CLP Statement of Work and all applicable standards and guidelines. If the analytical data does not meet the minimum data quality objective, the laboratory will carry out the necessary corrective actions. All data falling outside the QC limits will be flagged by the laboratory.

Validation of all measurement data will be based on adherence to method protocol and the prescribed QC procedures. Data validation forms for organic and inorganic contract laboratory data packages will be completed by CLP laboratory data validation personnel. These checklists are used to evaluate all of the steps leading to the calculation of the final analytical results, including: (1) sample holding times, (2) instrument calibration, (3) blanks, (4) check samples, (5) sample dilutions, (6) precision of duplicate analysis, (7) matrix spike recoveries, and (8) data completeness. All data elements will be qualified as “acceptable,” “provisional with problems noted,” or “unacceptable,” in accordance with U.S. EPA data qualifiers.

After the assigned laboratory has completed the required analytical services, a complete data package will be sent to the designated DEQ Project Manager. The data package will include, but not be limited to, all requested analytical results, QC data, a validation package, a copy of instrument readings, and chain-of-custody forms.

7.5 Internal Quality Control Checks

QC checks of work assignment activities are performed internally by the Branch Manager, Inspector Supervisor, and/or QA Officer. The internal QC check includes, at a minimum, the following areas:

- Adequacy of data collection and management procedures
- Adherence to established sampling and collection methods
- Implementation of health and safety procedures
- Compliance with applicable laws and regulations

- Compliance with chain-of-custody procedures

7.6 Performance and System Audits

Audits are routinely conducted in QA programs to assess and document technical performance. Internal QA audits may be based on information contained in the *Uniform Federal Policy for Quality Assurance Project Plans* (Ref. 18), *Guidance on Assessing Quality Systems, QA/G-3* (Ref. 22), or the *Guidance on Technical Audits and Related Assessments for Environmental Data Operations, EPA QA/G-7* (Ref. 23). Audits will be conducted by the QA Officer and documented on checklists adapted to project-specific requirements.

Upon completion of a QA audit, the QA Officer submits a report to the Branch Manager and/or Inspector Supervisor. Deficiencies and recommended corrective actions are referred to the Project Manager for immediate action. Any corrective action taken by the Project Manager will be reported, in writing, to the QA Officer, Branch Manager, and Inspector Supervisor.

7.7 Corrective Actions

An effective QA program requires rapid, effective, and thorough correction of QA problems. Corrective action minimizes the possibility of questionable data or documentation. To provide a complete record of QA activities, all QA problems and corrective actions are documented in writing to the QA Officer.

7.8 Quality Assurance Reports to Management

The Branch Manager, Inspector Supervisor, and Project Manager will report to the DEQ QA Officer and Senior Manager on the status of any required corrective actions and/or any proposed revisions to the QAPP. QA/QC problems and corrective measures are reported to U.S. EPA in accordance with the DEQ *CERCLA Quality Assurance Project Plan* and the Arkansas Pollution Control and Ecology Commission *Quality Management Plan for the Division of Environmental Quality* (Ref. 24).

8.0 REFERENCES

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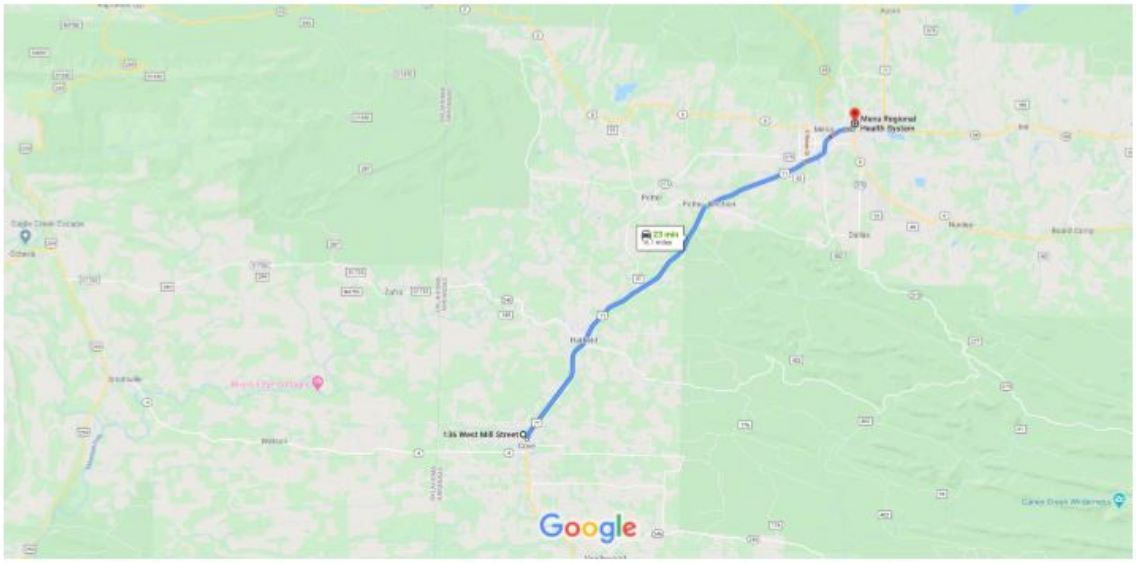
APPENDIX A
HOSPITAL LOCATION AND DIRECTIONS

Google Maps 136 W Mill St, Cove, AR to Mena Regional Health System Drive 16.1 miles, 23 min



136 W Mill St

Cove, AR 71937

1. Head east on W Mill St toward N Lewis St

387 ft

2. Turn right onto N Lewis St

0.1 mi

3. Turn left onto US-59 N/US-71 N

Pass by Pizza Hut (on the right in 15.6 mi)

15.8 mi

4. Turn left onto Morrow St N

0.2 mi

5. Turn right

Destination will be on the left

52 ft

Mena Regional Health System

311 Morrow St N, Mena, AR 71953

These directions are for planning purposes only. You may find that construction projects, traffic, weather, or other events may cause conditions to differ from the map results, and you should plan your route accordingly. You must obey all signs or notices regarding your route.