Endangerment Assessment

Introduction

The Endangerment Assessment was prepared in support of litigation concerning the Arkwood, Inc. site. The goal of the legal action is to obtain an order restraining the landowner from conducting any activities on site (e.g. plowing) which may interfere with site remediation or result in increased potential for endangerment to human health or welfare or the environment. The following discussion will evaluate:

1. The potential for endangerment posed by existing site conditions

2. The additional hazards which may result from plowing the soils at the site.

Site and Waste Characterization

Arkwood, Inc., comprises approximately 20 acres adjacent to the Missouri - Pacific Cricket railroad. The site, located south of Omaha in Boone County, Arkansas (Figure 1), operated as a commercial wood preserving facility from the early 1960s until 1984. Both pentachlorophenol (PCP) and creosote were used as wood preservatives. These chemicals were mixed with road oil or diesel fuel before application to the wood products.

Creosote is largely comprised of a group of chemicals known as Polycyclic Aromatic Hydrocarbons (PAHs). The most commonly occuring PAHs include: anthracene, phenanthrene, napthalene, flouranthene, fluorene, acenaphthene, diphenyl oxide, methyl naphthalene, xylene, methyl fluorene and carbazole. PCP wastes typically include PCP, toluene, benzene, ethyl benzene, chlorinated dibenzodioxins and dibenzofurans as well as numerous phenolics.

Contamination of the site by the wood-treating wastes occurred in several ways. Some wastes were disposed of by dumping them into an on-site sinkhole (subsurface solution feature) or a pit located adjacent to the railroad. Oily water produced by washing the treatment area was spread over the site for dust control. Waste preservatives dripped off treated wood products and contaminated drip tracks adjacent to the process area, as well as the wood storage area. Wastes were also burned on-site and disposed of in what is now an ash pile. The approximate locations of these waste areas are indicated in Figure 2.

The most highly contaminated areas identified to date are the railroad ditch and sinkhole (see attachment 1 for analyses). Soil samples from the ditch contain up to 50,000 parts per million (ppm) PCP, 4000 ppm PAHs including fluoranthene, fluorene and acenapthene, low levels of volatile priority pollutants and hexa and hepta-chlorinated dibenzodioxins and dibenzofurans. The sinkhole contains approximately four feet of a multiple-phased liquid, containing high concentrations of benzene, ethyl benzene, napthalene, nitrosodipheynlamine, toluene, as well as chlorinated dibenzodioxins and furans.

Factors Affecting Migration

The site is located in an excavated, flat area at the head of a valley. Surface drainage is primarily to the northwest via a tributary of Cricket Creek which flows along Cricket Road. Cricket Creek is less than one mile from the site and flows toward the west-northwest. Some site drainage may also flow along the railroad towards Walnut Creek which is about 3/4 of a mile southeast of the site and flows to the southeast. The investigations planned as part of the RI/FS will include surveying to clearly establish drainage divides as well as sampling to evaluate any impact on surface water quality.

The site is underlain by 0-30 feet of a chert-rich clay residuum (unconsolidated deposit derived by weathering). The formations beneath the residuum are predominantly limestones and dolomites. A generalized hydrogeologic cross-section is presented in Figure 3. The Chattanooga shale may act as an aquiclude beneath the site, restricting flow into deep aquifers. However, this formation was not identified in a drillhole several thousand feet from the site and if it is found beneath the site it will likely be highly fractured. Most local wells pump from the Powell-Cotter formations. However, municipal and industrial wells generally tap the deeper Roubidoux and Gasconade Van Buren formations because the Powell-Cotter dolomites are too low-yielding for the development of large water supplies.

The rate and direction of groundwater flow in the vicinity of the site is extremely difficult to predict because the facility is located in karst terrane. Karst terranes are characterized by an absence of perennial streams, surface depressions, dolines or sinkholes, and springs. The hydrology of karst areas is extremely complex because groundwater occurs largely in structural features such as joints and fractures which have been enlarged by dissolving the carbonate rock (limestone or dolomite). The rate of groundwater flow in these solution channels, or conduits, may be extremely high (i.e. comparable to rates in surface water). Contaminants in groundwater flowing in conduits are subject to much less attenuation than those moving through porous media because: 1) higher flow rates result in less time for attenuation to occur and 2) the groundwater is in contact with fewer surfaces which could absorb contaminants. Groundwater in karst regions is highly vulnerable to contamination due to the typically high groundwater velocities and low attenuation capacities of conduit flow aquifers. The potential for groundwater contamination resulting from the Arkwood site is extremely high because wastes were placed directly into the subsurface via the on-site sinkhole.

Documentation of Releases

Mass Merchandisers, Inc. (MMI-a site potentially responsible party) has conducted intermittent water sampling of several wells and springs in the vicinity of the site. This sampling has clearly indicated contamination in Cricket Spring which is located downgradient of the site, and about 2000 feet to the northwest. Water emerges from the mouth of a cave, or conduit (a crack or fissure which has been enlarged by dissolution in flowing groundwater) at this location and runs into a ditch along Cricket road. During periods of high flow, this ditch can be a tributary to Cricket Creek Sampling of the spring and the adjoining ditch indicates the presence of PCP, trichloroethylene, toluene and a number of PAHs (Data sheets are found in Attachments 1 and 2). These data also indicate that several private water supply wells near Cricket Spring contained low levels of contaminants which are normally associated with wood preserving sites. Two of these wells have been replaced by MMI.

The proximity of Cricket Spring to the site as well as the similiarity of the off-site pollutants to those found on the Arkwood site strongly suggest that the PCP and creosote wastes generated at Arkwood, Inc., have resulted in the contamination of off-site groundwater and surface water locations.

Toxicological Properties

The toxicological properties of the three major chemicals, or groups of chemicals, present at the site have been summarized in the document entitled Chemical, Physical and Biological Properties of Compounds Present at Hazardous Waste Sites (EPA, 1985). The following was abstracted from this source:

1. Pentachlorophenol (PCP)

Studies have shown that PCP is embryotoxic and fetotoxic. It is currently under evaluation for carcinogenic effects by the National Toxicology Program. Chronic and acute exposure to high levels of PCP has resulted in fatalities. Chloracne commonly results from chronic human exposure to PCP, however, it is not known if this effect is caused by PCP or the polychlorinated dibenzodioxins which are found as contaminants in technical grade PCP. Other chronic effects include headache, muscle weakness, abdominal pain, weight loss and liver and kidney damage.

Levels of PCP as low as 0.034 ppm are acutely toxic to freshwater aquatic organisms. PCP persists in natural environments.

2. Polycyclic Aromatic Hydrocarbons (PAHs)

Some PAHs are carcinogenic and may result in local and systemic effects. Test animals exposed to PAHs have developed tumors of the skin, stomach and lungs. Carcinogenic PAHs are also frequently mutagenic. The non-carcinogenic effects of exposure to PAHs include skin disorders, immunosuppression and disorders of the liver and kidneys.

3. Polychlorinated dibenzo-dioxins (Dioxins)

Most of the studies on the health effects of dioxins concentrated on 2, 3, 7, 8 - tetrachlorodibenzo-p-dioxin. However, available studies on other dioxins indicate similiar results but at different dose levels. Health effects resulting from exposure to dioxins include cancer, genotoxicity, enzyme induction, teratogenicity and reproductive toxicity. Chloracne is the only effect of exposure to dioxin definitively identified in humans.

Freshwater aquatic species displayed acutely toxic effects when exposed to low levels (parts per trillion) of dioxin. Dioxins are persistent in natural environments and can be bioaccumulated.

In summary, studies of the health effects of PCP, PAHs and dioxins indicate that exposure to these substances is associated with numerous carcinogenic and non-carcinogenic effects. These compounds are persistent in natural environments. Freshwater aquatic organisms exhibit acutely toxic effects when exposed to low levels of PCP and dioxin.

Summary and Conclusions

Preliminary investigations of the Arkwood, Inc., wood-preserving site have identified high levels of contaminants in soils and a sink-hole on-site. These contaminants include PCP, PAHs, benzene, toluene as well as polychlorinated dibenzodioxins and dibenzofurans. Exposure to these hazardous substances may result in numerous carcinogenic and non-carginogenic effects.

A release of hazardous substances from the site has already been identified in the groundwater discharging from Cricket Spring. Although this spring is not currently used for drinking water it is reported to have been used as a water supply for a local resident during the early 1980s. The townspeople of Omaha as well as residents outside the local water district use groundwater as their sole source of drinking water. The potential for contamination of additional groundwater supplies is significant due the nature of karst, or conduit flow hydrology.

The release or threat of release of hazardous substances identified at the Arkwood, Inc., site and in the waters of Cricket Spring and its drainage, as well as the significant potential for contamination of local groundwater supplies represent an imminent and substantial endangerment to public health or welfare or the environment.

The mixing, or plowing of on-site soils and wastes may result in several scenarios that are likely to increase the harm or endangerment posed by the site. First, the use of mechanical means to mix contaminated materials at the site will likely result in the equipment operator being exposed to high levels of toxic chemicals either by direct contact with the wastes or by inhalation of chemical fumes (e.g. benzene and toluene) released from the soil during the discing. The fumes volatilized during discing may also impact nearby local residents. Second, the mixing of contaminated soils with less contaminated or uncontaminated soils would result spreading contaminated soils over a significantly larger area. Finally, the discing or plowing of the site will likely result in significant delays in the investigation and eventual clean-up of the site. Allowing the wastes to remain on-site longer increases the likelihood of releases to the environment due to leaching and erosion.

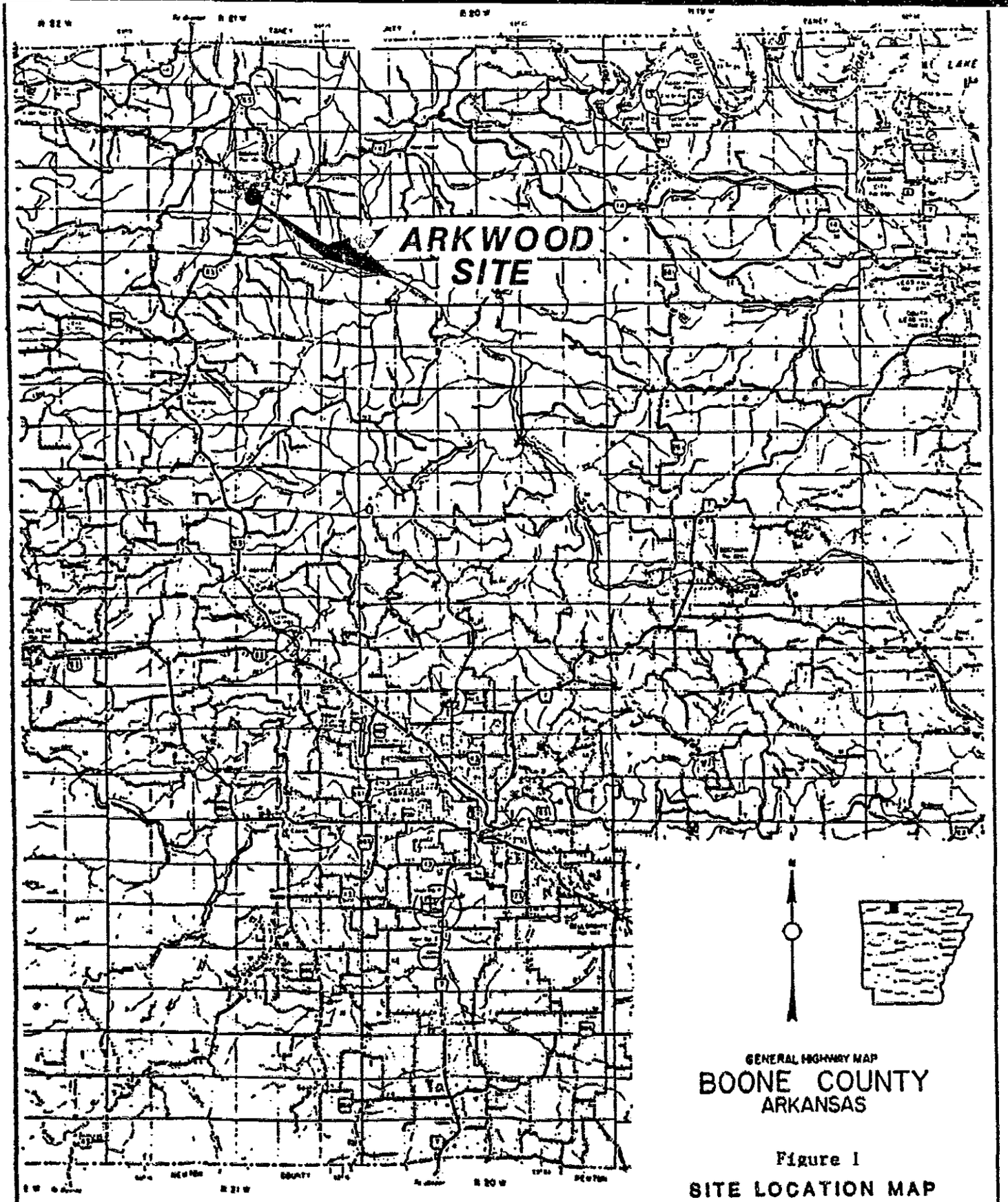

Figure 1

SITE LOCATION MAP

RI/FS WORK PLAN

ARKWOOD, INC.
OMAHA, ARKANSAS

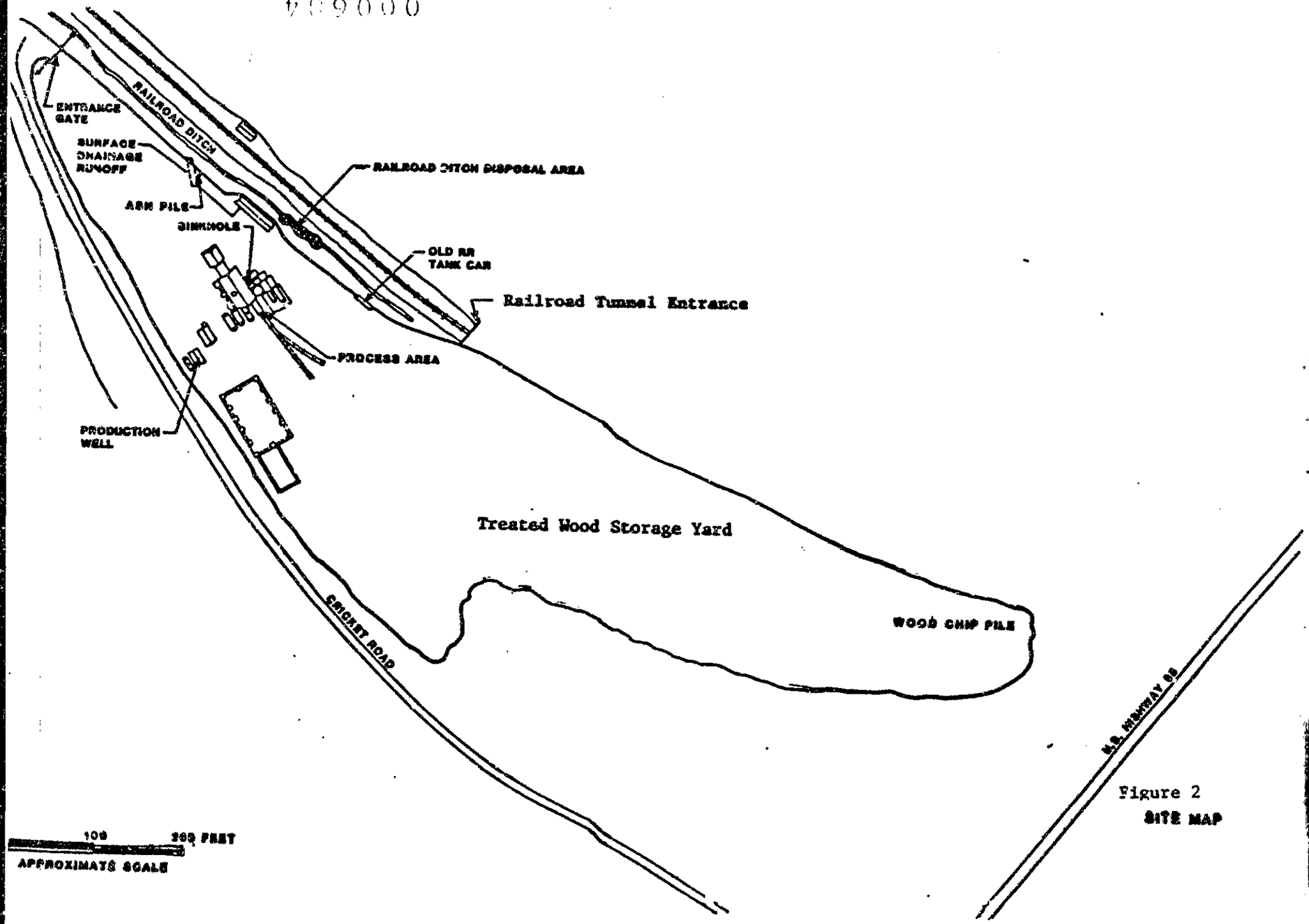

Figure 2
SITE MAP

Figure 3

Simplified Geologic and Hydrogeologic Column
RI/FS Work Plan
Arkwood, Inc. Site
Omaha, Arkansas

SYSTEM	SERIES	FORMATION	THICKNESS (ft)	LITHOLOGY	HYDROLOGIC CHARACTERISTICS
QUATERNARY	Pleistocene	Residuum	5-100	Residuum-clay, silt, soil, sand, chert and limestone fragments	
MISSISSIPPIAN	Warsaw Osagian Kinderhookian	Boone	100-400	Gray fossiliferous limestone containing gray chert	Shallow Aquifer System, flows through secondary fractures, joints, and solution channels, commonly yields from 2 to 5 gpm.
		St. Joe Mbr.	30	Gray to pinkish crystalline coarse-textured limestone	
DEVONIAN	Upper Devonian	Chattanooga Shale	0-50	Black fissile clayey shale	May be a possible aquitard (if not too fractured).
		Sylamore Mbr.	0-10	Sandstone which is pebbly and phosphatic	Minor Permeable zone
ORDOVICIAN	Lower Ordovician	Powell	0-260+	Light gray dolomite (magnesian limestone) with limestone conglomerate at base	Upper-Deep Aquifer System, generally yields from 5 to 10 gpm.
		Cotter	500+	Gray dolomite containing some chert nodules, interbedded with some chert and limestone layers	
		Roubidoux	130-445	Dolomite, light-colored, fine-grained to medium crystalline, sandy or cherty in part. Sandstone, light-colored, fine to medium grained, angular to rounded grains, loosely to well cemented. Dense and light colored cherts	Lower-Deep Aquifer System, commonly yields 150-300 gpm and may yield as much as 500 gpm.
		Gasconade-Van Buren	320-600	Dolomite which is light-colored, finely granular to medium crystalline, in part vuggy, containing dense cherts	
		Gunter Mbr.	20-100	Sandstone, light-colored, fine to coarse grained, subangular to rounded grained, loosely cemented. Sandy Dolomite	

Stratigraphic nomenclature used in this report based on A. H. Purdue and H. D. Miser (1914) and W. M. Caplan (1957) and (1960), and hydrologic characteristics used in this report based on A. G. Leonards (1972).

TABLE 2-3

Analytical Data from Samples Collected by McKesson Environmental Services
RI/FS Work Plan
Arkwood, Inc. Site, Omaha, Arkansas

Date Sampled	Location Number	Figure Number	Sampling Location	Sample Description	Analyses Performed	Results (ppm) PCP	PAH	VOA-Cl Compounds	VOA-ARO Compounds	Others
05-20-85	18	2-10	Spring Through Railroad Culvert	MES# 22452 Matrix: Water	EPA 610(HPLC) EPA 604(GC)	<0.005	<0.005	N/A	N/A	
05-20-85	6	2-10	Miles Well	MES# 22453 Matrix: Water	EPA 624(GC/MS) EPA 625(GC/MS) EPA 610	<0.005	<0.005	<0.005	<0.005	
05-20-85	3	2-10	Watson Well, In Use	MES# 22454 Matrix: Water	EPA 610	N/A	<0.005	N/A	N/A	
05-20-85	10	2-10	Omaha City Well	MES# 22455 Matrix: Water	EPA 624 EPA 625 EPA 610	<0.005	[illegible]	<0.005	<0.005	
05-20-85	8	2-10	Birmingham-New Well	MES# 22456 Matrix: Water	EPA 624 EPA 625 EPA 610	<0.005	<0.005	<0.005	<0.005	
05-20-85	1	2-10	Cricket Spring	MES# 22457 Matrix: Water	EPA 624 EPA 625 EPA 610	1.9	<0.005	<0.005	<0.005	
05-20-85	5	2-10	Canning Factory Spring	MES# 22458 Matrix: Water	EPA 610	N/A	<0.005	N/A	N/A	
05-20-85	4	2-10	Railroad Tunnel Spring, South Side	MES# 22459 Matrix: Water	EPA 610 EPA 604	<0.005	<0.005	N/A	N/A	
05-20-85	20	2-10	Dugan Well	MES# 22460 Matrix: Water	EPA 624 EPA 625 EPA 610	<0.005	<0.005	<0.005	<0.005	
5-21-85	22	2-9	Railroad Ditch Disposal Area, Standing Water	MES# 22461 Matrix: Liquid	EPA 624 EPA 625 EPA 610	<0.005	Total 3.4	<0.005	<0.005	
5-21-85	7	2-10	Birmingham-Old Well	MES# 22465 Matrix: Water	EPA 624 EPA 625	<0.005	Naphthalene 0.026 Fluorene 0.031	<0.005	<0.005	
5-21-85	9	2-10	Bruce Well	MES# 22466 Matrix: Water	EPA 610	N/A	<0.005	N/A	N/A	
5-21-85	21	2-9	Arkwood Well	MES# 22467 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
5-21-85	22	2-9	Railroad Ditch Disposal Area	MES# 22468 Matrix: Waste	EPA 624 EPA 625	10,400	Total 4000	<5	<5	
5-21-85	16	2-9	Soil In Yard between Product and Water Tank	MES# 22464 Matrix: Soil, Discrete	EPA 8250 for PCP only	8200	N/A	N/A	N/A	
06-3-85	1'	2-9	B-1 Concrete Pad Boring, 1.5' bls	MES# 22833 Matrix: Soil, Discrete	EPA 8340 EPA 8270	7000	Total 1660	<5	41	
06-03-85	11	2-9	Sinkhole Fluid	MES# 22834 Matrix: Waste Water	EPA 8240 EPA 8270	300	Total 131	<0.05	2.3	
06-03-85	12	2-9	B-2, 3' bls Near Concrete Pad	MES# 22835 Matrix: Soil, Discrete	EPA 8250 for PCP only EPA 8270	56	<20	N/A	N/A	
06-3-85	13	2-9	B-3, 5' bls	MES# 22839 Matrix: Soil, Discrete	EPA 8270	830	300	N/A	N/A	
06-4-85	4	2-10	Railroad Tunnel Spring, South Side	MES# 22828 Matrix: Water	EPA 625	<0.005	<0.005	N/A	N/A	
06-4-85	1	2-10	Cricket Spring	MES# 22829 Matrix: Water	EPA 625	4.5	<0.005	N/A	N/A	
06-4-85	13	2-9	B-3, 20' bls	MES# 22842 Matrix: Soil, Discrete	EPA 8270	<20	<20	N/A	N/A	
06-4-85	14	2-9	B-4, 2' bls Wood Chip Pile	MES# 22[illegible] Matrix: Soil, Discrete	EPA 8250 for PCP only	1.1	N/A	N/A	N/A	
06-5-85	9	2-10	Bruce Well	MES# 22830 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
06-5-85	7	2-10	Birmingham-Old Well	MES# 22831 Matrix: Water	EPA 624 EPA 625	<0.005	Total 0.023	<0.005	<0.005	
06-5-85	8	2-10	Birmingham-New Well	MES# 22832 Matrix: Water	EPA 624	N/A	N/A	Total 0.037	<0.005	
06-5-85	14	2-9	B-4, 5.5' bls Wood Chip Pile	MES# 22844 Matrix: Soil, Discrete	EPA 8270	<20	<20	N/A	N/A	
10-16-85	23	2-9	Ash Pile	MES# R31049-1 Matrix: Soil, Discrete	EPA 8240 EPA 8270	3600	580	<0.5	<0.05	
11-25-85	7	2-10	Birmingham-Old Well	MES# R51186-1 Matrix: Water	EPA 624 EPA 625	<0.005	Total 0.005	<0.005	<0.005	
11-25-85	6	2-10	Miles Well	MES# R51186-2 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	

TABLE 2-3 (Continued)

Analytical Data from Samples Collected by McKesson Environmental Services
RI/FS Work Plan
Arkwood, Inc. Site, Omaha, Arkansas

Date Sampled	Location Number	Figure Number	Sampling Location	Sample Description	Analyses Performed	Results (ppm) PCP	PNA	VOA-Cl Compounds	VOA-ARO Compounds	Others
11-25-85	8	2-10	Birmingham New Well	MES# 851186-3 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
11-25-85	5	2-10	Canning Factory Spring	MES# 851186-4 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
11-25-85	4	2-10	Railroad Tunnel Spring, South Side	MES# 851186-5 Matrix: Water	EPA 624 EPA 625	0.11	<0.005	<0.005	<0.005	
11-25-85	1	2-10	Cricket Spring	MES# 851186-6 Matrix: Water	EPA 624 EPA 625	1.8	Total 0.028	<0.005	<0.005	
11-25-85	10	2-10	Omaha City Well	MES# 851186-7 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
11-25-85	2	2-10	Bahren (Cistern) Well	MES# 851186-8 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
11-25-85	3	2-10	Bahr . (In-Use) Well	MES# 851186-9 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
12-05-85	21	2-9	Arkwood Well	MES# 851221-1 Matrix: Water	EPA 625	<0.005	<0.005	N/A	N/A	
12-11-85	4	2-10	Railroad Tunnel Spring, South Side	MES# 851251-1 Matrix: Water	EPA 625	<0.003	<0.005	N/A	N/A	
03-04-86	10	2-10	Omaha City Well	MES# 860340-1 Matrix: Water	EPA 625	<0.005	<0.005	N/A	N/A	
03-04-86	9	2-10	Bloom Well	MES# 860340-2 Matrix: Water	EPA 625	<0.005	<0.005	N/A	N/A	
03-04-86	3	2-10	Bahren Well	MES# 860340-3 Matrix: Water	EPA 625	<0.005	<0.005	N/A	N/A	
03-04-86	6	2-10	Miles Well	MES# 860340-4 Matrix: Water	EPA 625	<0.005	<0.005	N/A	N/A	
03-04-86	1	2-10	Cricket Spring	MES 860340-5 Matrix: Water	EPA 625	<0.005	<0.005	N/A	N/A	
03-04-86	7	2-10	Birmingham-Old Well	MES# 860340-6 Matrix: Water	EPA 625	<0.005	<0.005	N/A	N/A	
03-19-86	4	2-10	Railroad Tunnel Spring, South Side	MES# 8603108.1 Matrix: Water	EPA 624 EPA 625	0.010	<0.025	Chloro-methane 0.006	<0.005	
03-19-86	8	2-10	New Birmingham Well	MES# 8603108.2 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	Total 0.10	<0.005	
03-31-86	2	2-10	Bahren (Cistern) Well	MES# 860403-1 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
03-31-86	1	2-10	Cricket Spring	MES# 860403-5 Matrix: Water	EPA 624 EPA 625	1.4	Total 0.016	<0.005	<0.005	
03-31-86	5	2-10	Canning Factory Spring	MES# 860403-7 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
03-31-86	3	2-10	Bahren Well, (In Use)	MES# 860403-2 Matrix: Water	EPA 624	N/A	N/A	<0.005	<0.005	
03-31-86	7	2-10	Birmingham-Old Well	MES# 860403-3 Matrix: Water	EPA 624	N/A	N/A	<0.005	<0.005	
03-31-86	6	2-10	Miles Well	MES# 860403-4 Matrix: Water	EPA 624	N/A	N/A	<0.005	<0.005	
03-31-86	10	2-10	Omaha City Well	MES# 860403-6 Matrix: Water	EPA 624	N/A	N/A	<0.005	<0.005	
06-24-86	9	2-10	Bloom Well	MES# 8606141 1 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
06-24-86	7	2-10	Birmingham-Old Well	MES# 8606141-2,12 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
06-24-86	8	2-10	Birmingham-New Well	MES# 8606141-3,13 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
06-24-86	6	2-10	Miles Well	MES# 8606141-4,14 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
06-24-86	10	2-10	Omaha City Well	MES# 8606141-5,15 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
06-24-86	2	2-10	Bahren (Cistern) Well	MES# 8606141-6,16 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
06-24-86	3	2-10	Bahren-New Well	MES# 8606141,7-17 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
06-24-86	1	2-10	Cricket Spring	MES# 8606141-8,18 Matrix: Water	EPA 624 EPA 625	<0.005	Pentan-threne 0.008	<0.005	<0.005	
06-24-86	4	2-10	Railroad Tunnel Spring, South Side	MES# 8606141-9,19 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
06-24-86	5	2-10	Canning Factory Spring	MES# 8606141-9,19 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	

RI/FS Work Plan
Arkwood, Inc. Site, Omaha, Arkansas

Date Sampled	Location Number	Figure Number	Sampling Location	Sample Description	Analyses Performed	Results (ppm) PCP	PNA	VOA-Cl Compounds	VOA-ARO Compounds	Others
05-20-85	18	2-10	Spring Through Railroad Culvert	MES# 22452 Matrix: Water	EPA 610(GC) EPA 604(GC)	<0.005	<0.005	N/A	N/A	
05-20-85	6	2-10	Miles Well	MES# 22453 Matrix: Water	EPA 624(GC/MS) EPA 625(GC/MS) EPA 610	<0.005	<0.005	<0.005	<0.005	
05-20-85	3	2-10	Bahren Well, in the Omaha City Well	MES# 22454 Matrix: Water	EPA 610	N/A	<0.005	N/A	N/A	
05-20-85	10	2-10		MES# 22455 Matrix: Water	EPA 624 EPA 625 EPA 610	<0.005	<0.005	<0.005	<0.005	
05-20-85	8	2-10	Birmingham-New Well	MES# 22456 Matrix: Water	EPA 624 EPA 625 EPA 610	<0.005	<0.005	<0.005	<0.005	
05-20-85	1	2-10	Cricket Spring	MES# 22457 Matrix: Water	EPA 624 EPA 625 EPA 610	1.9	<0.005	<0.005	<0.005	
05-20-85	5	2-10	Canning Factory Spring	MES# 22458 Matrix: Water	EPA 610	N/A	<0.005	N/A	N/A	
05-20-85	4	2-10	Railroad Tunnel Spring, South Side	MES# 22459 Matrix: Water	EPA 610 EPA 604	<0.005	<0.005	N/A	N/A	
05-20-85	20	2-10	Dugan Well	MES# 22460 Matrix: Water	EPA 624 EPA 625 EPA 610	<0.005	<0.005	<0.005	<0.005	
5-21-85	22	2-9	Railroad Ditch Disposal Area, Standing Water	MES# 22461 Matrix: Liquid	EPA 624 EPA 625 EPA 610	<0.005	Total 3.4	<0.005	<0.005	
5-21-85	7	2-10	Birmingham-Old Well	MES# 22465 Matrix: Water	EPA 624 EPA 625	<0.005	Naphthalene 0.026 Fluorene 0.031	<0.005	<0.005	
5-21-85	9	2-10	Bloom Well	MES# 22466 Matrix: Water	EPA 610	N/A	<0.005	N/A	N/A	
5-21-85	21	2-9	Arkwood Well	MES# 22467 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
5-21-85	22	2-9	Railroad Ditch Disposal Area	MES# 22468 Matrix: Waste	EPA 624 EPA 625	10,400	Total 4000	<5	<5	
5-21-85	16	2-9	Soil In Yard between Product and Water Tank	MES# 22464 Matrix: Soil, Discrete	EPA 8250 for PCP only	8200	N/A	N/A	N/A	
06-3-85	11	2-9	B-1 Concrete Pad Boring, 1.5' bls	MES# 22833 Matrix: Soil, Discrete	EPA 8340 EPA 8270	7000	Total 1460	<5	41	
06-03-85	11	2-9	Sinkhole Fluid	MES# 22834 Matrix: Waste Water	EPA 8240 EPA 8270	200	Total 131	<0.05	2.3	
06-03-85	12	2-9	B-2, 3' bls Near Concrete Pad	MES# 22835 Matrix: Soil, Discrete	EPA 8250 for PCP only EPA 8270	36	<20	N/A	N/A	
06-3-85	13	2-9	B-3, 3' bls	MES# 22839 Matrix: Soil, Discrete	EPA 8270	330	200	N/A	N/A	
06-4-85	4	2-10	Railroad Tunnel Spring, South Side	MES# 22828 Matrix: Water	EPA 625	<0.005	<0.005	N/A	N/A	
06-4-85	1	2-10	Cricket Spring	MES# 22829 Matrix: Water	EPA 625	4.3	<0.005	N/A	N/A	
06-4-85	13	2-9	B-3, 20' bls	MES# 22842 Matrix: Soil, Discrete	EPA 8270	<20	<20	N/A	N/A	
06-4-85	14	2-9	B-4, 2' bls Wood Chip Pile	MES# 22843 Matrix: Soil, Discrete	EPA 8250 for PCP only	1.1	N/A	N/A	N/A	
06-5-85	9	2-10	Bloom Well	MES# 22830 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
06-5-85	7	2-10	Birmingham-Old Well	MES# 22831 Matrix: Water	EPA 624 EPA 625	<0.005	Total 0.023	<0.005	<0.005	
06-5-85	8	2-10	Birmingham-New Well	MES# 22832 Matrix: Water	EPA 624	N/A	N/A	Total 0.037	<0.005	
06-5-85	14	2-9	B-4, 3.5' bls Wood Chip Pile	MES# 22844 Matrix: Soil, Discrete	EPA 8270	<20	<20	N/A	N/A	
10-16-85	23	2-9	Ash Pile	MES# 851049-1 Matrix: Soil, Discrete	EPA 8240 EPA 8270	3600	590	<0.5	<0.05	
11-25-85	7	2-10	Birmingham-Old Well	MES# 851186-1 Matrix: Water	EPA 624 EPA 625	<0.005	Total 0.005	<0.005	<0.005	
11-25-85	6	2-10	Milac Well	MES# 851186-2 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	

Analytical Data — Samples Collected by McKesson Environmental Services
RI/FS Work Plan
Arkwood, Inc. Site, Omaha, Arkansas

Date Sampled	Location Number	Figure Number	Sampling Location	Sample Description	Analyses Performed	Results (ppm) PCP	PNA	VOA-Cl Compounds	VOA-ARO Compounds	Others
11-25-85	8	2-10	Birmingham New Well	MES# 851186-3 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
11-25-85	5	2-10	Canning Factory Spring	MES# 851186-4 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
11-25-85	4	2-10	Railroad Tunnel Spring, South Side	MES# 851186-5 Matrix: Water	EPA 624 EPA 625	0.11	<0.005	<0.005	<0.005	
11-25-85	1	2-10	Cricket Spring	MES# 851186-6 Matrix: Water	EPA 624 EPA 625	1.8	Total 0.028	<0.005	<0.005	
11-25-85	10	2-10	Omaha City Well	MES# 851186-7 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
11-25-85	2	2-10	Bahman (Cistern) Well	MES# 851186-8 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
11-25-85	3	2-10	Bahman (In-Use) Well	MES# 851186-9 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
12-05-85	21	2-9	Arkwood Well	MES# 851221-1 Matrix: Water	EPA 625	<0.005	<0.005	N/A	N/A	
12-11-85	4	2-10	Railroad Tunnel Spring, South Side	MES# 851251-1 Matrix: Water	EPA 625	<0.005	<0.005	N/A	N/A	
03-04-86	10	2-10	Omaha City Well	MES# 860340-1 Matrix: Water	EPA 625	<0.005	<0.005	N/A	N/A	
03-04-86	9	2-10	Bisson Well	MES# 860340-2 Matrix: Water	EPA 625	<0.005	<0.005	N/A	N/A	
03-04-86	3	2-10	Bahman Well	MES# 860340-3 Matrix: Water	EPA 625	<0.005	<0.005	N/A	N/A	
03-04-86	6	2-10	Milnes Well	MES# 860340-4 Matrix: Water	EPA 625	<0.005	<0.005	N/A	N/A	
03-04-86	1	2-10	Cricket Spring	MES #860340-5 Matrix: Water	EPA 625	<0.005	<0.005	N/A	N/A	
03-04-86	7	2-10	Birmingham-Old Well	MES# 860340-6 Matrix: Water	EPA 625	<0.005	<0.005	N/A	N/A	
03-19-86	4	2-10	Railroad Tunnel Spring, South Side	MES# 8603108.1 Matrix: Water	EPA 624 EPA 625	0.010	<0.005	Chloromethane 0.006	<0.005	
03-19-86	8	2-10	New Birmingham Well	MES# 8603108.2 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	Total 0.10	<0.005	
03-31-86	2	2-10	Bahman (Cistern) Well	MES# 860403-1 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
03-31-86	1	2-10	Cricket Spring	MES# 860403-5 Matrix: Water	EPA 624 EPA 625	1.4	Total 0.016	<0.005	<0.005	
03-31-86	5	2-10	Canning Factory Spring	MES# 860403-7 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
03-31-86	3	2-10	Bahman Well, (In Use)	MES# 860403-2 Matrix: Water	EPA 624	N/A	N/A	<0.005	<0.005	
03-31-86	7	2-10	Birmingham-Old Well	MES# 860403-3 Matrix: Water	EPA 624	N/A	N/A	<0.005	<0.005	
03-31-86	6	2-10	Milnes Well	MES# 860403-4 Matrix: Water	EPA 624	N/A	N/A	<0.005	<0.005	
03-31-86	10	2-10	Omaha City Well	MES# 860403-6 Matrix: Water	EPA 624	N/A	N/A	<0.005	<0.005	
06-24-86	9	2-10	Bisson Well	MES# 8606141-1 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
06-24-86	7	2-10	Birmingham-Old Well	MES# 8606141-2,12 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
06-24-86	8	2-10	Birmingham-New Well	MES# 8606141-3,13 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
06-24-86	6	2-10	Milnes Well	MES# 8606141-4,14 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
06-24-86	10	2-10	Omaha City Well	MES# 8606141-5,15 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
06-24-86	2	2-10	Bahman (Cistern) Well	MES# 8606141-6,16 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
06-24-86	3	2-10	Bahman-New Well	MES# 8606141,7-17 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
06-24-86	1	2-10	Cricket Spring	MES# 8606141-8,18 Matrix: Water	EPA 624 EPA 625	<0.005	Phenanthrene 0.008	<0.005	<0.005	
06-24-86	4	2-10	Railroad Tunnel Spring, South Side	MES# 8606141-9,19 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	
06-24-86	5	2-10	Canning Factory Spring	MES# 8606141-9,19 Matrix: Water	EPA 624 EPA 625	<0.005	<0.005	<0.005	<0.005	

Akkt/23/crr

Analytical Data from Samples Collected by IT Corporation
RI/FS Work Plan
Arkwood Inc. Site, Omaha, Arkansas

Results of Soil and Sludge Analysis for Volatile Priority Pollutants
Sampling Performed: 06-04-85
Concentrations in ug/gm (ppm)

Parameter	Sampling Point		
	Wood Chip Pile *	Railroad Ditch Disposal Area Center	Railroad Ditch Disposal Area East Edge
Acrolein	<0.10	<0.50	<0.50
Acrylonitrile	<0.10	<0.50	<0.50
Benzene	<0.010	0.11	<0.050
Bromoform	<0.010	<0.050	<0.050
Carbon Tetrachloride	<0.010	<0.050	<0.050
Chlorobenzene	<0.010	<0.050	<0.050
Chlorodibromomethane	<0.010	<0.050	<0.050
Chloroethane	<0.10	<0.50	<0.50
2-Chloroethylvinyl ether	<0.10	<0.50	<0.50
Chloroform	<0.010	<0.050	0.063
Dichlorobromomethane	<0.010	<0.050	<0.050
Dichlorodifuluoromethane	<0.010	<0.050	<0.050
1,1-Dichloroethane	<0.010	<0.050	<0.050
1,2-Dichloroethane	<0.010	<0.050	<0.050
1,1-Dichloroethylene	<0.010	<0.050	<0.050
1,2-Dichloropropane	<0.010	<0.050	<0.050
1,3-Dichloropropylene	<0.010	<0.050	<0.050
Ethylbenzene	<0.010	3.2	0.080
Methyl bromide	<0.10	<0.50	<0.50
Methyl chloride	<0.10	<0.50	<0.50
Methylene chloride	<0.010	<0.050	<0.050
1,1,2,2-Tetrachloroethane	<0.010	<0.050	<0.050
Tetrachloroethylene	<0.010	<0.050	<0.050
Toluene	<0.010	1.8	0.09
trans-1,2-Dichloroethylene	<0.010	<0.050	<0.050
1,1-1-Trichloroethane	<0.010	<0.050	<0.050
1,1,2-Trichloroethane	<0.010	<0.050	<0.050
Trichloroethylene	<0.010	<0.050	<0.050
Trichlorofluoromethane	<0.010	<0.050	<0.050
Vinyl Chloride	<0.10	<0.50	<0.50

* Analysis for soil under wood chip pile, (depth of Sample Not Listed).

Analytical Data for Samples Collected by IT Corporation
RI/FS Work Plan
Arkwood Inc. Site, Omaha, Arkansas

Results of Water Analysis for Volatile Priority Pollutants
Sampling Performed: 06-04-85
Concentrations in ug/L (ppb)

Parameter	Sampling Point: Sinkhole Fluid	RR Tunnel Spring South Side	Cricket Spring
Acrolein	<1000	<10/10	<10
Acrylonitrile	<1000	<10/<10	<10
Benzene	1,300	<1.0./<1.0	<1.0
Bromoform	<100	<1.0/<1.0	<1.0
Carbon Tetrachloride	<100	<1.0/<1.0	<1.0
Chlorobenzene	<100	<1.0/<1.0	<1.0
Chlorodibromomethane	<100	<1.0/<1.0	<1.0
Chloroethane	<1000	<10/<10	<10
2-Chloroethylvinyl ether	<1000	<10/<10	<10
Chloroform	<100	<1.0/<1.0	<1.0
Dichlorobromomethane	<100	<1.0/<1.0	<1.0
Dichlorodifuluoromethane	<100	<1.0/<1.0	<1.0
1,1-Dichloroethane	<100	<1.0/<1.0	<1.0
1,2-Dichloroethane	<100	<1.0/<1.0	<1.0
1,1-Dichloroethylene	<100	<1.0/<1.0	<1.0
1,2-Dichloropropane	<100	<1.0/<1.0	<1.0
1,3-Dichloropropylene(3)	<100	<1.0/<1.0	<1.0
Ethylbenzene	13,000	<1.0/<1.0	<1.0
Methyl bromide	<1000	<10/<10	<10
Methyl chloride	<1000	<10/<10	<10
Methylene chloride	<100	<1.0/<1.0	<1.0
1,1,2,2-Tetrachloroethane	<100	<1.0/<1.0	<1.0
Tetrachloroethylene	<100	<1.0/<1.0	<1.0
Toluene	12,000	<1.0/<1.0	4.1
trans-1,2-Dichloroethylene	<100	<1.0/<1.0	<1.0
1,1-1-Trichloroethane	<100	<1.0/<1.0	<1.0
1,1,2-Trichloroethane	360	<1.0/<1.0	<1.0
Trichloroethylene	<100	<1.0/<1.0	1.9
Trichlorofluoromethane	<100	<1.0/<1.0	<1.0
Vinyl Chloride	<1000	<10/<10	<10

Analytical Data from Samples Collected by IT Corporation
RI/FS Work Plan
Arkwood Inc. Site, Omaha, Arkansas

Results of Water Analysis For Volatile Priority Pollutants
Sampling Performed: 06-04-85
Concentrations in ug/L (ppb)

Parameter	Sampling Point	
	Birmingham New Well	Binam Well
Acrolein	<10	<10
Acrylonitrile	<10	<10
Benzene	<1.0	<1.0
Bromoform	<1.0	<1.0
Carbon Tetrachloride	<1.0	<1.0
Chlorobenzene	<1.0	<1.0
Chlorodibromomethane	<1.0	<1.0
Chloroethane	<10	<10
2-Chloroethylvinyl ether	<10	<10
Chloroform	<1.0	<1.0
Dichlorobromomethane	<1.0	<1.0
Dichlorodifuluoromethane	<1.0	<1.0
1,1-Dichloroethane	<1.0	<1.0
1,2-Dichloroethane	<1.0	<1.0
1,1-Dichloroethylene	<1.0	<1.0
1,2-Dichloropropane	<1.0	<1.0
1,3-Dichloropropylene(3)	<1.0	<1.0
Ethylbenzene	<1.0	2.1
Methyl bromide	<10	<10
Methyl chloride	<10	<10
Methylene chloride	<10	<10
1,1,2,2-Tetrachloroethane	<1.0	<1.0
Tetrachloroethylene	<1.0	<1.0
Toluene	7.5	7.8
trans-1,2-Dichloroethylene	<1.0	<1.0
1,1-1-Trichloroethane	<1.0	<1.0
1,1,2-Trichloroethane	<1.0	<1.0
Trichloroethylene	<1.0	<1.0
Trichlorofluoromethane	<1.0	<1.0
Vinyl Chloride	<10	<10

Analytical Data for Samples Collected by IT Corporation
RI/FS Work Plan
Arkwood Inc. Site, Omaha, Arkansas

Results of Soil and Sludge Analysis for Base-Neutral Extractable Priority Pollutants
Sampling Performed: 06/04/85
Concentrations in ug/gm (ppm)

Parameter	Sampling Point			
	Wood Chip Pile *	RR Ditch Disposal Area Center	RR Ditch Disposal Area East Edge	Sinkhole Fluid
Hexachlorobutadiene	<0.10	<50	<50/<50	<50
Hexachlorocyclopentadiene	<0.10	<50	<50/<50	<50
Hexachloroethane	<0.10	<50	<50/<50	<50
Indeno(1,2,3-cd)pyrene	<0.10	<50	<50/<50	<50
Isophorone	<0.40	<200	<200/<200	<200
Napthalene	<0.10	930	<50/<50	1100
Nitrobenzene	<0.10	<50	<50/<50	<50
N-Nitrosodimethylamine	<0.10	<50	<50/<50	<50
N-Nitrosodi-n-propylamine	<0.10	<50	<50/<50	<50
N-Nitrosodiphenylamine (Diphenylamine)(4)	<0.10	<50	<50/<50	1000
Phenanthrene	<0.10	<50	3600/3100	2000
Pyrene	<0.10	<50	<50/<50	<50
1,2,4-Trichlorobenzene	<0.10	<50	<50/<50	<50
2,3,7,8-Tetrachlorodibenzo-p-dioxin	<0.10	<50	<50/<50	<50

* Analysis for soil under wood chip pile, depth not listed.

Analytical Data for Samples Collected by IT Corporation
RI/FS Work Plan
Arkwood Inc. Site, Omaha, Arkansas

Results of Soil and Sludge Analysis for Base-Neutral
Extractable Priority Pollutants
Sampling Performed: 06-04-85
Concentrations in ug/gm (ppm)

Parameter	Sampling Point			
	Wood Chip Pile *	RR Ditch Disposal Area Center	RR Ditch Disposal Area East Edge	Sinkhole Fuids
Acenaphthene	<0.10	<50	170/230	300
Acenaphthylene	<0.10	66	<50/<50	<50
Anthracene	<0.10	<50	<50/<50	<50
Benzidine	<0.40	<200	<200/<200	<200
Benzo(a)anthracene	<0.10	<50	<50/<50	<50
Benzo(a)pyrene	<0.10	<50	<50/<50	<50
3,4-Benzofluoranthene	<0.10	<50	<50/<50	<50
Benzo(g,h,i)perylene	<0.10	<50	<50/<50	<50
Benxo(k)fluoranthene	<0.10	<50	<50/<50	<50
Bis(2-chloroethoxy)methane	<0.10	<50	<50/<50	<50
Bis(2-chloroethyl)either	<0.10	<50	<50/<50	<50
Bis(2-chlorosiopropyl)either	<0.10	<50	<50/<50	<50
Bis()chloromethyl)either	<0.40	<200	<200/<200	<200
Bis(2-ethylhexyl)phthalate	1.3	<50	<50/<50	<50
4-Bromophenyl phenyl ether	<0.10	<50	<50/<50	<50
Butyle benzyl phthalate	<0.10	<50	<50/<50	<50
2-Chloronaphthalene	<0.10	<50	<50/<50	<50
4-Chlorophenyl phenyl ether	<0.10	<50	<50/<50	<50
Chrysene	<0.10	<50	<50/<50	<50
Dibenzo(ah)anthracene	<0.10	<50	<50/<50	<50
1,2-Dichlorobenzene	<0.10	<50	<50/<50	<50
1,3-Dichlorobenzene	<0.10	<50	<50/<50	<50
1,4-Dichlorobenzene	<0.10	<50	<50/<50	<50
3,3'-Dichlorobenzidine	<0.10	<50	<50/<50	<50
Diethyl phthalate	<0.10	<50	<50/<50	<50
Dimethyl phthalate	<0.10	<50	<50/<50	<50
Di-n-butyl phthalate	0.14	<50	<50/<50	<50
2,4-Dinitrotoluene	<0.10	<50	<50/<50	<50
2,6-Dinitrotoluene	<0.10	<50	<50/<50	<50
Di-n-octyl phthalate	<0.10	<50	<50/<50	<50
1,2-Diphenylhydrazine (Azobenzene)	<0.10	<50	<50/<50	<50
Fluoranthene	<0.10	<50	680/520	370
Fluorene	<0.10	<50	840/710	790
Hexachlorobenzene	<0.10	<50	<50/<50	<50

* Analysis for soil under wood chip pile, depth not listed.

Analytical Data for Samples Collected by IT Corporation
RI/FS Work Plan
Arkwood Inc. Site, Omaha, Arkansas

Results of Water Analysis for Base-Neutral Extractable Priority Pollutants
Sampling Performed: 06-04-85
Concentrations in ug/L (ppb)

Parameter	Sampling Point			
	RR Tunnel Spring South Side	Cricket Spring	Birmingham New Well	Binam Well
Acenaphthene	<5.0	<5.0	<5.0	18/20
Acenaphthylene	<5.0	<5.0	<5.0	<5.0/<5.0
Anthracene	<5.0	<5.0	<5.0	<5.0/<5.0
Benzidine	<20	<20	<20	<20/<20
Benzo(a)anthracene	<5.0	<5.0	<5.0	<5.0/<5.0
Benzo(a)pyrene	<5.0	<5.0	<5.0	<5.0/<5.0
3,4-Benzofluoranthene	<5.0	<5.0	<5.0	<5.0/<5.0
Benzo(g,h,i)perylene	<5.0	<5.0	<5.0	<5.0/<5.0
Benxo(k)fluoranthene	<5.0	<5.0	<5.0	<5.0/<5.0
Bis(2-chloroethoxy)methane	<5.0	<5.0	<5.0	<5.0/<5.0
Bis(2-chloroethyl)ether	<5.0	<5.0	<5.0	<5.0/<5.0
Bis(2-chlorosiopropyl)ether	<5.0	<5.0	<5.0	<5.0/<5.0
Bis(chloromethyl)ether(3)	<5.0	<5.0	<5.0	<5.0/<5.0
Bis(2-ethylhexyl)phthalate	<20	<20	<20	<20/<20
4-Bromophenyl phenyl ether	<5.0	<5.0	<5.0	<5.0/<5.0
Butyle benzyl phthalate	<5.0	<5.0	<5.0	<5.0/<5.0
2-Chloronaphthalene	<5.0	<5.0	<5.0	<5.0/<5.0
4-Chlorophenyl phenyl ether	<5.0	<5.0	<5.0	<5.0/<5.0
Chrysene	<5.0	<5.0	<5.0	<5.0/<5.0
Dibenzo(ah)anthracene	<5.0	<5.0	<5.0	<5.0/<5.0
1,2-Dichlorobenzene	<5.0	<5.0	<5.0	<5.0/<5.0
1,3-Dichlorobenzene	<5.0	<5.0	<5.0	<5.0/<5.0
1,4-Dichlorobenzene	<5.0	<5.0	<5.0	<5.0/<5.0
3,3'-Dichlorobenzidine	<5.0	<5.0	<5.0	<5.0/<5.0
Diethyl phthalate	<5.0	<5.0	<5.0	<5.0/<5.0
Dimethyl phthalate	<5.0	<5.0	<5.0	<5.0/<5.0
Di-n-butyl phthalate	<5.0	<5.0	<5.0	<5.0/<5.0
2,4-Dinitrotoluene	<5.0	<5.0	<5.0	<5.0/<5.0
2,6-Dinitrotoluene	<5.0	<5.0	<5.0	<5.0/<5.0
Di-n-octyl phthalate	<5.0	<5.0	<5.0	<5.0/<5.0
1,2-Diphenylhydrazine (Azobenzene)(4)	<5.0	<5.0	<5.0	<5.0/<5.0
Fluoranthene	<5.0	<5.0	<5.0	<5.0/<5.0
Fluorene	<5.0	<5.0	<5.0	6.3/7.1
Hexachlorobenzene	<5.0	<5.0	<5.0	<5.0/<5.0