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Subject: Site Inspection and Screening Risk Assessment for Dioxins/Furans
Arkwood, Inc. Site, Omaha, Arkansas
EPA ID# ARD084930148; Site ID: 0600124

Dear Ms. Mescher:

This letter report provides a summary of background information and our November 19, 2012 site inspection at the Arkwood, Inc. site ("Site") in Omaha, Arkansas, including both the main site and the water treatment facility, and our screening risk assessment of the potential upper bound health risks due to dioxins in the soils and sediments in on- and near-Site ditches. As part of the assessment, we discuss the soil sampling for polychlorinated dibenzo-p-dioxins and dibenzofurans (PCDD/Fs) that was conducted during the Remedial Investigation and Remedial Action at the Site in the 1990's and more recent sampling by Mr. Jim Fleer (Oxford Environmental and Safety, Inc.) on September 24 and October 26, 2012.

Site History/Regulatory Background

As noted in the current USEPA online information for the Arkwood, Inc. Site:

"Arkwood was a former wood treating site where pentachlorophenol (PCP) and creosote were used as treating fluids. The soil around the Arkwood site was contaminated with PCP and creosote, especially in subsurface due to fractured subsurface Karst terrain. The responsible party, MMI (now McKesson Corporation) began a two phase soil remedy under EPA oversight in 1994. Phase I was excavation, pretreatment (separation of soil from rock fragments) and storage of soil contaminated by wood treating fluids, e.g., PCP and creosote. Phase II was off site incineration of soil fines. The excavated areas were backfilled with clean soil and the site seeded. The soil remediation project was completed in December 1995.

The groundwater remedy consisted of monitoring surrounding private wells and springs. Although none of the private wells sampled during the study detected wood treating compounds, a dye tracing study was conducted to determine connections between the wood treating areas and springs surrounding the Site. This was done because the Arkwood site is located in an area of subsurface water flow through fractures. The dye study indicated that New Cricket Spring was hydraulically downgradient and possibly connected to the wood treating area through fractures. Sampling of springs in the area surrounding the site was conducted quarterly for four years after the completion of the soil remedy to detect any flow of wood treating fluids through fractures. An ozone system was installed in 1997 to treat the water exiting New

Cricket Spring to destroy PCP. Since groundwater treatment by ozone oxidation was found to be successful, the ozone system was upgraded in 1997 and 1999 to handle the maximum flow in New Cricket Spring, which occurs about 20 days per year. The upgraded ozone system is able to destroy PCP in the spring water to meet standards set by the Arkansas Department of Environmental Quality for the Arkwood site and will operate until water exiting New Cricket Spring can meet the site PCP standards."

On May 11, 2010, McKesson responded to a USEPA query regarding data on PCDD/Fs at the Site (letter and attachments provided in Appendix C). McKesson's response describes the Remedial Investigation and Feasibility Study sampling events regarding PCDD/Fs conducted in 1990, and samples collected during and after excavation activities based on the Remedial Objective of 20 ppb TEQ (2,3,7,8-tetrachlorodibenzo-p-dioxin toxicity equivalents). The confirmatory soil samples collected following excavation showed concentrations ranging from 0.22 to 10.98 ppb TEQ. Excavations were filled with coarse material with concentrations ranging from 3.19 to10.24 ppb TEQ, and the entire operations portion of the Site (not just the excavated areas) was covered with a 6-inch clean top soil cap that was seeded and has been maintained since the remedial action was completed. None of these earlier soil samples for PCDD/Fs can be considered relevant to a current risk assessment of the Site because they are not available for direct contact; all are effectively subsurface measurements beneath at least 6 inches of soil and a well-vegetated cap.

USEPA recently requested McKesson to provide data and analysis indicating whether or not the Site was in compliance with the new risk assessment guidelines for PCDD/Fs. McKesson contracted ChemRisk to provide assistance in responding in September, 2012. After an initial document review to search for relevant data, McKesson and ChemRisk decided to have the following work performed: 1) a Site inspection; 2) collection of a series of on-Site and downstream ditch samples; and 3) performance of a screening level risk assessment. The ditch sample locations were considered likely to capture upper bound PCDD/F concentrations on and near the Site because these compounds are transported predominantly via sediment movement and are well known to accumulate in low lying areas, i.e., 'environmental sinks.' A total of five on-Site or downstream samples and one local background sample were collected and analyzed for this report.

The purpose of the screening level risk assessment was to provide a scientific basis for conclusions about whether the Site and selected downstream points (the ozone treatment plant and the associated effluent ditch) present acceptable PCDD/F risks in accordance with current USEPA guidelines.

The USEPA toxicity criteria (e.g., cancer slope factor and reference dose) for PCDD/Fs have been under review since the 1990s and until recently the risk assessment considerations have been driven by the relatively high cancer potency of 2,3,7,8-tetrachlorodibenzo-p-dioxin or TCDD (156,000 per mg/kg-day). Under industrial worker and trespasser scenarios, this earlier cancer slope factor led to a cleanup standard of 20 ppb at many Superfund sites, as was the case for the Arkwood, Inc. Site. The cancer potency factor is extended to other 2,3,7,8-chlorinated dioxin species with inadequate evidence of carcinogenicity in animals or humans, but acting through the same Ah receptor mechanism as TCDD, using the TCDD toxicity equivalence (TEQ) approach. The TEQ approach has shifted over the years as new evidence concerning the relative toxicity of various congeners has been developed; changes over the years have given less weight to the higher chlorinated (e.g., hepta- and octa- PCDD/Fs) that dominate the TEQ for

sites contaminated with wood treatment fluids (USEPA, 2010). Over the past several years, USEPA has proposed an increased cancer potency for TCDD (e.g., from 156,000 to 1,000,000 per mg/kg-d) based on its re-evaluations of animal and epidemiological findings, and EPA plans to finalize its position in Volume 2 of "EPA's Reanalysis of Key Issues Related to Dioxin Toxicity and Response to NAS Comments." This change has not been formalized in the Integrated Risk Information System (IRIS) as of December 17, 2012, but the higher slope factor has been utilized in calculating preliminary remediation goals for Superfund sites (USEPA, 2009). Thus, our screening risk assessment utilizes an assumed cancer slope factor of 1,000,000 per mg/kg-d for total TEQ.

In February, 2012, USEPA released Volume I of "EPA's Reanalysis of Key Issues Related to Dioxin Toxicity and Response to NAS Comments", which set a new noncancer reference dose (RfD) toxicity criterion for TCDD (7×10^{-10} mg/kg-d). This new RfD is based on somewhat controversial epidemiologic data concerning effects on sperm motility and thyroid hormone levels following TCDD exposure; however, this new criterion has been formally adopted by USEPA as described in IRIS (2012). This new RfD has the impact of raising noncancer risks as a regulatory concern at PCDD/F exposure concentrations similar to those raising regulatory concerns about potential cancer risks. This new RfD apparently has been triggering reassessments of Superfund site PCDD/F exposures in order to assure compliance with the revised criterion. Our screening risk assessment utilizes the new RfD as well as an inhalation reference concentration (RfC) calculated based on the new RfD.

Conclusion Summary. Based on the observations made during ChemRisk's Site visit and the recently collected soil PCDD/F data, standard risk assessment calculations were made to evaluate whether or not the Site may be considered to be in compliance regarding PCDD/F-related risks given USEPA's recent changes in cancer potency and reference dose applicable to 2,3,7,8-tetrachlorodibenzo-p-dioxin (IRIS, 2012). We present below the scientific basis for our conclusion that PCDD/Fs in ditches (environmental sink locations) at the main Site, and at and near the discharge point for the nearby water treatment unit at New Cricket Spring, can be considered to present acceptable PCDD/F risks as determined by reference to relevant USEPA risk assessment guidelines.

Site Inspection on 11/19/12

The ChemRisk Site inspection was conducted by Brent D. Kerger, Ph.D., DABT, Senior Principal Health Scientist at ChemRisk, LLC, accompanied by Ms. Jean Mescher (McKesson) and Mr. Jim Fleer (Oxford). Annotated photographic documentation of the Site inspection is provided in Appendix A. Dr. Kerger walked the main Site, the potential down-gradient pathways approximately one-half mile along Cricket Road towards New Cricket Spring and a retention pond downstream of the ozone water treatment facility, and along the railroad tracks adjacent to the main Site and past the intersection of College Road and Cricket Road. Dr. Kerger also drove along Cricket Road and Old Cricket Road for several miles beyond the water treatment facility.

Inspection of the main Site was conducted when the weather was overcast, with light rain falling. No chemical odors or evidence of oil sheen or staining were observed anywhere on the main Site. The main Site was secured by a fence along the perimeter that was intact. The entire area of former contamination

from wood treatment operations had been covered with a six-inch soil cap installed under EPA oversight in the mid-1990s; the cap remains well-vegetated and is regularly maintained to prevent growth of trees or brush over the residually contaminated areas. There was no evidence of bald spots, ponding areas, or any breaches in continuity of the vegetation over the residually contaminated areas, and the Site appeared to drain well during the light rain.

The main Site is comprised of a gradually sloped plateau that lies between two relatively steep embankments (approximately 50-75 degree slope) on either side of the main area of former operations. This configuration aids in the natural on-Site retention of soils or sediments that might be mobilized by stormwater flow. The Site is essentially pie-shaped; water draining from the Site flows into two ditches that intersect on-Site at the base of a rocky natural berm at the edge of a hillside. At the meeting point of the two ditches, the resulting single ditch is approximately 2 feet deep; during significant precipitation events, the natural berm area overflow apparently follows a rocky diagonal path down to a well-vegetated ditch beside the railroad tracks below. Due to Site topography, the presence of other structures/foundations, and the ditch locations, this natural berm area appeared to be the primary discharge point for surface water discharge from the Site, although it is likely that most rain events would probably not overflow the on-Site natural berm. The ditch beside the railroad tracks adjacent to the natural berm area is relatively flat, and small puddles were observed at inspection; in higher flow conditions, stormwater from the Site apparently runs towards the west along the railroad tracks.

The Site subsurface is a Karst formation. New Cricket Spring, located approximately ¼-mile downstream, receives subsurface flow emanating from the Site. The New Cricket Spring outflow is dammed with concrete and enclosed within a fenced area about ¼-mile down Cricket Road from the main Site. This fenced area also contains a building with the ozone treatment system used to destroy organic water contaminants before the effluent water is released to an adjacent ditch which flows off-Site. The shallow pool at the outflow of New Cricket Spring emitted a mild diesel fuel odor at inspection, but there was no sheen or visible staining in the area at inspection. The ozone treatment system was operating and had inline filters for removal of solids. At the effluent ditch outside the fence there was no diesel fuel odor and no evidence of sheen or staining. Approximately 15 feet from the effluent point, the effluent at the roadside ditch flows into a plastic drain pipe that is buried for about 300 feet alongside Cricket Road. Ditch water then crosses underneath the road in a concrete pipe that flows into an open ditch on the other (north) side of the road. The ditch continues to the west and meanders parallel to Cricket Road for about 300 feet until it ends at a stormwater retention pond (See Appendix A, Pages 23-33). There was no evidence of diesel odor, sheen, or staining in or around these ditches or the retention pond. The pond apparently also receives drainage from a pipe within the adjacent hillside from an undetermined source location that is referred to as Old Cricket Spring.

The railroad track area along Cricket Road leading towards the tunnel adjacent to the main Site was also inspected (See Appendix A, Pages 34-52). Directly adjacent to and below the main Site, there were several piles of apparently used railroad ties stacked on both sides of the tracks. The area directly downhill from the main Site, a portion of which had been previously excavated and backfilled with clean soil, was relatively flat with some standing water puddles and vegetation adjacent to the gravel foundation of the railroad tracks. There was no diesel odor or visible sheen or staining of the soils would receive

runoff water from the main Site when sufficient stormwater accumulated to overflow the on-Site ditches above.

Ditch Sediment Sampling for PCDD/Fs at the Arkwood, Inc. Site on Sept. 24 and Oct. 26, 2012

The sampling efforts were designed to examine the upper bound concentrations corresponding to past accumulation of PCDD/Fs by sampling in ditch sediments and an adjacent berm.

PCDD/Fs from former wood treatment operations involving creosote and pentachlorophenol (as used at the Arkwood, Inc. Site) are predominantly comprised of hepta- and octa-chlorinated congeners that are nonvolatile, water-insoluble tars. These compounds strongly adhere to sediments. Transport of PCDD/Fs attached to finer sediments from the Site may have occurred in the past (prior to the remediation) due to surface water (stormwater) flow through on-Site ditches and/or via groundwater flow through the Karst formations beneath the Site.

Four general areas were selected for PCDD/F sampling: 1) the on-Site stormwater ditch (Sample 1) and the natural berm adjacent to the stormwater ditch (Sample 2); 2) two sediment samples collected near the ozone treatment plant within 10-15 feet of the discharge point (Samples 3 and 4); 3) one off-Site roadside ditch soil sample downstream from the ozone treatment plant outfall, about half the distance to the downstream stormwater retention pond (Sample 5); and 4) a background location in a ditch adjacent to the railroad tracks about 0.5 miles away from the Site (Sample 6). An aerial photo depicting the sampling locations is attached (Figure 1). It should be noted that these samples were collected from zones with embedded rocks, vegetation, and leaf debris, and that rocks and debris were temporarily relocated to obtain sediment samples at 0 to 3 inches depth. All of the sampled ditches or confluence points were partially rock-lined either naturally or artificially in order to maintain ditch integrity. This rocky lining also limits access to these ditch sediments by people, and hence the use of these ditch soil samples for PCDD/F exposure concentrations in a risk assessment may overstate plausible exposures and risks. Further, the surface soils surrounding these ditches, both on-Site and off-Site, were confirmed to be well vegetated, and the ditches represented a small fraction of the total land surface on-Site and for the private lands adjacent to Cricket Road. Thus, the contact frequency with soils in these ditch areas is likely to be limited for risk assessment purposes. Also, given these conditions and the available Site history, there are no other complete pathways for on-Site contaminated sediment transport along Cricket Road other than the ditches between the ozone treatment plant and the stormwater retention pond at the Old Cricket Spring outfall.

The PCDD/F measurements are summarized in Table 1, and the laboratory data are attached in Appendix B. Two samples were collected at the main Site, one at the base of the stormwater ditch (328 ppt TEQ, Sample 1) and a second sample on the adjacent natural berm (1,598 ppt TEQ, Sample 2). The sample collected at the base of the stormwater ditch likely represents long-term accumulation of contaminated sediments onsite and may be influenced by pre- and post-remediation activities. The source of the contamination in the berm sample is uncertain, but is suspected to relate to the former ash pile originally located within 20-30 feet upstream before its excavation. Also, there were several large rocks on this berm and the adjacent down-sloping hillside, possibly indicating that no excavation was done in this

specific location during the Site remediation. The sampler (Mr. Fleer) had to scrape between these large rocks on the berm in order to obtain a sufficient sample volume for the soil analysis.

Analytical results for samples collected near the ozone treatment plant discharge point (467 ppt and 324 ppt TEQ, Samples 3 and 4, respectively) and in the downstream roadside ditch location (387 ppt TEQ, Sample 5) were generally consistent in PCDD/F pattern and magnitude with the ditch sediment sample collected at the main Site (Table 1).

A background soil sample collected from the ditch adjacent to the railroad tracks about 0.5 miles from the Site showed a substantially lower concentration (43 ppt TEQ, Sample 6 in Table 1). This sample may have been influenced by railroad operations, but was not in the historic downstream sediment transport pathway from the Site.

Despite the difference in TEQ value between the background sample (43 ppt TEQ) and the other samples (328-1,598 ppt TEQ), all samples were clearly dominated by hepta- and octa-chlorinated PCDD/F species. Each sample has about 99.3 to 99.6% of total 2,3,7,8-congeners that are the hepta- and octa-CDD/Fs, including the background sample (Table 1). The hepta- and octa-chlorinated PCDD/Fs are the least toxic of all the 2,3,7,8-chlorinated species relative to 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD), and have not been shown to cause cancer or the reproductive effects that form the basis for more stringent regulation of TCDD (Paustenbach et al. 2006). In the background sample, 0.057% of the 2,3,7,8-chlorinated species are the more hazardous tetra- and penta-chlorinated congeners, while in the other on-Site and downstream ditch samples the range is slightly lower at 0.021 to 0.041% (Table 1). The slightly higher proportion of tetra- and penta-CDD/Fs in the background sample may reflect a more typical background soil pattern from ambient combustion sources with greater fractional contribution from these lower chlorinated species.

The pattern of TCDD toxic equivalents (TEQ) for each of the collected ditch samples and the background sample was also quite similar. The predominant contribution of the hepta- and octa- PCDD/F congeners is again demonstrated with respect to TEQ, although these contributions are attenuated relative to the 2,3,7,8-chlorinated congener total by the lower TCDD toxicity equivalence factors assigned to these relatively immobile congeners (Table 1). The hepta- and octa-chlorinated PCDD/Fs comprise 58% of the total TEQ for the background sample and 60 to 68% of the total TEQ for the other on-Site and downstream ditch samples. The more hazardous tetra- and penta-chlorinated PCDD/Fs comprise 19% of the background sample TEQ and 4.7 to 9.6% of the total TEQ for the other ditch samples. Further, the tetra- and penta-chlorinated PCDD/Fs in the background sample (8.2 ppt TEQ) were within the same order of magnitude as that seen for the treatment plant and downstream ditch samples (18-40 ppt TEQ). However, the overall PCDD/F concentration for the background sample corresponds to 43 ppt TEQ, which is consistent with relatively low magnitude contributions from ambient combustion sources as one might reasonably expect adjacent to a railroad.

Screening Risk Assessment for PCDD/Fs Based on Ditch Samples at the Arkwood, Inc. Site

This screening risk assessment is based on the exposure parameters identified in the USEPA guidance document "Draft Recommended Interim Preliminary Remediation Goals for Dioxins in Soil at CERCLA and RCRA Sites (Dec. 2009)." As described earlier, the most recently proposed values for the TCDD reference dose and cancer potency were utilized (IRIS, 2012; USEPA, 2009), and an inhalation reference concentration (RfC) was estimated based on the new oral reference dose (RfD).

Table 2 provides a summary of the USEPA exposure parameters utilized as applicable to an on-Site industrial worker with an exposure frequency of 100 days per year, and for a trespasser exposed 52 days per year.

In general, the exposure frequency for the on-Site worker scenario overstates the expected frequency of visits on-Site each year by any single worker for maintenance activities or security checks at the Arkwood, Inc. Site. Thus, the assumption of 100 days of annual exposure over 30 years is considered to be adequately conservative. The trespasser scenario assumes once per week visits by the same individual from childhood through adulthood for 30 years total. The trespasser non-cancer hazard index is based on the more conservative child exposures (6 years) and the cancer risk estimate is based on the combined (6 + 24 years = 30 years total) child and adult exposures.

A 'ditch sediment contact frequency factor' of 0.1 was applied to the Exposure Frequency parameter in order to adjust for the more limited likelihood of any person having soil contact in ditches and the berm including: 1) limited surface area of the ditches and berm relative to the Site area and to the private lands between the ozone treatment plant at New Cricket Spring and the stormwater retention pond at Old Cricket Spring; 2) presence of vegetation, leaf litter, and/or rocks within the ditches and on the berm that obscure sediments from direct contact; and 3) water, ice or snow covering for part of the year that obscures ditch sediments from direct contact. These considerations limit the timing, contact frequency, and effective soil exposure concentrations experienced at the Site and in the relevant downstream areas consistent with USEPA Risk Assessment Guidance for Superfund, Volume I, Sections 6.4-6.5 (USEPA, 1989). In Table 2, the 'ditch sediment contact frequency factor' is applied to the Exposure Frequency values for risk calculation purposes, leading to adjusted values of 10 and 5.2 days/year as the adjusted parameters for the on-Site worker and trespasser scenarios, respectively.

The exposure parameters that drive the risk estimates when utilizing this screening approach mainly involve USEPA-recommended upper bound assumptions (USEPA, 2009) applying to the oral and dermal pathways (Table 2). The 70 kg adult on-Site worker is assumed to ingest 100 mg of contaminated soil per day at 100% oral absorption, and also is assumed to receive dermal contact with contaminated soil covering 3,300 cm^2 of skin surface at 3% dermal absorption. The 15 kg child trespasser is assumed to ingest 200 mg of contaminated soil per day at 100% oral absorption, and also is assumed to receive dermal contact with contaminated soil covering 2,800 cm^2 of skin surface at 3% dermal absorption. The 70 kg adult trespasser is assumed to ingest 330 mg of contaminated soil per day at 100% oral absorption, and also is assumed to receive dermal contact with contaminated soil covering 5,700 cm^2 of skin surface at 3% dermal absorption. As reviewed by Paustenbach et al. (2006), these oral and dermal exposure parameters represent highly conservative assumptions that substantially overstate the plausible central tendency or reasonable maximum exposure estimates for uptake from PCDD/F adhered to soils. This is

particularly true for this screening risk assessment in that the sediment samples were obtained by scraping surface soils between and underneath rocks that lined the ditches or were present on the adjacent berm.

Also, the ditch sediments represent environmental 'sink' samples that are likely to considerably overstate the probable PCDD/F exposures to surface soils in general for both on-Site soils (which are fully vegetated and capped with 6 inches of clean soil) and in the downstream ditch area between New Cricket Spring and the retention pond at Old Cricket Spring (surface soils off-Site are also well vegetated and are not expected to have received Site-related sediment contamination). In addition, certain exposure assumptions such as the oral and dermal bioavailability factors (100% and 3%, respectively) are based on studies of 2,3,7,8-TCDD, while the predominant exposures at issue (on TEQ and Total 2,3,7,8-congener bases) are dominated by the hepta- and octa-PCDD/Fs that exhibit far lower bioavailability and toxicity. Although the TEQ approach attempts to adjust for these factors, the likelihood of significant overstatement of dose and associated health risks remains (Paustenbach et al. 2006).

The soil sample from the on-Site natural berm (1,598 ppt TEQ), although considered a non-representative outlier, was included separately in the screening risk analysis reflected in the attached tables. Even utilizing this isolated high sample, the resulting screening risk calculations for the berm sample shown in Table 3 still correspond to a hazard index below 1.0 (0.11 for on-Site worker and 0.47 for child trespasser) and to lifetime cancer risks (4×10^{-6} for on-Site worker and 1×10^{-5} for 30-year trespasser) within the USEPA acceptable cancer risk range of 10^{-4} to 10^{-6} for Superfund sites with small populations at potential risk (USEPA, 1989). Table 3 also provides the calculations for the non-cancer hazard index corresponding to the on-Site worker and child trespasser scenarios utilizing the more representative upper bound soil data from the ditch samples. It was assumed that regular exposure occurred at the highest measured concentration from the ditch samples, i.e., at 467 ppt TEQ. In Table 3, both the on-Site worker and the child trespasser scenarios indicate a total hazard index well below 1.0. More than 90% of the estimated hazard index for the child trespasser scenario is attributable to the assumptions on soil ingestion rate (200 mg/day) and oral bioavailability (100%) as shown in Table 3 (compare HI oral vs. HI total).

Table 4 provides the calculations utilized in estimating the incremental lifetime cancer risk for the on-Site worker and child/adult (30-year) trespasser scenarios. The maximum measured ditch soil concentration of 467 ppt TEQ and the berm soil concentration of 1,598 ppt TEQ were again utilized. The estimated incremental lifetime cancer risk was in the range of approximately 1×10^{-6} to 3×10^{-6} for the highest ditch soil concentration and 1×10^{-5} to 4×10^{-6} for the berm soil concentration. These cancer risks are within the USEPA acceptable cancer risk range of 10^{-4} to 10^{-6} for Superfund sites with small populations at potential risk (USEPA, 1989). Again, more than 90% of the cancer risk estimate for the child/adult trespasser scenario is attributable to the assumptions on soil ingestion rate and oral bioavailability as shown in Table 4 (compare Oral Risk vs. Incremental Lifetime Cancer Risk).

Discussion

As illustrated in the May 11, 2010 McKesson letter to USEPA and its attachments (See Appendix C), pursuant to an EPA-selected Site remedy, much of the Site was excavated, graded, capped and seeded to eliminate any potential human exposure to unacceptable levels of PCDD/F surface contaminants and to create a secure site for natural attenuation of residual subsurface contamination that migrates through the Karst formation beneath the Site and exits at New Cricket Spring. The main Site cap is well-vegetated and well-maintained such that the opportunities for exposures to residual PCDD/Fs to on-Site workers or trespassers are extremely limited. The natural berm sample at 1,598 ppt TEQ appears to be related to the former ash pile that had been excavated in the same general area. The lower, and similar, PCDD/F concentrations detected in samples collected from the on-Site stormwater ditch and roadside ditches at the ozone treatment plant outfall and downstream along Cricket Road before the retention pond likely represent PCDD/F contaminants deposited via sediment transport before the ozone treatment plant was put in place. In-line particulate filters in place at the ozone treatment plant since 1997 largely eliminated sediment transport of PCDD/Fs beyond New Cricket Spring since that time. As noted earlier, the pattern of PCDD/Fs in these downstream locations is characterized by mainly the hepta- and octa-chlorinated congeners, as was seen in the background sample that was not in a downstream path from the Site.

This screening risk assessment is based on a review of historical data, a Site inspection, and calculations using four ditch sediment samples (one from the main Site, two adjacent to the New Cricket Spring ozone treatment facility, and one downstream about half way between New Cricket Spring and the retention pond at Old Cricket Spring) and one berm sample. We utilized an approach which provides an upper bound estimate for PCDD/F exposures related to the expected accumulation of persistent chemicals in environmental sinks like the ditches. The main Site, including the natural berm area, and downstream areas adjacent to the sampled ditches, were all well-vegetated and/or rock-lined; hence, they would not be expected to be an important source for regular soil contact. More comprehensive soil sampling does not appear to be warranted given the results of this screening risk assessment for the ditch sediment and berm PCDD/Fs. Also, it is likely that continued operation of the ozone treatment plant will prevent future sediment transport beyond New Cricket Spring due to the presence of inline filters preceding the ozone treatment cells. PCDD/Fs adhered to soil or ash transported through the Karst formation will be trapped by these filters rather than continuing to flow further downstream in the ditch system.

Conclusions

We conclude that our Site inspection, the ditch and berm sampling for PCDD/Fs, and our screening risk assessment provide a reasonable basis to conclude that the Site does not present unacceptable PCDD/F risks as determined by reference to the relevant USEPA risk assessment guidelines. It appears that continued operation and maintenance of the active (water treatment) and passive (cap/security fencing/inspection) remediation efforts should be sufficient to prevent the possible spread of any residual PCDD/F contamination and to avoid appreciable risks from these compounds in the future.

Signed,

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President and Managing Principal

References

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Figure 1: Sample Locations – Dioxin Sampling Events (9/24/2012 and 10/26/2012)

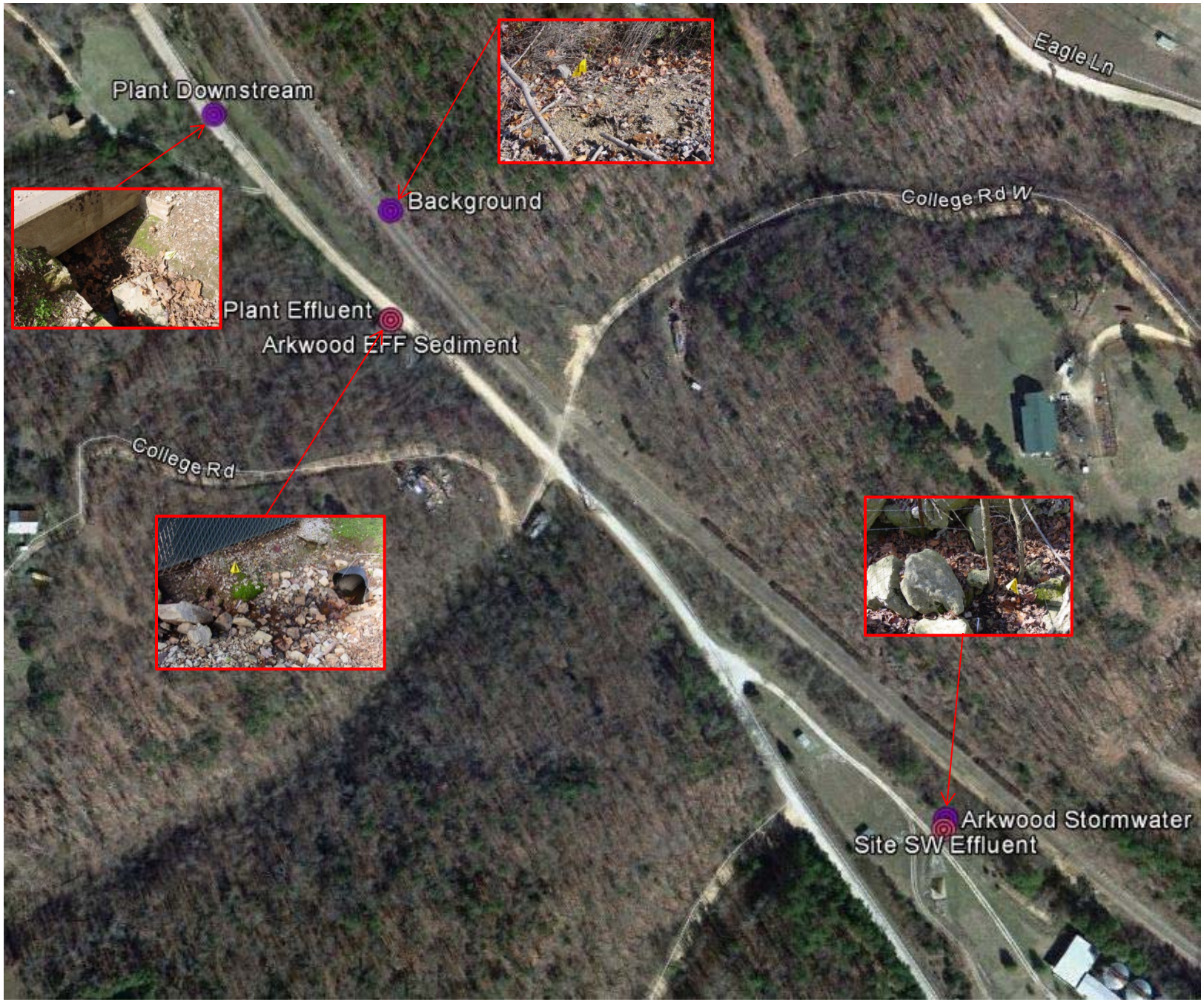

Table 1. Summary of Ditch Sediment Sampling at Arkwood, Inc. Site

Congener	Sample 1: Arkwood Stormwater (onsite ditch)	Sample 2: Site Stormwater Effluent (onsite berm ridge)	Sample 3: Arkwood Effluent Sediment (ozone plant outfall #1)	Sample 4: Ozone Plant Efluent (outfall area sample #2)	Sample 5: Ozone Plant Downstream (roadside ditch)	Sample 6: Background (railroad ditch)
	2,3,7,8-Chlorinated Congener Concentration (ppt)					
2,3,7,8-TCDD	1.17	4.1	1.69	0.83	0.699	1.13
1,2,3,7,8-PeCDD	25.9	115	23.7	12.1	12.3	6.65
1,2,3,4,7,8-HxCDD	93.3	398	75.3	43.1	44.5	14.1
1,2,3,6,7,8-HxCDD	348	1800	544	337	410	36.4
1,2,3,7,8,9-HxCDD	189	850	169	95.7	107	23.3
1,2,3,4,6,7,8-HpCDD	14200	63800	20000	14500	17400	1850
OCDD	141000	642000	192000	144000	175000	15800
2,3,7,8-TCDF	0.587	4.4	2.43	1.16	1.12	0.893
1,2,3,7,8-PeCDF	5.09	46.3	17.8	12.8	15.3	0.887
2,3,4,7,8-PeCDF	13.5	53.4	47.7	17.5	15	1.06
1,2,3,4,7,8-HxCDF	129	1040	293	225	278	8.23
1,2,3,6,7,8-HxCDF	40.4	274	68.9	50.5	64.8	5.71
2,3,4,6,7,8-HxCDF	84.6	550	133	98.6	121	10.2
1,2,3,7,8,9-HxCDF	24.9	81.9	79.2	19	24.8	0.594
1,2,3,4,6,7,8-HpCDF	1650	10200	2390	2280	2810	154
1,2,3,4,7,8,9-HpCDF	237	1570	431	350	452	16.7
OCDF	7980	44400	13800	12200	15300	644
Total 2,3,7,8-	166022	767187	230077	174243	212057	18574
Percent Hepta&Octa	99.4	99.3	99.4	99.5	99.5	99.4
Percent Tetra&Penta	0.028	0.029	0.041	0.025	0.021	0.057
Congener Series	Dioxin Toxic Equivalents (TEQ)					
TCDD	1.2	4.1	1.7	0.8	0.7	1.1
PeCDD	25.9	115.0	23.7	12.1	12.3	6.7
HxCDD	63.0	304.8	78.8	47.6	56.2	7.4
HpCDD	142.0	638.0	200.0	145.0	174.0	18.5
OCDD	42.3	192.6	57.6	43.2	52.5	4.7
TCDF	0.1	0.4	0.2	0.1	0.1	0.1
PeCDF	4.2	17.4	14.8	5.6	5.0	0.3
HxCDF	27.9	194.6	57.4	39.3	48.9	2.5
HpCDF	18.9	117.7	28.2	26.3	32.6	1.7
OCDF	2.4	13.3	4.1	3.7	4.6	0.2
Total TEQ	328	1598	467	324	387	43
Percent Hepta&Octa	62.7	60.2	62.1	67.4	68.2	58.2
Percent Tetra&Penta	9.6	8.6	8.7	5.8	4.7	19.0

Table 2. Exposure Parameters

Parameter	Description	Industrial Worker	Child Trespasser	Adult Trespasser	Reference
Ing Rate	Ingestion Rate (mg soil per day)	100	200	330	From USEPA (2009)
CF	Conversion Factor (10^{-6} kg per mg)	1.00E-06	1.00E-06	1.00E-06	From USEPA (2009)
ABSoral	Oral bioavailability	1	1	1	From USEPA (2009)
SA	Surface Area of Exposed Skin (cm^2)	3300	2800	5700	From USEPA (2009)
AF	Adherence Factor (mg per cm^2 - event)	0.2	0.2	0.07	From USEPA (2009)
EvF	Event Frequency (events per day)	1	1	1	From USEPA (2009)
ABS	Skin Absorption Factor (unitless)	0.03	0.03	0.03	From USEPA (2009)
VF	Volatilization Factor (m^3/kg)	8.40E+06	8.40E+06	8.40E+06	From USEPA (2009)
EF	Exposure Frequency (days per year)	10	5.2	5.2	Professional Judgment*
ED	Exposure Duration (years)	25	6	24	From USEPA (2009)
BW	Body Weight (kg)	70	15	70	From USEPA (2009)
Atc	Averaging Time - cancer (days)	25550	25550	25550	From USEPA (2009)
Atnc	Averaging Time - noncancer (days)	9125	2190	8760	From USEPA (2009)

Table 3: Screening Risk Assessment Calculations for NonCancer Effects: Hazard Index (HI)

Scenario	Soil Conc. (ng/kg)	Soil Conc. (mg/kg)	AADD (Oral, mg/kg-d)	AADD (Dermal, mg/kg-d)	Air Conc. (mg/m3)	Toxicity Values (mg units)			Oral HI	Dermal HI	Inhalation HI	Total HI
						Oral RfD	Dermal RfD	Inhalation RfC				
Noncancer Effects												
DIOXIN/FURANS												
Based on Highest Ditch Concentration												
Industrial Worker	467	0.00047	1.83E-11	3.62E-12	1.52E-12	7.0E-10	7.0E-10	2.5E-09	2.6E-02	5.2E-03	6.2E-04	3.2E-02
Child Trespasser	467	0.00047	8.87E-11	7.45E-12	7.92E-13	7.0E-10	7.0E-10	2.5E-09	1.3E-01	1.1E-02	3.2E-04	1.4E-01
Based on On-Site Berm Concentration												
Industrial Worker	1598	0.00160	6.25E-11	1.24E-11	5.21E-12	7.0E-10	7.0E-10	2.5E-09	8.9E-02	1.8E-02	2.1E-03	1.1E-01
Child Trespasser	1598	0.00160	3.04E-10	2.55E-11	2.71E-12	7.0E-10	7.0E-10	2.5E-09	4.3E-01	3.6E-02	1.1E-03	4.7E-01

Risk Calculations per abbreviations and parameters in Table 1: AADD oral = (Soil Conc. x Ing Rate x CF x ABS oral x EF x ED)/(BW x Atnc). AADD dermal = (Soil Conc. x CF x SA x AF x EvF x ABS x EF x ED)/(BW x Atnc). Air Conc. = (Soil Conc. x EF x ED)/(VF x Atnc). Oral HI = AADD oral/RfD. Dermal HI = AADD dermal/RfD. Inhalation HI = Air Conc./RfC. Total HI = sum of Oral HI + Dermal HI + Inhalation HI

Abbreviations: AADD (annual average daily dose); RfD (reference dose); RfC (reference concentration); HI (hazard index)

Inhalation RfC derived from RfD by multiplying by (70 kg/20 m^3/d); RfD from IRIS (2012).

Table 4: Screening Risk Assessment Calculations for Cancer Effects: Incremental Lifetime Cancer Risk

Chemical/ Scenario	TEQ Soil Conc. (ng/kg)	TEQ Soil Conc. (mg/kg)	LADD (Oral, mg/kg-d)	LADD (Dermal, mg/kg-d)	Air Conc. (mg/m3)	CSF (Oral)	CSF (Dermal)	URF	Oral Risk	Dermal Risk	Inhalation Risk	Incremental Lifetime Cancer Risk
DIOXIN/FURANS												
Based on Highest Ditch Concentration												
Industrial Worker	467	0.00047	6.53E-12	1.29E-12	5.44E-13	156000	156000	44571	1.0E-06	2.0E-07	2.4E-08	1.2E-06
Trespasser	467	0.00047	1.84E-11	1.03E-12	1.58E-12	156000	156000	44571	2.9E-06	1.6E-07	7.1E-08	3.1E-06
Based on On-Site Berm Concentration												
Industrial Worker	1598	0.00160	2.23E-11	4.42E-12	1.86E-12	156000	156000	44571	3.5E-06	6.9E-07	8.3E-08	4.3E-06
Trespasser	1598	0.00160	6.28E-11	3.52E-12	5.42E-12	156000	156000	44571	9.8E-06	5.5E-07	2.4E-07	1.1E-05

Risk Calculations per abbreviations and parameters in Table 1: LADD oral = (Soil Conc. x Ing Rate x CF x ABS oral x EF x ED)/(BW x Atc). LADDdermal = (Soil Conc. x CF x SA x AF x EvF x ABS x EF x ED)/(BW x Atc). Air Conc. = (Soil Conc. x EF x ED)/(VF x Atc). Oral Risk = LADD oral x CSForal.. Dermal Risk = LADD dermal x CSFdermal. Inhalation Risk = Air Conc. x URF. Incremental Lifetime Cancer Risk = sum of Oral Risk + Dermal Risk + Inhalation Risk. Trespasser scenario includes 6 years as childhood exposure and 14 years as adult exposure for a total duration of 30 years.

Abbreviations: TEQ (dioxin toxic equivalents); LADD (lifetime average daily dose); CSF (cancer slope factor for 2,3,7,8-tetrachlorodibenzo-p-dioxin); URF (unit risk factor for dioxin)

Inhalation URF derived from CSF by multiplying by (20 m3/d/70 kg)

CSF from USEPA (2009) [interim dioxin PRG guidance]

Appendix A

ChemRisk 11/19/2012 Site Visit
Photographic Narrative at Arkwood,
Inc. Site in Omaha, AR

Offsite photo from Cricket Road looking SE towards entry gate of Arkwood, Inc. site. Paved road to the right rises with steep slope along hillside (borrow pit side) that overlooks the site.

Onsite photo looking SE toward the white PVC injection points in the vicinity of the former sink hole area to the right of access road and concrete platform.

Photograph from onsite in front of concrete platform with bins, looking back NW towards entry gate and office; shows well vegetated cap with drainage ditch swales and steep sloping hillside to the left side.

Photograph from onsite in front of concrete platform with bins, looking SE toward borrow pit area. Shows gradually sloping, well vegetated cap over entire site; shows that original site was a large plateau carved out from surrounding hillsides. Forms a basin with storm water drainage being well contained onsite.

Onsite photo looking SE towards the former borrow pit hillside.

Looking E toward old Hwy 65 and upper portion of the main site.

Onsite photo looking at fence and steep sloped hillside on opposite side from borrow pit hillside.

Onsite photograph looking back NW towards bins from borrow pit hillside area; shows well vegetated cap with gradual sloping plateau.

Onsite photo looking NW towards bins and fenceline with steep sloping hillside; railroad tunnel is located beneath this hillside about 15-25 feet below current grade.

Photo looking SE toward concrete platform and bins with drainage ditch on left.

Photo of ditch adjacent to former loading dock platform, looking E towards concrete platform and bins.

Onsite photo from concrete platform looking NW towards office and front gate. Former loading dock concrete platform adjacent to fence in center of photo. Drainage ditch is to the left and follows concrete platform, passes through former ash pile excavation area, and ends at natural berm at confluence of the two ditches between access road and fenceline.

Photo of drainage ditch adjacent to former loading dock, looking NW towards office and front gate.

Onsite photo of rocky ditch area at the confluence of the two stormwater ditches, one which travels alongside the access road past former ash pile excavation site from the concrete platform and bins, and the other which travels along the opposite side (southern) of site and crosses under the road near the former vehicle decontamination pad.

Onsite Photo showing yellow flag where Arkwood Stormwater sample was collected, near one of the stormwater pipes under access road. To the left of Mr. Fleer is the rocky natural berm ridge area where the 1,598 ppt TEQ sample was collected from between and beneath rocks.

Offsite photo of ditch between Cricket Road and railroad track area outside the entry gate of Arkwood, Inc. site, looking NW.

Ozone Treatment Plant area photo looking at the concrete berm and outfall of New Cricket Spring (located about ¼-mile NW of the Site. New Cricket Spring drains the Karst formation beneath the site. A mild diesel fuel odor was noticed at New Cricket Spring on the day of inspection. Water from spring area is pumped to the ozone treatment plant via underground piping.

Photo looking down into New Cricket Spring. Mild diesel fuel odor was noted here, but no oil sheen was observed in water.

Ozone Treatment Plant photo looking at building that houses the ozone treatment system. Treated water exits the building at pipes visible near center of building, and travels below the grated platform to a roadside ditch to the right of building.

Ozone Treatment Plant building: close-up photo of the inlet pipe and outlet pipe for ozone-treated water that travels under grated platform to roadside ditch.

Ozone Treatment Plant area photo showing overflow swale between New Cricket Spring and roadside ditch at Cricket Road. Entire area is very rocky with interspersed vegetation. Cricket Road is visible on other side of fence.

Ozone Treatment Plant area photo looking NW towards roadside ditch where ozone-treated water exits beside Cricket Road. Entire area is very rocky with interspersed vegetation. Two sediment samples were collected at this ditch by relocating rocks and digging beneath to obtain sediment. A plastic corrugated pipe was laid in the former roadside ditch downstream and covered with soil and vegetation from this location to the under-road crossing point down the road about 300 feet.

Photograph of roadside ditch and ozone treatment plant building from Cricket Road in front of gate.

Photo from Cricket Road looking at end of corrugated plastic drain pipe at the point where the drainage pipe crosses under Cricket Road to the NE side of the road.

Close-up photo of ditch where pipe crosses under Cricket Road. Ditch is rocky and covered with leaf litter with interspersed vegetation.

Photo from Cricket Road looking N towards NE side of road at ditch where drainage pipe crosses under the road.

Close-up of ditch on opposite side of road from Ozone Treatment Plant where drainage pipe crosses under road. All of ditch area is rocky with some leaf litter and interspersed vegetation. This is the location where the downstream effluent sediment sample (Sample 5) was collected.

Another close-up of ditch on NE side of Cricket Road showing rocky ditch structure.

Photo from Cricket Road looking NW showing path of ditch on NE side of Cricket Road that flows toward the retention pond. The ditch areas are consistently covered with rock/gravel and leaf litter with interspersed vegetation.

Photo of retention pond at end of drainage ditch on NE side of Cricket Road about ½-mile from the Site.

Close-up photo of retention pond showing rocky bottom and wood debris, and elevated grassy bank around pond. No diesel odor or oil sheen was observed here or at any point in the drainage path after New Cricket Spring.

Photo from retention pond showing drainage pipe (Old Cricket Spring) in the hillside and rock structures to prevent erosion.

Photo of train tracks in active use from College Road crossing at Cricket Road. Background ditch sample is located on right side (NE side) of tracks approximately where the train is positioned in this picture.

Close-up photo of Background soil sample adjacent to railroad track.

Location of Background soil sample from railroad tracks looking in opposite direction (NW) from the Site.

Photo looking SE down tracks in direction of the Site.

Photo looking SE of used railroad ties stacked up beside tracks between College Road crossing and railroad tunnel entrance adjacent to Arkwood, Inc. site. Piles of railroad ties are located on both sides of tracks as one approaches the Site.

Close-up of used railroad ties stacked next to railroad tracks on opposite side of the tracks from the Arkwood, Inc. Site.

Photo looking SE down tracks toward railroad tunnel with Arkwood, Inc. Site to the right side.

Photo from tracks looking at railroad tie piles adjacent to Site. Hillside behind the ties shows Site fenceline at top and glimpse of office building onsite at center right.

Photo of railroad tie piles adjacent to Site looking toward the concrete platform and bins onsite.

Used railroad ties on NE side of the tracks.

Photo looking NW of railroad tie piles adjacent to Site in relatively flat area before railroad tunnel.

Photo of area between Site hillside and piles of railroad ties, looking SE toward railroad tunnel.

Photo looking SE of hillside where natural berm area may drain from the Site in high stormwater events. Hillside is rocky and vegetated.

Photo looking SE of ditch between railroad tracks and hillside where natural berm may overflow during high rain events. The ditch and adjacent railroad foundation are relatively flat in this location.

Looking SE towards railroad tunnel; the Site is located to the right of the photo.

Photo from tracks looking S towards Site. Vegetated area in foreground is former excavated railroad ditch area. Some garbage dumping from local residents is apparent in center of photo.

Photo looking SE showing railroad tunnel and hillside of Site with bins. Vegetated area at right bottom is former excavated railroad ditch area.

Photo looking NW down the tracks in opposite direction from railroad tunnel; Site is on the left.

Photo from tracks looking W in opposite direction from railroad tunnel; showing former excavated railroad ditch area and hillside of Site. Concrete platform roof onsite is visible in upper left corner.

Appendix B- Vista Lab Reports

Vista
Analytical Laboratory

October 10, 2012

Vista Project I.D.: 34019

Mr. James Fleer
Oxford Environmental and Safety Inc.
14348 Nieman Road
Overland Park, KS 66221

Dear Mr. Fleer,

Enclosed are the results for the two sediment samples received at Vista Analytical Laboratory on September 25, 2012 under your Project Name "MCK-O&M 10005". These samples were extracted and analyzed using EPA Method 1613 for tetra- through octa-chlorinated dioxins and furans. A standard turnaround time was provided for this work.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at calvin@vista-analytical.com.
Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Calvin Tanaka
Senior Scientist

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAC for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista Analytical Laboratory.

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Section I: Sample Inventory Report

Date Received: **9/25/2012**

Vista Lab. ID	Client Sample ID
34019-001	Arkwood EFF Sediment
34019-002	Arkwood Stormwater

Method Blank **EPA Method 1613**

Matrix:	Sediment	QC Batch No.:	4728	Lab Sample:	0-MB001
Sample Size:	10.0 g	Date Extracted:	1-Oct-12	Date Analyzed DB-5:	4-Oct-12
				Date Analyzed DB-225:	NA

Analyte	Conc. (pg/g)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	ND	0.0621		
1,2,3,7,8-PeCDD	ND	0.0527		
1,2,3,4,7,8-HxCDD	ND	0.0695		
1,2,3,6,7,8-HxCDD	ND	0.0784		
1,2,3,7,8,9-HxCDD	ND	0.0853		
1,2,3,4,6,7,8-HpCDD	ND	0.0981		
OCDD	ND		0.245	
2,3,7,8-TCDF	ND	0.0762		
1,2,3,7,8-PeCDF	ND	0.0457		
2,3,4,7,8-PeCDF	ND	0.0484		
1,2,3,4,7,8-HxCDF	ND	0.0310		
1,2,3,6,7,8-HxCDF	ND	0.0290		
2,3,4,6,7,8-HxCDF	ND	0.0354		
1,2,3,7,8,9-HxCDF	ND	0.0459		
1,2,3,4,6,7,8-HpCDF	ND	0.0381		
1,2,3,4,7,8,9-HpCDF	ND	0.0527		
OCDF	ND		0.104	

	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	92.4	25 - 164	
	13C-1,2,3,7,8-PeCDD	91.9	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	79.0	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	80.5	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	77.3	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	75.2	23 - 140	
	13C-OCDD	66.2	17 - 157	
	13C-2,3,7,8-TCDF	90.7	24 - 169	
	13C-1,2,3,7,8-PeCDF	92.0	24 - 185	
	13C-2,3,4,7,8-PeCDF	97.4	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	85.5	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	88.3	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	86.9	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	85.7	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	84.1	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	82.6	26 - 138	
	13C-OCDF	70.6	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	92.4	35 - 197	

Totals		
Total TCDD	ND	0.0621
Total PeCDD	ND	0.0527
Total HxCDD	ND	0.0853
Total HpCDD	ND	0.0981
Total TCDF	ND	0.0762
Total PeCDF	ND	0.0484
Total HxCDF	ND	0.0459
Total HpCDF	ND	0.0527

Toxic Equivalent Quotient (TEQ) Data [e]

TEQ (Min): 0

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: FEB

Approved By: Calvin Tanaka 10-Oct-2012 13:48

OPR Results **EPA Method 1613**

Matrix:	Sediment	QC Batch No.:	4728	Lab Sample:	0-OPR001
Sample Size:	10.0 g	Date Extracted:	1-Oct-12	Date Analyzed DB-5:	4-Oct-12
				Date Analyzed DB-225:	NA

Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits		Labeled Standard	%R	LCL-UCL	Qualifier
2,3,7,8-TCDD	10.0	10.0	6.7 - 15.8	**IS**	13C-2,3,7,8-TCDD	93.1	20 - 175	
1,2,3,7,8-PeCDD	50.0	53.7	35 - 71		13C-1,2,3,7,8-PeCDD	94.2	21 - 227	
1,2,3,4,7,8-HxCDD	50.0	54.6	35 - 82		13C-1,2,3,4,7,8-HxCDD	80.9	21 - 193	
1,2,3,6,7,8-HxCDD	50.0	54.3	38 - 67		13C-1,2,3,6,7,8-HxCDD	83.6	25 - 163	
1,2,3,7,8,9-HxCDD	50.0	54.2	32 - 81		13C-1,2,3,7,8,9-HxCDD	80.8	21 - 193	
1,2,3,4,6,7,8-HpCDD	50.0	56.2	35 - 70		13C-1,2,3,4,6,7,8-HpCDD	78.7	26 - 166	
OCDD	100	106	78 - 144		13C-OCDD	72.3	13 - 198.5	
2,3,7,8-TCDF	10.0	11.0	7.5 - 15.8		13C-2,3,7,8-TCDF	92.7	22 - 152	
1,2,3,7,8-PeCDF	50.0	54.2	40 - 67		13C-1,2,3,7,8-PeCDF	92.6	21 - 192	
2,3,4,7,8-PeCDF	50.0	54.3	34 - 80		13C-2,3,4,7,8-PeCDF	101	13 - 328	
1,2,3,4,7,8-HxCDF	50.0	53.4	36 - 67		13C-1,2,3,4,7,8-HxCDF	88.8	19 - 202	
1,2,3,6,7,8-HxCDF	50.0	53.8	42 - 65		13C-1,2,3,6,7,8-HxCDF	88.8	21 - 159	
2,3,4,6,7,8-HxCDF	50.0	53.2	35 - 78		13C-2,3,4,6,7,8-HxCDF	89.0	22 - 176	
1,2,3,7,8,9-HxCDF	50.0	53.0	39 - 65		13C-1,2,3,7,8,9-HxCDF	89.6	17 - 205	
1,2,3,4,6,7,8-HpCDF	50.0	53.0	41 - 61		13C-1,2,3,4,6,7,8-HpCDF	87.0	21 - 158	
1,2,3,4,7,8,9-HpCDF	50.0	52.0	39 - 69		13C-1,2,3,4,7,8,9-HpCDF	87.2	20 - 186	
OCDF	100	110	63 - 170		13C-OCDF	76.4	13 - 198.5	
				CRS	37Cl-2,3,7,8-TCDD	94.4	31 - 191	

Analyst: FEB

Approved By: Calvin Tanaka 10-Oct-2012 13:48

Sample ID: **Arkwood EFF Sediment** **EPA Method 1613**

Client Data		Sample Data		Laboratory Data			
Name:	Oxford Environmental and Safety Inc.	Matrix:	Sediment	Lab Sample:	34019-001	Date Received:	25-Sep-12
Project:	MCK-O&M 10005	Sample Size:	14.2 g	QC Batch No.:	4728	Date Extracted:	1-Oct-12
Date Collected:	24-Sep-12	%Solids:	70.5	Date Analyzed DB-5:	5-Oct-12	Dates Analyzed DB-225:	6-Oct-12
Time Collected:	1432						

Analyte	Conc. (pg/g)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	1.69			
1,2,3,7,8-PeCDD	23.7			
1,2,3,4,7,8-HxCDD	75.3			
1,2,3,6,7,8-HxCDD	544			
1,2,3,7,8,9-HxCDD	169			
1,2,3,4,6,7,8-HpCDD	20000			E
OCDD	192000			D,E
2,3,7,8-TCDF	2.43			
1,2,3,7,8-PeCDF	17.8			
2,3,4,7,8-PeCDF	47.7			
1,2,3,4,7,8-HxCDF	293			
1,2,3,6,7,8-HxCDF	68.9			
2,3,4,6,7,8-HxCDF	133			
1,2,3,7,8,9-HxCDF	79.2			
1,2,3,4,6,7,8-HpCDF	2390			E
1,2,3,4,7,8,9-HpCDF	431			
OCDF	13800			E

	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	95.6	25 - 164	
	13C-1,2,3,7,8-PeCDD	89.8	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	84.9	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	85.9	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	82.7	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	109	23 - 140	
	13C-OCDD	96.9	17 - 157	D
	13C-2,3,7,8-TCDF	90.8	24 - 169	
	13C-1,2,3,7,8-PeCDF	101	24 - 185	
	13C-2,3,4,7,8-PeCDF	94.9	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	93.4	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	92.4	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	90.5	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	87.5	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	96.1	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	84.0	26 - 138	
	13C-OCDF	118	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	92.9	35 - 197	

Totals	
Total TCDD	39.6
Total PeCDD	175
Total HxCDD	2100
Total HpCDD	30200
Total TCDF	42.3
Total PeCDF	402
Total HxCDF	4710
Total HpCDF	15100

Toxic Equivalent Quotient (TEQ) Data [e]

TEQ (Min): 467

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Calvin Tanaka 10-Oct-2012 13:48

Sample ID: **Arkwood Stormwater** **EPA Method 1613**

Client Data		Sample Data		Laboratory Data			
Name:	Oxford Environmental and Safety Inc.	Matrix:	Sediment	Lab Sample:	34019-002	Date Received:	25-Sep-12
Project:	MCK-O&M 10005	Sample Size:	10.5 g	QC Batch No.:	4728	Date Extracted:	1-Oct-12
Date Collected:	24-Sep-12	%Solids:	95.1	Date Analyzed DB-5:	5-Oct-12	Dates Analyzed DB-225:	6-Oct-12
Time Collected:	1515						

Analyte	Conc. (pg/g)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	1.17			
1,2,3,7,8-PeCDD	25.9			
1,2,3,4,7,8-HxCDD	93.3			
1,2,3,6,7,8-HxCDD	348			
1,2,3,7,8,9-HxCDD	189			
1,2,3,4,6,7,8-HpCDD	14200			E
OCDD	141000			D,E
2,3,7,8-TCDF	0.587			
1,2,3,7,8-PeCDF	5.09			
2,3,4,7,8-PeCDF	13.5			
1,2,3,4,7,8-HxCDF	129			
1,2,3,6,7,8-HxCDF	40.4			
2,3,4,6,7,8-HxCDF	84.6			
1,2,3,7,8,9-HxCDF	24.9			
1,2,3,4,6,7,8-HpCDF	1650			
1,2,3,4,7,8,9-HpCDF	237			
OCDF	7980			E

	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	98.5	25 - 164	
	13C-1,2,3,7,8-PeCDD	91.9	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	87.9	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	86.2	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	83.8	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	106	23 - 140	
	13C-OCDD	94.0	17 - 157	D
	13C-2,3,7,8-TCDF	92.8	24 - 169	
	13C-1,2,3,7,8-PeCDF	105	24 - 185	
	13C-2,3,4,7,8-PeCDF	98.7	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	96.3	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	97.1	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	94.6	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	89.9	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	95.0	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	85.3	26 - 138	
	13C-OCDF	111	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	94.3	35 - 197	

Totals	
Total TCDD	16.5
Total PeCDD	134
Total HxCDD	1630
Total HpCDD	21100
Total TCDF	24.9
Total PeCDF	249
Total HxCDF	2340
Total HpCDF	7580

Toxic Equivalent Quotient (TEQ) Data [e]

TEQ (Min): 328

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Calvin Tanaka 10-Oct-2012 13:48

DATA QUALIFIERS & ABBREVIATIONS

B	**This compound was also detected in the method blank.**
D	**Dilution**
E	**The amount detected is above the High Calibration Limit.**
P	**The amount reported is the maximum possible concentration due to possible chlorinated diphenylether interference.**
H	**Recovery was outside laboratory acceptance limits.**
I	**Chemical Interference**
J	**The amount detected is below the Low Calibration Limit.**
*****	**See Cover Letter**
Conc.	**Concentration**
DL	**Sample-specific estimated detection limit**
MDL	**The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero in the matrix tested.**
EMPC	**Estimated Maximum Possible Concentration**
NA	**Not applicable**
RL	**Reporting Limit – concentrations that correspond to low calibration point**
ND	**Not Detected**
TEQ	**Toxic Equivalency**

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

CERTIFICATIONS

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	CA00413
Alabama Dept of Environmental Management	41610
Arizona Department Of Health Services	AZ0639
Arkansas Dept of Environmental Quality	11-035-0
California Dept of Health – NELAP	02102CA
Colorado Dept of Public Health & Environment	N/A
Connecticut Dept of Public Health	PH-0182
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Dept of Health	E87777
Indiana Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Louisiana Department of Health and Hospitals	LA110017
Maine Department of Health	2010021
Michigan Department of Natural Resources	9932
Mississippi Department of Health	N/A
Nevada Division of Environmental Protection	CA004132011-1
New Jersey Dept of Environmental Protection	CA003
New York Department of Health	11411
North Carolina Dept of Health & Human Services	06700
North Dakota Dept of Health	R-078
Oklahoma Dept of Environmental Quality	2011-120
Oregon Laboratory Accreditation Program	CA200001
Pennsylvania Dept of Environmental Protection	68-00490
South Carolina Dept of Health	87002001
Tennessee Dept of Environment and Conservation	TN02996
Texas Commission on Environmental Quality	T104704189-11-2
Utah Dept of Health	CA16400
Virginia Dept of General Services	00013
Washington Department of Ecology	C584
Wisconsin Dept of Natural Resources	998036160

Vista

CHAIN OF CUSTODY

FOR LABORATORY USE ONLY
Laboratory Project ID: 34019
Storage ID: WR-8
Storage Secured: Yes ☑ No ☐
Temp 0.4 °C

TAT: (Check One):
Standard: ☒ 21 Days
Rush (surcharge may apply):
○ 14 days ○ 7 days Specify:___

Project I.D.: MCK-OTM-10005 P.O.#_____ Sampler: James Fleer (Name)

Invoice to: Name: Oxford Enviand Safety Inc Company: 14348 Nieman Rd Address: Overland Park City: Kansas State: 66221 Zip: Ph# ~~913 651~~ Fax# 913 706-3422

Relinquished by: (Signature and Printed Name) James Fleer Date: 9/24/2012 Time: 4:30 Received by: (Signature and Printed Name) Bettina Benedict B. Benedict Date: 9/25/12 Time: 1000

Relinquished by: (Signature and Printed Name) Date: Time: Received by: (Signature and Printed Name) Date: Time:

See "Sample Log-in Checklist" for additional sample information

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 • Fax (916) 673-0106

ATTN: Martha Maier

Method of Shipment: _____

Tracking No.: _____

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	EPA1613 2378-TCDD	EPA1613 2378-TCDD/TCDF	EPA1613 PCDD/PCDF	EPA8290 2378-TCDD	EPA8290 2378-TCDD/TCDF	EPA8290 PCDD/PCDF	EPA8280 2378-TCDD	EPA8280 2378-TCDD/TCDF	EPA8280 PCDD/PCDF	EPA1668 TOTALS	EPA1668 COPLANAR PCB's	EPA1668 209 CONGENERS	EPA1614 PBDE	CARB429 PAH	CARB429 WHO-29
Arkwood Eff Sediment	9/24	2:32	Effluent Channel Sediment	1	G	SD			X												
Arkwood Stormwater	9/24	3:15	Stormwater Ditch	1	G	SD			X												

Special Instructions/Comments:_____

SEND DOCUMENTATION AND RESULTS TO:

Name: James Fleer
Company: Oxford Env. & Safety Inc
Address: 14348 Nieman Rd
City: Overland Park State: Ks Zip: 66221
Phone: 913 706-3422 Fax: —
Email: jfleer@oxfordeands.com

Container Types: A = 1 Liter Amber, G = Glass Jar
P = PUF, T = MM5 Train, O= Other_____

*Bottle Preservative Type: T = Thiosulfate,
O = Other_____

Matrix Types: DW = Drinking Water, EF = Effluent, PP = Pulp/Paper,
SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum
AQ = Aqueous, O = Other_____

WHITE - ORIGINAL YELLOW - ARCHIVE PINK - COPY

SAMPLE LOG-IN CHECKLIST

Vista Analytical Laboratory

Vista Project #: 34019 **TAT** Std

Samples Arrival:	**Date/Time** 9/25/12 0941	**Initials:** UBLB	**Location:** WR-2 **Shelf/Rack:** N/A
Logged In:	**Date/Time** 9/25/12 1258	**Initials:** UBLB	**Location:** WR-2 **Shelf/Rack:** F4

Delivered By:	FedEx	UPS	On Trac	DHL	Hand Delivered	Other
Preservation:	Ice	Blue Ice	Dry Ice	None		
Temp °C 0.4 °C	**Time:** 0959		**Thermometer ID:** IR-1			

		YES	NO	NA
Adequate Sample Volume Received?		✓		
Holding Time Acceptable?		✓		
Shipping Container(s) Intact?		✓		
Shipping Custody Seals Intact?		✓		
Shipping Documentation Present?		✓		
Airbill	Trk # 1Z071 59W0102956052	✓		
Sample Container Intact?		✓		
Sample Custody Seals Intact?				✓
Chain of Custody / Sample Documentation Present?		✓		
COC Anomaly/Sample Acceptance Form completed?			✓	
If Chlorinated or Drinking Water Samples, Acceptable Preservation?				✓

$Na_2S_2O_3$ Preservation Documented? N/A	COC	Sample Container	None		
Shipping Container	Vista	Client	Retain	Return	Dispose

Comments:

Sample Login 3/2007 rmh

Vista
Analytical Laboratory

November 08, 2012

Vista Project I.D.: 34095

Mr. James Fleer
Oxford Environmental and Safety Inc.
14348 Nieman Road
Overland Park, KS 66221

Dear Mr. Fleer,

Enclosed are the results for the four sediment samples received at Vista Analytical Laboratory on October 27, 2012 under your Project Name "MCK-O&M 10005". These samples were extracted and analyzed using EPA Method 1613 for tetra- through octa-chlorinated dioxins and furans. A rush turnaround time was provided for this work.

The concentrations of 2,3,4,7,8-PeCDF and 1,2,3,7,8,9-HxCDF for all sediment samples may be biased high and should be considered as estimated due to a possible co-eluting furan isomer that could not be resolved using the DB-5 GC column.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at calvin@vista-analytical.com.
Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Calvin Tanaka
Senior Scientist

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAC for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista Analytical Laboratory.

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Section I: Sample Inventory Report

Date Received: **10/27/2012**

Vista Lab. ID	Client Sample ID
34095-001	Site SW Effluent
34095-002	Background
34095-003	Plant Effluent
34095-004	Plant Downstream

ANALYTICAL RESULTS

Method Blank **EPA Method 1613**

Matrix:	Sediment	QC Batch No.:	4808	Lab Sample:	0-MB001
Sample Size:	10.0 g	Date Extracted:	30-Oct-12	Date Analyzed DB-5:	2-Nov-12
				Date Analyzed DB-225:	NA

Analyte	Conc. (pg/g)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	ND	0.131		
1,2,3,7,8-PeCDD	ND	0.0881		
1,2,3,4,7,8-HxCDD	ND	0.103		
1,2,3,6,7,8-HxCDD	ND	0.116		
1,2,3,7,8,9-HxCDD	ND	0.111		
1,2,3,4,6,7,8-HpCDD	ND	0.170		
OCDD	ND	0.303		
2,3,7,8-TCDF	ND	0.0619		
1,2,3,7,8-PeCDF	ND	0.0971		
2,3,4,7,8-PeCDF	ND	0.0967		
1,2,3,4,7,8-HxCDF	ND	0.0595		
1,2,3,6,7,8-HxCDF	ND	0.0558		
2,3,4,6,7,8-HxCDF	ND	0.0670		
1,2,3,7,8,9-HxCDF	ND	0.0833		
1,2,3,4,6,7,8-HpCDF	ND	0.0769		
1,2,3,4,7,8,9-HpCDF	ND	0.0915		
OCDF	ND	0.129		

	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	92.0	25 - 164	
	13C-1,2,3,7,8-PeCDD	86.0	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	80.2	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	78.8	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	79.1	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	72.0	23 - 140	
	13C-OCDD	73.0	17 - 157	
	13C-2,3,7,8-TCDF	79.3	24 - 169	
	13C-1,2,3,7,8-PeCDF	96.3	24 - 185	
	13C-2,3,4,7,8-PeCDF	95.2	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	79.9	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	79.4	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	77.5	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	83.0	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	72.7	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	81.2	26 - 138	
	13C-OCDF	70.7	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	95.5	35 - 197	

Totals		
Total TCDD	ND	0.131
Total PeCDD	ND	0.191
Total HxCDD	ND	0.110
Total HpCDD	ND	0.271
Total TCDF	ND	0.0619
Total PeCDF	ND	0.0969
Total HxCDF	ND	0.0658
Total HpCDF	ND	0.0828

Toxic Equivalent Quotient (TEQ) Data [e]

TEQ (Min): 0

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Calvin Tanaka 08-Nov-2012 09:51

OPR Results **EPA Method 1613**

Matrix:	Sediment	QC Batch No.:	4808	Lab Sample:	0-OPR001
Sample Size:	10.0 g	Date Extracted:	30-Oct-12	Date Analyzed DB-5:	2-Nov-12
				Date Analyzed DB-225:	NA

Analyte	Spike Conc.	Conc. (ng/mL)	OPR Limits		Labeled Standard	%R	LCL-UCL	Qualifier
2,3,7,8-TCDD	10.0	9.55	6.7 - 15.8	**IS**	13C-2,3,7,8-TCDD	92.0	20 - 175	
1,2,3,7,8-PeCDD	50.0	55.6	35 - 71		13C-1,2,3,7,8-PeCDD	85.8	21 - 227	
1,2,3,4,7,8-HxCDD	50.0	49.2	35 - 82		13C-1,2,3,4,7,8-HxCDD	95.5	21 - 193	
1,2,3,6,7,8-HxCDD	50.0	51.8	38 - 67		13C-1,2,3,6,7,8-HxCDD	92.2	25 - 163	
1,2,3,7,8,9-HxCDD	50.0	51.0	32 - 81		13C-1,2,3,7,8,9-HxCDD	90.9	21 - 193	
1,2,3,4,6,7,8-HpCDD	50.0	52.9	35 - 70		13C-1,2,3,4,6,7,8-HpCDD	84.3	26 - 166	
OCDD	100	102	78 - 144		13C-OCDD	86.6	13 - 198.5	
2,3,7,8-TCDF	10.0	10.3	7.5 - 15.8		13C-2,3,7,8-TCDF	88.4	22 - 152	
1,2,3,7,8-PeCDF	50.0	60.8	40 - 67		13C-1,2,3,7,8-PeCDF	98.3	21 - 192	
2,3,4,7,8-PeCDF	50.0	59.4	34 - 80		13C-2,3,4,7,8-PeCDF	101	13 - 328	
1,2,3,4,7,8-HxCDF	50.0	54.7	36 - 67		13C-1,2,3,4,7,8-HxCDF	92.6	19 - 202	
1,2,3,6,7,8-HxCDF	50.0	55.7	42 - 65		13C-1,2,3,6,7,8-HxCDF	88.9	21 - 159	
2,3,4,6,7,8-HxCDF	50.0	55.3	35 - 78		13C-2,3,4,6,7,8-HxCDF	88.7	22 - 176	
1,2,3,7,8,9-HxCDF	50.0	55.0	39 - 65		13C-1,2,3,7,8,9-HxCDF	95.8	17 - 205	
1,2,3,4,6,7,8-HpCDF	50.0	53.1	41 - 61		13C-1,2,3,4,6,7,8-HpCDF	85.8	21 - 158	
1,2,3,4,7,8,9-HpCDF	50.0	54.8	39 - 69		13C-1,2,3,4,7,8,9-HpCDF	90.0	20 - 186	
OCDF	100	112	63 - 170		13C-OCDF	83.2	13 - 198.5	
				CRS	37Cl-2,3,7,8-TCDD	93.2	31 - 191	

Analyst: MAS

Approved By: Calvin Tanaka 08-Nov-2012 09:51

Sample ID: **Site SW Effluent** **EPA Method 1613**

Client Data		Sample Data		Laboratory Data			
Name:	Oxford Environmental and Safety Inc.	Matrix:	Sediment	Lab Sample:	34095-001	Date Received:	27-Oct-12
Project:	MCK-O&M 10005	Sample Size:	11.6 g	QC Batch No.:	4808	Date Extracted:	30-Oct-12
Date Collected:	26-Oct-12	%Solids:	87.2	Date Analyzed DB-5:	2-Nov-12	Dates Analyzed DB-225:	6-Nov-12
Time Collected:	1220						

Analyte	Conc. (pg/g)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	4.10			
1,2,3,7,8-PeCDD	115			
1,2,3,4,7,8-HxCDD	398			
1,2,3,6,7,8-HxCDD	1800			
1,2,3,7,8,9-HxCDD	850			
1,2,3,4,6,7,8-HpCDD	63800			E
OCDD	642000			E,D
2,3,7,8-TCDF	4.40			
1,2,3,7,8-PeCDF	46.3			
2,3,4,7,8-PeCDF	53.4			
1,2,3,4,7,8-HxCDF	1040			
1,2,3,6,7,8-HxCDF	274			
2,3,4,6,7,8-HxCDF	550			
1,2,3,7,8,9-HxCDF	81.9			
1,2,3,4,6,7,8-HpCDF	10200			E
1,2,3,4,7,8,9-HpCDF	1570			
OCDF	44400			E

	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	83.3	25 - 164	
	13C-1,2,3,7,8-PeCDD	73.5	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	80.4	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	80.7	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	79.2	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	90.3	23 - 140	
	13C-OCDD	74.4	17 - 157	D
	13C-2,3,7,8-TCDF	84.3	24 - 169	
	13C-1,2,3,7,8-PeCDF	95.8	24 - 185	
	13C-2,3,4,7,8-PeCDF	94.4	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	88.2	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	81.9	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	79.6	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	86.2	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	93.6	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	91.2	26 - 138	
	13C-OCDF	97.6	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	86.5	35 - 197	

Totals	
Total TCDD	64.5
Total PeCDD	438
Total HxCDD	6600
Total HpCDD	98100
Total TCDF	69.9
Total PeCDF	1210
Total HxCDF	15600
Total HpCDF	49400

Toxic Equivalent Quotient (TEQ) Data [e]

TEQ (Min): 1600

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Calvin Tanaka 08-Nov-2012 09:51

Sample ID: **Background** **EPA Method 1613**

Client Data		Sample Data		Laboratory Data			
Name:	Oxford Environmental and Safety Inc.	Matrix:	Sediment	Lab Sample:	34095-002	Date Received:	27-Oct-12
Project:	MCK-O&M 10005	Sample Size:	10.9 g	QC Batch No.:	4808	Date Extracted:	30-Oct-12
Date Collected:	26-Oct-12	%Solids:	92.6	Date Analyzed DB-5:	2-Nov-12	Dates Analyzed DB-225:	6-Nov-12
Time Collected:	1150						

Analyte	Conc. (pg/g)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	1.13			
1,2,3,7,8-PeCDD	6.65			
1,2,3,4,7,8-HxCDD	14.1			
1,2,3,6,7,8-HxCDD	36.4			
1,2,3,7,8,9-HxCDD	23.3			
1,2,3,4,6,7,8-HpCDD	1850			
OCDD	15800			E
2,3,7,8-TCDF	0.893			
1,2,3,7,8-PeCDF	0.887			J
2,3,4,7,8-PeCDF	1.06			J
1,2,3,4,7,8-HxCDF	8.23			
1,2,3,6,7,8-HxCDF	5.71			
2,3,4,6,7,8-HxCDF	10.2			
1,2,3,7,8,9-HxCDF	0.594			J
1,2,3,4,6,7,8-HpCDF	154			
1,2,3,4,7,8,9-HpCDF	16.7			
OCDF	644			

	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	87.3	25 - 164	
	13C-1,2,3,7,8-PeCDD	83.6	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	73.1	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	69.3	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	70.8	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	73.7	23 - 140	
	13C-OCDD	97.0	17 - 157	
	13C-2,3,7,8-TCDF	80.3	24 - 169	
	13C-1,2,3,7,8-PeCDF	101	24 - 185	
	13C-2,3,4,7,8-PeCDF	98.9	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	76.7	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	73.1	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	71.6	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	75.2	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	67.9	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	79.5	26 - 138	
	13C-OCDF	67.4	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	86.8	35 - 197	

Totals		
Total TCDD	19.1	20.0
Total PeCDD	49.6	
Total HxCDD	632	
Total HpCDD	9580	
Total TCDF	21.2	21.3
Total PeCDF	55.1	
Total HxCDF	217	
Total HpCDF	664	

Toxic Equivalent Quotient (TEQ) Data [e]

TEQ (Min): 43.2

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Calvin Tanaka 08-Nov-2012 09:51

Sample ID: **Plant Effluent** **EPA Method 1613**

Client Data		Sample Data		Laboratory Data			
Name:	Oxford Environmental and Safety Inc.	Matrix:	Sediment	Lab Sample:	34095-003	Date Received:	27-Oct-12
Project:	MCK-O&M 10005	Sample Size:	13.2 g	QC Batch No.:	4808	Date Extracted:	30-Oct-12
Date Collected:	26-Oct-12	%Solids:	79.1	Date Analyzed DB-5:	2-Nov-12	Dates Analyzed DB-225:	6-Nov-12
Time Collected:	1125						

Analyte	Conc. (pg/g)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	0.830			
1,2,3,7,8-PeCDD	12.1			
1,2,3,4,7,8-HxCDD	43.1			
1,2,3,6,7,8-HxCDD	337			
1,2,3,7,8,9-HxCDD	95.7			
1,2,3,4,6,7,8-HpCDD	14500			E
OCDD	144000			E,D
2,3,7,8-TCDF	1.16			
1,2,3,7,8-PeCDF	12.8			
2,3,4,7,8-PeCDF	17.5			
1,2,3,4,7,8-HxCDF	225			
1,2,3,6,7,8-HxCDF	50.5			
2,3,4,6,7,8-HxCDF	98.6			
1,2,3,7,8,9-HxCDF	19.0			
1,2,3,4,6,7,8-HpCDF	2280			E
1,2,3,4,7,8,9-HpCDF	350			
OCDF	12200			E

	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	93.8	25 - 164	
	13C-1,2,3,7,8-PeCDD	88.2	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	77.4	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	76.2	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	74.2	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	103	23 - 140	
	13C-OCDD	130	17 - 157	D
	13C-2,3,7,8-TCDF	87.0	24 - 169	
	13C-1,2,3,7,8-PeCDF	116	24 - 185	
	13C-2,3,4,7,8-PeCDF	106	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	86.8	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	75.1	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	75.7	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	78.2	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	84.1	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	82.5	26 - 138	
	13C-OCDF	110	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	95.0	35 - 197	

Totals		
Total TCDD	17.7	
Total PeCDD	93.9	
Total HxCDD	1160	
Total HpCDD	20800	
Total TCDF	22.5	23.0
Total PeCDF	222	222
Total HxCDF	3290	
Total HpCDF	13500	

Toxic Equivalent Quotient (TEQ) Data [e]

TEQ (Min): 324

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Calvin Tanaka 08-Nov-2012 09:51

Sample ID: **Plant Downstream** **EPA Method 1613**

Client Data		Sample Data		Laboratory Data			
Name:	Oxford Environmental and Safety Inc.	Matrix:	Sediment	Lab Sample:	34095-004	Date Received:	27-Oct-12
Project:	MCK-O&M 10005	Sample Size:	12.1 g	QC Batch No.:	4808	Date Extracted:	30-Oct-12
Date Collected:	26-Oct-12	%Solids:	84.8	Date Analyzed DB-5:	2-Nov-12	Dates Analyzed DB-225:	6-Nov-12
Time Collected:	1115						

Analyte	Conc. (pg/g)	DL [a]	EMPC [b]	Qualifiers
2,3,7,8-TCDD	0.699			
1,2,3,7,8-PeCDD	12.3			
1,2,3,4,7,8-HxCDD	44.5			
1,2,3,6,7,8-HxCDD	410			
1,2,3,7,8,9-HxCDD	107			
1,2,3,4,6,7,8-HpCDD	17400			E
OCDD	175000			E,D
2,3,7,8-TCDF	1.12			
1,2,3,7,8-PeCDF	15.3			
2,3,4,7,8-PeCDF	15.0			
1,2,3,4,7,8-HxCDF	278			
1,2,3,6,7,8-HxCDF	64.8			
2,3,4,6,7,8-HxCDF	121			
1,2,3,7,8,9-HxCDF	24.8			
1,2,3,4,6,7,8-HpCDF	2810			E
1,2,3,4,7,8,9-HpCDF	452			
OCDF	15300			E

	Labeled Standard	%R	LCL-UCL [d]	Qualifiers
IS	13C-2,3,7,8-TCDD	94.2	25 - 164	
	13C-1,2,3,7,8-PeCDD	96.2	25 - 181	
	13C-1,2,3,4,7,8-HxCDD	78.7	32 - 141	
	13C-1,2,3,6,7,8-HxCDD	78.2	28 - 130	
	13C-1,2,3,7,8,9-HxCDD	74.3	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	114	23 - 140	
	13C-OCDD	135	17 - 157	D
	13C-2,3,7,8-TCDF	87.7	24 - 169	
	13C-1,2,3,7,8-PeCDF	117	24 - 185	
	13C-2,3,4,7,8-PeCDF	113	21 - 178	
	13C-1,2,3,4,7,8-HxCDF	84.0	26 - 152	
	13C-1,2,3,6,7,8-HxCDF	77.8	26 - 123	
	13C-2,3,4,6,7,8-HxCDF	76.1	28 - 136	
	13C-1,2,3,7,8,9-HxCDF	80.3	29 - 147	
	13C-1,2,3,4,6,7,8-HpCDF	88.5	28 - 143	
	13C-1,2,3,4,7,8,9-HpCDF	86.6	26 - 138	
	13C-OCDF	123	17 - 157	
CRS	37Cl-2,3,7,8-TCDD	96.0	35 - 197	

Totals		
Total TCDD	11.0	11.9
Total PeCDD	94.1	
Total HxCDD	1370	
Total HpCDD	24700	
Total TCDF	17.5	17.6
Total PeCDF	284	
Total HxCDF	4180	
Total HpCDF	17100	

Toxic Equivalent Quotient (TEQ) Data [e]

TEQ (Min): **387**

a. Sample specific estimated detection limit.

b. Estimated maximum possible concentration.

c. Method detection limit.

d. Lower control limit - upper control limit.

e. TEQ based on (2005) World Health Organization Toxic Equivalent Factors.(WHO)

The results are reported in dry weight. The sample size is reported in wet weight.

Analyst: MAS

Approved By: Calvin Tanaka 08-Nov-2012 09:51

DATA QUALIFIERS & ABBREVIATIONS

B	**This compound was also detected in the method blank.**
D	**Dilution**
E	**The amount detected is above the High Calibration Limit.**
P	**The amount reported is the maximum possible concentration due to possible chlorinated diphenylether interference.**
H	**Recovery was outside laboratory acceptance limits.**
I	**Chemical Interference**
J	**The amount detected is below the Low Calibration Limit.**
*****	**See Cover Letter**
Conc.	**Concentration**
DL	**Sample-specific estimated detection limit**
MDL	**The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero in the matrix tested.**
EMPC	**Estimated Maximum Possible Concentration**
NA	**Not applicable**
RL	**Reporting Limit – concentrations that correspond to low calibration point**
ND	**Not Detected**
TEQ	**Toxic Equivalency**

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

CERTIFICATIONS

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	CA00413
Alabama Dept of Environmental Management	41610
Arizona Department Of Health Services	AZ0639
Arkansas Dept of Environmental Quality	11-035-0
California Dept of Health – NELAP	02102CA
Colorado Dept of Public Health & Environment	N/A
Connecticut Dept of Public Health	PH-0182
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Dept of Health	E87777
Indiana Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Louisiana Department of Health and Hospitals	LA110017
Maine Department of Health	2010021
Michigan Department of Natural Resources	9932
Mississippi Department of Health	N/A
Nevada Division of Environmental Protection	CA004132011-1
New Jersey Dept of Environmental Protection	CA003
New York Department of Health	11411
North Carolina Dept of Health & Human Services	06700
North Dakota Dept of Health	R-078
Oklahoma Dept of Environmental Quality	2011-120
Oregon Laboratory Accreditation Program	CA200001
Pennsylvania Dept of Environmental Protection	68-00490
South Carolina Dept of Health	87002001
Tennessee Dept of Environment and Conservation	TN02996
Texas Commission on Environmental Quality	T104704189-11-2
Utah Dept of Health	CA16400
Virginia Dept of General Services	00013
Washington Department of Ecology	C584
Wisconsin Dept of Natural Resources	998036160

Vista

CHAIN OF CUSTODY

FOR LABORATORY USE ONLY
Laboratory Project ID: 34095
Storage ID WR-2 Temp 2 °°C
Storage Secured Yes ☑ No ☐

TAT: (Check One):
Standard: ○ 21 Days
Rush (surcharge may apply):
● 14 days ○ 7 days Specify:___

Project I.D.: MCK-OTM-1000S P.O.#_____ Sampler: James Fleer (Name)

Invoice to: Name	Company	Address	City	State	Zip	Ph#	Fax#
	Oxford Environmental and Safety Inc	14348 Nieman Rd	Overland Park	Ks	66221	913 706 3422	

Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
James E Fleer	10/26/2012	13:45		10/27/12	8:36
Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:

See "Sample Log-in Checklist" for additional sample information

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 • Fax (916) 673-0106

ATTN: Martha Maier

Method of Shipment: _____

Tracking No.: _____

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	EPA1613 2378-TCDD	EPA1613 2378-TCDD/TCDF	EPA1613 PCDD/PCDF	EPA8290 2378-TCDD	EPA8290 2378-TCDD/TCDF	EPA8290 PCDD/PCDF	EPA8280 2378-TCDD	EPA8280 2378-TCDD/TCDF	EPA8280 PCDD/PCDF	EPA1668 TOTALS	EPA1668 COPLANAR PCB's	EPA1668 209 CONGENERS	EPA1614 PBDE	EPA1614 PAH	CARB429 WHO-29
SiteSW effluent	10/26	12:20	Arkwood SW Sediment	1	G	SD			X												
Background	10/26	11:50	Arkwood Background	1	G	SD			X												
Plant Effluent	10/26	11:25	Arkwood Plant discharge Point	1	G	SD			X												
Plant Downstream	10/26	11:15	Arkwood Downstream Plant	1	G	SD			X												
				EG																	

Special Instructions/Comments:_____

SEND DOCUMENTATION AND RESULTS TO:

Name: James Fleer
Company: Oxford Env. & Safety Inc
Address: 14348 Nieman Rd
City: Overland Park State: Ks Zip: 66221
Phone: 913 706 3422 Fax:_____
Email: jfleer@oxfordenvs.com

Container Types: A = 1 Liter Amber, G = Glass Jar
P = PUF, T = MM5 Train, O= Other_____

*Bottle Preservative Type: T = Thiosulfate,
O = Other_____

Matrix Types: DW = Drinking Water, EF = Effluent, PP = Pulp/Paper, SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum AQ = Aqueous, O = Other_____

WHITE - ORIGINAL YELLOW - ARCHIVE PINK - COPY

SAMPLE LOG-IN CHECKLIST

Vista Analytical Laboratory

Vista Project #: 34095 **TAT** 14

Samples Arrival:	**Date/Time** 10/27/12 8:35		**Initials:** W/2		**Location:** WR-2 **Shelf/Rack:** N/A	
Logged In:	**Date/Time** 10/29/12 0842		**Initials:** BSB		**Location:** WR-2 **Shelf/Rack:** F3	
Delivered By:	FedEx	UPS	On Trac	DHL	Hand Delivered	Other
Preservation:	Ice	Blue Ice		Dry Ice	None	
Temp °C -2	**Time:** 8:37			**Thermometer ID:** IR-1		

		YES	NO	NA
Adequate Sample Volume Received?		✓		
Holding Time Acceptable?		✓		
Shipping Container(s) Intact?		✓		
Shipping Custody Seals Intact?		✓		
Shipping Documentation Present?		✓		
Airbill	Trk # 1Z 071 59W 44 2738 8978	✓		
Sample Container Intact?		✓		
Sample Custody Seals Intact?				✓
Chain of Custody / Sample Documentation Present?		✓		
COC Anomaly/Sample Acceptance Form completed?			✓	
If Chlorinated or Drinking Water Samples, Acceptable Preservation?				✓

$Na_2S_2O_3$ Preservation Documented? N/A	COC	Sample Container	None		
Shipping Container	Vista	Client	Retain	Return	Dispose

Comments:

Sample Login 3/2007 rmh

Appendix C- McKesson May 11, 2010 letter to EPA with attachments

McKesson Corporation
One Post Street, 34th Floor
San Francisco, CA 94104
608.848.4134 Tel

Jean A. Mescher
Director, Environmental Services

McKESSON
Empowering Healthcare

VIA ELECTRONIC MAIL

May 11, 2010

Mr. Shawn Ghose, EPA Project Coordinator
Superfund AR/LA Enforcement Section (6FF-RA)
U.S. Environmental Protection Agency
1445 Ross Avenue
Dallas, Texas 75202

Subject: Dioxin and Furan Questions
Arkwood, Inc. Site
Omaha, Arkansas

Dear Mr. Ghose:

Per your recent request, please see the following information pertaining to dioxins and furans at the Arkwood Site:

1) The Arkwood, Inc. Site operated as a wood-treating facility from 1962-1984.
2) The Remedial Investigation for the site was completed in February 1990. Dioxin and furan results are discussed as follows:
    a. A total of 34 soil and three sediment samples were analyzed for chlorinated dibenzodioxins and dibenzofurans, tetra through octa isomers. The concentrations tabulated in Tables 4-6 and 4-8 represent the 2378-TCDD and TCDF equivalence totals as calculated using toxicity equivalence factors (TEFs) in accordance with EPA guidance (Bellin and Barnes, 1986). (See Draft Endangerment Assessment, Table 3-1). Dioxin concentrations were highest within surficial soils and wastes of the railroad ditch, ranging from 4.8-11 ppb in four samples. (Surficial soils defined as ranging from zero to three feet in depth.) Dioxin concentrations in surficial soils of the rest of the site including the trolley/treatment area, wood storage yard, wood chip pile and ash pile, ranged from 0.10-4.8 ppb in 13 samples. A total of 14 samples from depths of greater than three feet, representing all areas of the site, contained dioxin concentrations ranging from 0.00024-0.28 ppb. Furan concentrations were found to be less than 1 ppb regardless of sample location or depth except for a single 1.4 ppb concentration reported from AP [ash pile]-9.
3) The Feasibility Study for the site was completed in March 1990. Dioxin results are discuss as follows:
    a. Chlorinated dibenzodioxins were founds in very low concentrations in portions of the site. No tetrachlorodibenzo-p-dioxins (TCDD), including the 2,3,7,8-TCDD

isomer, are present at the site. The distribution of chlorinated dibenzodioxins correlates well with that of PCP [pentachlorophenol], so that PCP is a good indicator for these compounds.

4) The Remedial Objective for dioxin as defined by the ROD was 20 µg/kg dioxin as 2,3,7,8-TCDD (Tetrachlorodibenzo-p-dioxin) equivalents.
5) Boundary samples were collected around the excavated areas during implementation of the Remedial Action in 1994 and 1995. Dioxin concentrations in the boundary samples ranged from 1.43 µg/kg to 16.75 µg/kg 2,3,7,8-TCDD equivalents.
6) Confirmatory sampling conducted to confirm lateral and vertical excavation extent during implementation of the Remedial Action measured dioxin concentrations ranging from 0.22 µg/kg to 10.98 µg/kg 2,3,7,8-TCDD equivalents.
7) Excavations were filled with coarse material with dioxin concentrations ranging from 3.19 ug/kg to 10.24 µg/kg 2,3,7,8-TCDD equivalents.
8) The entire site (not just the excavated areas) is covered with six inches of clean top soil and vegetated. The top soil was obtained from a property in Harrison, AR associated with the expansion of the Walmart facility. The topsoil was tested and determined to be free of contamination. The site is fenced and maintained.

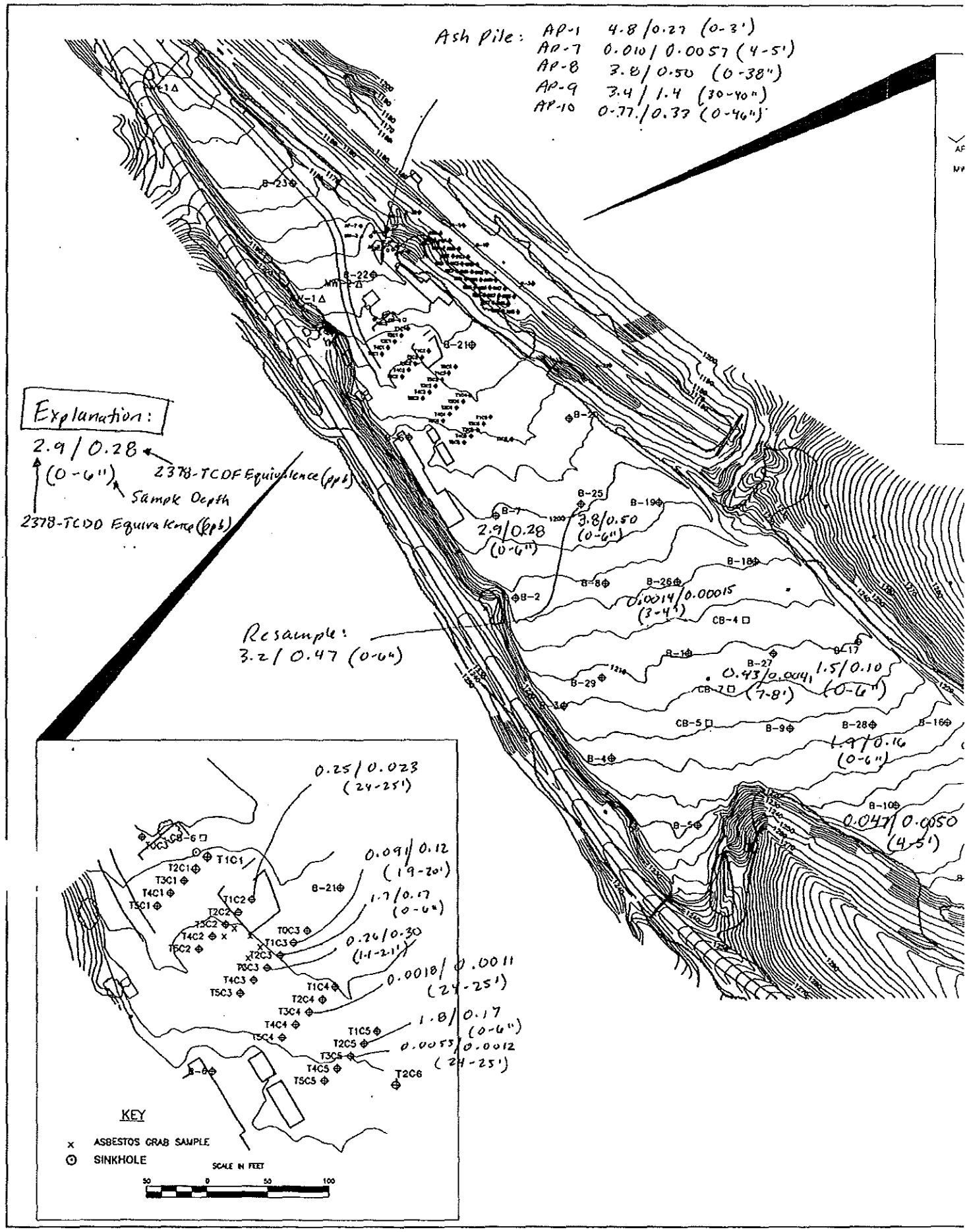
If you have any questions regarding this correspondence, please do not hesitate to contact me at (608) 848-4134.

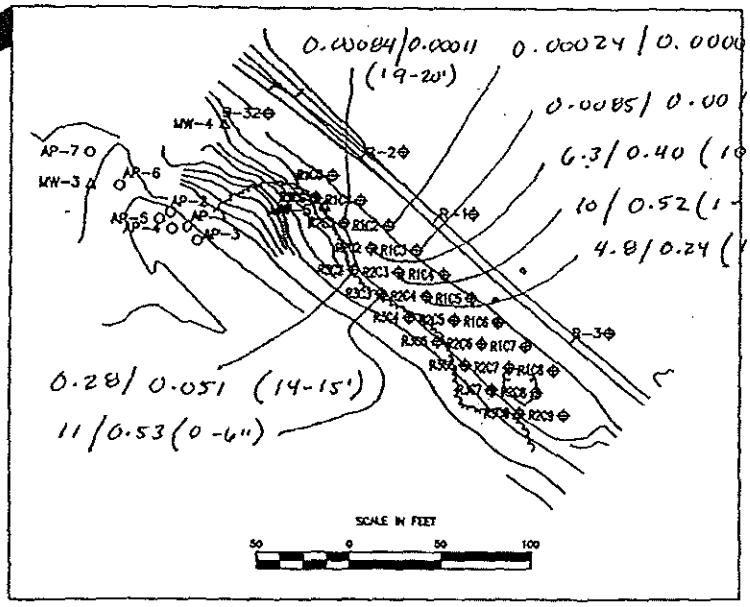
Sincerely,

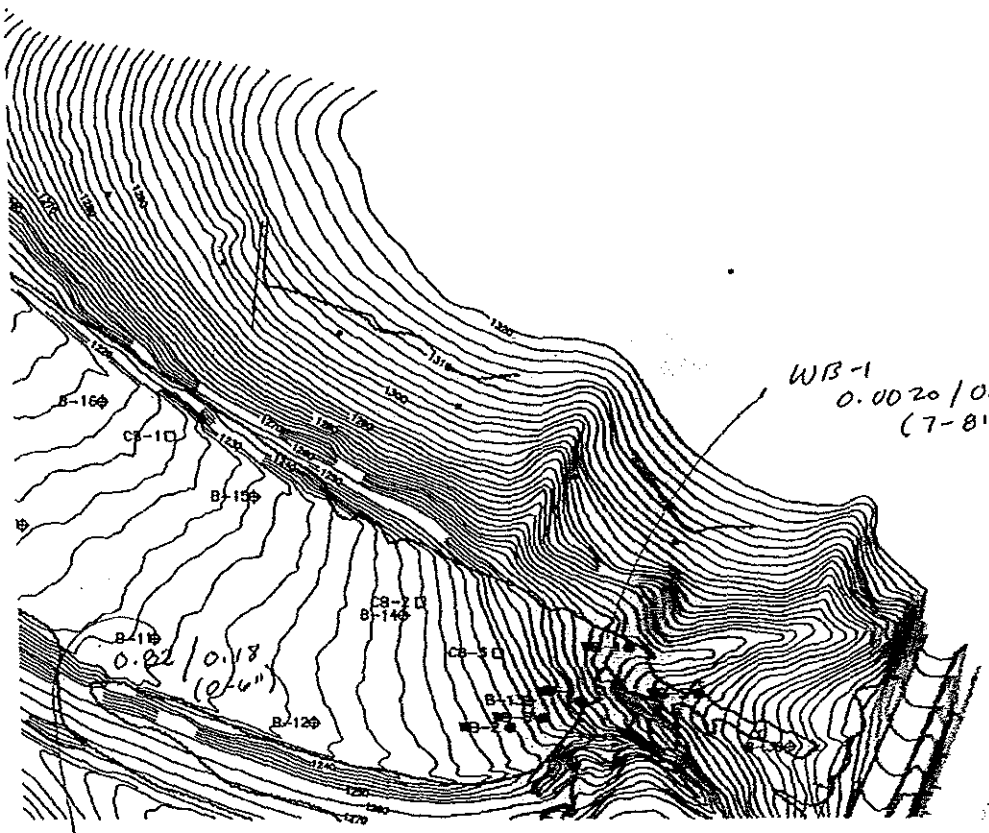
Jean A. Mescher, Project Coordinator
Director, Environmental Services

Copy:

- Frank Robinson, McKesson Corporation (electronic copy)
- Carole Ungvarsky, McKesson Corporation (" ")


Ash Pile:
AP-1 4.8/0.27 (0-3')
AP-7 0.010/0.0057 (4-5')
AP-8 3.8/0.50 (0-38")
AP-9 3.4/1.4 (30-40")
AP-10 0.77/0.37 (0-46")
Explanation:
2.9/0.28
(0-6")
2378-TCDF Equivalence (ppb)
Sample Depth
2378-TCDD Equivalence (ppb)
Resample:
3.2/0.47 (0-6")
2.9/0.28
(0-6")
3.8/0.50
(0-6")
0.00014/0.00015
(3-4')
0.43/0.0041
(7-8')
1.5/0.10
(0-6")
1.9/0.16
(0-6")
0.047/0.0050
(4-5')
0.25/0.023
(24-25')
0.091/0.12
(19-20')
1.7/0.17
(0-6")
0.26/0.30
(11-21')
0.0018/0.0011
(24-25')
1.8/0.17
(0-6")
0.0055/0.0012
(24-25')
KEY
ASBESTOS GRAB SAMPLE
SINKHOLE
SCALE IN FEET





N

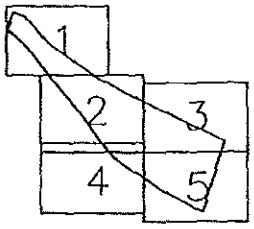
KEY

- B-22 LARGE AND SMALL GRID SAMPLE BORING
- AP-2 ASH PILE BORING
- WP-1 WOODCHIP PILE BORING
- CS-3 CONFIRMATION BORING
- MW-5 MONITOR WELL
- BACKGROUND TOC SAMPLE

SCALE IN FEET

100 200 300

2'-0" CONTOURS



ERM-Southwest, Inc. HOUSTON, TEXAS

FIGURE 3-7
[illegible] AND MONITOR WELL LOCATIONS
[illegible] INC. SITE
[illegible]

Table 4-6
Organic Indicator Compound and Field Data
Soil Samples
Arkwood, Inc. Site
Omaha, Arkansas

				ANALYTICAL DATA															FIELD DATA		
Hole No.	Total Depth	Bedrock Encountered	Sample Interval	Anthracene (ppm)	Benzo(a)-anthracene (ppm)	Benzo(b)-fluoranthene (ppm)	Benzo(k)-fluoranthene (ppm)	Benzo(a)-pyrene (ppm)	Chrysene (ppm)	Fluoranthene (ppm)	Naphthalene (ppm)	Phenanthrene (ppm)	Pyrene (ppm)	Fluorene (ppm)	Acenaphthene (ppm)	Pentachlorophenol (ppm)	Total Furans 2378-TCDF Equivalence (ppb)	Total Dioxins 2378-TCDD Equivalence (ppb)	Evidence of Wood Treating Compounds Visual (c)	Olfactory (c)	HNU(d) (ppm)
B-1	5'	N	0-1.5'	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	77	330	ND (50)	130	200	ND (50)	ND (50)	1,200	NA	NA	Yes	Yes	2
			1-2' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	1
			2-3'	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (160)	NA	NA	-	Yes	<1
			3-4' (b)	NA	NA	NA	NA	NA	NA	NA	ND (0.33)	NA	NA	NA	NA	53	NA	NA	-	No	<1
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	1.8	0.0034	0.0087	-	No	0
B-2	5'	N	0-4'	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (320)	NA	NA	Yes	Yes	4
			1-2' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	<1
			2-3'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	4.4	NA	NA	-	Yes	<1
			3-4'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	<1
			4-5' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	No	0
B-3	5'	N	0-5'	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	710	NA	NA	-	Yes	3
			1-2' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	?	<1
			2-3'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			3-4'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
B-4	3'	Y	0-6'	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	450	NA	NA	-	Yes	<1
			1-2' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	3.5
			2-3'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	0.56	ND (0.33)	ND (0.33)	ND (0.33)	3.2	NA	NA	-	Yes	4
B-5	4"	N	0-4"	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (8)	NA	NA	-	No	0
B-6	4"	N	0-4"	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (32)	NA	NA	-	No	0
B-7	5'		0-6"	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (320)	0.28	2.9	-	Yes	1
			1-2' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	No	0
			2-3'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			3-4'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	?	<1
B-8	5'	N	0-6"	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	81	ND (33)	ND (33)	61	ND (33)	ND (33)	630	NA	NA	-	Yes	1
			1-2' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	<1
			2-3'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			3-4'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
B-8D			0-6"	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	230	ND (160)	ND (160)	190	ND (160)	ND (160)	1,700	NA	NA	-	Yes	1

NOTES:

(a) = Extracted but not analyzed.
(b) = Screened for Naphthalene and/or PCP by GC.
ND = Not detected; (value = detection limit).
NA = Not analyzed.

(c) = "?" indicates an inconclusive field observation; "-" indicates no specific observation recorded.
(If no evidence of wood treating compounds was observed, typically no note was made of this in the log book.)
(d) = HNU meter calibrated to read directly in ppm of benzene.

Table 4-6 (Cont'd.)
Organic Indicator Compound and Field Data
Soil Samples
Arkwood, Inc. Site
Omaha, Arkansas

				ANALYTICAL DATA															FIELD DATA		
Hole No.	Total Depth	Bedrock Encountered	Sample Interval	Anthracene (ppm)	Benzo(a)-anthracene (ppm)	Benzo(b)-fluoranthene (ppm)	Benzo(k)-fluoranthene (ppm)	Benzo(a)-pyrene (ppm)	Chrysene (ppm)	Fluoranthene (ppm)	Naphthalene (ppm)	Phenanthrene (ppm)	Pyrene (ppm)	Fluorene (ppm)	Acenaphthene (ppm)	Pentachlorophenol (ppm)	Total Furans 2378-TCDF Equivalence (ppb)	Total Dioxins 2378-TCDD Equivalence (ppb)	Evidence of Wood Treating Compounds Visual (c)	Olfactory (c)	HNU(d) (ppm)
B-9	5'	N	0-5"	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	1,100	NA	NA	-	Yes	2
			1-2' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	<1
			2-3'	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	36	NA	NA	-	?	1
			3-4' (b)	NA	NA	NA	NA	NA	NA	NA	ND (0.33)	NA	NA	NA	NA	2.3	NA	NA	-	?	0
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	?	0
B-10	10'	N	0-8"	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	56	ND (16)	ND (16)	43	ND (16)	ND (16)	360	NA	NA	-	Yes	1
			1-2' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	1
			2-3' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	2
			3-4' (b)	NA	NA	NA	NA	NA	NA	NA	ND (33)	NA	NA	NA	NA	340	NA	NA	-	Yes	2
			4-5'	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	43	0.0050	0.047	-	Yes	1
			9-10'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	?	0
B-11	5'	N	0-6"	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	670	0.18	0.82	-	Yes	0
			1-2' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	?	No	0
			2-3'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	No	No	0
			3-4'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (3.2)	NA	NA	No	No	0
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	No	No	0
B-12	5'	N	0-4"	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	76	NA	NA	-	No	0
			1-2'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			2-3'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	<1
			3-4' (b)	NA	NA	NA	NA	NA	NA	NA	ND (0.33)	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
			4-5' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	No	0
B-13	6"	N	0-6"	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (8)	NA	NA	-	No	0
B-14	5'	N	0-5"	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (800)	NA	NA	-	Yes	3.8
			1-2'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			2-3'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	-	0
			3-4'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
B-15	5'	N	0-6"	ND (33)	ND (33)	48	34	ND (33)	33	110	ND (33)	ND (33)	200	ND (33)	ND (33)	700	NA	NA	-	Yes	1
			1-2'	ND (1.6)	2.7	9.6	8.7	5.2	5.3	26	ND (1.6)	ND (1.6)	58	ND (1.6)	ND (1.6)	210	NA	NA	?	No	0
			2-3'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	?	No	0
			3-4'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0

NOTES:
(a) = Extracted but not analyzed.
(b) = Screened for Naphthalene and/or PCP by GC.
ND = Not detected; (value = detection limit).
NA = Not analyzed.
(c) = "?" indicates an inconclusive field observation; "-" indicates no specific observation recorded.
(If no evidence of wood treating compounds was observed, typically no note was made of this in the log book.)
(d) = HNU meter calibrated to read directly in ppm of benzene.

Table 4-6 (Cont'd.)
Organic Indicator Compound and Field Data
Soil Samples
Arkwood, Inc. Site
Omaha, Arkansas

				ANALYTICAL DATA															FIELD DATA		
Hole No.	Total Depth	Bedrock Encountered	Sample Interval	Anthracene (ppm)	Benzo(a)-anthracene (ppm)	Benzo(b)-fluoranthene (ppm)	Benzo(k)-fluoranthene (ppm)	Benzo(a)-pyrene (ppm)	Chrysene (ppm)	Fluoranthene (ppm)	Naphthalene (ppm)	Phenanthrene (ppm)	Pyrene (ppm)	Fluorene (ppm)	Acenaphthene (ppm)	Pentachlorophenol (ppm)	Total Furans 2378-TCDF Equivalence (ppb)	Total Dioxins 2378-TCDD Equivalence (ppb)	Evidence of Wood Treating Compounds Visual (c)	Olfactory (c)	HNU(d) (ppm)
B-16	5'	N	0-6"	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	770	NA	NA	-	Yes	6.5
			1-2'	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (160)	NA	NA	-	Yes	1
			2-3'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			3-4'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
B-17	25'	N	0-6"	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	1,000	0.10	1.5	-	Yes	2.5
			1-2' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	5
			2-3' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	5
			3-4' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	5.5
			4-5' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	3
			7-8' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	2
			10-11'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	0.37	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	Yes	0.5
			14-15'(b)	NA	NA	NA	NA	NA	NA	NA	ND (3.3)	NA	NA	NA	NA	32	NA	NA	-	Yes	2
			19-20'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	?	<1
			24-25'(a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	No	0
B-18	5'	N	0-6"	ND (3.3)	4.5	6.7	ND (3.3)	3.3	7.2	7.5	ND (3.3)	ND (3.3)	31	ND (3.3)	ND (3.3)	40	NA	NA	Yes	Yes	<1
			1-2'	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (16)	NA	NA	-	No	0
			2-3'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			3-4' (b)	NA	NA	NA	NA	NA	NA	NA	ND (0.33)	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
			4-5' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	No	0
B-19	5'	N	0-6"	ND (1.6)	1.9	3.3	ND (1.6)	ND (1.6)	3.1	2.6	ND (1.6)	ND (1.6)	13	ND (1.6)	ND (1.6)	28	NA	NA	-	Yes	8
			1-2'	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (16)	NA	NA	-	Yes	0
			2-3'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			3-4' (b)	NA	NA	NA	NA	NA	NA	NA	ND (0.33)	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
			4-5' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	No	0
B-20	5'	N	0-6"	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	20	NA	NA	-	No	0
			1-2' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	No	1.5
			2-3'	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	9.5	ND (6.6)	ND (6.6)	ND (6.6)	84	NA	NA	-	No	0.5
			3-4' (b)	NA	NA	NA	NA	NA	NA	NA	ND (33)	NA	NA	NA	NA	690	NA	NA	-	No	0.5
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0

NOTES:
(a) = Extracted but not analyzed.
(b) = Screened for Naphthalene and/or PCP by GC.
ND = Not detected; (value = detection limit).
NA = Not analyzed.
(c) = "?" indicates an inconclusive field observation; "-" indicates no specific observation recorded.
(If no evidence of wood treating compounds was observed, typically no note was made of this in the log book.)
(d) = HNU meter calibrated to read directly in ppm of benzene.

Table 4-6 (Cont'd.)
Organic Indicator Compound and Field Data
Soil Samples
Arkwood, Inc. Site
Omaha, Arkansas

Hole No.	Total Depth	Bedrock Encountered	Sample Interval	Anthracene (ppm)	Benzo(a)-anthracene (ppm)	Benzo(b)-fluoranthene (ppm)	Benzo(k)-fluoranthene (ppm)	Benzo(a)-pyrene (ppm)	Chrysene (ppm)	Fluoranthene (ppm)	Naphthalene (ppm)	Phenanthrene (ppm)	Pyrene (ppm)	Fluorene (ppm)	Acenaphthene (ppm)	Pentachlorophenol (ppm)	Total Furans 2378-TCDF Equivalence (ppb)	Total Dioxins 2378-TCDD Equivalence (ppb)	Evidence of Wood Treating Compounds: Visual (c)	Olfactory (c)	HNU(d) (ppm)
				ANALYTICAL DATA															FIELD DATA		
B-21	5'	N	0-5"	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	6.9	NA	NA	-	No	0
			1-2'	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	39	NA	NA	?	Yes	3
			2-3'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	?	No	0
			3-4' (b)	NA	NA	NA	NA	NA	NA	NA	ND (0.33)	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
			4-5' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	No	0
B-22	4"	N	0-4"	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (6.4)	NA	NA	-	No	0
B-23	5'	N	0-5"	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	ND (13)	120	NA	NA	-	Yes	1
			2-3'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	1.7	NA	NA	-	No	-
			3-4'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	-
			4-5' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	No	-
B-24	6"	N	0-6"	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (3.2)	NA	NA	-	No	0
B-25	5'	N	0-6"	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	190	ND (160)	ND (160)	ND (160)	3,900	0.50	3.8	Yes	Yes	1
			1-2' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	?	0
			2-3'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	?	<1
			3-4'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
B-25D			0-6"	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	180	ND (160)	ND (160)	ND (160)	4,100	NA	NA	Yes	Yes	1
B-26	5'	N	0-4"	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	53	ND (33)	ND (33)	91	ND (33)	ND (33)	330	NA	NA	-	Yes	<1
			1-2'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			2-3'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	Yes	<1
			3-4'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	2.6	ND (0.66)	3.8	ND (0.66)	ND (0.66)	ND (0.66)	16	0.00015	0.0014	-	Yes	<1
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
B-27	15'	N	0-6"	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	2,800	NA	NA	-	Yes	1
			1-2' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	3
			2-3' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	4.
			3-4' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	3.
			4-5' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	?
			7-8'	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	5.2	7.7	ND (3.3)	ND (3.3)	ND (3.3)	34	0.0041	0.043	-	Yes	[illegible]
			9-10' (b)	NA	NA	NA	NA	NA	NA	NA	ND (0.33)	NA	NA	NA	NA	2.9	NA	NA	-	Yes	[illegible]
			14-15'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	?	[illegible]

NOTES:
(a) = Extracted but not analyzed.
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ND = Not detected; (value = detection limit).
NA = Not analyzed.

(c) = "?" indicates an inconclusive field observation; "-" indicates no specific observation recorded.
(If no evidence of wood treating compounds was observed, typically no note was made of this in the log book.)
(d) = HNU meter calibrated to read directly in ppm of benzene.

Table 4-6 (Cont'd.)
Organic Indicator Compound and Field Data
Soil Samples
Arkwood, Inc. Site
Omaha, Arkansas

				ANALYTICAL DATA															FIELD DATA		
Hole No.	Total Depth	Bedrock Encountered	Sample Interval	Anthracene (ppm)	Benzo(a)-anthracene (ppm)	Benzo(b)-fluoranthene (ppm)	Benzo(k)-fluoranthene (ppm)	Benzo(a)-pyrene (ppm)	Chrysene (ppm)	Fluoranthene (ppm)	Naphthalene (ppm)	Phenanthrene (ppm)	Pyrene (ppm)	Fluorene (ppm)	Acenaphthene (ppm)	Pentachlorophenol (ppm)	Total Furans 2378-TCDF Equivalence (ppb)	Total Dioxins 2378-TCDD Equivalence (ppb)	Evidence of Wood Treating Compounds Visual (c)	Olfactory (c)	HNU(d) (ppm)
B-28	5'	N	0-6"	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	1,400	0.16	1.9	No	Yes	5
			1-2'	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	36	NA	NA	-	Yes	<1
			2-3'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (3.6)	NA	NA	-	?	0
			3-4' (b)	NA	NA	NA	NA	NA	NA	NA	ND (0.33)	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
			4-5' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	No	0
B-29	5'	N	0-6"	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	900	NA	NA	-	Yes	3.5
			1-2' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	No	0
			2-3'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			3-4'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
B-30	4"	N	0-4"	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (16)	NA	NA	-	No	0
B-31	6"	N	0-6"	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	No	No	0
B-32	5'	N	0-8"	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	56	NA	NA	?	No	0
			1-2'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (3.2)	NA	NA	-	No	0
			2-3'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (3.2)	NA	NA	-	No	0
			3-4' (b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
			4-5' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	No	0
B-33	10"	N	0-10"	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	100	0.14	1.8	-	Yes	<1
B-33D			0-10"	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	97	NA	NA	-	Yes	<1
B-34	5'	N	0-6"	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (160)	NA	NA	-	No	0
			1-2' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	?	No	1
			2-3'	ND (2.6)	ND (2.6)	ND (2.6)	ND (2.6)	ND (2.6)	ND (2.6)	ND (2.6)	ND (2.6)	ND (2.6)	ND (2.6)	ND (2.6)	ND (2.6)	6.4	0.22	1.4	-	?	0
			3-4'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (3.2)	NA	NA	-	No	0
AP-1	5'	Y	0-3'	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	750	0.27	4.8	-	No	0
AP-2	10'	Y	0-4'	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	260	NA	NA	-	No	0
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	0.79	ND (0.33)	ND (0.33)	1.0	ND (0.33)	ND (0.33)	2.5	NA	NA	-	No	0
			9-10'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0

NOTES:
(a) = Extracted but not analyzed.
(b) = Screened for Naphthalene and/or PCP by GC.
ND = Not detected; (value = detection limit).
NA = Not analyzed.
(c) = "?" indicates an inconclusive field observation; "-" indicates no specific observation recorded.
(If no evidence of wood treating compounds was observed, typically no note was made of this in the log book.)
(d) = HNU meter calibrated to read directly in ppm of benzene.

Table 4-6 (Cont'd.)
Organic Indicator Compound and Field Data
Soil Samples
Arkwood, Inc. Site
Omaha, Arkansas

				ANALYTICAL DATA															FIELD DATA		
Hole No.	Total Depth	Bedrock Encountered	Sample Interval	Anthracene (ppm)	Benzo(a)-anthracene (ppm)	Benzo(b)-fluoranthene (ppm)	Benzo(k)-fluoranthene (ppm)	Benzo(a)-pyrene (ppm)	Chrysene (ppm)	Fluoranthene (ppm)	Naphthalene (ppm)	Phenanthrene (ppm)	Pyrene (ppm)	Fluorene (ppm)	Acenaphthene (ppm)	Pentachlorophenol (ppm)	Total Furans 2378-TCDF Equivalence (ppb)	Total Dioxins 2378-TCDD Equivalence (ppb)	Evidence of Wood Treating Compounds Visual (c)	Olfactory (c)	HNU(d) (ppm)
AP-3	10'	N	0-6"	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	15	NA	NA	-	No	<1
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			9-10' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	-	0
AP-4	10'	Y	0-6"	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	2,300	NA	NA	-	Yes	<1
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	No	No	0
			7-8' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	No	No	0
AP-5	12'	Y	0-6"	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	ND (1.3)	18	NA	NA	-	No	0
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	?	No	0
			9-10' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	No	<1
AP-6	10'	N	0-6"	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	3,700	NA	NA	Yes	Yes	?
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	No	No	0
			9-10' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	No	No	0
AP-7	9.5'	Y	0-6"	ND (82)	ND (82)	ND (82)	ND (82)	ND (82)	ND (82)	ND (82)	ND (82)	860	ND (82)	ND (82)	ND (82)	ND (400)	NA	NA	Yes	Yes	<1
			4-5'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	49	0.0057	0.010	?	Yes	7
			9-9.5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	No	No	0
AP-8	3.2'	N	0-38"	2.4	5.5	2.8	2.1	2.1	5.8	18	ND (1.65)	NA	16	ND (1.65)	ND (1.65)	45	0.50	3.8	No	-	-
AP-9	3.3'	N	0-30"	ND (0.33)	7.6	2.5	2.3	2.4	8.9	20	ND (0.33)	NA	23	ND (0.33)	ND (0.33)	12	NA	NA	No	-	-
			30-40"	ND (0.33)	ND (0.33)	2.2	ND (0.33)	ND (0.33)	2.1	ND (0.33)	ND (0.33)	NA	6.7	ND (0.33)	ND (0.33)	300	1.4	3.4	No	-	-
AP-10	3.8'	N	0-46"	ND (0.33)	ND (0.33)	ND (1.65)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	NA	2.1	ND (0.33)	ND (0.33)	33	0.33	0.77	No	-	-
AP-11	(e)		0-30"	ND (0.33)	10	3.5	4	3.3	12	21	ND (0.33)	NA	27	ND (0.33)	ND (0.33)	20	NA	NA	-	-	-
WB-1	15'	N	0-6"	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	24	NA	NA	-	Yes	2
			1-2' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	5
			2-3' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	4
			3-4' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	12
			4-5' (b)	NA	NA	NA	NA	NA	NA	NA	0.73	NA	NA	NA	NA	14	NA	NA	-	Yes	1.5
			7-8'	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	8.5	0.00011	0.0020	-	?	<1
			9-10'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	<1
			14-15' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	No	0

NOTES:
(a) = Extracted but not analyzed.
(b) = Screened for Naphthalene and/or PCP by GC.
ND = Not detected; (value = detection limit).
NA = Not analyzed.
(c) = "?" indicates an inconclusive field observation; "-" indicates no specific observation recorded.
(If no evidence of wood treating compounds was observed, typically no note was made of this in the log book.)
(d) = HNU meter calibrated to read directly in ppm of benzene.
(e) = Duplicate of AP-9, 0-30".

Table 4-6 (Cont'd.)
Organic Indicator Compound and Field Data
Soil Samples
Arkwood, Inc. Site
Omaha, Arkansas

				ANALYTICAL DATA															FIELD DATA		
Hole No.	Total Depth	Bedrock Encountered	Sample Interval	Anthracene (ppm)	Benzo(a)-anthracene (ppm)	Benzo(b)-fluoranthene (ppm)	Benzo(k)-fluoranthene (ppm)	Benzo(a)-pyrene (ppm)	Chrysene (ppm)	Fluoranthene (ppm)	Naphthalene (ppm)	Phenanthrene (ppm)	Pyrene (ppm)	Fluorene (ppm)	Acenaphthene (ppm)	Pentachlorophenol (ppm)	Total Furans 2378-TCDF Equivalence (ppb)	Total Dioxins 2378-TCDD Equivalence (ppb)	Evidence of Wood Treating Compounds Visual (c)	Olfactory (c)	HNU(d) (ppm)
WB-1D			0-6"	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	34	NA	NA	-	Yes	2
WB-3	2"	N	0-2"	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (16)	NA	NA	-	No	<1
WB-4	5'	N	0-3"	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	48	NA	NA	-	Yes	<1
			1-2'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	2	NA	NA	-	No	2
			2-3'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			3-4' (b)	NA	NA	NA	NA	NA	NA	NA	ND (0.33)	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
			4-5' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	No	0
T1C1	6"	N	0-6"	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	No	No	0
T2C1	10"	Y	0-6"	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	No	No	<1
T3C1	27.5'	Y	0-6"	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (3.2)	NA	NA	No	No	<1
			4-5'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	3.5
			9-10'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Yes	Yes	5.5
			14-15' (b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	35	NA	NA	-	Yes	4.5
			19-20' (b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	7.6	NA	NA	-	Yes	<1
			24-25'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	6.6	NA	NA	Yes	Yes	2.5
T4C1	29.5'	Y	0-6"	10	15	12	11	12	16	63	ND (6.6)	21	43	8.3	22	ND (32)	NA	NA	Yes	Yes	<1
			4-5'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Yes	Yes	17
			9-10'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	12
			14-15'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (3.2)	NA	NA	-	Yes	1.5
			19-20'	0.91	0.88	0.43	ND (0.33)	0.34	0.9	4.8	ND (0.33)	9.2	3	1.6	1.8	ND (1.6)	NA	NA	Yes	Yes	<1
			25-26'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
T5C1	5"	N	0-5"	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (16)	NA	NA	No	No	<1
T1C2	25'	Y	0-6"	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	6.7	ND (6.6)	ND (6.6)	200	NA	NA	No	No	0
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			9-10'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	<1
			14-15'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	1.5
			22-23' (b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	160	NA	NA	Yes	Yes	1.5
			24-25'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	0.86	ND (0.66)	4.1	ND (0.66)	0.9	ND (0.66)	120	0.023	0.25	Yes	Yes	3

NOTES:
(a) = Extracted but not analyzed.
(b) = Screened for Naphthalene and/or PCP by GC.
ND = Not detected; (value = detection limit).
NA = Not analyzed.
(c) = "?" indicates an inconclusive field observation; "-" indicates no specific observation recorded. (If no evidence of wood treating compounds was observed, typically no note was made of this in the log book.)
(d) = HNU meter calibrated to read directly in ppm of benzene.

Table 4-6 (Cont'd.)
Organic Indicator Compound and Field Data
Soil Samples
Arkwood, Inc. Site
Omaha, Arkansas

				ANALYTICAL DATA															FIELD DATA		
Hole No.	Total Depth	Bedrock Encountered	Sample Interval	Anthracene (ppm)	Benzo(a)-anthracene (ppm)	Benzo(b)-fluoranthene (ppm)	Benzo(k)-fluoranthene (ppm)	Benzo(a)-pyrene (ppm)	Chrysene (ppm)	Fluoranthene (ppm)	Naphthalene (ppm)	Phenanthrene (ppm)	Pyrene (ppm)	Fluorene (ppm)	Acenaphthene (ppm)	Pentachlorophenol (ppm)	Total Furans 2378-TCDF Equivalence (ppb)	Total Dioxins 2378-TCDD Equivalence (ppb)	Evidence of Wood Treating Compounds Visual (c)	Olfactory (c)	HNU(d) (ppm)
T3C2	8'	Y	1.5-2.5'	430	150	130	84	ND (33)	320	1,000	ND (33)	86	790	ND (33)	95	1,900	NA	NA	Yes	Yes	2
			7-8'	13	4.1	ND (3.3)	ND (3.3)	ND (3.3)	5.4	31	52	54	19	16	22	290	NA	NA	Yes	Yes	6
T4C2	14'	Y	0-6"	0.56	1.4	4.1	2.1	2	2.4	3	ND (0.33)	0.64	5.3	ND (0.33)	ND (0.33)	4.3	NA	NA	No	No	0
			4-5'	12	6.6	ND (3.3)	ND (3.3)	ND (3.3)	6.4	44	5.8	59	35	15	16	ND (16)	NA	NA	Yes	Yes	9
			9-10'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	?	?	<1
T5C2	14'	Y	0-8"	ND (16)	20	36	33	25	39	96	ND (16)	ND (16)	120	ND (16)	ND (16)	ND (80)	NA	NA	Yes	Yes	<1
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			9-10' (b)	NA	NA	NA	NA	NA	NA	NA	ND (0.33)	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
T1C3	23.5'	Y	0-5"	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	52	ND (33)	78	36	ND (33)	ND (33)	540	NA	NA	Yes	Yes	1
			4-5'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (3.2)	NA	NA	-	No	0
			9-10' (b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	27	NA	NA	-	Yes	1.5
			14-15' (b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.3	NA	NA	-	Yes	0
			19-20'	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	5.7	16	ND (3.3)	ND (3.3)	ND (3.3)	23	0.12	0.091	Yes	Yes	10
T2C3	15.5'	Y	0-6"	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	86	0.17	1.7	Yes	Yes	1
			4-5' (b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	460	NA	NA	Yes	Yes	2.5
			10-11'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	7.3	NA	NA	Yes	Yes	1
			14-15'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	<1
T3C3	12'	N	1.1-2.1'	9.8	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	26	19	90	21	14	14	520	0.030	0.26	Yes	Yes	13
			10-11'	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (16)	NA	NA	-	No	0
T4C3	6.5'	Y	0-5"	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	43	ND (33)	ND (33)	62	ND (33)	ND (33)	510	NA	NA	Yes	Yes	<1
			4-5'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (3.2)	NA	NA	-	No	0
T5C3	17'	Y	0-6"	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	580	NA	NA	No	Yes	2
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			9-10' (b)	NA	NA	NA	NA	NA	NA	NA	ND (0.33)	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
			14-15' (b)	NA	NA	NA	NA	NA	NA	NA	ND (0.33)	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
T1C4	14'	Y	0-6"	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (160)	NA	NA	Yes	Yes	<1
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	Yes	<1
			9-10'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (3.2)	NA	NA	-	?	0

NOTES:
(a) = Extracted but not analyzed.
(b) = Screened for Naphthalene and/or PCP by GC.
ND = Not detected; (value = detection limit).
NA = Not analyzed.

(c) = "?" indicates an inconclusive field observation; "-" indicates no specific observation recorded.
(If no evidence of wood treating compounds was observed, typically no note was made of this in the log book.)
(d) = HNU meter calibrated to read directly in ppm of benzene.

Table 4-6 (Cont'd.)
Organic Indicator Compound and Field Data
Soil Samples
Arkwood, Inc. Site
Omaha, Arkansas

				ANALYTICAL DATA															FIELD DATA		
Hole No.	Total Depth	Bedrock Encountered	Sample Interval	Anthracene (ppm)	Benzo(a)-anthracene (ppm)	Benzo(b)-fluoranthene (ppm)	Benzo(k)-fluoranthene (ppm)	Benzo(a)-pyrene (ppm)	Chrysene (ppm)	Fluoranthene (ppm)	Naphthalene (ppm)	Phenanthrene (ppm)	Pyrene (ppm)	Fluorene (ppm)	Acenaphthene (ppm)	Pentachlorophenol (ppm)	Total Furans 2378-TCDF Equivalence (ppb)	Total Dioxins 2378-TCDD Equivalence (ppb)	Evidence of Wood Treating Compounds Visual (c)	Olfactory (c)	HNU(d) (ppm)
T2C4	24'	Y	0-6"	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	180	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	1,300	NA	NA	Yes	Yes	2.5
			4-5'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	4.5
			9-10'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Yes	Yes	6
			14-15'(b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14	NA	NA	Yes	Yes	1
			19-20'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	0.88	2.7	6.9	0.74	1.3	ND (0.66)	17	NA	NA	Yes	Yes	5
T2C4D			0-6"	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	170	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	1,300	NA	NA	Yes	Yes	2.5
T3C4	31.5'	Y	0.7-1.5'	320	130	50	52	41	190	620	210	980	610	400	610	6,800	NA	NA	Yes	Yes	9
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			9-10' (b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.4	NA	NA	Yes	Yes	8
			14-15'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (3.2)	NA	NA	-	No	0
			19-20'(b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	21	NA	NA	-	?	<1
			24-25'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	0.98	ND (0.66)	ND (0.66)	ND (0.66)	4.8	0.0011	0.0018	Yes	Yes	1.5
			29-30'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	?	0-<1
T4C4	22.5'	Y	0-6"	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	370	NA	NA	Yes	Yes	<1
			4-5' (b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	100	NA	NA	Yes	Yes	7.5
			9-10'	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (1.6)	NA	NA	-	Yes	<1
			14-15'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			19-20'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
T5C4	31'	Y	0-6"	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (800)	NA	NA	Yes	Yes	2.5
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			9-10'(b)	NA	NA	NA	NA	NA	NA	NA	ND (0.33)	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
			14-15'(b)	NA	NA	NA	NA	NA	NA	NA	ND (0.33)	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
			24-25'(b)	NA	NA	NA	NA	NA	NA	NA	ND (0.33)	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
			29-30'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
T1C5	19'	Y	0-6"	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (16)	NA	NA	No	No	0
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			9-10'(b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
			14-15'(b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	1

NOTES:
(a) = Extracted but not analyzed.
(b) = Screened for Naphthalene and/or PCP by GC.
ND = Not detected; (value = detection limit).
NA = Not analyzed.

(c) = "?" indicates an inconclusive field observation; "-" indicates no specific observation recorded.
(If no evidence of wood treating compounds was observed, typically no note was made of this in the log book.)
(d) = HNU meter calibrated to read directly in ppm of benzene.

Table 4-6 (Cont'd.)
Organic Indicator Compound and Field Data
Soil Samples
Arkwood, Inc. Site
Omaha, Arkansas

				ANALYTICAL DATA															FIELD DATA		
Hole No.	Total Depth	Bedrock Encountered	Sample Interval	Anthracene (ppm)	Benzo(a)-anthracene (ppm)	Benzo(b)-fluoranthene (ppm)	Benzo(k)-fluoranthene (ppm)	Benzo(a)-pyrene (ppm)	Chrysene (ppm)	Fluoranthene (ppm)	Naphthalene (ppm)	Phenanthrene (ppm)	Pyrene (ppm)	Fluorene (ppm)	Acenaphthene (ppm)	Pentachlorophenol (ppm)	Total Furans 2378-TCDF Equivalence (ppb)	Total Dioxins 2378-TCDD Equivalence (ppb)	Evidence of Wood Treating Compounds Visual (c)	Olfactory (c)	HNU(d) (ppm)
T2C5	24'	Y	0-6"	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	430	0.17	1.8	Yes	Yes	1
			4-5' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	No	0
			14-15'(b)	NA	NA	NA	NA	NA	NA	NA	16	NA	NA	NA	NA	660	NA	NA	-	Yes	5
			21-24'	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	3.6	ND (1.6)	ND (1.6)	ND (1.6)	17	NA	NA	-	Yes	4
T3C5	28.5'	Y	0-6"	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	ND (330)	1,800	NA	NA	Yes	Yes	<1
			4-5' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	<1
			9-10'(a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Yes	Yes	2
			14-15'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	No	Yes	<1
			19-20'(b)	NA	NA	NA	NA	NA	NA	NA	3.8	NA	NA	NA	NA	89	NA	NA	No	Yes	3
			24-25'	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	8.1	ND (3.3)	ND (3.3)	ND (3.3)	42	0.0012	0.0055	Yes	Yes	6
T4C5	29'	Y	0-5"	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (160)	NA	NA	?	?	0
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	Yes	<1
			10-11'(b)	NA	NA	NA	NA	NA	NA	NA	ND (0.33)	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
			14-15'(b)	NA	NA	NA	NA	NA	NA	NA	ND (0.33)	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
			24-25'(b)	NA	NA	NA	NA	NA	NA	NA	ND (0.33)	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
T5C5	15'	Y	0-5"	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (80)	NA	NA	No	No	0
			4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			9-10'(b)	NA	NA	NA	NA	NA	NA	NA	ND (0.33)	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
			14-15'(b)	NA	NA	NA	NA	NA	NA	NA	ND (0.33)	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
T3C0	27.5'	Y	4-5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			9-10'(b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
			14-15'(b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
			19-20'(b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
			24-25'(b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
T0C3	13'	Y	5-6'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
			9-10'(b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
T2C6	15.5'	Y	4-5'(b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	5.4	NA	NA	-	No	<1
			9-10'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	1.6	NA	NA	-	No	0
			14-15'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	1.8	ND (0.66)	ND (0.66)	ND (0.66)	ND (3.2)	NA	NA	-	No	4
R1C0	6'	Y	4-5'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (3.2)	NA	NA	-	No	0

NOTES:
(a) = Extracted but not analyzed.
(b) = Screened for Naphthalene and/or PCP by GC.
ND = Not detected; (value = detection limit).
NA = Not analyzed.
(c) = "?" indicates an inconclusive field observation; "-" indicates no specific observation recorded.
(If no evidence of wood treating compounds was observed, typically no note was made of this in the log book.)
(d) = HNU meter calibrated to read directly in ppm of benzene.

Table 4-6 (Cont'd.)
Organic Indicator Compound and Field Data
Soil Samples
Arkwood, Inc. Site
Omaha, Arkansas

				ANALYTICAL DATA															FIELD DATA		
Hole No.	Total Depth	Bedrock Encountered	Sample Interval	Anthracene (ppm)	Benzo(a)-anthracene (ppm)	Benzo(b)-fluoranthene (ppm)	Benzo(k)-fluoranthene (ppm)	Benzo(a)-pyrene (ppm)	Chrysene (ppm)	Fluoranthene (ppm)	Naphthalene (ppm)	Phenanthrene (ppm)	Pyrene (ppm)	Fluorene (ppm)	Acenaphthene (ppm)	Pentachlorophenol (ppm)	Total Furans 2378-TCDF Equivalence (ppb)	Total Dioxins 2378-TCDD Equivalence (ppb)	Evidence of Wood Treating Compounds Visual (c)	Olfactory (c)	HNU(d) (ppm)
R1C1	19'	Y	3.5-4.5'(b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	14	NA	NA	No	Yes	3.5
			14-15'	ND (0.66)	ND (0.66)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	Yes	?	<1
R1C2	21'	Y	0-8"	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	36	NA	NA	?	No	0
			4-5'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Yes	Yes	9
			9-10'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Yes	Yes	4.5
			14-15'(b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17	NA	NA	?	Yes	<1
			19-20'	ND (0.63)	ND (0.63)	ND (0.63)	ND (0.63)	ND (0.63)	ND (0.63)	ND (0.63)	ND (0.63)	ND (0.63)	ND (0.63)	ND (0.63)	ND (0.63)	14	0.000026	0.00024	?	Yes	<1
R1C3	20'	Y	0-6"	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	21	NA	NA	?	No	0
			4-5'(b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	95	NA	NA	Yes	Yes	8
			14-15'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	1.7	ND (0.66)	ND (0.66)	ND (0.66)	27	0.0011	0.0085	Yes	Yes	1
R1C4	9'	Y	0-8"	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	17	NA	NA	?	No	0
			4-5'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	0.84	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (16)	NA	NA	Yes	Yes	2
R1C5	5'	Y	1.2-1.7'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	6	NA	NA	-	No	0
			4-5'	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	3.3	8.4	ND (3.3)	ND (3.3)	ND (3.3)	18	NA	NA	Yes	Yes	2
R1C6	10"	N	2-10"	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	15	NA	NA	?	No	0
R1C7	5.5'	Y	2-12"	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	120	NA	NA	?	No	0
			2-3'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	22	NA	NA	-	No	<1
			4-5'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	No	<1
R1C8	5'	Y	6-12"	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	ND (33)	160	NA	NA	Yes	Yes	1
			2-3' (b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	49	NA	NA	Yes	Yes	7
			4-5'	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	6.8	ND (6.6)	ND (6.6)	ND (6.6)	52	NA	NA	-	Yes	6
R2C0	19'	Y	2-3'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (3.2)	NA	NA	-	No	0
			4-5' (b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (1.6)	NA	NA	-	Yes	0-<1
			10-11'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	?	0
			14-15'(b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
R2C1	23.5'	Y	2-10"	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	20	NA	NA	?	No	0
			9-10'(a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	Yes	Yes	14
			14-15'(b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	18	NA	NA	Yes	Yes	1.5
			19-20'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	9.3	0.00011	0.00084	-	No	<1

NOTES:
(a) = Extracted but not analyzed.
(b) = Screened for Naphthalene and/or PCP by GC.
ND = Not detected; (value = detection limit).
NA = Not analyzed.
(c) = "?" indicates an inconclusive field observation; "-" indicates no specific observation recorded.
(if no evidence of wood treating compounds was observed, typically no note was made of this in the log book.)
(d) = HNU meter calibrated to read directly in ppm of benzene.

Table 4-6 (Cont'd.)
Organic Indicator Compound and Field Data
Soil Samples
Arkwood, Inc. Site
Omaha, Arkansas

				ANALYTICAL DATA														FIELD DAT		
Hole No.	Total Depth	Bedrock Encountered	Sample Interval	Anthracene (ppm)	Benzo(a)-anthracene (ppm)	Benzo(b)-fluoranthene (ppm)	Benzo(k)-fluoranthene (ppm)	Benzo(a)-pyrene (ppm)	Chrysene (ppm)	Fluoranthene (ppm)	Naphthalene (ppm)	Phenanthrene (ppm)	Pyrene (ppm)	Fluorene (ppm)	Acenaphthene (ppm)	Pentachlorophenol (ppm)	Total Furans 2378-TCDF Equivalence (ppb)	Total Dioxins 2378-TCDD Equivalence (ppb)	Evidence of Wood Treating Compound Visual (c)	Olfactory (c)	HNU (pp
R2C2	10.5'	Y	1-9"	ND (82)	ND (82)	ND (82)	ND (82)	ND (82)	ND (82)	ND (82)	ND (82)	ND (82)	ND (82)	ND (82)	ND (82)	420	0.40	6.3	?	No	0
			9-10'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	4.2	NA	NA	-	No	0
R2C3	14'	Y	1-2.5'	ND (660)	ND (660)	ND (660)	ND (660)	ND (660)	ND (660)	ND (660)	850	1,300	ND (660)	ND (660)	ND (660)	5,200	0.52	10	Yes	Yes	1
			4-5'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	NA	NA	-	?	0
			9-10' (b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	<
R2C4	14'	N	1-1.5'	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	160	450	560	ND (160)	160	ND (160)	3,100	0.24	4.8	Yes	Yes	7
			13-14'	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	20	NA	NA	Yes	Yes	4
R2C5	23.5'	Y	1-3' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	-	-
			3-3.5'	ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	140	200	ND (130)	ND (130)	ND (130)	1,100	NA	NA	Yes	Yes	4
			4-6' (a)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	-	Yes	-
			9-11'	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	5.1	9.8	ND (3.3)	ND (3.3)	ND (3.3)	42	NA	NA	-	Yes	-
			22-23'	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	ND (3.3)	26	NA	NA	Yes	Yes	:
R2C6	13'	N	0-1'	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	250	290	ND (160)	ND (160)	ND (160)	1,400	NA	NA	Yes	Yes	-
			12-13'	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	ND (8.2)	41	NA	NA	-	-	
R2C7	2'	N	1.2-2'	ND (660)	ND (660)	ND (660)	ND (660)	ND (660)	ND (660)	ND (660)	690	1,000	ND (660)	ND (660)	ND (660)	6,200	NA	NA	Yes	Yes	
R2C8	20"	N	10-20"	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	410	ND (160)	ND (160)	ND (160)	2,600	NA	NA	Yes	Yes	
R2C8D			10-20"	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	750	ND (66)	ND (66)	ND (66)	4,600	NA	NA	Yes	Yes	
R2C9	14'	Y	8-14"	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	980	NA	NA	Yes	Yes	2
			4-5' (b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	110	NA	NA	-	Yes	5
			9-10'	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	11	ND (6.6)	ND (6.6)	ND (64)	NA	NA	Yes	Yes	
R3C2	22.5'	Y	0-6"	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	ND (160)	1,100	NA	NA	?	Yes	
			4-5' (b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	13	NA	NA	-	?	
			9-10' (b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.8	NA	NA	-	NO	
			14-15'	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	9.3	25	ND (6.6)	8.4	ND (6.6)	41	0.051	0.28	Yes	Yes	
			19-20'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (3.2)	NA	NA	-	?	
R3C3	6"	N	0-6"	ND (82)	ND (82)	ND (82)	ND (82)	ND (82)	ND (82)	ND (82)	ND (82)	ND (82)	ND (82)	ND (82)	ND (82)	5,500	0.53	11	Yes	Yes	

NOTES:
(a) = Extracted but not analyzed.
(b) = Screened for Naphthalene and/or PCP by GC.
ND = Not detected; (value = detection limit).
NA = Not analyzed.
(c) = "?" indicates an inconclusive field observation; "-" indicates no specific observation recorded.
(If no evidence of wood treating compounds was observed, typically no note was made of this in the log book.)
(d) = HNU meter calibrated to read directly in ppm of benzene.

Table 4-6 (Cont'd.)
Organic Indicator Compound and Field Data
Soil Samples
Arkwood, Inc. Site
Omaha, Arkansas

				ANALYTICAL DATA															FIELD DATA		
Hole No.	Total Depth	Bedrock Encountered	Sample Interval	Anthracene (ppm)	Benzo(a)-anthracene (ppm)	Benzo(b)-fluoranthene (ppm)	Benzo(k)-fluoranthene (ppm)	Benzo(a)-pyrene (ppm)	Chrysene (ppm)	Fluoranthene (ppm)	Naphthalene (ppm)	Phenanthrene (ppm)	Pyrene (ppm)	Fluorene (ppm)	Acenaphthene (ppm)	Pentachlorophenol (ppm)	Total Furans 2378-TCDF Equivalence (ppb)	Total Dioxins 2378-TCDD Equivalence (ppb)	Evidence of Wood Treating Compounds Visual (c)	Olfactory (c)	HNU(d) (ppm)
R3C4	10"	N	4-10"	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (8)	NA	NA	-	No	0
R3C5	4"	N	0-4"	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	ND (66)	350	NA	NA	-	No	0
R3C6	6"	N	0-6"	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	2	ND (1.6)	ND (1.6)	ND (1.6)	ND (8)	NA	NA	-	No	0
R3C7	8"	N	0-8"	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (8)	NA	NA	No	No	0
R3C8	8"	N	2-8"	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (8)	NA	NA	-	No	0
R-1	11'	Y	4-5'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (.66)	NA	NA	-	-	<1
			9-10' (b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	1
R-2	11'	Y	9-10'	ND (0.66)	ND (0.66)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
R-3	8.5'	Y	4-5'	ND (0.66)	ND (0.66)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	0
Resample																					
B-11	6"		0-6"	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	0.7	ND (0.66)	ND (0.66)	ND (3.2)	0.015	0.10	-	-	-
B-11D By TCLP			0-6"	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	0.28	0.0	0.0	-	-	-
Resample																					
B-25	6"		0-6"	ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	ND (130)	3,100	0.47	3.2	-	-	-
B-25D By TCLP			0-6"	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	3.5	0.0090	0.020	-	-	-
PW-1	105'	Y	4-5'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (3.2)	NA	NA	-	No	0
			9-10' (b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
			14-15' (b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
MW-1	44.5'	Y	4-5'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (3.2)	NA	NA	-	No	0
			17.5-19.5'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (3.2)	NA	NA	-	No	0
			42.5-44.5'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	0.42	0.66	2.4	0.34	0.72	0.6	2.1	NA	NA	Yes	Yes	2.1

NOTES:
(a) = Extracted but not analyzed.
(b) = Screened for Naphthalene and/or PCP by GC.
ND = Not detected; (value = detection limit).
NA = Not analyzed.

(c) = "?" indicates an inconclusive field observation; "-" indicates no specific observation recorded.
(If no evidence of wood treating compounds was observed, typically no note was made of this in the log book.)
(d) = HNU meter calibrated to read directly in ppm of benzene.

Table 4-6 (Cont'd.)
Organic Indicator Compound and Field Data
Soil Samples
Arkwood, Inc. Site
Omaha, Arkansas

				ANALYTICAL DATA															FIELD DATA		
Hole No.	Total Depth	Bedrock Encountered	Sample Interval	Anthracene (ppm)	Benzo(a)-anthracene (ppm)	Benzo(b)-fluoranthene (ppm)	Benzo(k)-fluoranthene (ppm)	Benzo(a)-pyrene (ppm)	Chrysene (ppm)	Fluoranthene (ppm)	Naphthalene (ppm)	Phenanthrene (ppm)	Pyrene (ppm)	Fluorene (ppm)	Acenaphthene (ppm)	Pentachlorophenol (ppm)	Total Furans 2378-TCDF Equivalence (ppb)	Total Dioxins 2378-TCDD Equivalence (ppb)	Evidence of Wood Treating Compounds Visual (c)	Olfactory (c)	HNU (ppm
MW-2	54.3'	Y	4-5'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (3.2)	NA	NA	-	No	0
			9-10' (b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
			14-15'(b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
			19-20'(b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
MW-3	50.3'	Y	35-35.3'	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (3.2)	NA	NA	-	No	0
MW-4	18.5'	Y	4-5' (b)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	0
			14-15'	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	ND (6.6)	15	ND (6.6)	ND (6.6)	ND (6.6)	36	NA	NA	-	Yes	2.'
MW-6	112.3'	Y	0-2'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	3.4	NA	NA	-	No	
			5-7'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (1.6)	NA	NA	-	No	
MW-8	19' (e)	Y	10-11'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	0.33	ND (0.33)	ND (0.33)	ND (0.33)	10	NA	NA	No	?	
MW-8b	20.5' (f)	Y	0-2'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	7.2	NA	NA	-	No	3
			10-12'	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (1.6)	NA	NA	Yes	Yes	3
			15-17'	2.5	0.39	ND (0.33)	ND (0.33)	ND (0.33)	0.41	2.8	2.6	15	1.5	5.5	5	ND (1.6)	NA	NA	-	Yes	6
MW-9a	14.8' (g)	Y	0-2'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	?	No	
MW-10a	19' (h)	Y	0-2'	ND (0.33)	0.35	0.53	0.78	0.47	0.48	ND (0.33)	ND (0.33)	ND (0.33)	0.56	ND (0.33)	ND (0.33)	ND (1.6)	NA	NA	-	No	-
			10-12'	0.55	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	0.4	2.5	5.3	ND (0.33)	1.6	1	5.9	NA	NA	Yes	Yes	:
MW-10b(i)			10-12'	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	0.47	1.6	ND (0.33)	0.4	ND (0.33)	3.3	NA	NA	-	-	

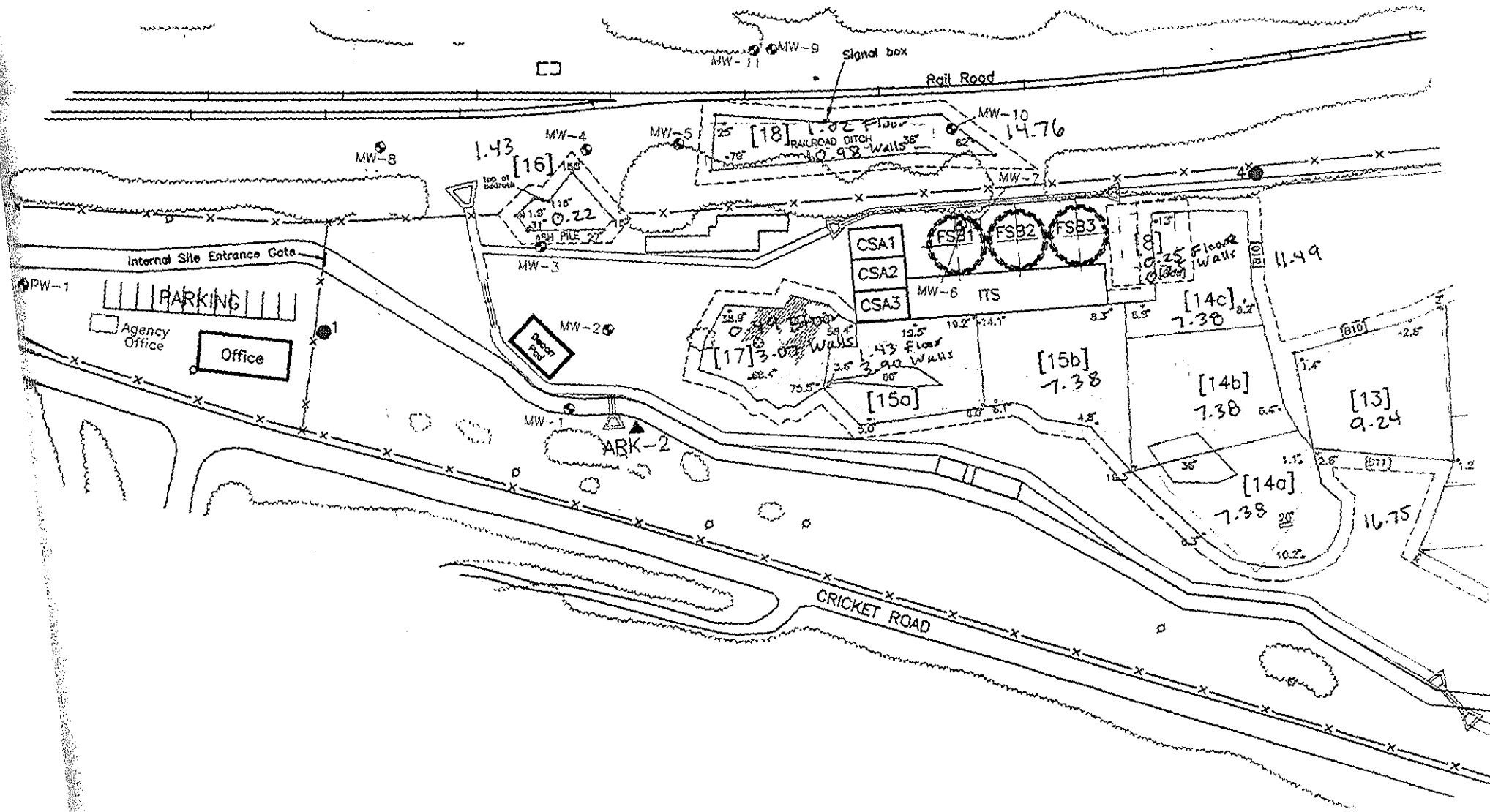
NOTES:
(a) = Extracted but not analyzed.
(b) = Screened for Naphthalene and/or PCP by GC.
(c) = "?" indicates an inconclusive field observation; "-" indicates no specific observation recorded.
(if no evidence of wood treating compounds was observed, typically no note was made of this in the log book.)
(d) = HNU meter calibrated to read directly in ppm of benzene.
(e) = Original MW-8 drilled 100' northwest of existing MW-8. Original borehole was grouted up.
(f) = Monitor well MW-8 installed in borehole MW-8b.
(g) = Monitor well MW-9 installed in borehole MW-9a.
(h) = Monitor well MW-10 installed in borehole MW-10a.
(i) = Duplicate of MW-10a 10-12', but due to plasticity of clay, samples could not be homogenized well during the sampling.

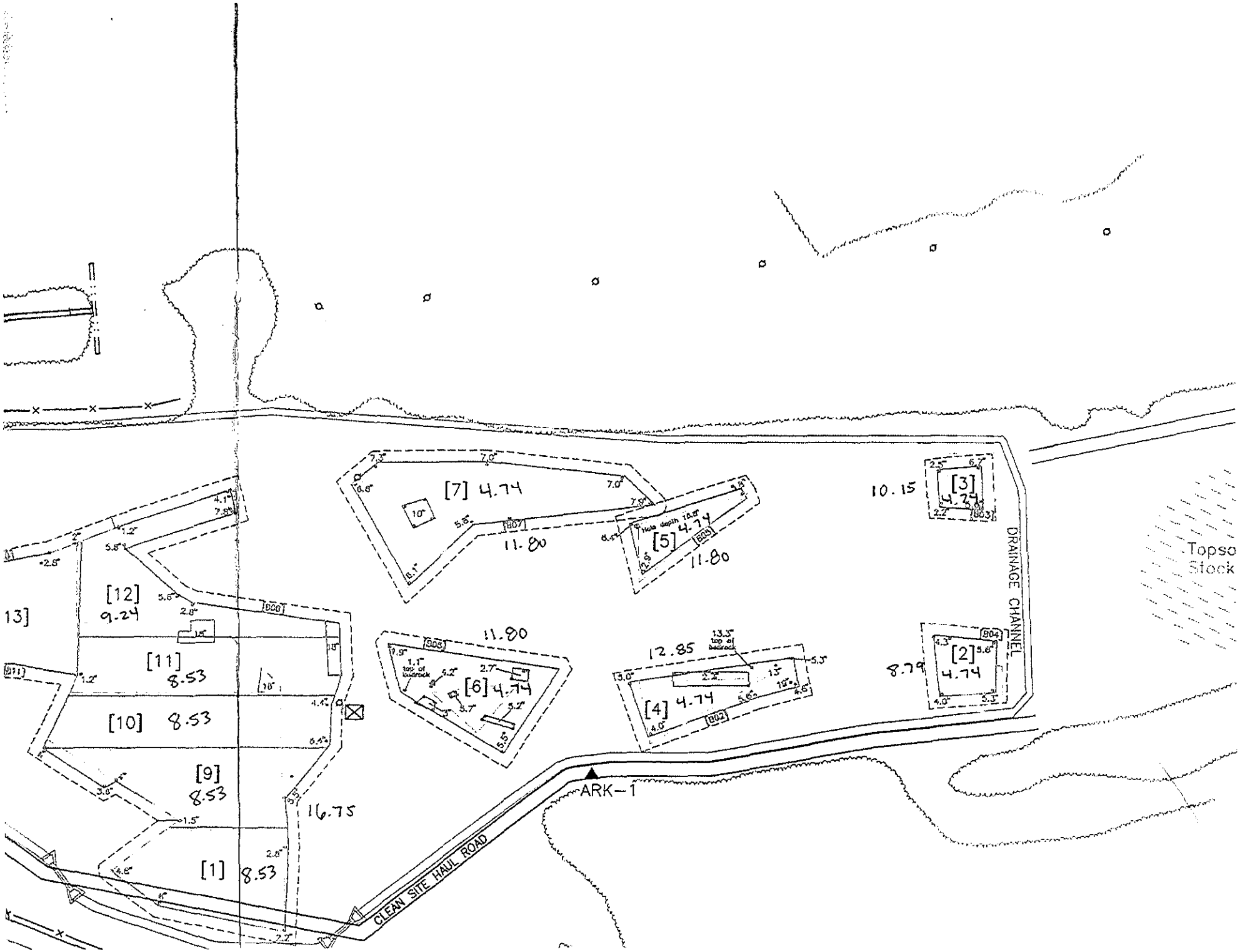
ND = Not detected; (value = detection limit).
NA = Not analyzed.

Explanation:

1.43 outside a cell: Dioxin (ppb) cell boundary results [2378-TCDD equivalence]

0.22 inside a cell: Dioxin (ppb) cell verification results

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11.80
[5] 4.74
11.80
10.15
[3] 4.74
DRAINAGE CHANNEL
Topso
Stock
[12] 9.24
[11] 8.53
[10] 8.53
[9] 8.53
[1] 8.53
16.75
11.80
[6] 4.74
12.85
[4] 4.74
8.79
[2] 4.74
ARK-1
CLEAN SITE HAUL ROAD

TABLE 4-1
FINAL BOUNDARY CELL ANALYTICAL RESULTS

Boundary Cell Number	Avong Cell Numbers	Analytical Results									
		Number of Composites	RO[a] < 300 ppm[b]			RO < 60 ppm			RO < 20 ppb[c]		
			PCP[d] (ppm)			c-PNA[e] (ppm)			Dioxin (ppb)		
			Ave Conc	Std Dev	95% UCL[f]	Ave Conc	Std Dev	95% UCL	Ave Conc	Std Dev	95% UCL
2	4	4	135	84	225	3.97	0.02	3.99	8.79	6.88	16.13
3	3	4/6[g]	52	29	83	2.49	0.26	2.76	10.15	8.61	16.97
4	2	3	60	23	91	0.95	0.00	0.95	12.85	3.50	17.60
5	5	3	76	10	89	1.44	0.76	2.47	*		
6	6	3	57	2	59	1.73	0.00	1.73	*		
7	7	3	254	18	279	4.77	0.00	4.77	*		
567	5, 6, & 7	3	**						11.80	1.20	13.42
8	8	3	11	8	21	1.61	0.20	1.88	*		
9	1, 9, 10, 11, & 12	6	210	86	279	3.52	0.88	4.22	*		
10	13, 14b, 14c, 8	3	64	15	85	0.87	0.68	1.79	11.49	1.91	14.09
11	10, 13, 14, & 15	3	159	24	191	0.95	0.00	0.95	*		
8911	see 8, 9, & 11	3	**						16.75	0.32	17.18
16	Ash Pile	3	3	0	3	0.95	0.00	0.95	1.43	1.14	3.35
18	Railroad Ditch	3\6[h]	15	9	27	0.95	0.00	0.95	14.76	5.99	19.51

NOTES:
- * Dioxin composite results listed below.
- ** Individual cell results listed above.
- a. RO = Remedial Objectives as defined in the Consent Decree.
- b. ppm = parts per million.
- c. ppb = parts per billion.
- d. PCP = Pentachlorophenol.
- e. c-PNA = carcinogenic polynuclear aromatic hydrocarbons.
- f. UCL = Upper Confidence Limit.
- g. Four composites were submitted for PCP and c-PNA analyses; 6 composites were submitted for dioxin analyses.
- h. Three composites were submitted for PCP and c-PNA analyses; 6 composites were submitted for dioxin analyses.

TABLE 3-2
SUMMARY OF CELLS

Cell Number	Depth of Aeration (inches)	Depth of Original Excavation (inches)	Additional Excavation(s) (inches)	Final Verification Sampling Results									
				Number of Composites	RO < 500 ppm PCP[e] (ppm)			RO < 610 ppm c-PNA[f] (ppm)			RO < 20 ppb[d] Dioxin (ppb)		
					Ave. Conc.	Std. Dev.	95% UCL[g]	Ave. Conc.	Std. Dev.	95% UCL	Ave. Conc.	Std. Dev.	95% UCL
1	3	3	NA[h]	3	25	9	36	0.95	0.00	0.95	*		
2	3	3	3	3	12	3	15	1.73	0.00	1.73	*		
3	3	3	NA	3	16	3	20	1.73	0.00	1.73	*		
4[i]	3	3/12	3	3	168	43	227	2.45	0.55	3.19	*		
5	3	3	NA	3	27	32	70	1.73	0.00	1.73	*		
6	3	3	3	3	231	42	289	0.95	0.00	0.95	*		
7[k]	3	3/12[j]	3	3	198	30	239	1.03	0.08	1.14	*		
8 (Floor)	NA	48	NA	3	7	7	16	0.95	0.00	0.95	0.25	0.13	0.43
8 (Walls)	NA	NA	NA	3	7	7	16	0.95	0.00	0.95	0.25	0.13	0.43
9	3	3	NA	3	49	20	77	0.95	0.00	0.95	*		
10	3	3	NA	3	127	14	147	1.07	0.11	1.22	*		
11	3	3/18[j]	6 to 18	3	114	40	169	0.63	0.03	0.67	*		
12	3	3	NA	3	143	10	156	0.98	0.02	1.01	*		
13	3	3	NA	3	236	33	281	0.96	0.01	0.96	*		
14a	3	3/12[j]	NA	3	143	58	222	0.68	0.05	0.75	*		

NOTES:

a. Additional excavations were in discrete areas except for the Cell 16 (ash pile).
b. RO = Remedial Objectives as defined in the Consent Decree.
c. ppm = parts per million.
d. ppb = parts per billion.
e. PCP = Pentachlorophenol.
f. c-PNA = carcinogenic polynuclear aromatic hydrocarbons.
g. UCL = Upper Confidence Limit.
h. NA = Not applicable.
i. Includes the eastern end of Cell 7, in accordance with agreement between MMI and EPA.
j. Indicates that cell was excavated at two depths as specified in the IRAD.
k. Includes the western, 10,000 ft^2 of Cell 7, in accordance with agreement between MMI and EPA.
* Dioxin composite results listed below
** Individual cell results listed above

TABLE 3-2
SUMMARY OF CELLS
(continued)

CELL NUMBER	DEPTH OF EXCAVATION (inches)	DEPTH OF ORIGINAL EXCAVATION (inches)	ADDITIONAL EXCAVATION(S) (inches)	FINAL VERIFICATION SAMPLING RESULTS									
				Number of Composites	RO < 500 ppm[c]			RO < 6.0 ppm[c]			RO <20 ppb[d]		
					VOC[e] (ppm)			c-PNA[f] (ppm)			Dioxin (ppb)		
					Ave Conc	Std Dev	95% UCL[g]	Ave Conc	Std Dev	95% UCL	Ave Conc	Std Dev	95% UCL
14b	3	3/12	3	3	46	8	56	1.10	0.17	1.34	*		
14c	3	3	NA	3	198	14	217	1.35	0.02	1.38	*		
15a (Floor)	NA	3/60	NA	3	175	8	185	1.18	0.08	1.29	1.43	0.63	2.29
15a (Walls)	NA	NA	NA	3	61	23	92	0.76	0.44	1.36	3.90	1.36	5.74
15b	3	3	3	3	48	21	77	1.27	0.48	1.92	*		
16 (Ashpile)	NA	36	variable - see Figure 2	3	4	6	11	0.48	0.00	0.48	0.22	0.15	0.42
17 (Sinkhole Floor)	NA	variable - see Figure 2	NA	3	41	11	57	1.21	0.96	2.52	0.49	0.30	0.89
17 (Sinkhole Walls)	NA	NA	NA	3	37	25	71	0.71	0.17	0.94	3.07	3.14	7.33
18 (Railroad) (Floor)	NA	48	NA	3	118	32	161	1.00	0.08	1.11	1.02	0.15	1.22
18 (Railroad) (Walls)	NA	NA	NA	3	23	13	40	0.95	0.00	0.95	10.98	2.01	13.71

NOTES:

a. Additional excavations were in discrete areas except for the Cell 16 (ash pile).
b. RO = Remedial Objectives as defined in the Consent Decree.
c. ppm = parts per million.
d. ppb = parts per billion.
e. PCP = Pentachlorophenol.
f. c-PNA = carcinogenic polynuclear aromatic hydrocarbons.
g. UCL = Upper Confidence Limit.
h. NA = Not applicable.
i. Includes the eastern end of Cell 7, in accordance with agreement between MMI and EPA.
j. Indicates that cell was excavated at two depths as specified in the IRAD.
k. Includes the western, 10,000 ft^2 of Cell 7, in accordance with agreement between MMI and EPA.
* Dioxin composite results listed below
** Individual cell results listed above

TABLE 3-2
SUMMARY OF CELLS
(continued)

Cell Number	Depth of Aeration (inches)	Depth of Original Excavation (inches)	Additional Excavation(s) (inches)	Final Verification Sampling Results									
				Number of Composites	RO[a] < 500 ppm			RO < 50 ppm			RO < 20 ppb		
					PCP (ppm)			c-PNA (ppm)			Dioxin (ppb)		
					Ave Conc	Std Dev	95% UCL	Ave Conc	Std Dev	95% UCL	Ave Conc	Std Dev	95% UCL
Dioxin Composite of: Cells 2,3,4,5, 6, & 7				3	**						4.74	0.63	5.60
Cells 1,9, 10, & 11				3	**						8.53	1.28	10.27
Cells 12 and 13				3	**						9.24	1.32	11.03
Cells 14a, 14b, 14c and 15b				3	**						7.38	1.33	9.19

NOTES:

a. Additional excavations were in discrete areas except for the Cell 16 (ash pile).
b. RO = Remedial Objectives as defined in the Consent Decree.
c. ppm = parts per million.
d. ppb = parts per billion.
e. PCP = Pentachlorophenol.
f. c-PNA = carcinogenic polynuclear aromatic hydrocarbons.
g. UCL = Upper Confidence Limit.
h. NA = Not applicable.
i. Includes the eastern end of Cell 7, in accordance with agreement between MMI and EPA.
j. Indicates that cell was excavated at two depths as specified in the IRAD.
k. Includes the western, 10,000 ft^2 of Cell 7, in accordance with agreement between MMI and EPA.
* Dioxin composite results listed below
** Individual cell results listed above