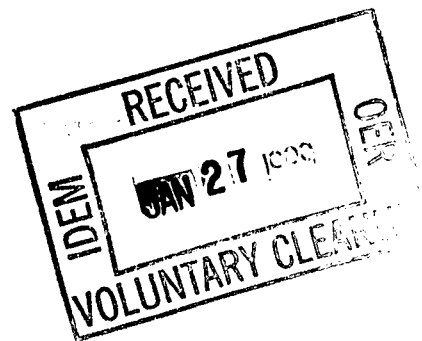


**SOIL MANAGEMENT REPORT
WESTERN CARBON BRAKE EXPANSION**

**ALLIEDSIGNAL INDUSTRIAL COMPLEX
SOUTH BEND, INDIANA**



PREPARED FOR:



PROJECT NUMBER 9822-05

NOVEMBER 1998

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WESTERN CARBON BRAKE EXPANSION**

**ALLIEDSIGNAL INDUSTRIAL COMPLEX
SOUTH BEND, INDIANA**

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1. INTRODUCTION

AlliedSignal, Inc. (AlliedSignal) expanded its existing Carbon Brake operations at the AlliedSignal Industrial Complex in South Bend, Indiana. A 65,000 square-foot building was constructed west of the existing Carbon Brake facility (west of Plant 4A). The footprint of the expansion and adjacent site features are shown on Figure 1.

The structure consists of a one story, steel-frame, metal building with a slab-on-grade floor. Footers for building walls and columns extend 4 feet below grade. Column spacing was 25 feet in the east/west direction and ranged from 40 feet to 70 feet in the north/south direction. Utility tunnels were constructed and extend to a depth of 13 feet below grade. The locations of the tunnels are shown on Figure 2. Storm sewer system installation and modifications were required as part of the expansion. The location of the storm sewer lines is also shown on Figure 2. The existing stormwater retention basin west of the parking lot was expanded to the north to increase storage capacity.

Prior to the expansion and as part of an on-going Voluntary Site Investigation (VSI) being conducted at the facility, soil and groundwater samples from the Western Expansion Area were collected and analyzed for constituents of concern at the facility¹. The results indicated that low concentrations of volatile fuel constituents, chlorinated solvents, and polychlorinated biphenyls (PCBs) might be encountered during the excavation activities in the expansion area. Of primary concern was the detection of PCBs in the southeast corner of the expansion area. The initial location of the proposed expansion building was relocated specifically to avoid the area of PCBs detections.

Due to the potential for impacted soils to be encountered, AlliedSignal secured Harding Lawson Associates (HLA) to assist excavation contractors with the management of soils handled during construction activities. HLA developed a Soil Management Plan for the project². The plan documented the approach to segregating and stockpiling excavated soil in a safe, technically-sound, manner. HLA

COPY?
¹ "Evaluation of Environmental Issues, Potential Western Carbon Brake Expansion Area", prepared by ABB Environmental Services, Inc. for AlliedSignal, Inc., August 1997.

² "Soil Management Plan, Excavation of potentially compounded soils, Western Carbon Brake Expansion", prepared by ABB Environmental Services, Inc. for AlliedSignal, Inc., August 1997.

also prepared technical specifications for soil excavation which were used for bidding purposes. The specifications detailed project-specific requirements for soil handling, as well as requirements for training, medical monitoring, personal protective equipment, ambient air monitoring, decontamination, and spill control/prevention.

Soils were only excavated to the extent necessary to support the construction. Excavation activities occurred in two phases. The first phase of earthwork was initiated in late August 1997. Phase One involved the removal of approximately 3 feet of soil across the entire construction area to the finished floor elevation of the existing Carbon Brake Building (approximately 15,900 cubic yards of soil managed). Phase Two of the excavation began on September 8, 1997, immediately after the completion of Phase One activities. Phase Two activities involved the excavation of soils in support of constructing building walls, column footers, utility tunnels, a stormwater retention basin, storm/water utility lines associated with the new building, and an above-grade propane tank pad (approximately 28,000 cubic yards of soil managed). Phase Two was completed in July 1998. This report documents the excavation activities associated with the Western Carbon Brake Expansion Area. The report describes the segregation protocol, the engineering controls for the excavation activities, analytical results, soil disposal, and a free product investigation.

2. SOIL SEGREGATION PROTOCOL

As a precautionary measure, excavation activities were performed by the Occupational Safety and Health Administration (OSHA)-trained workers in accordance with a site-specific Health and Safety Plan (HASP)³. Appropriate personal protective equipment was worn by all on-site workers. Air monitoring and equipment and personnel decontamination was performed as needed during two phases of work.

Prior to the excavation activities, HLA identified three different areas of soil within the expansion area that represented different levels of potential impact by contaminants. The estimated extent of the three soil areas is shown on Figure 3. The protocols used for soil management in each area are described below and summarized on Table 1.

³ "Health and Safety Plan, Addendum #1, Soil Excavation, Western Carbon Brake Expansion", prepared by ABB Environmental Services, Inc. for AlliedSignal Inc., August 1997.

As the soil was excavated, HLA on-site personnel screened the ambient air in the immediate vicinity of the excavation and in the area where the soils were stockpiled using a direct reading photoionization (PI) meter. As necessary, soils headspace screening was performed by collecting soil samples in a Ziploc bag, heating the samples, and measuring the headspace in the bag with a PI meter. HLA on-site personnel observed the excavated soils for visual and olfactory signs of impacts (including oily soils, discoloration, the presence of fill materials, and chemical/petroleum odors).

In Area A (see Figure 3), pre-excavation sampling indicated the potential to encounter low concentrations of volatile organic compounds (VOCs) in soils. During excavation activities, the majority of the soil removed from Area A had PI meter readings of less than 20 parts per million (ppm) with no evidence of significant discoloration or odor. This soil was preliminary identified as "low concentration soil", placed on asphalt pavement, and covered with plastic. When PI meter readings from excavated soils were greater than 20 ppm, the soil was stockpiled as "high concentration soils" (Area B soils), placed in a plastic-lined berm on asphalt pavement, and covered with plastic. An effort was made to separate apparently clean soils from low concentration soils within the Area A stockpile area.

Soils were stockpiled in 100 cubic yard piles, and a composite sample was collected from each pile for laboratory analysis. Samples were submitted to EIS Analytical Services, Inc (EIS), South Bend, Indiana, for VOCs analysis by U.S. Environmental Protection Agency (USEPA) Method 8260. The analysis included volatile fuel constituents, chlorinated solvents, and constituents of Stoddard and naphtha (i.e., n-propylbenzene, trimethylbenzenes). As part of the VOC analysis, each chromatogram was reviewed for indications of potential heavier end hydrocarbons. If the chromatograph indicated the potential for heavier end hydrocarbons, the sample was analyzed for polynuclear aromatic hydrocarbons (PNAs). EIS provided one-week turnaround on the analysis so that soils could be managed in a timely manner.

In Area B (see Figure 3), soils containing higher concentrations of VOCs were identified in pre-excavation investigation activities and there was a potential that PCB-impacted soil could be excavated. All soils from Area B were initially stockpiled as "high concentration soils". Based on PI meter, visual, and olfactory signs of contamination, sub-areas within the Area B stockpile were developed as space allowed to segregate potentially low concentration and apparently clean soils from within Area B. Soils were stockpiled in 100 cubic yard piles, and a composite sample was collected from every pile and analyzed by EIS for VOCs, PCBs, and, if indicated by the chromatographs, PNAs.

In Area C (see Figure 3), only clean soils were anticipated. This assumption was field verified by non-detectable PI meter readings and no visual or olfactory indications of impact (e.g., no oil, discoloration, evidence of fill, chemical or petroleum odors) in most areas. When low or high concentration soils were found in Area C, they were placed in the appropriate stockpile area (Area A or Area B soils, respectively). Area C soils were stockpiled in 500 cubic yard piles, and a composite sample was collected from every pile and analyzed by EIS for VOCs. As previously described, PNA analyses were performed when chromatograms indicated possible heavier end hydrocarbons.

3. ENGINEERING CONTROLS DURING EXCAVATION

During the construction activities, engineering controls were utilized as necessary to minimize or eliminate potential construction worker exposure to impacted soils or vapors. These actions are described below.

As discussed in Section 4.1, the exposed ^{what exposed well?} wall in the southeast corner of the construction area was found to contain soils with PCBs in two samples (B-7 and B-8) at 1,570 milligrams per kilogram (mg/kg) and 2.04 mg/kg, respectively. In November 1997, the wall was covered with a reinforced poly-liner overlain by stone riprap. This barrier eliminated potential worker exposure and minimized any runoff due to rain.

These PCB detections are associated with an area of PCB-impacted soil to the southeast that is being addressed separately through an on-going investigation.

In December 1997, a stone roadway was built in the southeast corner of the construction area due to the presence of potentially elevated levels of PCBs in near-grade soils (as discussed in Section 4.1). As a result of weather conditions, these soils had become saturated by rainwater runoff from the new building roof. Because workers had required access to this area in order to construct the building, the wet soils were removed and placed in a lined and covered berm. Crushed stone was placed in the southeast corner to act as an exposure barrier covering the area of PCB-impacted soil. The barrier minimized any contact with or tracking of the potentially impacted soils and allowed for vehicle traffic in the area.

In January 1998, VOC-impacted soils were encountered during excavation activities on the west end of the partially completed south tunnel. Vapors from these soils were migrating into the south tunnel, which was under construction. Elevated PI meter readings were recorded in ambient air within the tunnel. Industrial fans were placed at the open end of the tunnel (west end) to evacuate vapors from the

tunnel. This measure reduced ambient vapor levels in the tunnel and eliminated the potential for worker exposure.

In April 1998, during excavation of utility lines to the propane tank area, volatile organic vapor readings indicated by the PI meter were sustained in the breathing zone of the OSHA-trained trackhoe/loader operators at concentrations of up to 12 ppm. Subsurface soil analytical data indicated the potential for chlorinated solvents above the OSHA Permissible Exposure Limit (PEL). After excavation was completed, construction workers were scheduled to enter the trench to install piping and electrical for the tank. The air monitoring results indicated that the construction personnel could be in a situation of potential exposure above the PEL. To provide an exposure barrier for the construction workers, visquene was placed along the sidewalls of the trench and a 1-foot-thick layer of clean fill sand was placed at the bottom of the trench. During construction activities, HLA monitored the breathing zone and visually assessed the integrity of the visquene to confirm the effectiveness of the exposure barrier. All PI meter readings were background or non-detectable.

4. SOIL ANALYTICAL RESULTS

Phase One excavation activities involved the removal of approximately 3 feet of soil across the entire expansion area to the elevation of the existing Carbon Brake Building. The cubic yards of soil removed by area are shown in Table 2. Approximately 15,900 cyds of soil were managed during Phase One excavation activities. Volume estimates were based upon the number of trucks loaded as the soil was excavated. Each truckload was estimated to contain 15 cubic yards of soil. Phase Two excavation activities involved the excavation of approximately 28,000 cubic yards of soil to construct building walls, column footers, utility tunnels, the stormwater retention basin, storm/water utility lines, and roadways.

Laboratory analytical results for collected soil samples are summarized in Appendix A. A discussion of the laboratory results of the excavated soils is presented below.

4.1 PCBs IN SOILS

Table 3 provides a summary of the PCB analytical results for the soil excavated during Phase One. The table also indicates the excavation cut associated with each sample. Figure 4 illustrates the location of the excavation cuts. Comparing the excavation cut designations on the table to the excavation cut locations on the figure indicates that the area of PCBs in soil extended further north and further west than was interpreted based upon the pre-excavation soil sampling. Although the building location was moved to avoid the area known to contain PCBs in soil, PCB-impacted soils were still encountered during the excavation activities. During Phase One, a total of 46 composite soil samples were submitted to EIS for analysis of PCBs. Detected concentrations of PCBs in composite soil samples from the Area B stockpiled soils ranged from 0.28 mg/kg to 310 mg/kg.

A post-excavation soil sampling grid was established after completion of Phase One following the USEPA's "Field Manual for Grid Sampling of PCB Spill Sites to Verify Cleanup". The post-excavation sampling grid is illustrated on Figure 5 and the analytical results are summarized on Table 4. Soil samples were collected at 38 locations from 0 to 2 feet below the grade of the Phase One excavation in Area B. The post-excavation sampling results indicated that the area of PCBs in soil is now limited to the area where PCBs were detected during the VSI (southeast of the expansion area).

As previously mentioned, two sidewall samples collected from the southeast corner of the excavation area (samples B-7 and B-8 on Figure 5) exhibited detectable concentrations of PCBs at 1,570 mg/kg and 2.04 mg/kg, respectively. Due to the reported elevated concentrations of PCBs, the sidewall slope was covered with fiber reinforced plastic overlain by stone riprap to eliminate potential construction worker exposure and minimize runoff during rain events.

Continued excavation was performed at greater depths in this area during Phase Two (samples SP-B-47 through SB-B-96 in Appendix A). PCBs were detected in only 8 of the 46 samples. Only 4 of the samples had PCBs in excess of 1 mg/kg (at concentrations ranging from 0.45 mg/kg to 4.8 mg/kg). These four samples were collected in the southeast corner of the expansion area adjacent to the area known to contain PCBs in soil.

Under recent amendments to Toxic Substance Control Act (TSCA) (40 CFR 761.61), the USEPA has established a cleanup criteria of 25 mg/kg for PCBs in subsurface soils at industrial site which have restricted access. This regulation also allows for PCB concentrations up to 100 mg/kg if the site is covered by a cap. The Indiana Department of Environmental Management (IDEM) Tier II Cleanup Goal for PCBs under the non-residential direct contact scenario is 66.23 mg/kg. Detected concentrations were well below these criteria.

Clarify state-fed stance on coverage!

A groundwater sample was collected from a monitoring well (MW-2) located immediately downgradient of the area of PCB detections in December 1996. A total PCB concentration of 1.1 ug/L (micrograms per liter) was detected in the sample. The well was resampled in June of 1997 and the resulting PCB concentration was 1.3 ug/L. The groundwater samples were collected with a bailer, were not field filtered, and both of the groundwater samples were turbid. Since PCBs are relatively immobile and their migration to groundwater is uncommon, the turbid samples raised concern that the PCB detection may be related to fine particulates suspended in the groundwater.

Low-flow groundwater sampling was conducted at wells MW-2, and further downgradient monitoring wells MW-3, 7-25, and 7-50 in July 1997. The low-flow groundwater samples collected from MW-2, MW-3, 7-25, and 7-50 were non-detectable for PCBs. These data indicated that PCBs in the soils are not present in dissolved-phase groundwater. The PCB previously detected in groundwater samples from well MW-2 was likely attributed to suspended sediments in the sample matrix resulting from purging and sampling with a bailer.

4.2 ORGANIC COMPOUNDS IN SOILS

A summary of the laboratory results for organic compounds in composite samples collected from all areas during the expansion activities is provided in Appendix A. A total of 233 composite samples were submitted for VOC analysis, and when indicated by the chromatograph, samples were analyzed for PNAs. When detected, total organic compound concentrations in excavated soils ranged from 0.057 mg/kg to 138.68 mg/kg.

Table 5 summarizes the range in concentration for each detected compound and the frequency of detection in each area. In general, excavated soils from Area B contained the highest concentrations of organic compounds.

5. SOIL STOCKPILE MANAGEMENT

The stockpiled soils were managed in one of two ways: (1) transported off-site to an appropriate disposal facility; or (2) reused as backfill material on-site. Clean soils or soils impacted with low levels of VOCs meeting the reuse criteria established for the project (see Appendix B) were either re-used as backfill during construction or placed on a berm. Soils impacted with VOCs above the reuse criteria which did not contain PCBs were transported to a special waste landfill under a permit approved by IDEM. PCB-impacted soils were transported to a TSCA-approved disposal facility, and IDEM was notified of the disposal. Each management option is described below.

5.1 WASTE CHARACTERIZATION SAMPLING

To characterize the soil for disposal, composite samples of the soil were collected and analyzed for corrosivity (pH), reactivity (total cyanide and total sulfide), ignitability (flashpoint), moisture, paint filter liquids, PCBs, TCLP-VOCs, TCLP-semivolatile organic compounds (SVOCs), and TCLP-metals. Analytical results are provided in Appendix C.

5.2 DISPOSAL OF PCB/VOC-IMPACTED SOIL

When analytical results indicated PCBs in excess of 50 mg/kg, the soil was considered to be TSCA-regulated and was disposed at The Environmental Quality Company's Wayne Disposal landfill, Belleville, Michigan, a TSCA-approved facility. The total quantity of soil disposed at EQ was 5,872 tons. The transportation occurred in October/November 1997 and June 1998. In a letter dated October 3, 1997, IDEM was notified of the intent to dispose of the soil in a TSCA-permitted landfill.

Plastic used for construction of the berms was disposed along with the soil. Prior to removal of the bermed wet soil (discussed in Section 3.0), rainwater was removed from the berm and placed in 55-gallon capacity drums. Disposal of the 60 drums is discussed in Section 6.0.

5.3 DISPOSAL OF VOC IMPACTED STOCKPILED SOILS

The detection of VOCs in the soil required that Resource Conservation and Recovery Act (RCRA) hazardous waste identification requirements be considered. VOC-impacted soil originating from an unknown source was encountered during the previous carbon brake expansion conducted in 1993 just east of this area. At that time, IDEM agreed that TCLP would be used for hazardous waste

determination. Considering this precedent, the TCLP test was used for hazardous waste determination on this soil.

TCLP analytical results indicated that the soil was non-hazardous by characteristic (i.e., the soil was not a RCRA waste). In the Fall of 1997, a Special Waste Permit Application was submitted to IDEM for disposal of the VOC-impacted soil at the WMI/Praireview Landfill, Wyatte, Indiana. IDEM approved disposal of the soil at Praireview Landfill under Special Waste Certification No. 70477. The permit was amended in June 1998 to allow for the disposal of additional soil.

The total quantity disposed at the Praireview Landfill was 6,006 tons. The transportation occurred in October/November 1997 and June 1998. Since the Area A soils were placed on asphalt, a rotary broom was used to clean off the asphalt during the soil removal process.

5.4 REUSE OF NON-IMPACTED OR LOW IMPACTED VOC STOCKPILED SOILS

The criteria for reuse of excavated soils as on-site backfill in the Western Expansion Area was non-detectable concentrations of PCBs and concentrations of individual VOCs less than 1 mg/kg (excluding vinyl chloride and 1,2-dichloroethane). The criteria for vinyl chloride was 0.3 mg/kg and the criteria for 1,2-dichloroethane (DCA) was 0.16 mg/kg. A memorandum detailing the criteria for soil reuse is presented in Appendix B. Soil that was suitable backfill material (free of organic material) was used as backfill. Soil that was not suitable as backfill was placed on a berm along the northwest property line.

6. DRUM DISPOSAL

As previously discussed, 50 55-gallon drums of ~~rainwater~~ were removed from the bermed soil excavated from the southeast corner of the site. Four (4) of the water drums had a thin layer of free product which had a fuel-like odor. Also, all heavy equipment that traveled through Area B (the area suspected to contain PCBs in soil) was required to be decontaminated by pressure washing. Ten (10) drums of water were generated during the decontamination of heavy equipment.

As described in Appendix D, these drums were sampled to characterize the waste for disposal. The analysis indicated the presence of VOCs in the water, and low levels of PCBs in sediment that accumulated in the bottom of some drums.

In September 1998, the water drums were emptied into the facilities combined storm/sanitary sewer system near Plant 11. Analytical results from the water samples indicated that the chemical concentrations were in compliance with the facility's wastewater discharge permit. The water was slowly decanted from the drums so that PCB-impacted sediment, which had accumulated in the bottom of the drums, could be removed (i.e., not discharged to the sewer). Free product in the four drums was removed and disposed through the facility's oil/water separator system.

The PCB-impacted sediment was combined into a three drums. Because the sediments contained a high amount of liquids, Wick Dry was added to the drums to stabilize the material for disposal. The drums PCB-impacted sediments were transported to Environmental Quality's Wayne Disposal landfill.

7. FREE PRODUCT INVESTIGATION

Free product was encountered during excavation of the south utility tunnel for the Western Carbon Brake Expansion. A sample of the oil was collected and analyzed. Analytical results, provided in Appendix E, indicated that neither PCBs nor chlorinated solvents were present in the product. The product contained 21.8 percent heptane and part per million concentrations of ethylbenzene, styrene, toluene, and xylenes. Gas chromatography fingerprinting indicated that heavy oil was also present in the sample.

In September 1997, an investigation was implemented to ascertain the extent of the free product in the area of the building expansion. A total of nine (9) temporary wells and seven (7) test pits were performed to evaluate the extent of free product encountered during construction activities. Boring logs are presented in Appendix F. Figure 8 illustrates the findings of the free product investigation. The results indicated that the product encountered during excavation of the utility tunnel was of limited extent and is only a thin layer (2.5-inches thick or less). Observations during temporary well installation and test pitting indicated that the product appeared to be seeping from a discontinuous silt lens present at the watertable, suggesting that the product may be "trapped" within this high porosity/low permeability layer.

TABLE 1
SUMMARY OF SOIL SEGREGATION PROTOCOL
WESTERN CARBON BRAKE EXPANSION BUILDING
AlliedSignal Industrial Complex
South Bend, Indiana

Soil Type	Monitoring/Segregation/Sampling		
	Field Protocol	Stockpile Area	Sampling Protocol
Low Concentration Soils (Type A)	• PI meter readings >0 ppm and <20 ppm. • Slight discoloration • Odors	Soil to be placed on asphalt pavement and covered	One sample per 100 cyds Each sample a composite of five locations Each composite analyzed for VOCs
High Concentration Soils (Type B)	• PI meter readings >20 ppm • Oily soils • Extreme discoloration • Strong odors	Soil to be placed within lined, bermed area on asphalt pavement and covered	One sample per 100 cyds Each sample a composite of five locations Each composite analyzed for VOCs and PCBs
Uncontaminated Soils (Type C)	• PI meter readings non-detectable • No visual/olfactory indication of contamination	Soil to be placed on north side of parking lot	One sample per 500 cyds Each sample a composite of five locations Each composite analyzed for VOCs

TABLE 2
VOLUMES AND WEIGHTS OF DISPOSED/BERMED SOIL
WESTERN CARBON BRAKE EXPANSION BUILDING
AlliedSignal Industrial Complex
South Bend, Indiana

	<i>Area A</i> (VOC <i>Impacted</i>)		<i>Area B</i> (PCB <i>Impacted</i>)		<i>Area C</i> (Clean)	
Phase I	2,800 yd ³	(a)	3,400 yd ³	(a)	9,700 yd ³	(a)
	3,827 tons	(c)	4,898 tons	(c)	13,580 tons	(d)
Phase II	1,900 yd ³	(g)	800 yd ³	(g)	25,292 yd ³	(g)
	2,179 tons	(e)	975 tons	(e)	35,409 tons	(d)
Total	4,700 yd ³	(g)	4,200 yd ³	(g)	34,992 yd ³	(g)
	6,006 tons	(b)	5,872 tons	(b)	48,989 tons	(d)

(a) based on analytical data and field book records

(b) based on landfill weight tickets

(c) based on a percentage of weight ticket records

(d) calculated using a conversion factor of 1.4 tons/cubic yard

(e) addition of Phase II tonnages (assumptions associated with previous numbers apply)

(f) based on soil pile map used in Haulout 2

(g) simple addition

(h) see supporting calculation sheets

TABLE 3
PCB Analytical Results for Soils
Western Carbon Brake Expansion
AlliedSignal Industrial Complex
South Bend, Indiana

Sample ID	Aroclor 1248 (mg/kg wet)	Aroclor 1254 (mg/kg wet)	Total PCB (mg/kg wet)	Excavation Cut
B-I Excavated Soil (Excavation to Common Grade - PCB Containing)				
SP-B-01	ND	0.28	0.28	1
SP-B-02	ND	0.35	0.35	
SP-B-03	3.30	2.10	5.4	
SP-B-04	ND	ND	ND	
SP-B-05	0.59	0.82	1.41	
SP-B-06	0.35	0.39	0.74	
SP-B-07	<0.33	0.38	0.38	
SP-B-09	7.40	5.20	12.6	
SP-B-10	16.00	11.00	27.00	
SP-B-11	27.00	17.00	44	
SP-B-12	100.00	59.00	159	
SP-B-13	160.00	83.00	243	
SP-B-14	47.00	28.00	75	
SP-B-15	58.00	34.00	92	
SP-B-16	7.40	5.10	12.5	2
SP-B-17	3.70	2.60	6.3	
SP-B-18	34.00	17.00	51	
SP-B-19	76.00	37.00	113	
SP-B-20	82.00	45.00	127	
SP-B-21	18.00	10.00	28	3/4
SP-B-22	6.80	3.90	10.7	
SP-B-23	19.00	11.00	30	
SP-B-24	4.00	3.40	7.4	
SP-B-25	200.00	110.00	310.00	
SP-B-26	0.39	ND	0.39	
SP-B-27	2.00	1.40	3.4	
SP-B-28	97.00	50.00	147	
SP-B-29	64.00	34.00	98	
SP-B-30	9.10	4.30	13.4	5
SP-B-31	ND	ND	ND	
SP-B-32	2.60	1.30	3.9	
SP-B-33	6.70	4.00	10.7	
SP-B-34	0.78	0.48	1.26	
SP-B-35	13.00	ND	13.00	
SP-B-36	0.49	0.37	0.86	
B-II Excavated Soil (Excavation to Common Grade - Non-PCB)				
SP-B-37	ND	ND	ND	5
SP-B-38	ND	ND	ND	
SP-B-39	ND	ND	ND	
SP-B-40	ND	ND	ND	
SP-B-41	ND	ND	ND	
SP-B-42	ND	ND	ND	
SP-B-43	ND	ND	ND	
SP-B-44	ND	ND	ND	
SP-B-45	ND	ND	ND	
SP-B-46	ND	ND	ND	

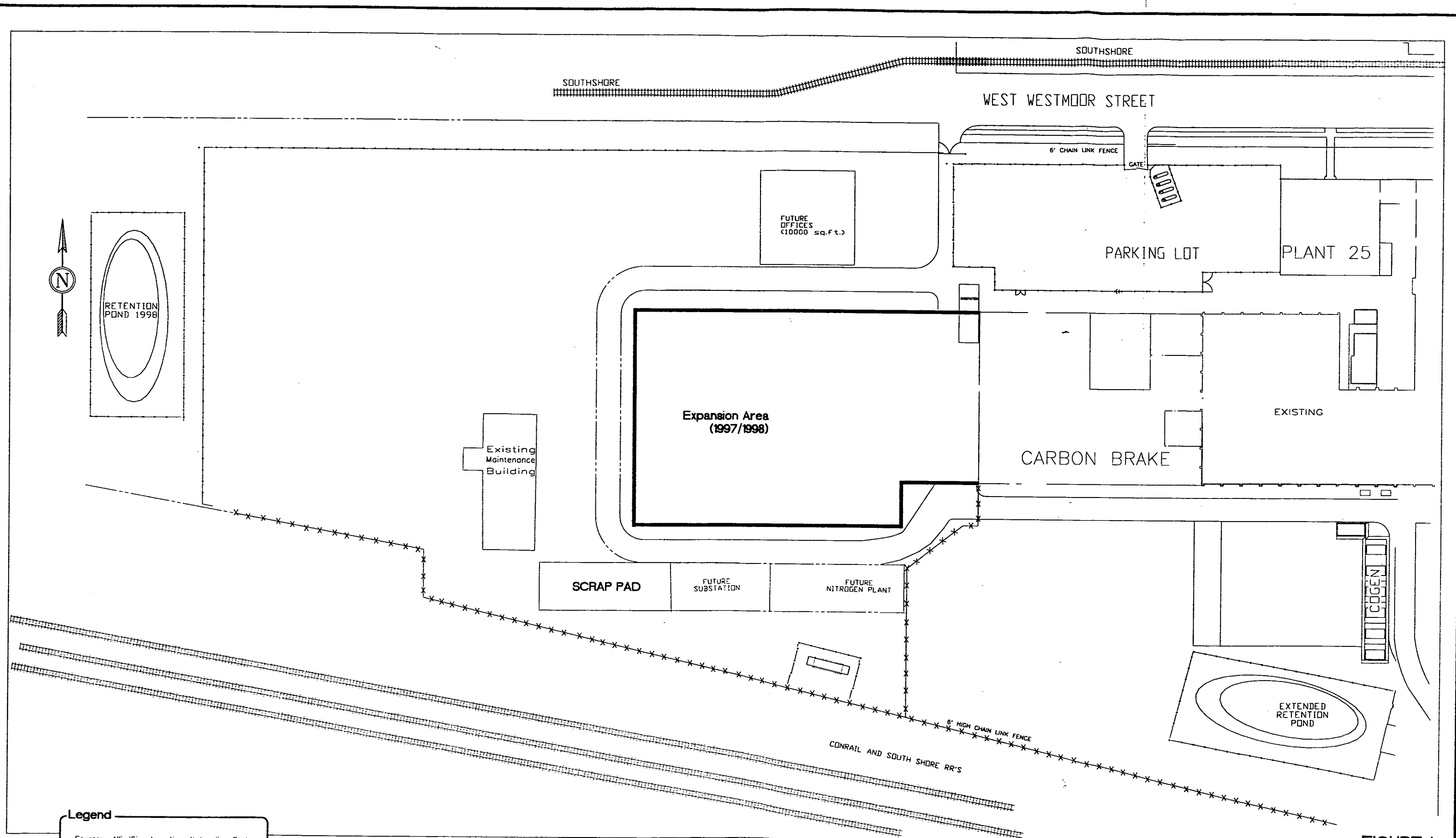
TABLE 4
PCB Analytical Results For Post-Excavation Grid Sampling
Western Carbon Brake Expansion
AlliedSignal Industrial Complex
South Bend, Indiana

Sample ID	Aroclor 1248 (mg/kg wet)	Aroclor 1254 (mg/kg wet)	Total PCB (mg/kg wet)	Excavation Cut
Pre-Excavation Sampling				
B-01	ND	ND	ND	
B-02	ND	ND	ND	
B-03	ND	ND	ND	
B-04	ND	ND	ND	
Grid Sampling				
B-05	ND	ND	ND	1
B-06	7.7	ND	7.7	
B-07	990	580	1570	
B-08	1.3	0.74	2.04	
B-09	ND	ND	ND	2
B-10	ND	ND	ND	
B-11	ND	ND	ND	3
B-12	ND	ND	ND	
B-13	ND	ND	ND	
B-14	ND	ND	ND	2
B-15	ND	ND	ND	4
B-16	ND	ND	ND	3
B-17	ND	ND	ND	
B-18	ND	ND	ND	2
B-19	ND	ND	ND	1
B-20	ND	ND	ND	5
B-21	ND	ND	ND	
B-22	ND	ND	ND	3
B-23	ND	ND	ND	2
B-24	ND	ND	ND	1
B-25	240	ND	240	5
B-26	ND	ND	ND	
B-27	ND	ND	ND	
B-28	ND	ND	ND	3
B-29	ND	ND	ND	1
B-30	ND	ND	ND	5
B-31	ND	ND	ND	
B-32	ND	ND	ND	3
B-33	ND	ND	ND	2
B-34	ND	ND	ND	1
B-35	ND	ND	ND	5
B-36	ND	ND	ND	
B-37	ND	ND	ND	
B-38	ND	ND	ND	
B-39	ND	ND	ND	1
B-40	ND	ND	ND	
B-41	ND	ND	ND	
B-42	ND	ND	ND	

TABLE 5
LOCATION SUMMARY OF DETECTED ORGANIC COMPOUNDS
WESTERN CARBON BRAKE EXPANSION
ALLIEDSIGNAL INDUSTRIAL COMPLEX
South Bend, Indiana

Compound	Frequency of Detection			Concentration Range mg/kg (wet)
	Area A	Area B	Area C	
Chloroethane	0	1	0	0.25
1,1-Dichloroethane	1	15	0	0.078 to 7.9
1,1-Dichloroethene	1	3	0	0.08 to 0.33
1,2-Dichloroethane	0	1	0	0.064
cis 1,2-Dichloroethene	2	22	5	0.059 to 58
trans 1,2-Dichloroethene	0	2	0	0.13 to 2.9
Tetrachloroethene	0	9	0	0.093 to 5.8
1,1,1-Trichloroethane	4	13	9	0.055 to 6.8
Trichloroethene	17	42	25	0.054 to 11
Vinyl Chloride	0	1	0	4
Benzene	0	3	0	0.052 to 0.19
Ethylbenzene	4	22	0	0.075 to 3.2
Toluene	4	21	0	0.061 to 0.95
Xylene, Total	6	20	0	0.11 to 11
Chlorobenzene	0	8	0	0.061 to 0.85
Isopropylbenzene	0	2	0	0.06 to 0.069
n-propyl Benzene	0	2	0	0.1
1,2,4-Trimethylbenzene	4	22	0	0.071 to 2.9
1,3,5-Trimethylbenzene	4	14	0	0.091 to 2.3
2-Methylnaphthalene	2	10	0	0.55 to 5.2
Naphthalene	5	11	0	0.1 to 1.9
Methyl Isobutyl Ketone	0	3	0	1.5 to 6.1
Phenanthrene	0	3	0	0.69 to 1.7

Notes: Area A - a total of 66 soil samples submitted for analysis
Area B - a total of 74 soil samples submitted for analysis
Area C - a total of 45 soil samples submitted for analysis



Legend

Source: AlliedSignal - Aircraft Landing Systems
Lawson-Fisherr Associates P.C.

FIGURE 1
APPROXIMATE LOCATION WESTERN CARBON BRAKE EXPANSION
ALLIEDSIGNAL INDUSTRIAL COMPLEX
SOUTH BEND, INDIANA

Harding Lawson Associates

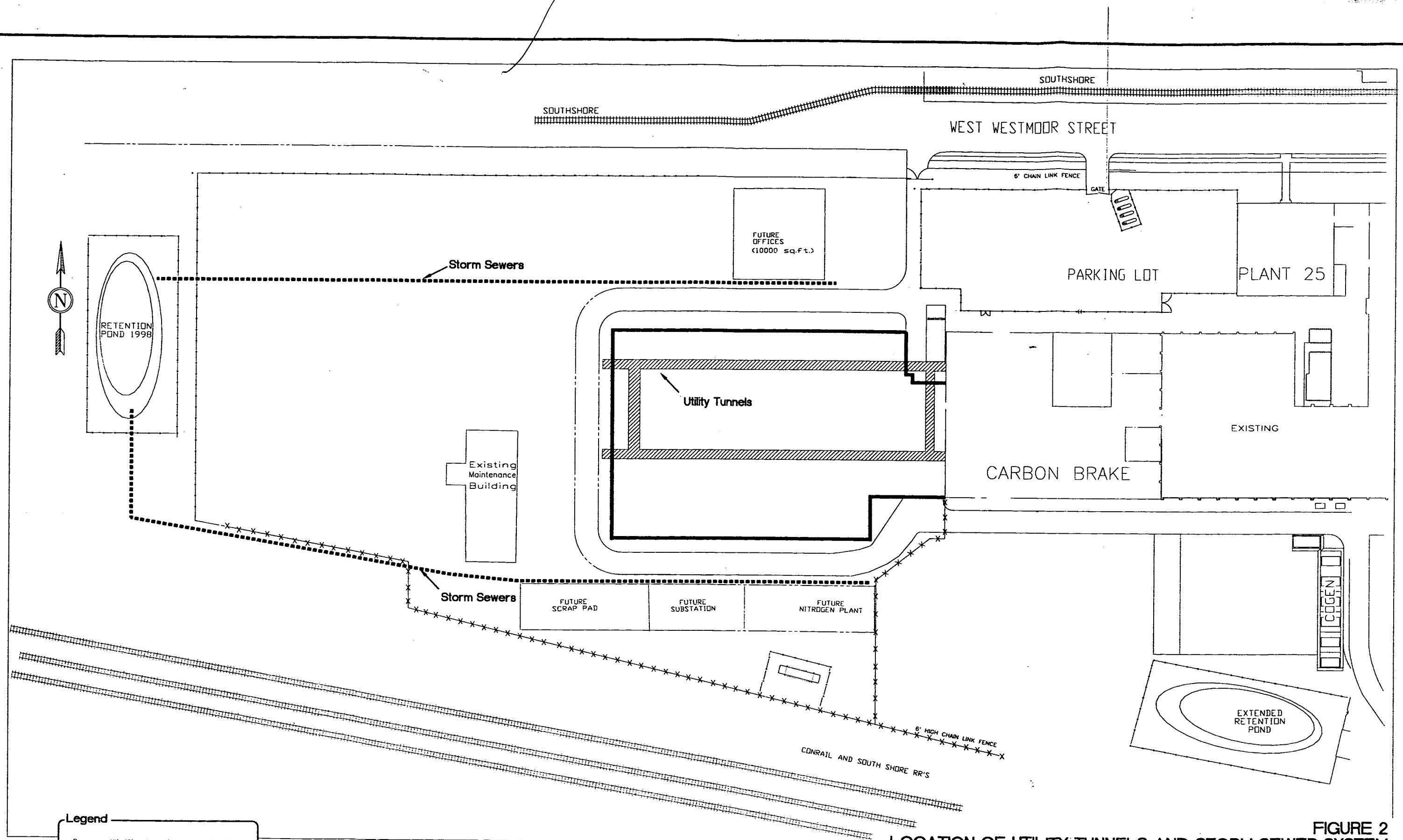
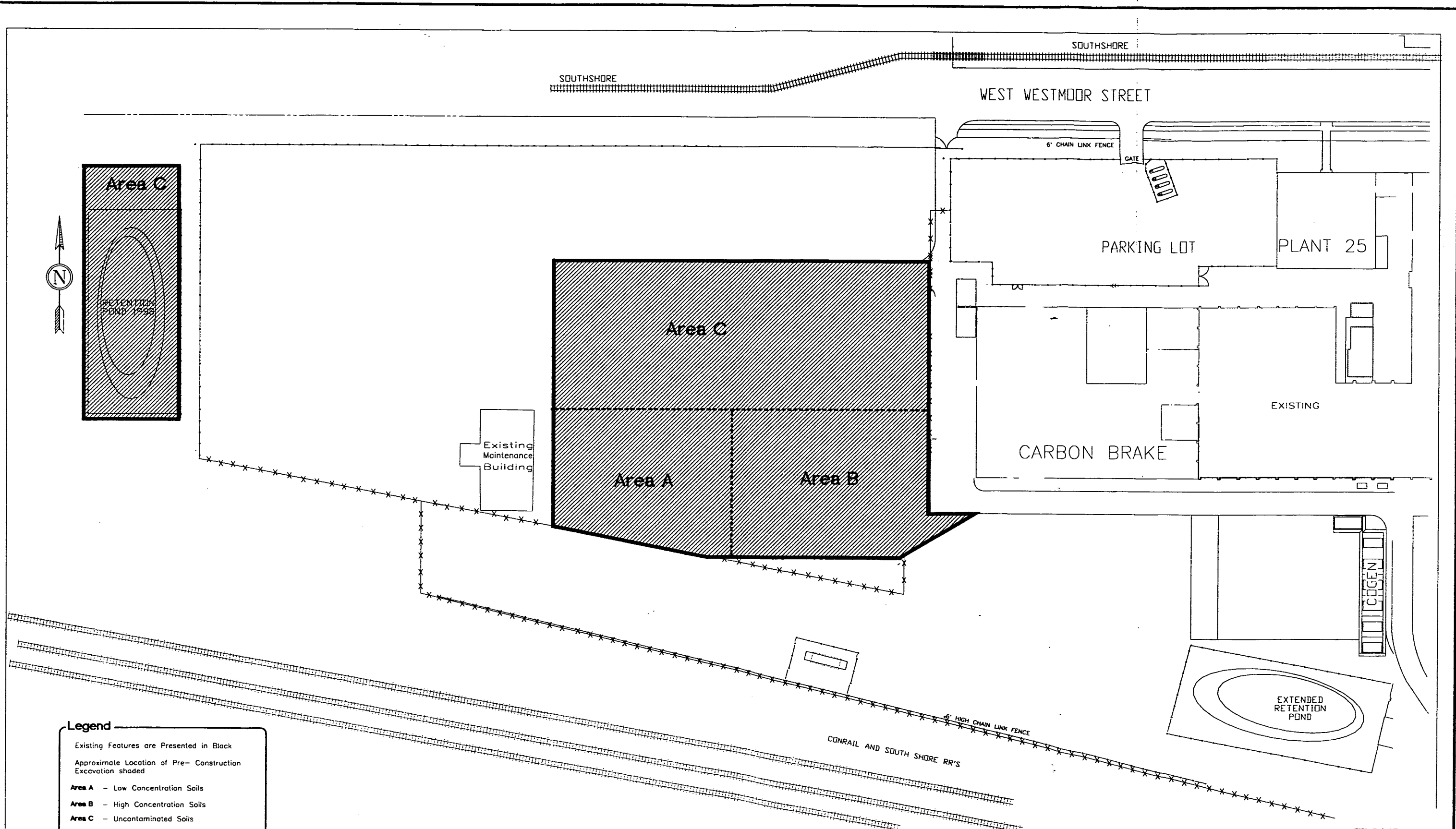


FIGURE 2
LOCATION OF UTILITY TUNNELS AND STORM SEWER SYSTEM
WESTERN CARBON BRAKE EXPANSION
ALLIEDSIGNAL INDUSTRIAL COMPLEX
SOUTH BEND, INDIANA

Legend
 Source: AlliedSignal - Aircraft Landing Systems
 Lawson-Fisherr Associates P.C.



Legend

Existing Features are Presented in Black

Approximate Location of Pre- Construction Excavation shaded

Area A - Low Concentration Soils

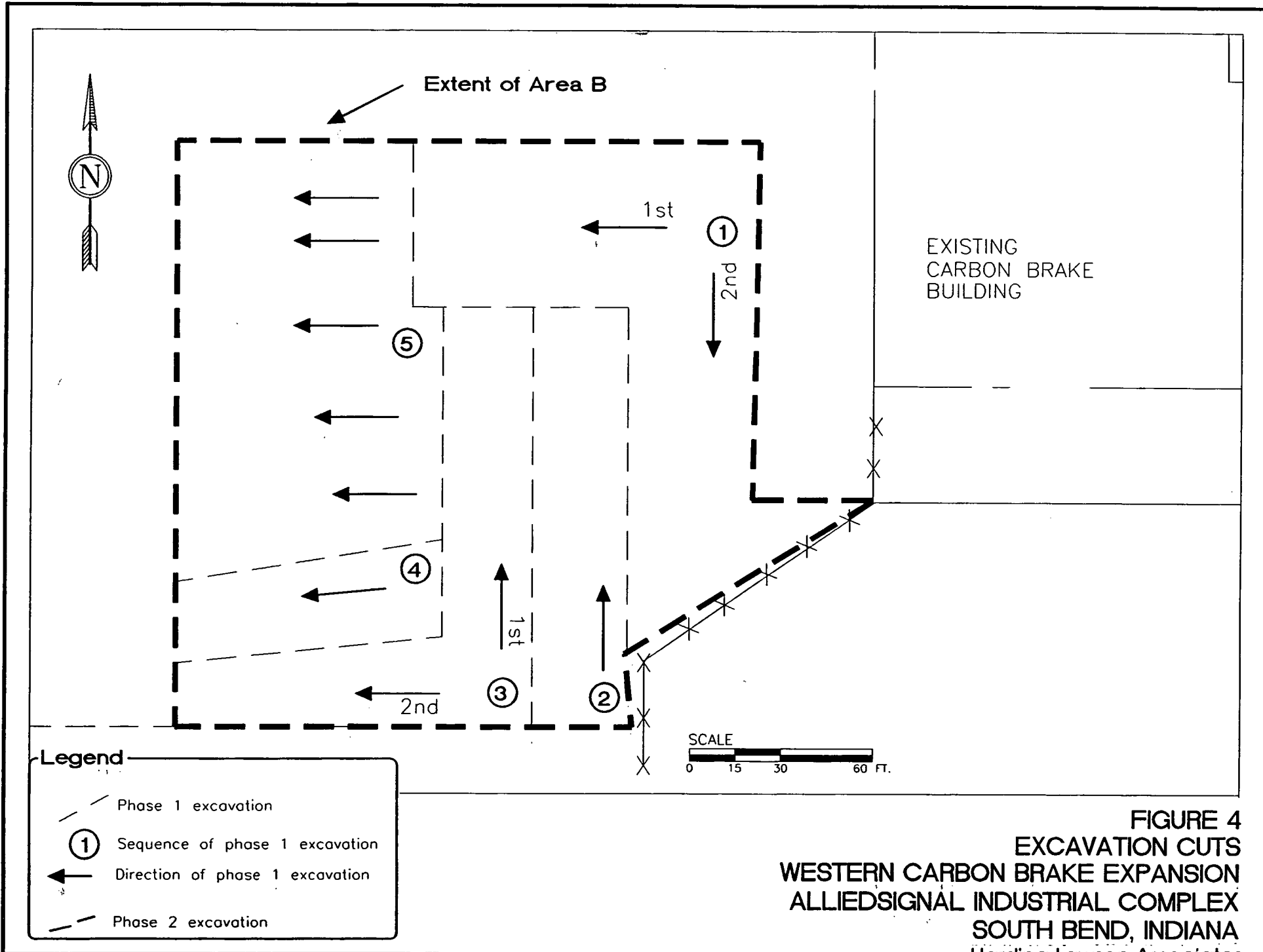
Area B - High Concentration Soils

Area C - Uncontaminated Soils

Source: AlliedSignal - Aircraft Landing Systems

FIGURE 3
APPROXIMATE EXTENT OF SOIL EXCAVATION AREAS
ALLIEDSIGNAL INDUSTRIAL COMPLEX
SOUTH BEND, INDIANA

Harding Lawson Associates



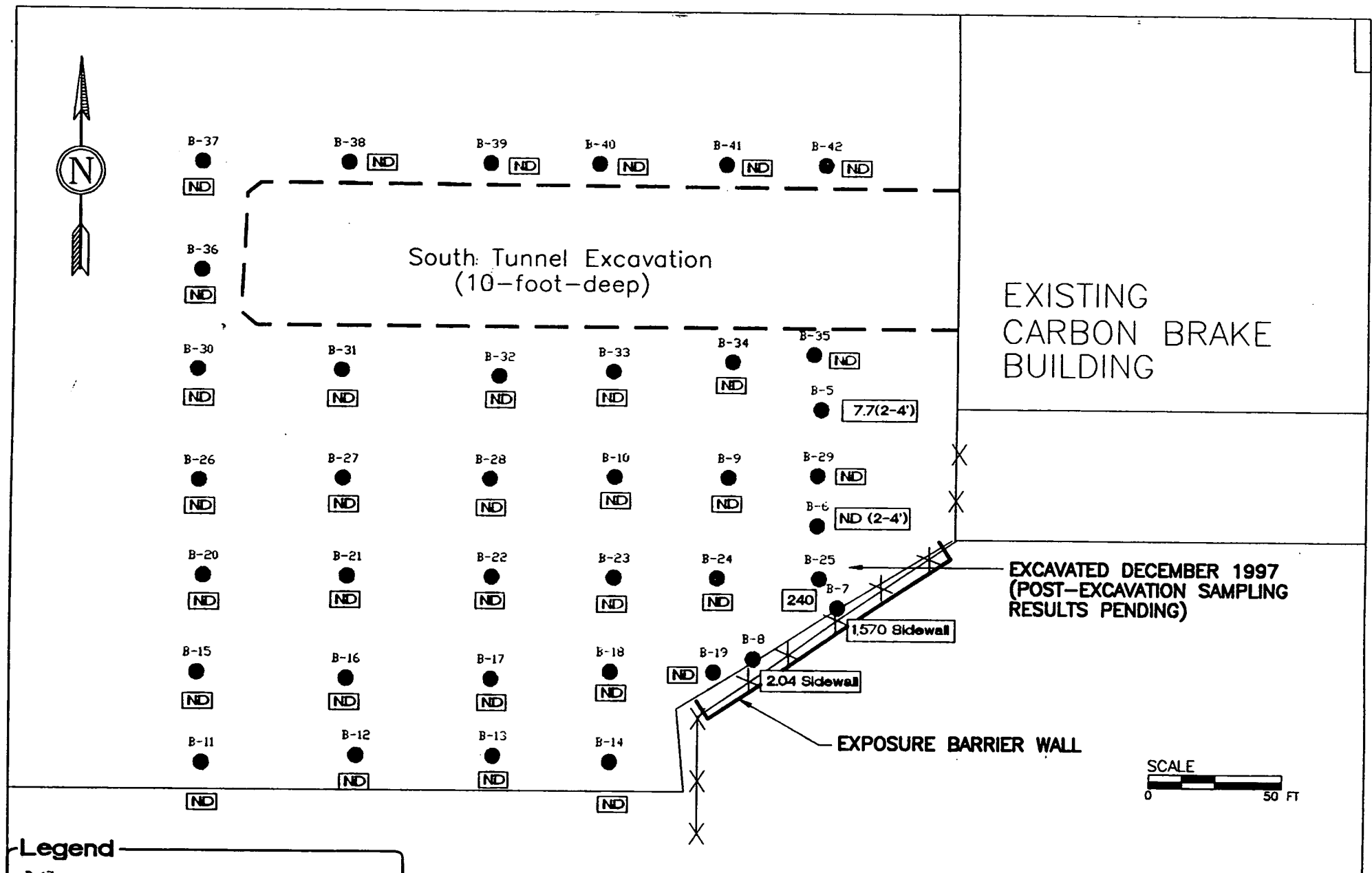
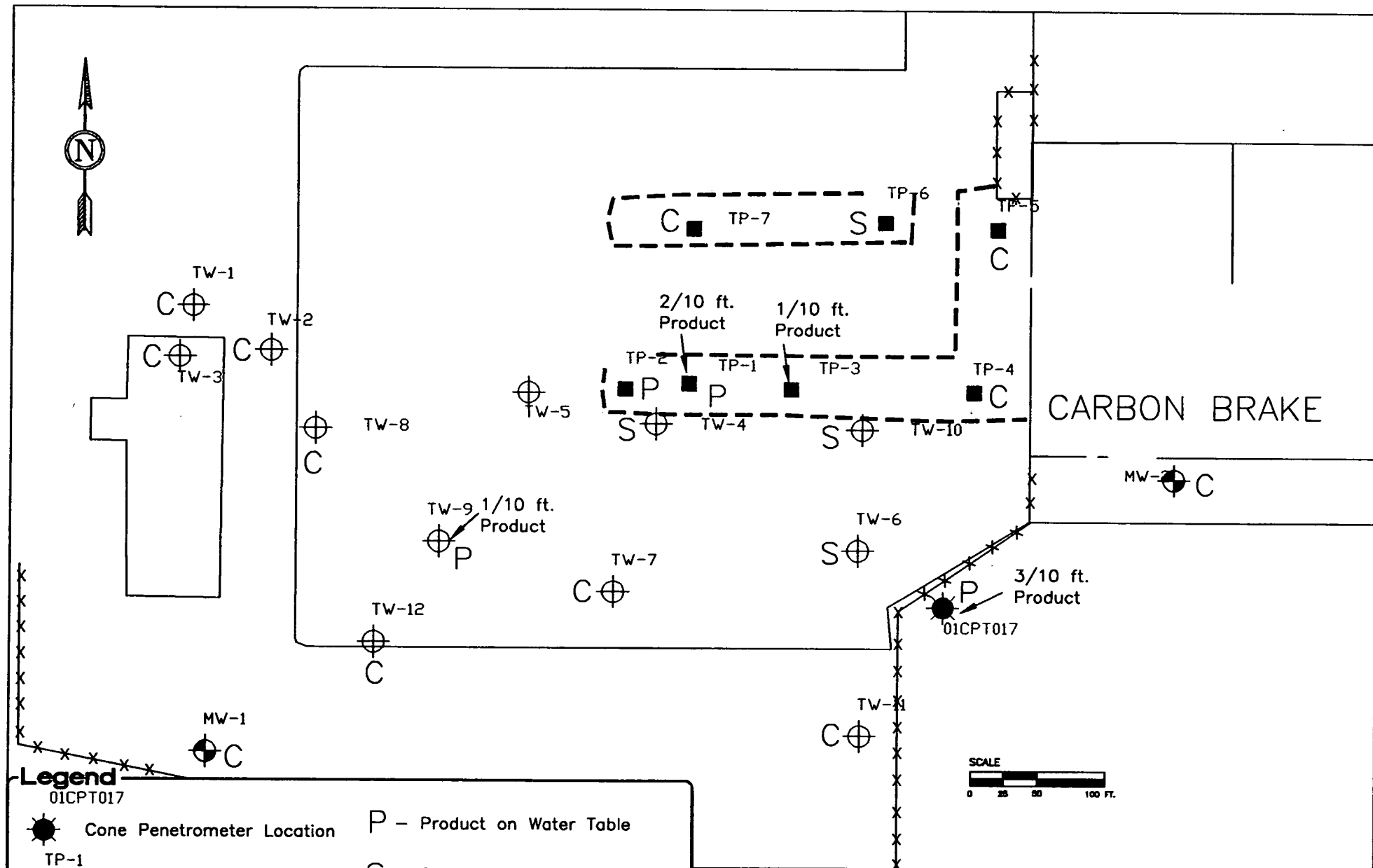


FIGURE 5
PCB VERIFICATION SAMPLING LOCATIONS
WESTERN CARBON BRAKE EXPANSION
ALLIEDSIGNAL INDUSTRIAL COMPLEX
SOUTH BEND, INDIANA



Legend

01CPT017



Cone Penetrometer Location

TP-1



Test Pit Location

TW-12



Temporary Well Location

MW-1



Permanent Well Location

P

- Product on Water Table

S

- Sheen on Water Table

C

- No Presence of Product



Phase 2 Western Carbon Brake
Expansion excavation

SCALE



FIGURE 6
RESULTS OF THE FREE PRODUCT INVESTIGATION
WESTERN CARBON BRAKE EXPANSION
ALLID SIGNAL INDUSTRIAL COMPLEX
SOUTH BEND, INDIANA
Harding Lawson Associates

APPENDIX A - ANALYTICAL SUMMARY

**Summary of Detected Compounds in Excavated Soils
Western Carbon Brake Expansion
AlliedSignal Industrial Complex - South Bend, Indiana**

Area	Sample ID	Compound	Result (mg/kg)
Area A	SP-A-01	NO COMPOUNDS DETECTED	
Area A	SP-A-02	Trichloroethene	0.075
Area A	SP-A-03	Ethylbenzene	0.27
		Naphthalene	1.3
		1,3,5- Trimethylbenzene	0.39
		1,2,4- Trimethylbenzene	1
		Xylenes, Total	1.7
Area A	SP-A-04	2- Methylnaphthalene	0.55
		Naphthalene	0.41
		Trichloroethene	0.18
		1,2,4- Trimethylbenzene	0.22
		1,3,5- Trimethylbenzene	0.13
		Xylenes, Total	0.28
Area A	SP-A-10	1,1- Dichloroethane	0.078
		cis 1,2- Dichloroethene	0.23
		Toluene	0.19
		Trichloroethene	0.64
		1,1,1- Trichloroethane	0.65
		Xylenes, Total	0.21
Area A	SP-A-12	cis 1,2- Dichloroethene	0.063
		1,1,1- Trichloroethane	0.54
		Trichloroethene	1.7
Area A	SP-A-15	Ethylbenzene	0.19
		Naphthalene	0.1
		Toluene	0.82
		Trichloroethene	0.057
		1,2,4- Trimethylbenzene	0.29
		1,3,5- Trimethylbenzene	0.091
		Xylenes, Total	0.97
Area A	SP-A-16	cis 1,2- Dichloroethene	1.7
		Ethylbenzene	2.1
		2- Methylnaphthalene	5.2
		Naphthalene (PAH)	1.7
		Naphthalene (VOC)	5
		Toluene	8
		Trichloroethene	0.71
		1,3,5- Trimethylbenzene	0.68
		1,2,4- Trimethylbenzene	1.8
		Xylenes, Total	11
Area A	SP-A-17	1,1- Dichloroethene	0.08
		cis 1,2- Dichloroethene	0.97
		Toluene	0.061
		1,1,1- Trichloroethane	1.4
		Trichloroethene	11
		Xylenes, Total	0.11
Area A	SP-A-22	cis 1,2- Dichloroethene	0.11
		1,1,1- Trichloroethane	0.26
		Trichloroethene	1.5
Area A	SP-A-24	Trichloroethene	0.4
Area A	SP-A-25	Trichloroethene	0.057
Area A	SP-A-32	NO COMPOUNDS DETECTED	
Area A	SP-A-33	NO COMPOUNDS DETECTED	

**Summary of Detected Compounds in Excavated Soils
Western Carbon Brake Expansion
AlliedSignal Industrial Complex - South Bend, Indiana**

Area	Sample ID	Compound	Result (mg/kg)
Area A	SP-A-34	NO COMPOUNDS DETECTED	
Area A	SP-A-35	NO COMPOUNDS DETECTED	
Area A	SP-A-36	NO COMPOUNDS DETECTED	
Area A	SP-A-37	NO COMPOUNDS DETECTED	
Area A	SP-A-38	NO COMPOUNDS DETECTED	
Area A	SP-A-39	NO COMPOUNDS DETECTED	
Area A	SP-A-40	NO COMPOUNDS DETECTED	
Area A	SP-A-41	Ethylbenzene	0.075
Area A	SP-A-42	NO COMPOUNDS DETECTED	
Area A	SP-A-43	NO COMPOUNDS DETECTED	
Area A	SP-A-44	NO COMPOUNDS DETECTED	
Area A	SP-A-45	NO COMPOUNDS DETECTED	
Area A	SP-A-46	NO COMPOUNDS DETECTED	
Area A	SP-A-47	NO COMPOUNDS DETECTED	
Area A	SP-A-48	NO COMPOUNDS DETECTED	
Area A	SP-A-49	NO COMPOUNDS DETECTED	
Area A	SP-A-50	NO COMPOUNDS DETECTED	
Area A	SP-A-51	NO COMPOUNDS DETECTED	
Area A	SP-A-52	NO COMPOUNDS DETECTED	
Area A	SP-A-53	NO COMPOUNDS DETECTED	
Area A	SP-A-54	NO COMPOUNDS DETECTED	
Area A	SP-A-55	Trichloroethene	0.76
Area A	SP-A-56	Trichloroethene	1.5
Area A	SP-A-57	Trichloroethene	0.73
Area A	SP-A-58	NO COMPOUNDS DETECTED	
Area A	SP-A-59	NO COMPOUNDS DETECTED	
Area A	SP-A-60	NO COMPOUNDS DETECTED	
Area A	SP-A-61	Trichloroethene	0.6
Area A	SP-A-62	Trichloroethene	0.56
Area A	SP-A-63	NO COMPOUNDS DETECTED	
Area A	SP-A-64	Trichloroethene	0.2
Area A	SP-A-65	NO COMPOUNDS DETECTED	
Area A	SP-A-66	Trichloroethene	0.54
Area A	SP-A-67	NO COMPOUNDS DETECTED	
Area A	SP-A-68	2- Methylanthracene	0.35
		Phenanthrene	0.98
Area A	SP-A-69	Phenanthrene	0.61
Area A	SP-A-70	NO COMPOUNDS DETECTED	
Area A	SP-A-71	Tetrachloroethene	0.15
Area A	SP-A-72	NO COMPOUNDS DETECTED	
Area A	SP-A-73	Tetrachloroethene	0.24
Area A	SP-A-74	Benzo(a)anthracene	0.58
		Benzo(a)pyrene	0.4
		Benzo(b)fluoranthene	0.6
		Chrysene	0.9
		Fluoranthene	1.1
		2- Methylanthracene	1.5
		Naphthalene	0.82
		Phenanthrene	6.1
		Pyrene	1.4

**Summary of Detected Compounds in Excavated Soils
Western Carbon Brake Expansion
AlliedSignal Industrial Complex - South Bend, Indiana**

Area	Sample ID	Compound	Result (mg/kg)
Area A	SP-A-75	Chrysene	0.37
		Fluoranthene	0.5
		2- Methylanthralene	0.92
		Naphthalene	0.66
		Phenanthrene	1.7
		Pyrene	0.53
Area A	SP-A-76	Fluoranthene	1.1
		2- Methylanthralene	1.6
		Phenanthrene	5.8
		Pyrene	1.3
Area A	SP-A-77	Tetrachloroethene	0.56
Area A	SP-A-78	Tetrachloroethene	0.069
Area A	SP-A-79	1,1,1- Trichloroethane	0.068
		Trichloroethene	0.22
		Benzo(b)fluoranthene	0.35
		Chrysene	0.33
		Fluoranthene	0.51
		Phenanthrene	0.66
		Pyrene	0.56
Area A	SP-A-80	Ethylbenzene	2.8
		Isopropylbenzene	0.28
		Naphthalene	0.41
		Propylbenzene (normal)	0.39
		1,2,4- Trimethylbenzene	2.3
		1,3,5- Trimethylbenzene	1.3
		Xylenes, Total	5.3
		2- Methylanthralene	1.2
Area A	SP-A-81	cis 1,2- Dichloroethene	0.17
		1,1,1- Trichloroethane	0.16
		Trichloroethene	1
Area A	SP-A-82	1,1,1- Trichloroethane	0.41
		Trichloroethene	1.6
Area A	SP-A-83	1,1,1- Trichloroethane	0.55
		Trichloroethene	2.1
Area A	SP-A-84	2- Methylanthralene	0.56
		Naphthalene	0.33
		Phenanthrene	1.1
		Pyrene	0.43
Area A	SP-A-85	Fluoranthene	0.34
		2- Methylanthralene	0.45
		Naphthalene	0.44
		Phenanthrene	0.91
		Pyrene	0.38
Area A	SP-A-86	No PCB's Detected (soil pile identification)	
Area A	SP-A-87	No PCB's Detected (soil pile identification)	
Area A	SP-A-88	No PCB's Detected (soil pile identification)	
Area A	SP-A-89	PCB (AR1254) (soil pile identification)	0.34
Area A	SP-A-90	No VOC and PCB Compounds Detected	

**Summary of Detected Compounds in Excavated Soils
Western Carbon Brake Expansion
AlliedSignal Industrial Complex - South Bend, Indiana**

Area	Sample ID	Compound	Result (mg/kg)
Area B	SP-B-01	PCB (AR1254)	0.28
Area B	SP-B-02	Chlorobenzene	0.64
		Ethylbenzene	1.4
		Naphthalene	1.3
		PCB (AR1254)	0.35
		Toluene	1.7
		1,3,5- Trimethylbenzene	0.62
		1,2,4- Trimethylbenzene	1.1
		Xylenes, Total	7.1
Area B	SP-B-03	PCB (AR1248)	3.3
		PCB (AR1254)	2.1
Area B	SP-B-04	NO COMPOUNDS DETECTED	
Area B	SP-B-05	PCB (AR1248)	0.59
		PCB (AR1254)	0.82
Area B	SP-B-06	cis 1,2- Dichloroethene	0.059
		PCB (AR1248)	0.35
Area B	SP-B-06	PCB (AR1254)	0.39
		Trichloroethene	0.33
Area B	SP-B-07	PCB (AR1254)	0.38
		Trichloroethene	0.12
Area B	SP-B-08	PCB (AR1248)	1.3
		PCB (AR1254)	0.74
		Trichloroethene	0.09
Area B	SP-B-09	PCB (AR1248)	7.4
		PCB (AR1254)	5.2
		Trichloroethene	0.082
Area B	SP-B-10	cis 1,2- Dichloroethene	0.11
		Ethylbenzene	0.081
		2- Methyl-naphthalene	0.5
		PCB (AR1248)	16
		PCB (AR1254)	11
		Phenanthrene	0.69
		Toluene	0.055
		Trichloroethene	0.22
		Xylenes, Total	0.27
Area B	SP-B-11	1,1- Dichloroethane	0.085
		cis 1,2- Dichloroethene	0.11
		Ethylbenzene	0.056
		2- Methyl-naphthalene	0.97
		Naphthalene	0.16
		PCB (AR1248)	27
		PCB (AR1254)	17
		Phenanthrene	0.72
		Tetrachloroethene	0.093
		Toluene	0.22
		Trichloroethene	0.16
		1,1,1- Trichloroethane	0.084
		Xylenes, Total	0.28

**Summary of Detected Compounds in Excavated Soils
Western Carbon Brake Expansion
AlliedSignal Industrial Complex - South Bend, Indiana**

Area	Sample ID	Compound	Result (mg/kg)
Area B	SP-B-12	PCB (AR1248)	100
		PCB (AR1254)	59
		Toluene	0.32
		1,2,4- Trimethylbenzene	0.47
		1,3,5- Trimethylbenzene	0.27
Area B	SP-B-13	1,1- Dichloroethane	0.26
		cis 1,2- Dichloroethene	0.81
		Naphthalene	1.1
		PCB (AR1248)	160
		PCB (AR1254)	83
		Toluene	0.51
		Trichloroethene	0.34
		1,2,4- Trimethylbenzene	0.37
		Xylenes, Total	0.83
Area B	SP-B-14	1,1- Dichloroethane	0.062
		cis 1,2- Dichloroethene	0.069
		Naphthalene	0.15
		PCB (AR1248)	47
		PCB (AR1254)	28
		Toluene	0.12
		Trichloroethene	0.09
		1,2,4- Trimethylbenzene	0.066
		Xylenes, Total	0.15
Area B	SP-B-15	Naphthalene	0.92
		PCB (AR1248)	58
		PCB (AR1254)	34
		Toluene	0.35
		Xylenes, Total	0.63
Area B	SP-B-16	1,1- Dichloroethane	0.18
		cis 1,2- Dichloroethene	0.43
		PCB (AR1248)	7.4
		PCB (AR1254)	5.1
		Toluene	0.07
		1,1,1- Trichloroethane	0.055
Area B	SP-B-17	Trichloroethene	0.58
		1,1- Dichloroethane	1.6
		1,1- Dichloroethene	0.32
		PCB (AR1248)	3.7
		PCB (AR1254)	2.6
		Trichloroethene	0.76
Area B	SP-B-18	1,1,1- Trichloroethane	6.8
		1,1- Dichloroethane	2.9
		1,1- Dichloroethene	0.22
		cis 1,2- Dichloroethene	0.19
		PCB (AR1248)	34
		PCB (AR1254)	17
		toluene	0.16
		Trichloroethene	0.32
		1,1,1- Trichloroethane	3.7

**Summary of Detected Compounds in Excavated Soils
Western Carbon Brake Expansion
AlliedSignal Industrial Complex - South Bend, Indiana**

Area	Sample ID	Compound	Result (mg/kg)
Area B	SP-B-19	Benzene	0.19
		Chlorobenzene	0.85
		Chloroethane	0.25
		1,1- Dichloroethane	1.5
		cis 1,2- Dichloroethene	0.85
		Ethylbenzene	0.45
		Methyl Isobutyl Ketone	6.1
		PCB (AR1248)	76
		PCB (AR1254)	37
		Toluene	1.2
		Trichloroethene	0.17
		1,1,1- Trichloroethane	0.87
		1,2,4- Trimethylbenzene	0.16
		Xylenes, Total	0.67
Area B	SP-B-20	Benzene	0.063
		Chlorobenzene	0.28
		1,1- Dichloroethane	0.53
		1,2- Dichloroethane	0.064
		cis 1,2- Dichloroethene	0.34
		Ethylbenzene	0.25
		Methyl Isobutyl Ketone	1.5
		PCB (AR1248)	82
		PCB (AR1254)	45
		Toluene	0.79
		Trichloroethene	1
		1,1,1- Trichloroethane	0.35
		1,2,4- Trimethylbenzene	0.095
		1,3,5- Trimethylbenzene	0.066
		Xylenes, Total	0.37
Area B	SP-B-21	Chlorobenzene	0.095
		cis 1,2- Dichloroethene	0.34
		PCB (AR1248)	18
		PCB (AR1254)	10
		Trichloroethene	2.3
Area B	SP-B-22	Chlorobenzene	0.12
		cis 1,2- Dichloroethene	0.36
		Ethylbenzene	0.76
		PCB (AR1248)	6.8
		PCB (AR1254)	3.9
		Toluene	0.21
		Trichloroethene	2.3
		Xylenes, Total	0.51

**Summary of Detected Compounds in Excavated Soils
Western Carbon Brake Expansion
AlliedSignal Industrial Complex - South Bend, Indiana**

Area	Sample ID	Compound	Result (mg/kg)
Area B	SP-B-23	Chlorobenzene	0.061
		1,1- Dichloroethane	0.39
		cis 1,2- Dichloroethene	1.3
		trans 1,2- Dichloroethene	0.13
		Ethylbenzene	0.06
		PCB (AR1248)	19
		PCB (AR1254)	11
		Toluene	0.17
		1,1,1- Trichloroethane	0.12
		Trichloroethene	2.2
		1,2,4- Trimethylbenzene	0.071
		Xylenes, Total	0.12
Area B	SP-B-24	PCB (AR1248)	4
		PCB (AR1254)	3.4
		Trichloroethene	0.1
Area B	SP-B-25	Chlorobenzene	0.35
		1,1- Dichloroethane	7.9
		1,1- Dichloroethene	0.33
		cis 1,2- Dichloroethene	58
		trans 1,2- Dichloroethene	2.9
		Ethylbenzene	2.1
		Methyl Isobutyl Ketone	5.2
		2- Methylanththalene	2.2
		PCB (AR1248)	200
		PCB (AR1254)	110
		Toluene	12
		Trichloroethene	6.8
		1,1,1- Trichloroethane	1.8
		1,2,4- Trimethylbenzene	2.6
		1,3,5- Trimethylbenzene	1.9
Area B	SP-B-26	Vinyl Chloride	4
		Xylenes, Total	4.6
		Chlorobenzene	0.14
		Ethylbenzene	0.061
		PCB (AR1248)	0.39
		Tetrachloroethene	0.2
		1,1,1- Trichloroethane	0.075
		Trichloroethene	0.19
		1,2,4- Trimethylbenzene	0.052
		Xylenes, Total	0.18
Area B	SP-B-27	PCB (AR1248)	2
		PCB (AR1254)	1.4
		Trichloroethene	0.15

**Summary of Detected Compounds in Excavated Soils
Western Carbon Brake Expansion
AlliedSignal Industrial Complex - South Bend, Indiana**

Area	Sample ID	Compound	Result (mg/kg)
Area B	SP-B-28	1,1- Dichloroethane	0.3
		cis 1,2- Dichloroethene	1.8
		Ethylbenzene	0.33
		PCB (AR1248)	97
		PCB (AR1254)	50
		Toluene	0.59
		Trichloroethene	0.4
		1,3,5- Trimethylbenzene	0.56
		1,2,4- Trimethylbenzene	0.79
		Xylenes, Total	0.7
Area B	SP-B-29	1,1- Dichloroethane	0.48
		cis 1,2- Dichloroethene	3.6
		Ethylbenzene	1.4
		2- Methylnaphthalene	5.2
		Naphthalene	1.9
		PCB (AR1248)	64
		PCB (AR1254)	34
		Tetrachloroethene	5.8
		Toluene	5.1
		Trichloroethene	2
		1,1,1- Trichloroethane	0.34
		1,2,4- Trimethylbenzene	1.2
		1,3,5- Trimethylbenzene	0.81
		Xylenes, Total	5.2
Area B	SP-B-30	1,1- Dichloroethane	0.43
		cis 1,2- Dichloroethene	1.7
		Ethylbenzene	0.71
		2- Methylnaphthalene	1.7
		PCB (AR1248)	9.1
		PCB (AR1254)	4.3
		Tetrachloroethene	3
		Toluene	1.7
		Trichloroethene	2.5
		1,3,5- Trimethylbenzene	0.26
		1,2,4- Trimethylbenzene	0.47
		Xylenes, Total	2.5
Area B	SP-B-31	cis 1,2- Dichloroethene	0.17
		Ethylbenzene	0.096
		Trichloroethene	0.92
		1,3,5- Trimethylbenzene	0.057
		1,2,4- Trimethylbenzene	0.079
		Xylenes, Total	0.12

**Summary of Detected Compounds in Excavated Soils
Western Carbon Brake Expansion
AlliedSignal Industrial Complex - South Bend, Indiana**

Area	Sample ID	Compound	Result (mg/kg)
Area B	SP-B-32	Benzene	0.052
		1,1- Dichloroethane	0.2
		cis 1,2- Dichloroethene	0.21
		Ethylbenzene	3.2
		Isopropylbenzene	0.069
		2- Methylnaphthalene	0.87
		Naphthalene	0.2
		PCB (AR1248)	2.6
		PCB (AR1254)	1.3
		n- propyl Benzene	0.1
		Tetrachloroethene	0.17
		Toluene	0.87
		1,1,1- Trichloroethane	0.13
		1,2,4- Trimethylbenzene	0.76
		1,3,5- Trimethylbenzene	0.55
		Xylenes, Total	2
Area B	SP-B-33	1,1- Dichloroethane	0.13
		cis 1,2- Dichloroethene	0.17
		Ethylbenzene	2
		Isopropylbenzene	0.06
		Naphthalene	0.14
		PCB (AR1248)	6.7
		PCB (AR1254)	4
		n- propyl Benzene	0.1
		Tetrachlorethene	0.1
		Toluene	0.7
		Trichloroethene	0.18
		1,3,5- Trimethylbenzene	0.43
		1,2,4- Trimethylbenzene	0.65
		Xylenes, Total	0.96
Area B	SP-B-34	cis 1,2- Dichloroethene	0.16
		Ethylbenzene	1.4
		2- Methylnaphthalene	0.87
		Naphthalene	0.44
		PCB (AR1248)	0.78
		PCB (AR1254)	0.48
		Toluene	0.83
		Trichloroethene	0.14
		1,2,4- Trimethylbenzene	0.4
		1,3,5- Trimethylbenzene	0.17
		Xylenes, Total	0.75
Area B	SP-B-35	cis 1,2- Dichloroethene	0.5
		Ethylbenzene	2
		Naphthalene	0.13
		PCB (AR1248)	13
		Toluene	0.25
		Trichloroethene	1.1
		1,2,4- Trimethylbenzene	0.22
		1,3,5- Trimethylbenzene	0.12
		Xylenes, Total	1.3

**Summary of Detected Compounds in Excavated Soils
Western Carbon Brake Expansion
AlliedSignal Industrial Complex - South Bend, Indiana**

Area	Sample ID	Compound	Result (mg/kg)
Area B	SP-B-36	cis 1,2- Dichloroethene	0.12
		Ethylbenzene	0.18
		PCB (AR1248)	0.49
		PCB (AR1254)	0.37
		Tetrachloroethene	0.34
		Trichloroethene	0.37
		1,2,4- Trimethylbenzene	0.06
Area B	SP-B-37	Ethylbenzene	0.24
		Tetrachloroethene	0.24
		Trichloroethene	0.16
Area B	SP-B-38	Trichloroethene	0.36
Area B	SP-B-39	Trichloroethene	0.27
Area B	SP-B-40	Ethylbenzene	0.36
		Tetrachloroethene	0.12
		Trichloroethene	0.12
		1,2,4- Trimethylbenzene	0.073
Area B	SP-B-41	Trichloroethene	0.34
Area B	SP-B-42	NO COMPOUNDS DETECTED	
Area B	SP-B-43	Trichloroethene	0.2
Area B	SP-B-44	Trichloroethene	0.25
Area B	SP-B-45	Trichloroethene	0.18
Area B	SP-B-46	Trichloroethene	0.65
Area B	SP-B-47	NO COMPOUNDS DETECTED	
Area B	SP-B-48	NO COMPOUNDS DETECTED	
Area B	SP-B-49	NO COMPOUNDS DETECTED	
Area B	SP-B-50	NO COMPOUNDS DETECTED	
Area B	SP-B-51	Ethylbenzene	0.071
		1,2,4- Trimethylbenzene	0.069
Area B	SP-B-52	NO COMPOUNDS DETECTED	
Area B	SP-B-53	NO COMPOUNDS DETECTED	
Area B	SP-B-54	NO COMPOUNDS DETECTED	
Area B	SP-B-55	NO COMPOUNDS DETECTED	
Area B	SP-B-56	NO COMPOUNDS DETECTED	
Area B	SP-B-57	NO COMPOUNDS DETECTED	
Area B	SP-B-58	Trichloroethene	0.16
Area B	SP-B-59	Trichloroethene	0.29
Area B	SP-B-60	NO COMPOUNDS DETECTED	
Area B	SP-B-61	Trichloroethene	0.32
Area B	SP-B-62	Trichloroethene	0.063
Area B	SP-B-63	Trichloroethene	0.38
Area B	SP-B-64	PCB (AR1248)	3.8
		1,2,4- Trimethylbenzene	0.6
		1,3,5- Trimethylbenzene	0.51
Area B	SP-B-65	NO SAMPLE TAKEN	
Area B	SP-B-66	2- Methylnaphthalene	2.3
		Naphthalene	0.33
Area B	SP-B-67	2- Methylnaphthalene	0.83
		PCB (AR1248)	0.45
Area B	SP-B-68	2- Methylnaphthalene	0.51
Area B	SP-B-69	NO COMPOUNDS DETECTED	
Area B	SP-B-70	NO COMPOUNDS DETECTED	

**Summary of Detected Compounds in Excavated Soils
Western Carbon Brake Expansion
AlliedSignal Industrial Complex - South Bend, Indiana**

Area	Sample ID	Compound	Result (mg/kg)
Area B	SP-B-71	PCB (AR1248)	3
		1,1,1- Trichloroethane	0.1
Area B	SP-B-72	PCB (AR1248)	4.8
		1,1,1- Trichloroethane	0.057
Area B	SP-B-74	Ethylbenzene	1.1
		Phenanthrene	1.7
		1,3,5- Trimethylbenzene	2.3
		1,2,4- Trimethylbenzene	2.9
Area B	SP-B-75	Trichloroethene	0.085
Area B	SP-B-76	cis 1,2- Dichloroethene	0.051
Area B	SP-B-77	NO COMPOUNDS DETECTED	
Area B	SP-B-78	Chlorobenzene	0.51
		cis 1,2- Dichloroethene	1.1
		Ethylbenzene	5.6
		Isopropylbenzene	0.53
		Naphthalene (VOC)	3
		Propylbenzene (normal)	0.86
		Tetrachloroethene	0.85
		Toluene	16
		Trichloroethene	28
		1,2,4- Trimethylbenzene	4.7
		1,3,5- Trimethylbenzene	2.9
		Xylenes, Total	26
		2- Methylanthralene	10
		Naphthalene (PAH)	5.6
		Phenanthrene	2.7
Area B	SP-B-79	cis 1,2- Dichloroethene	1.6
		Ethylbenzene	9.5
		Naphthalene (VOC)	2.7
		Toluene	24
		Trichloroethene	41
		1,2,4- Trimethylbenzene	3.3
		1,3,5- Trimethylbenzene	1.9
		Xylenes, Total	39
		2- Methylanthralene	13
		Naphthalene (PAH)	6.9
		Phenanthrene	3.5
Area B	SP-B-80	Chloroform	0.15
		Tetrachloroethene	0.29
		1,1,1- Trichloroethane	0.4
		Trichloroethene	17
		PCB (AR1248)	0.47
Area B	SP-B-81	Trichloroethene	0.098
Area B	SP-B-82	NO COMPOUNDS DETECTED	
Area B	SP-B-83	1,1,1- Trichloroethane	0.075
		Trichloroethene	1.2
Area B	SP-B-84	1,1,1- Trichloroethane	0.12
		Trichloroethene	2.6

**Summary of Detected Compounds in Excavated Soils
Western Carbon Brake Expansion
AlliedSignal Industrial Complex - South Bend, Indiana**

Area	Sample ID	Compound	Result (mg/kg)
Area B	SP-B-85	Ethylbenzene	3.6
		Isopropylbenzene	0.57
		Styrene	6.4
		Toluene	6.1
		1,2,4- Trimethylbenzene	0.99
		Xylenes, Total	4.4
		PCB (AR1248)	0.83
Area B	SP-B-86	Trichloroethene	5.4
Area B	SP-B-87	Toluene	0.052
		1,1,1- Trichloroethane	0.12
		Trichloroethene	0.64
		PCB (AR1248)	1.1
		Benzo(a)anthracene	0.59
		Benzo(a)pyrene	0.48
		Benzo(b)fluoranthene	0.68
		Chrysene	0.82
		Fluoranthene	1.1
		2- Methylanthracene	8.3
		Naphthalene	3.6
		Phenanthrene	4.7
		Pyrene	1.4
Area B	SP-B-88	Tetrachloroethene	0.14
		Trichloroethene	0.29
Area B	SP-B-89	cis 1,2- Dichloroethene	0.57
Area B	SP-B-90	NO COMPOUNDS DETECTED	
Area B	SP-B-91	NO COMPOUNDS DETECTED	
Area B	SP-B-92	Naphthalene	0.12
		Tetrachloroethene	0.14
		1,1,1- Trichloroethane	0.12
		Trichloroethene	0.13
		2- Methylanthracene	0.45
		Phenanthrene	0.87
Area B	SP-B-93	1,1- Dichloroethane	0.084
		cis 1,2- Dichloroethene	0.061
		Naphthalene	0.23
		1,1,1- Trichloroethane	0.17
		Trichloroethene	0.78
		Fluoranthene	0.45
		2- Methylanthracene	0.77
		Naphthalene	0.45
		Phenanthrene	3.7
		Pyrene	0.58

**Summary of Detected Compounds in Excavated Soils
Western Carbon Brake Expansion
AlliedSignal Industrial Complex - South Bend, Indiana**

Area	Sample ID	Compound	Result (mg/kg)
Area B	SP-B-94	Toluene	0.071
		Trichloroethene	0.072
		PCB (AR1248)	2.4
		PCB (AR1254)	0.71
		Benzo(a)anthracene	0.87
		Benzo(a)pyrene	0.64
		Benzo(b)fluoranthene	1.1
		Benzo(g,h,i)perylene	0.35
		Benzo(k)fluoranthene	0.4
		Chrysene	0.96
		Fluoranthene	1.5
		Indeno(1,2,3-cd)pyrene	0.36
		2- Methylanththalene	2
		Naphthalene	1.2
		Phenanthrene	2
		Pyrene	1.5
Area B	SP-B-95	Phenanthrene	0.85
Area B	SP-B-96	2- Methylanththalene	0.73
		Naphthalene	1.1
		Phenanthrene	0.44

**Summary of Detected Compounds in Excavated Soils
Western Carbon Brake Expansion
AlliedSignal Industrial Complex - South Bend, Indiana**

Area	Sample ID	Compound	Result (mg/kg)
Area C	SP-A-05	Trichloroethene	0.097
Area C	SP-A-06	Trichloroethene	0.082
Area C	SP-A-07	NO COMPOUNDS DETECTED	
Area C	SP-A-08	1,1,1- Trichloroethane	0.11
		Trichloroethene	0.22
Area C	SP-A-09	Trichloroethene	0.26
		1,1,1- Trichloroethane	0.27
Area C	SP-A-11	Trichloroethene	0.71
		1,1,1- Trichloroethane	0.7
Area C	SP-A-13	Trichloroethene	0.43
		1,1,1- Trichloroethane	0.052
Area C	SP-A-14	cis 1,2- Dichloroethene	0.071
		Trichloroethene	0.16
Area C	SP-A-18	1,1,1- Trichloroethane	0.083
		Trichloroethene	0.59
Area C	SP-A-19	Trichloroethene	0.23
Area C	SP-A-20	Trichloroethene	0.2
		1,1,1- Trichloroethane	0.059
Area C	SP-A-21	1,1,1- Trichloroethane	0.15
		Trichloroethene	0.95
Area C	SP-A-23	cis 1,2- Dichloroethene	0.065
		Trichloroethene	0.61
		1,1,1- Trichloroethane	0.18
Area C	SP-A-26	Trichloroethene	0.062
Area C	SP-A-27	NO COMPOUNDS DETECTED	
Area C	SP-A-28	Trichloroethene	0.09
Area C	SP-A-29	NO COMPOUNDS DETECTED	
Area C	SP-A-30	NO COMPOUNDS DETECTED	
Area C	SP-A-31	NO COMPOUNDS DETECTED	
Area C	SP-C-01	NO COMPOUNDS DETECTED	
Area C	SP-C-02	NO COMPOUNDS DETECTED	
Area C	SP-C-03	Trichloroethene	0.1
Area C	SP-C-04	Trichloroethene	0.062
Area C	SP-C-05	NO COMPOUNDS DETECTED	
Area C	SP-C-06	Trichloroethene	0.069
Area C	SP-C-07	Trichloroethene	0.1
Area C	SP-C-08	Trichloroethene	0.16
Area C	SP-C-09	Trichloroethene	0.28
Area C	SP-C-09A	NO COMPOUNDS DETECTED	
Area C	SP-C-10	NO COMPOUNDS DETECTED	
Area C	SP-C-11	Trichloroethene	0.082
Area C	SP-C-12	NO COMPOUNDS DETECTED	
Area C	SP-C-13	NO COMPOUNDS DETECTED	
Area C	SP-C-14	Trichloroethene	0.24
Area C	SP-C-15	Trichloroethene	0.084
Area C	SP-C-17	NO COMPOUNDS DETECTED	0
Area C	SP-C-18	Trichloroethene	0.13
Area C	SP-C-19	Trichloroethene	0.19
Area C	SP-C-20	NO COMPOUNDS DETECTED	
Area C	SP-C-21	NO COMPOUNDS DETECTED	
Area C	SP-C-22	NO COMPOUNDS DETECTED	
Area C	SP-C-23	NO COMPOUNDS DETECTED	

**Summary of Detected Compounds in Excavated Soils
Western Carbon Brake Expansion
AlliedSignal Industrial Complex - South Bend, Indiana**

Area	Sample ID	Compound	Result (mg/kg)
Area C	SP-C-24	NO COMPOUNDS DETECTED	
Area C	SP-C-25	1,1,1- Trichloroethane	0.052
Area C	SP-C-26	NO COMPOUNDS DETECTED	
Area C	SP-C-27	NO COMPOUNDS DETECTED	
Area C	SP-C-28	NO COMPOUNDS DETECTED	
Area C	SP-C-29	NO COMPOUNDS DETECTED	
Area C	SP-C-30	NO COMPOUNDS DETECTED	
Area C	SP-C-31	NO COMPOUNDS DETECTED	
Area C	SP-C-32	NO COMPOUNDS DETECTED	
Area C	SP-C-33	NO COMPOUNDS DETECTED	
Area C	SP-C-34	NO COMPOUNDS DETECTED	
Area C	SP-C-35	NO COMPOUNDS DETECTED	
Area C	SP-C-36	NO COMPOUNDS DETECTED	
Area C	SP-C-37	NO COMPOUNDS DETECTED	
Area C	SP-C-38	NO COMPOUNDS DETECTED	
Area C	SP-C-39	NO COMPOUNDS DETECTED	
Area C	SP-C-40	NO COMPOUNDS DETECTED	
Area C	SP-C-41	NO COMPOUNDS DETECTED	
Area C	SP-C-42	NO COMPOUNDS DETECTED	
Area C	SP-C-43	NO COMPOUNDS DETECTED	
Area C	SP-C-44	NO COMPOUNDS DETECTED	
Area C	SP-C-44-A	Tetrachloroethene	0.05
		Trichloroethene	0.1
Area C	SP-C-45	Trichloroethene	0.054
Area C	SP-C-45-A	c-1,2 Dichloroethene	0.13
		Trichloroethene	3.7
Area C	SP-C-46	NO COMPOUNDS DETECTED	
Area C	SP-C-47	Ethylbenzene	0.91
		Naphthalene	1.6
		Propylbenzene (normal)	0.36
		1,2,4- Trimethylbenzene	1.7
		1,3,5- Trimethylbenzene	0.78
		Xylenes, total	4.8
		2- Methylnaphthalene	4.5
		Naphthalene	1.0
Area C	SP-C-48	1,1,1- Trichloroethane	0.072
		Trichloroethene	0.11

UPDATED 8/24/98

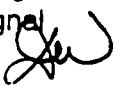
LAST SAMPLES:

SP-A-90 VOC, SVOC
SP-B-96 VOC, SVOC, PCB
SP-C-48 VOC, SVOC

APPENDIX B - SOIL REUSE CRITERIA



M E M O R A N D U M

DATE: October 2, 1997
TO: Ray White, AlliedSignal
Jay Vora, AlliedSignal
FROM: Don Walsh, ABB 
SUBJECT: Criteria for Soil Reuse as On-Site Fill Material
Western Carbon Brake Expansion, AlliedSignal, South Bend

The criteria for re-use of excavated soil as backfill for the Western Carbon Brake Expansion project is non-detectable concentrations of polychlorinated biphenyls (PCBs) and concentrations of individual volatile organic compounds (VOCs) less than 1 mg/kg (excluding vinyl chloride and 1,2-dichloroethane). The criteria for vinyl chloride is 0.3 mg/kg and the criteria for 1,2-dichloroethane (DCA) is 0.16 mg/kg. Please note that this soil should not be moved to other areas of the site or off-site if chemicals are detected at any concentration. The rationale for this criteria is described below.

As part of on-going investigations at the South Bend Complex, ABB developed risk-based screening levels for soil and groundwater. The screening levels were conservative criteria to be used as an initial screening of analytical results. As shown on the attached table, the screening levels for soil were greater than 1 mg/kg, excluding benzene, 1,1-dichloroethene (DCE), 1,2-DCA, methylene chloride, tetrachloroethene (PCE), trichloroethene (TCE), and vinyl chloride.

As noted by the "source" column of the table, the reference used to develop the screening levels for these seven compounds was 20 times the U.S. Environmental Protection Agency (USEPA) Maximum Contaminant Level (MCL). The "20 times" rule assumes leaching to groundwater and then ingestion of the groundwater at the source area (i.e., a well is drilled in the Western Expansion Area and is used for residential drinking water). This is very conservative and unrealistic since the site is industrial and groundwater on-site and immediately downgradient of the site is not used as a drinking water source. Moreover, a water use restriction would likely be placed on the site inhibiting future use of the groundwater.

The IDEM Tier II Cleanup Goals for the non-residential scenario are hand written on the right side of the attached table for the seven compounds of concern. These criteria are protective of industrial use of the groundwater. This is less conservative than the "20 times MCL" criteria but is still unrealistic since groundwater on-site and immediately downgradient of the site is not used as an industrial source. Moreover, a water use restriction would likely be placed on the site inhibiting future industrial use of the groundwater. Using the IDEM Tier II Cleanup Goals, only 1,1-DCE, 1,2-DCA, and vinyl chloride have criteria less than 1 mg/kg.

The most likely future potential use of groundwater as a drinking water source is north of the parking lots located along Westmoor Drive (approximately 660 feet northeast of the Western Expansion along the direction of regional groundwater flow). Site-specific criteria for 1,1-DCE, 1,2-DCA, and vinyl chloride protective of the USEPA MCL along the north side of the parking lot were calculated using a steady-state attenuation equation and soil-water partitioning equations. The modeling indicated that the criteria for 1,1-DCE and vinyl chloride protective of off-site groundwater use north of the parking lot would be much greater than 1 mg/kg. The modeling estimate of the criteria protective of off-site groundwater use for 1,2-DCA was 0.16 mg/kg. For this reason, the soil re-use criteria for 1,2-DCA is 0.16 mg/kg.

ABB Environmental Services, Inc.

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Page 1



M E M O R A N D U M

The IDEM Tier II Cleanup Goals are also protective of construction worker direct contact; therefore, further consideration of construction worker direct contact is necessary only for those compounds that had IDEM Tier II Cleanup Goals that are less than 1 mg/kg (i.e., 1,1-DCE, 1,2-DCA, and vinyl chloride). ABB calculated site-specific screening levels for construction worker direct contact with 1,1-DCE, 1,2-DCA, and vinyl chloride. These criteria were greater than 1 mg/kg, excluding vinyl chloride. For this reason, the soil reuse criteria of 1 mg/kg excludes vinyl chloride. The criteria for vinyl chloride is 0.3 mg/kg.

If the backfill soil was placed in an area where the building is constructed, then consideration should be given for potential future vapor migration to the building. ABB calculated site-specific screening levels for occupational worker exposure from vapor migration to indoor air. The screening levels were greater than 1 mg/kg excluding 1,1-DCA, 1,2-DCA, and vinyl chloride. The equations are recognized by academia, industry and the regulatory community as being very conservative. For example, IDEM does not even consider vapor migration to indoor building air during Tier I criteria development. When compounds exceed these criteria it is only an indication that further evaluation is warranted. A detailed review of the calculations indicate that the equation used for partitioning between sorbed to soil, soil gas, and dissolved phase is very conservative. Moreover, indoor air exchange rates would be much higher than the rates used. Considering these factors, it is likely that 1 mg/kg of these compounds in soil would be protective.

TABLE 4-6
RISK-BASED SCREENING LEVELS FOR ORGANIC COMPOUNDS
Voluntary Site Investigation
AlliedSignal Industrial Complex - South Bend, Indiana

Constituent		Risk-Based Screening Level		Source
		Groundwater (ug/L)	Soil (mg/kg)	
VOLATILE ORGANIC COMPOUNDS (VOC)				
Gasoline/ Painting Solvents	Benzene	5	0.10	a
	Ethylbenzene	700	14	a
	Methyl-Tert-Butyl-Ether	690	13.8	c
	Toluene	1,000	1	a
	Xylenes	10,000	200	a
Stoddard/ Naphthas	Isopropylbenzene	204,400	3,270	d
	2-Methylnaphthalene	4,100	130	d
	Naphthalene	5	81.76	b
	n-Propylbenzene	204,400	3,270	d
	1,2,4-Trimethylbenzene	88	1.72	c
	1,3,5-Trimethylbenzene	65	1.3	c
Chlorinated Solvents	Chlorobenzene	100	2	c
	1,1-Dichloroethane	10,220	204.4	b
	1,1-Dichloroethene	7	0.14	a
	1,2-Dichloroethane	5	0.1	a
	cis-1,2-Dichloroethene	70	1.4	a
	trans-1,2-Dichloroethene	100	2	a
	Methylene Chloride	5	0.1	a
	Methyl Ethyl Ketone	5,110	102.2	b
	Tetrachloroethene	5	0.1	a
	Trichloroethene	5	0.1	a
	1,1,1-Trichloroethane	200	4	a
	Vinyl Chloride	2	0.04	a
	TOTAL PETROLEUM HYDROCARBONS (TPH)			
	JP-4	Free-Phase only	6,000	e,f
	JP-5 or Jet A	Free-Phase only	10,000	e,f,g
	Lube oil or Waste Oil	Free-Phase only	10,000	f,g
SEMI-VOLATILE ORGANIC COMPOUNDS/POLYCHLORINATED BIPHENYLS (SVOC)				
Polynuclear Aromatic Hydrocarbons	Benzo (b) Fluoranthene	10	0.2	b
	Benzo (k) Fluoranthene	39.2	0.784	b
	Fluoranthene	818	16.36	b
	Naphthalene	4,008	81.76	b
	Phenanthrene	26	0.52	c
	Pyrene	3,066	61.32	b
Phenols	2-Methylphenol	5,110	102.2	b
	2,4-Dimethylphenol	370	7.4	c
	4-Methylphenol	5,110	102.2	b
PCBs	PCBs, total	0.5	10	a,h

- SOURCES:** (a) USEPA Maximum Contaminant Level for groundwater; soil is 20 times the MCL.
 (b) IDEM Tier II Cleanup Goals for the Non-Residential Scenario.
 (c) MDEQ Generic Industrial and Commercial Cleanup Criteria.
 (d) Calculated by ABB using the draft RBCA approach developed by IDEM
 (e) Calculated by ABB using the methodology developed by MDEP.
 (f) IDEM draft RBCA policy is that hydrocarbon oils are insoluble in groundwater; therefore, if VOCs and carcinogenic polynuclear hydrocarbons (cPNAs) are not present, no action is required beyond removal of free-phase oil.
 (g) RBSLs default to 10,000 mg/Kg; IDEM draft RBCA policy sets an aesthetic threshold of 10,000 mg/Kg where BTEX and cPNAs are not present.
 (h) USEPA Guidance for Remedial Action of Superfund Sites with PCB Contamination.

IDEM Tier II

4.77

0.08
0.37

NL

8.01
25.73

0.13

TABLE 14
SUMMARY OF TIER II CLEANUP GOALS
FOR THE NONRESIDENTIAL SCENARIO

Chemical Name	Compound is Bioaccumulatable (yes/no)	Surface Soils (mg/Kg)	Subsurface Soils (mg/Kg)	Groundwater (mg/L)
naphthalene	no	10,000.00	10,000.00	4.0880
acenaphthylene	no	NA	NA	NA
acenaphthene	no	10,000.00	10,000.00	6.1320
fluorene	no	10,000.00	10,000.00	4.0880
phenanthrene	no	NA	NA	NA
anthracene	no	10,000.00	10,000.00	30.6600
fluoranthene	yes	10,000.00	10,000.00	0.8176
pyrene	no	10,000.00	10,000.00	3.0660
benzo(a)anthracene*	yes	79.45	103.88	0.0100
chrysene*	yes	7,945.21	10,000.00	0.3918
benzo(b)fluoranthene*	yes	79.45	354.98	0.0100
benzo(k)fluoranthene*	yes	794.52	3,759.12	0.0392
benzo(a)pyrene	yes	7.94	69.85	0.0100
indeno(1,2,3-cd)pyrene*	yes	79.45	629.17	0.0100
dibenzo(a,h)anthracene*	yes	7.95	69.86	0.0100
benzo(g,h,i)perylene	yes	NA	NA	NA
3,3'-dichlorobenzidine	no	128.89	12.86	0.0200
n-nitroso-di-n-propylamine	no	8.29	0.66	0.0100
bis(2-chloroisopropyl)ether	no	93.12	1.32	0.0409
4-chloroaniline	no	8,160.00	1,117.69	0.4088
2-chloronaphthalene	no	10,000.00	10,000.00	8.1760
2,4-dinitrotoluene	no	4,080.00	39.07	0.2044
hexachlorobutadiene	yes	1.78	31.18	0.0367
hexachloroethane	yes	408.00	3.31	0.0204
isophorone	no	10,000.00	256.03	3.0105
benzyl alcohol	no	10,000.00	4,356.75	30.6600
bis(2-chloroethyl)ether	no	4.06	0.66	0.0100

TABLE 14
SUMMARY OF TIER II CLEANUP GOALS
FOR THE NONRESIDENTIAL SCENARIO

Chemical Name	Compound is Bioaccumulatable (yes/no)	Surface Soils (mg/Kg)	Subsurface Soils (mg/Kg)	Groundwater (mg/L)
nitrobenzene	no	1,020.00	1.73	0.0511
1,2-dichlorobenzene	no	10,000.00	10,000.00	9.1980
1,3-dichlorobenzene	no	NA	NA	NA
1,4-dichlorobenzene	no	2,416.67	34.67	0.1192
1,2,4-trichlorobenzene	no	10,000.00	1,405.37	1.0220
hexachlorobenzene	no	6.87	101.56	0.0100
hexachlorocyclopentadiene	no	2.02	2.89	0.7154
n-nitrosodiphenylamine	no	10,000.00	567.80	0.5837
benzoic acid	no	10,000.00	10,000.00	408.8000
2-nitroaniline	no	42.90	3.30	0.0500
phenol	yes	10,000.00	658.78	12.2640
2-methylphenol	no	10,000.00	375.93	5.1100
3-methylphenol	no	NA	NA	NA
4-methylphenol	no	10,000.00	427.24	5.1100
2-chlorophenol	no	10,000.00	11.63	0.5110
2,4-dichlorophenol	no	6,120.00	15.12	0.3066
2,4,5-trichlorophenol	no	10,000.00	5,507.44	10.2200
2,4,6-trichlorophenol	no	1,922.89	30.65	0.2600
pentachlorophenol	no	483.33	24.95	0.0500
2,4-dinitrophenol	no	4,080.00	7.37	0.2044
bis(2-ethylhexyl)phthalate	yes	4,142.86	1,406.25	0.2043
butylbenzylphthalate	no	10,000.00	10,000.00	20.4400
di-n-butylphthalate	yes	10,000.00	6,188.56	2.0440
diethylphthalate	no	10,000.00	10,000.00	81.7600
di methyl phthalate	no	10,000.00	10,000.00	1,022.0000
di-n-octyl phthalate	no	10,000.00	10,000.00	2.0440
benzene	no	16.63	4.77	0.0986

TABLE 14
SUMMARY OF TIER II CLEANUP GOALS
FOR THE NONRESIDENTIAL SCENARIO

Chemical Name	Compound is Bioaccumulatable (yes/no)	Surface Soils (mg/Kg)	Subsurface Soils (mg/Kg)	Groundwater (mg/L)
toluene	no	1,000.00	1,000.00	20.4400
ethylbenzene	no	1,000.00	1,000.00	10.2200
xlenes	no	1,000.00	1,000.00	204.4000
vinyl chloride	no	0.02	0.13	0.0100
chloroethane	no	1,000.00	1,000.00	NA
1,1-dichloroethylene	no	0.15	0.08	0.0070
1,1-dichloroethane	no	973.47	1,000.00	10.2200
1,2-dichloroethylene (cis)	no	1,000.00	102.49	1.0220
1,2-dichloroethane	no	5.27	0.37	0.0314
trichloroethylene	no	24.97	25.73	0.2600
1,1,1-trichloroethane	no	1,000.00	1,000.00	9.1980
1,1,2-trichloroethane	no	22.74	1.05	0.0502
tetrachloroethylene	no	101.23	8.01	0.0561
1,1,1,2-tetrachloroethane	no	75.91	7.24	0.1100
1,1,2,2-tetrachloroethane	no	75.41	0.21	0.0143
chloroform	no	5.28	20.33	0.4689
acetone	no	1,000.00	136.29	10.2200
4-methyl-2-pentanone	no	1,000.00	407.48	5.1100
methyl ethyl ketone	no	1,000.00	146.24	5.1100
Aldrin	yes	0.27	0.06	0.0002
gamma-BHC (Lindane)	yes	44.62	0.34	0.0022
chlordane	yes	24.48	4.51	0.0020
DDD	yes	241.67	48.34	0.0119
DDE	yes	170.59	80.49	0.0084
DDT	yes	153.01	141.83	0.0084
dieldrin	yes	3.63	0.06	0.0002
endosulfan sulfate	no	102.00	12.00	0.0051

TABLE 14
SUMMARY OF TIER II CLEANUP GOALS
FOR THE NONRESIDENTIAL SCENARIO

Chemical Name	Compound is Bioaccumulatable [*] (yes/no)	Surface Soils (mg/Kg)	Subsurface Soils (mg/Kg)	Groundwater (mg/L)
endrin	yes	122.40	10.12	0.0061
heptachlor	yes	4.16	0.44	0.0006
heptachlor epoxide	no	6.37	0.45	0.0008
PCBs	yes	7.53	4.23	0.0007
lead	no	NA	NA	NA
cadmium	no	1,020.00	730.00	0.0511
silver	no	10,000.00	7,300.00	0.5110
mercury	yes	122.40	87.60	0.0061
chromium vi	no	10,000.00	7,300.00	0.5110
chromium iii	no	10,000.00	10,000.00	102.2000
barium	no	10,000.00	10,000.00	7.1540
arsenic	no	612.00	438.00	0.0500
antimony	no	816.00	584.00	0.0600
beryllium	no	13.49	118.60	0.0050
cyanide	no	1,000.00	10,000.00	2.0440
nickel	no	10,000.00	10,000.00	2.0440
selenium	no	10,000.00	7,300.00	0.5110
vanadium	no	10,000.00	10,000.00	0.7154
zinc	no	10,000.00	10,000.00	30.6600

NOTES: a - Compounds that are assumed to be bioaccumulative have an acceptable hazard index of 0.2 versus 1, as determined based on Indiana Register, 16:7, April 1, 1993.

b - Practical quantitation limits based EPA SW-846, 1986 for GC/MS. PQLs will change according to the specific analytical method used.

* - Assumes TEF approach.

NA - Data not available or not applicable.

TABLE C-1
Southern Expansion Area - Comparison of Soil Data to RBSLs
AlliedSignal Industrial Complex - South Bend, Indiana

Analyte	Maximum Concentration (mg/kg)	Background Mean/Max (mg/kg)	RBSL Construction Worker Direct Contact (a) (mg/kg)	Maximum Exceed RBSL?	Average Concentration (mg/kg)	Average Exceed RBSL?	RBSL Occupational Worker Vapor Migration (b) (mg/kg)	Maximum Exceed RBSL?	Average Concentration (mg/kg)	Average Exceed RBSL?
Volatile Organic Compounds										
1,1,1-Trichloroethane	290	NA	5,600	No	—		1,160	No	—	
1,1-Dichloroethane	2.2	NA	1,387	No	—		326	No	—	
1,1-Dichloroethylene	6.9	NA	13,140	No	—		0.02	YES	0.2	YES
1,2,4-Trimethylbenzene	88	NA	2,920,000 (c)	No	—		1,440 (c)	No	—	
1,2-Dichloroethane	0.3	NA	92	No	—		0.16	YES	0.1	No
1,3,5-Trimethylbenzene	44	NA	2,920,000 (c)	No	—		1,440 (c)	No	—	
Chlorobenzene	0.12	NA	290 (d)	No	—		247	No	—	
Ethylbenzene	74	NA	9,928	No	—		20,000	No	—	
Isopropylbenzene	13	NA	9,928 (e)	No	—		20,000 (e)	No	—	
Methylene Chloride	7.6	NA	NA	NA	—		4	YES	0.2	No
Tetrachloroethene	170	NA	1,635	No	—		14	YES	5	No
Toluene	150	NA	3,631	No	—		2,380	No	—	
Trichloroethene	1,500	NA	437	YES	32	No	3	YES	33	YES
Vinyl Chloride	0.67	NA	0.3	YES	0.4	YES	0.007	YES	0.6	YES
Xylene (total)	160	NA	2,920,000	No	—		1,440	No	—	
cis-1,2-Dichloroethene	56	NA	14,600	No	—		326 (l)	No	—	
n-Propylbenzene	8.1	NA	9,928 (e)	No	—		20,000 (e)	No	—	
trans-1,2-Dichloroethene	0.41	NA	14,600 (f)	No	—		326 (l)	No	—	
Semi-Volatile Organic Compounds										
2-Methylnaphthalene	24	NA	58,400 (g)	No	—		Not a COC	NA		
bis(2-ethylhexyl)phthalate	1.3	NA	5,840	No	—		Not a COC	NA		
Phenanthrene	0.38	NA	43,800 (h)	No	—		Not a COC	NA		
2-Methylphenol	2.3	NA	73,000	No	—		Not a COC	NA		
2,4-Dimethylphenol	1.1	NA	73,000 (i)	No	—		Not a COC	NA		
4-Methylphenol	1.7	NA	73,000	No	—		Not a COC	NA		
Naphthalene	9	NA	58,400	No	—		Not a COC	NA		
Phenol	0.41	NA	175,200	No	—		Not a COC	NA		
Pyrene	0.34	NA	43,800	No	—		Not a COC	NA		

TABLE C-1
Southern Expansion Area - Comparison of Soil Data to RBSLs
AlliedSignal Industrial Complex - South Bend, Indiana

Analyte	Maximum Concentration (mg/kg)	Background Mean/Max (mg/kg)	RBSL Construction Worker Direct Contact (a) (mg/kg)	Maximum Exceed RBSL?	Average Concentration (mg/kg)	Average Exceed RBSL?	RBSL Occupational Worker Vapor Migration (b) (mg/kg)	Maximum Exceed RBSL?	Average Concentration (mg/kg)	Average Exceed RBSL?
Total Petroleum Hydrocarbons										
Diesel Range Organics	6,700	NA	43,800 (h)	No	—		Not a COC	NA		
Polychlorinated Biphenyls										
Aroclor-1254	0.97	NA	66 (j)	No	—		Not a COC	NA		
Aroclor-1248	260	NA	66 (j)	YES	65.5	No	Not a COC	NA		
Metals										
Arsenic	38	4.3/30	438	No	—		Not a COC	NA		
Barium	119	36/200	Not a COC	NA	—		Not a COC	NA		
Cadmium	1.4	0.8/14.1	Not a COC	NA	—		Not a COC	NA		
Chromium	57	6.3/25	7,300 (k)	No	—		Not a COC	NA		
Copper	35	7.7/52.4	Not a COC	NA	—		Not a COC	NA		
Lead	84	9.8/140	Not a COC	NA	—		Not a COC	NA		
Mercury	0.7	0.04/0.13	88	No	—		Not a COC	NA		
Nickel	19	7.5/34	Not a COC	NA	—		Not a COC	NA		
Selenium	1.1	0.22/0.66	7,300	No	—		Not a COC	NA		
Silver	3.2	0.74/2.04	7,300	No	—		Not a COC	NA		
Zinc	77	28/150	Not a COC		—		Not a COC	NA		

NOTES:

- (a) - Values are the health-based criteria for subsurface soils - non-residential land use scenario, Table 10, Voluntary Remediation Program Resource Guide (IDEM, 1996). Values are the lower values for cancer or non-cancer effects.
- (b) - Values are risk-based screening levels for migration of vapors from subsurface soil to indoor air, and are developed using ASTM RBCA guidance E1739-95.
- (c) - Value for xylene used as surrogate.
- (d) - Value for benzene used as surrogate.
- (e) - Value for ethylbenzene used as surrogate.
- (f) - Value for cis-1,2-dichloroethene used as surrogate.
- (g) - Value for naphthalene used as surrogate.
- (h) - Value for pyrene used as surrogate. IDEM draft RBCA-policy suggest a maximum value of 10,000 mg/kg as an aesthetic criteria. Maximum concentration does not exceed the aesthetic-based criteria.
- (i) - Value for 2-methylphenol used as surrogate.
- (j) - Value for total PCBs used as surrogate.
- (k) - Value for chromium VI.

COC - Constituent of Concern

kg - kilograms

mg - milligrams

NA - Not applicable.

ND - No dose-response data

TABLE C-2
Southern Expansion Area - Comparison of Groundwater Data to RBSLs
AlliedSignal Industrial Complex - South Bend, Indiana

Analyte	Maximum Concentration (mg/kg)	Background Mean/Max (mg/kg)	RBSL Occupational Worker Vapor Migration (a) (mg/kg)	Maximum Exceed RBSL?	Average Concentration (mg/kg)	Average Exceed RBSL?	RBSL Construction Worker Vapor Migration (b) (mg/kg)	Maximum Exceed RBSL?	Average Concentration (mg/kg)	Average Exceed RBSL?
Volatile Organic Compounds										
Trichloroethene	0.18	NA	1.35	No	—		10,200	No	—	
cis-1,2-Dichloroethene	0.14	NA	0.2 (c)	No	—		1,730	No	—	
1,1-Dichloroethane	0.007	NA	151	No	—		140	No	—	
1,1,1-Trichloroethane	0.034	NA	136	No	—		29,200	No	—	

NOTES

(a) - Values are risk-based screening levels for migration of vapors from groundwater to indoor building air, and are developed using ASTM RBCA guidance E1739-95.

(b) - Risk-based screening level for migration of vapors from groundwater to ambient air in a construction worker exposure.

(c) - Value for 1,2-Dichloroethane used as surrogate.

— Not necessary; maximum concentration does not exceed RBSL.

L - liter

mg - milligrams

NA - Not applicable.

TABLE C-3
Western Expansion Area - Comparison of Soil Data to RBSLs
AlliedSignal Industrial Complex - South Bend, Indiana

Analyte	Maximum Concentration (mg/kg)	Background Mean/Max (mg/kg)	RBSL Construction Worker Direct Contact (a) (mg/kg)	Maximum Exceed RBSL?	Average Concentration (mg/kg)	Average Exceed RBSL?	RBSL Occupational Worker Vapor Migration (b) (mg/kg)	Maximum Exceed RBSL?	Average Concentration (mg/kg)	Average Exceed RBSL?
Volatile Organic Compounds										
1,1,1-Trichloroethane	0.26	NA	5,600	No	—		1,160	No	—	
1,2,4-Trimethylbenzene	88	NA	2,920,000 (c)	No	—		1,400 (c)	No	—	
1,3,5-Trimethylbenzene	44	NA	2,920,000 (c)	No	—		1,400 (c)	No	—	
Ethylbenzene	74	NA	9,928	No	—		20,000	No	—	
Isopropylbenzene	13	NA	9,928 (d)	No	—		20,000 (d)	No	—	
Toluene	21	NA	3,631	No	—		2,380	No	—	
Trichloroethene	0.89	NA	437	No	—		3	No	—	
Xylene (total)	160	NA	2,920,000	No	—		1,440	No	—	
cis-1,2-Dichloroethene	0.12	NA	14,600	No	—		0.16 (e)	No	—	
n-Propylbenzene	8.1	NA	9,928 (d)	No	—		20,000 (d)	No	—	
Semi-Volatile Organic Compounds										
2-Methylnaphthalene	24	NA	58,400 (e)	No	—		Not a COC	NA	—	
Naphthalene	9	NA	58,400	No	—		Not a COC	NA	—	
Total Petroleum Hydrocarbons										
Diesel Range Organics	6,700	NA	43,800 (f)	No	—		Not a COC	NA	—	
Metals										
Arsenic	13	4.3/30	Not a COC	No	—		Not a COC	NA	—	
Barium	56	36/200	Not a COC	No	—		Not a COC	NA	—	
Cadmium	1.8	0.8/14.1	Not a COC	No	—		Not a COC	NA	—	
Chromium	9.7	6.3/25	Not a COC	No	—		Not a COC	NA	—	
Copper	16	7.7/52.4	Not a COC	No	—		Not a COC	NA	—	
Lead	17	9.8/140	Not a COC	No	—		Not a COC	NA	—	
Mercury	0.36	0.04/0.13	88	No	—		Not a COC	NA	—	
Nickel	28	7.5/34	Not a COC	No	—		Not a COC	NA	—	
Selenium	0.98	0.22/0.66	7,300	No	—		Not a COC	NA	—	
Silver	2.4	0.74/2.04	7,300	No	—		Not a COC	NA	—	
Zinc	154	28/150	438,000	No	—		Not a COC	NA	—	

NOTES:

(a) - Values are the health-based criteria for subsurface soils - non-residential land use scenario, Table 10, Voluntary Remediation Program Resource Guide (IDEM, 1996)
Values are the lower values for cancer or non-cancer effects.

(b) - Values are risk-based screening levels for migration of vapors from subsurface soil to indoor building air, and are developed using ASTM RBCA guidance (E1739-95).

(c) - Value for xylenes used as a surrogate.

(d) - Value for ethylbenzene used as a surrogate.

(e) - Value for naphthalene used as surrogate.

(f) - Value for pyrene used as surrogate. IDEM draft RBCA policy suggests a maximum value of 10,000 mg/kg as an aesthetic criteria. Maximum concentration does not exceed the aesthetic criteria.

kg - kilograms
mg - milligrams
NA - Not applicable.
ND - No dose-response data

TABLE C-4
Western Expansion Area - Comparison of Groundwater Data to RBSL
AlliedSignal Industrial Complex - South Bend, Indiana

Analyte	Maximum Concentration (mg/kg)	Background Mean/Max (mg/kg)	RBSL Occupational Worker Vapor Migration (a) (mg/kg)	Maximum Exceed RBSL?	Average Concentration (mg/kg)	Average Exceed RBSL?	RBSL Construction Worker Vapor Migration (b) (mg/kg)	Maximum Exceed RBSL?	Average Concentration (mg/kg)	Average Exceed RBSL?
Volatile Organic Compounds										
1,1,1-Trichloroethane	0.094	NA	536	No	—		29,200	No	—	
1,1-Dichloroethane	0.06	NA	151	No	—		33,100	No	—	
1,1-Dichloroethylene	0.015	NA	0.01	Yes	0.004	No	140	No	—	
1,2,4-Trimethylbenzene	0.062	NA	667 (c)	No	—		20,000 (c)	No	—	
Ethylbenzene	0.12	NA	9,270	No	—		62,500	No	—	
Isopropylbenzene	0.09	NA	667 (c)	No	—		20,000 (c)	No	—	
Trichloroethene	0.16	NA	1.35	No	—		10,200	No	—	
Vinyl Chloride	0.13	NA	0.003	Yes	0.016	Yes	60	No	—	
cis-1,2-Dichloroethene	0.2	NA	0.2 (d)	No	—		2,330 (d)	No	—	
Methyl(tert)butyl Ether	0.13	NA	3,546,000	No	—		1,290,000,000	No	—	

NOTES

(a) - Values are risk-based screening levels for migration of vapors from groundwater to indoor building air, and are developed using ASTM RBCA guidance E1739-95.

(b) - Risk-based screening level for migration of vapors from groundwater to ambient air in a construction worker exposure.

(c) - Value for 1,2-Dichloroethane used as surrogate.

— Not necessary; maximum concentration does not exceed RBSL.

L - liter

mg - milligrams

NA - Not applicable.

APPENDIX C – WASTE CHARACTERIZATION RESULTS



Mr. Ray White
AlliedSignal ALS
3520 Westmoor Street
South Bend, IN 46628
Tel No: 231-3412
Fax No: 231-2863
PO No: A00000813
Project Name: Carbon Brake Expansion

Report Date: 10/1/97
EIS Order No: 970900284
EIS Sample No: 045918
EIS Project No: 1640-4003-97

Client Sample ID: SP-B-(1-36)
Date Collected: 9/22/97
Date Received: 9/24/97
Collected By: SM

This report presents results of analysis for your sample(s) received under our Order No above. This Number is to be used in all inquiries concerning this report. The EIS Sample No above, as well as your Sample ID, refer to the first sample in a multi-sample submission

DEFINITIONS:

MDL = Method Detection Limit normally achieved in the absence of interferences or other matrix difficulties.

SDL = Sample Detection Limit achieved in your sample. If numerically greater than the MDL, dilutions were required in order to perform the analysis. If numerically less than the MDL, alternate techniques were employed.

CHAIN-OF-CUSTODY is enclosed if received with your sample submission.


QUALITY ASSURANCE OFFICER


LABORATORY DIRECTOR

This data in this report has been reviewed and complies with EIS Quality Control unless specifically addressed above.

EIS Analytical Services Inc. 1701 N. Ironwood Drive, Suite B • South Bend, IN 46635 • Tel: 219-277-0707 • Fax: 219-273-6699

SAMPLE RESULTS

CLIENT SAMPLE ID: SP-B-(1-36)
 CLIENT PROJECT: Carbon Brake Expansion
 Date Collected: 9/22/97
 Date Received: 9/24/97

Page 2 of 11

Report Date: 10/1/97
 EIS Sample No: 045818
 EIS Order No: 970900284

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
Corrosivity	6.4	SU	1	1	ShaneD	9/29/97	9045 C
Ignitability (Closed Cup)	>202	Fahrenheit			SzkarlatM	9/25/97	1010
Moisture	13	%	0.01	0.01	SzkarlatM	9/29/97	160.3
Paint Filter Liquids	0	ml/5min	0	0	ShaneD	9/25/97	9005 A
Reactivity (Total Cyanide)	<15	mg/kg(wet)	15	5	SzkarlatM	9/29/97	9012 A
Reactivity (Total Sulfide)	<15	mg/kg(wet)	15	5	SzkarlatM	9/29/97	9030 B

SAMPLE RESULTS

CLIENT SAMPLE ID: SP-B-(1-36)

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 9/22/97

Date Received: 9/24/97

Page 3 of

Report Date: 10/1/97

EIS Sample No: 045818

EIS Order No: 97080028

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
POLYCHLORINATED BIPHENYLS							
PCB (AR1016)	nd	mg/kg(wet)	3.3	0.33	KlepperW	9/30/97	8081
PCB (AR1221)	nd	mg/kg(wet)	6.6	0.33	KlepperW	9/30/97	8081
PCB (AR1232)	nd	mg/kg(wet)	3.3	0.33	KlepperW	9/30/97	8081
PCB (AR1242)	nd	mg/kg(wet)	3.3	0.33	KlepperW	9/30/97	8081
PCB (AR1248)	39	mg/kg(wet)	3.3	0.33	KlepperW	9/30/97	8081
PCB (AR1254)	nd	mg/kg(wet)	3.3	0.33	KlepperW	9/30/97	8081
PCB (AR1260)	nd	mg/kg(wet)	3.3	0.33	KlepperW	9/30/97	8081

SAMPLE RESULTS

CLIENT SAMPLE ID: SP-B-(1-36)
 CLIENT PROJECT: Carbon Brake Expansion
 Date Collected: 9/22/97
 Date Received: 9/24/97

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Report Date: 10/1/97
 EIS Sample No: 045918
 EIS Order No: 970900284

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
TCLP METALS							
Arsenic,TCLP	<0.05	mg/L	0.05	0.05	ClearN	9/29/97	6010
Barium,TCLP	0.49	mg/L	0.01	0.01	ClearN	9/29/97	6010
Cadmium,TCLP	0.01	mg/L	0.01	0.01	ClearN	9/29/97	6010
Chromium,TCLP	<0.01	mg/L	0.01	0.01	ClearN	9/29/97	6010
Copper,TCLP	0.05	mg/L	0.01	0.01	ClearN	9/29/97	6010
Lead,TCLP	<0.05	mg/L	0.05	0.05	ClearN	9/29/97	6010
Mercury,TCLP	<0.001	mg/L	0.001	0.001	ShaneD	10/1/97	7470
Nickel,TCLP	0.02	mg/L	0.01	0.05	ClearN	9/29/97	6010
Selenium,TCLP	<0.05	mg/L	0.05	0.05	ClearN	9/29/97	6010
Silver,TCLP	<0.01	mg/L	0.01	0.01	ClearN	9/29/97	6010
Zinc,TCLP	0.84	mg/L	0.01	0.01	ClearN	9/29/97	6010

SAMPLE RESULTS

CLIENT SAMPLE ID: SP-B-(1-36)
 CLIENT PROJECT: Carbon Brake Expansion
 Date Collected: 9/22/97
 Date Received: 9/24/97

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Report Date: 10/1/97
 EIS Sample No: 045918
 EIS Order No: 970900284

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
TCLP SEMIVOLATILES							
Cresol (meta) TCLP	nd	mg/L	0.1	0.1	DavisW	9/29/97	8270 C
Cresol (ortho) TCLP	nd	mg/L	0.1	0.1	DavisW	9/29/97	8270 C
Cresol (para) TCLP	nd	mg/L	0.1	0.1	DavisW	9/29/97	8270 C
Dinitrotoluene (2,4) TCLP	nd	mg/L	0.1	0.1	DavisW	9/29/97	8270 C
Hexachloro-1,3-butadiene, TCLP	nd	mg/L	0.1	0.1	DavisW	9/29/97	8270 C
Hexachlorobenzene, TCLP	nd	mg/L	0.1	0.1	DavisW	9/29/97	8270 C
Hexachloroethane, TCLP	nd	mg/L	0.1	0.1	DavisW	9/29/97	8270 C
Nitrobenzene, TCLP	nd	mg/L	0.1	0.1	DavisW	9/29/97	8270 C
Pentachlorophenol, TCLP	nd	mg/L	1	1	DavisW	9/29/97	8270 C
Pyridine, TCLP	nd	mg/L	0.1	0.1	DavisW	9/29/97	8270 C
Total Cresols, TCLP	nd	mg/L	0.3	0.3	DavisW	9/29/97	8270 C
Trichlorophenol (2,4,5) TCLP	nd	mg/L	1	1	DavisW	9/29/97	8270 C
Trichlorophenol (2,4,6) TCLP	nd	mg/L	0.1	0.1	DavisW	9/29/97	8270 C

SAMPLE RESULTS

CLIENT SAMPLE ID: SP-B-(1-36)

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 9/22/97

Date Received: 9/24/97

Page 6 of 1

Report Date: 10/1/97

EIS Sample No: 045818

EIS Order No: 970900284

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
TCLP VOLATILE ORGANICS .							
Benzene,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/29/97	8280 B
Carbon Tetrachloride,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/29/97	8280 B
Chlorobenzene,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/29/97	8280 B
Chloroform,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/29/97	8280 B
Dichlorobenzene (1,4) TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/29/97	8280 B
Dichloroethane (1,2) TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/29/97	8280 B
Dichloroethylene (1,1) TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/29/97	8280 B
Methyl Ethyl Ketone,TCLP	nd	mg/L	0.2	0.2	WilliamsJ	9/29/97	8280 B
Tetrachloroethylene,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/29/97	8280 B
Trichloroethylene,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/29/97	8280 B
Vinyl Chloride,TCLP	nd	mg/L	0.1	0.1	WilliamsJ	9/29/97	8280 B



REPORT OF ANALYSIS

Mr. Ray White

AlliedSignal

717 N. Bendix Drive

South Bend, IN 46620

Tel No: 231-3412

Fax No: 231-2863

PO No: A00000813

Project Name: Carbon Brake Expansion

Report Date: 9/22/97

EIS Order No: 970900149

EIS Sample No: 045541

EIS Project No: 1640-4003-97

Client Sample ID: Area 'A' Stockpile '2'

Date Collected: 9/11/97

Date Received: 9/12/97

Collected By: SM

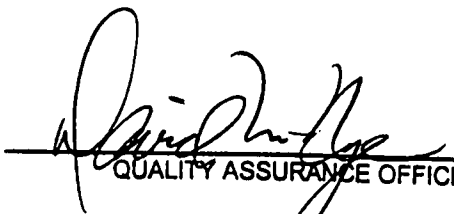
This report presents results of analysis for your sample(s) received under our Order No above. This Number is to be used in all inquiries concerning this report. The EIS Sample No above, as well as your Sample ID, refer to the first sample in a multi-sample submission

DEFINITIONS:

MDL = Method Detection Limit normally achieved in the absence of interferences or other matrix difficulties.

SDL = Sample Detection Limit achieved in your sample. If numerically greater than the MDL, dilutions were required in order to perform the analysis. If numerically less than the MDL, alternate techniques were employed.

CHAIN-OF-CUSTODY is enclosed if received with your sample submission.


QUALITY ASSURANCE OFFICER


LABORATORY DIRECTOR

The data in this report has been reviewed and complies with EIS Quality Control unless specifically addressed above.

SAMPLE RESULTS

CLIENT SAMPLE ID: Area 'A' Stockpile '2'
 CLIENT PROJECT: Carbon Brake Expansion
 Date Collected: 9/11/97
 Date Received: 9/12/97

Page 2 of 6

Report Date: 9/22/97
 EIS Sample No: 045541
 EIS Order No: 970900149

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
Corrosivity	5.9	SU	1	1	ShaneD	9/15/97	9045 C
Ignitability (Closed Cup)	>201	Fahrenheit			SzkariatM	9/18/97	1010
Moisture	16	%	0.01	0.01	SzkariatM	9/18/97	180.3
Paint Filter Liquids	0	ml/5min	0	0	ShaneD	9/15/97	9095 A
Reactivity (Total Cyanide)	<15	mg/kg(wet)	15	5	SzkariatM	9/15/97	9012 A
Reactivity (Total Sulfide)	<15	mg/kg(wet)	15	5	SzkariatM	9/15/97	9030 B

SAMPLE RESULTS

CLIENT SAMPLE ID: Area 'A' Stockpile '2'
 CLIENT PROJECT: Carbon Brake Expansion
 Date Collected: 9/11/97
 Date Received: 9/12/97

Page 3 of 6

Report Date: 9/22/97
 EIS Sample No: 045541
 EIS Order No: 970900149

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
POLYCHLORINATED BIPHENYLS							
PCB (AR1016)	nd	mg/kg(wet)	0.33	0.33	KlepperW	9/18/97	8081
PCB (AR1221)	nd	mg/kg(wet)	0.33	0.33	KlepperW	9/18/97	8081
PCB (AR1232)	nd	mg/kg(wet)	0.33	0.33	KlepperW	9/18/97	8081
PCB (AR1242)	nd	mg/kg(wet)	0.33	0.33	KlepperW	9/18/97	8081
PCB (AR1248)	nd	mg/kg(wet)	0.33	0.33	KlepperW	9/18/97	8081
PCB (AR1254)	nd	mg/kg(wet)	0.33	0.33	KlepperW	9/18/97	8081
PCB (AR1260)	nd	mg/kg(wet)	0.33	0.33	KlepperW	9/18/97	8081

SAMPLE RESULTS

CLIENT SAMPLE ID: Area 'A' Stockpile '2'
 CLIENT PROJECT: Carbon Brake Expansion
 Date Collected: 9/11/97
 Date Received: 9/12/97

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Report Date: 9/22/97
 EIS Sample No: 045541
 EIS Order No: 970900149

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
TCLP METALS							
Arsenic,TCLP	<0.05	mg/L	0.05	0.05	ClearN	9/17/97	6010
Barium,TCLP	0.80	mg/L	0.01	0.01	ClearN	9/17/97	6010
Cadmium,TCLP	<0.01	mg/L	0.01	0.01	ClearN	9/17/97	6010
Chromium,TCLP	<0.01	mg/L	0.01	0.01	ClearN	9/17/97	6010
Copper,TCLP	0.06	mg/L	0.01	0.01	ClearN	9/17/97	6010
Lead,TCLP	<0.05	mg/L	0.05	0.05	ClearN	9/17/97	6010
Mercury,TCLP	<0.001	mg/L	0.001	0.001	ShaneD	9/18/97	7470
Nickel,TCLP	<0.01	mg/L	0.05	0.05	ClearN	9/17/97	6010
Selenium,TCLP	<0.05	mg/L	0.05	0.05	ClearN	9/17/97	6010
Silver,TCLP	<0.01	mg/L	0.01	0.01	ClearN	9/17/97	6010
Zinc,TCLP	0.29	mg/L	0.01	0.01	ClearN	9/17/97	6010

SAMPLE RESULTS

CLIENT SAMPLE ID: Area 'A' Stockpile '2'
 CLIENT PROJECT: Carbon Brake Expansion
 Date Collected: 9/11/97
 Date Received: 9/12/97

Page 5 of 6

Report Date: 9/22/97
 EIS Sample No: 045541
 EIS Order No: 970900149

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
TCLP SEMIVOLATILES							
Cresol (meta) TCLP	nd	mg/L	0.1	0.1	DavisW	9/17/97	8270 C
Cresol (ortho) TCLP	nd	mg/L	0.1	0.1	DavisW	9/17/97	8270 C
Cresol (para) TCLP	nd	mg/L	0.1	0.1	DavisW	9/17/97	8270 C
Dinitrotoluene (2,4) TCLP	nd	mg/L	0.1	0.1	DavisW	9/17/97	8270 C
Hexachloro-1,3-butadiene,TCLP	nd	mg/L	0.1	0.1	DavisW	9/17/97	8270 C
Hexachlorobenzene,TCLP	nd	mg/L	0.1	0.1	DavisW	9/17/97	8270 C
Hexachloroethane,TCLP	nd	mg/L	0.1	0.1	DavisW	9/17/97	8270 C
Nitrobenzene,TCLP	nd	mg/L	0.1	0.1	DavisW	9/17/97	8270 C
Pentachlorophenol,TCLP	nd	mg/L	1	1	DavisW	9/17/97	8270 C
Pyridine,TCLP	nd	mg/L	0.1	0.1	DavisW	9/17/97	8270 C
Total Cresols,TCLP	nd	mg/L	0.3	0.3	DavisW	9/17/97	8270 C
Trichlorophenol (2,4,5) TCLP	nd	mg/L	1	1	DavisW	9/17/97	8270 C
Trichlorophenol (2,4,6) TCLP	nd	mg/L	0.1	0.1	DavisW	9/17/97	8270 C

SAMPLE RESULTS

CLIENT SAMPLE ID: Area 'A' Stockpile '2'
 CLIENT PROJECT: Carbon Brake Expansion
 Date Collected: 9/11/97
 Date Received: 9/12/97

Page 6 of 6

Report Date: 9/22/97
 EIS Sample No: 045541
 EIS Order No: 970900149

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
TCLP VOLATILE ORGANICS .							
Benzene,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/17/97	8260 B
Carbon Tetrachloride,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/17/97	8260 B
Chlorobenzene,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/17/97	8260 B
Chloroform,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/17/97	8260 B
Dichlorobenzene (1,4) TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/17/97	8260 B
Dichloroethane (1,2) TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/17/97	8260 B
Dichloroethylene (1,1) TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/17/97	8260 B
Methyl Ethyl Ketone,TCLP	nd	mg/L	0.2	0.2	WilliamsJ	9/17/97	8260 B
Tetrachloroethylene,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/17/97	8260 B
Trichloroethylene,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/17/97	8260 B
Vinyl Chloride,TCLP	nd	mg/L	0.1	0.1	WilliamsJ	9/17/97	8260 B

ANALYSIS SUPPORT INFORMATION

CLIENT NAME: AlliedSignal Aircraft Landing Systems

Report Date: 9/22/97
EIS Order No: 970900149

EIS Lab Number	Client Description	Sample Date	Procedure	Result	Date Completed	Analyst	Method
045541	Area 'A' Stockpile '2'	9/11/97	Digest Mercury(TCLP Extract)	Complete	9/17/97	ShaneD	7470
		9/11/97	Digest ICP Metals(TCLP Extract)	Complete	9/16/97	ShaneD	3005 A
		9/11/97	Extract PCB	Complete	9/17/97	BardwellC	3540 B
		9/11/97	Extract SVOC(TCLP Extract)	Complete	9/16/97	DavisW	3510 B
		9/11/97	TCLP Extraction	Complete	9/16/97	ShaneD	1311
		9/11/97	ZHE Formation	Complete	9/16/97	ShaneD	1311

QUALITY ASSURANCE / QUALITY CONTROL DATA
Method Specific Surrogate Compound Recoveries

EIS Order ID: 970900149

QUALITY CONTROL LIMITS

Normal Test	Surrogate	Methods		QC Limits	
		Water	Soil	Water	Soil
BETX / TPH	2,4-Dichlorotoluene	8020 A	8020 A	70 - 130	60 - 130
BETX / TPH	Toluene, d8	8020 A	8020 A	85 - 125	80 - 125
Herbicides	2,4-Dichlorophenylacetic acid(DCAA)	615 / 8151 / (515.1)	8151	15 - 135 (70 - 130)	
Pesticides / PCB	2,4,5,6-Tetrachloro-m-xylene(TCMX)	608 / 8081 / (508)	8081	22 - 135 (70 - 130)	40 - 150
Pesticides / PCB	Decachlorobiphenyl(DCB)	608 / 8081 / (508)	8081	22 - 135 (70 - 130)	40 - 150
SOC (svoc)	Perylene, d12	525.2		70 - 130	
SVOC (acid)	2-Fluorophenol	625 / 8270 B	8270 B	21 - 100	25 - 121
SVOC (acid)	Phenol, d5	625 / 8270 B	8270 B	10 - 94	24 - 113
SVOC (base/neutral)	Nitrobenzene, d5	625 / 8270 B	8270 B	35 - 114	23 - 120
SVOC (base/neutral)	2-Fluorobiphenyl	625 / 8270 B	8270 B	43 - 116	30 - 115
SVOC (acid)	2,4,6-Tribromophenol	625 / 8270 B	8270 B	10 - 123	19 - 122
SVOC (base/neutral)	Terphenyl, d14	625 / 8270 B	8270 B	33 - 141	18 - 137
TPH	Styrene	8015 M	8015 M		34 - 66
VOC	1,2-Dichloroethane, d4	601+602 / 8021 A / 502.2	8021 A	70 - 130	70 - 145
VOC	2,4-Dichlorotoluene	601+602 / 8021 A / 502.2	8021 A	70 - 130	60 - 130
VOC	Toluene, d8	601+602 / 8021 A / 502.2	8021 A	85 - 125	80 - 125
VOC	1,2-Dichloroethane, d4	624 / 8260 A / 524.2	8260 A	76 - 114	70 - 121
VOC	Toluene, d8	624 / 8260 A / 524.2	8260 A	88 - 110	81 - 117
VOC	Bromofluorobenzene(BFB)	624 / 8260 A / 524.2	8260 A	86 - 115	74 - 121

EIS Lab No	Client Sample ID	Method	Matrix	Surrogate	%Recovery
045541	Area 'A' Stockpile '2'	8081	Soil/Sludge/Solid	2,4,5,6-Tetrachloro-m-xylene(SS)(PCB)	82
		8081	Soil/Sludge/Solid	Dibutyl Chloroethane (SS)(PCB)	-2
		8260 B	Soil/Sludge/Solid	1,2-Dichloroethane-d4 (SS)	104
		8260 B	Soil/Sludge/Solid	4-Bromofluorobenzene (SS)	97
		8260 B	Soil/Sludge/Solid	Toluene-d8 (SS)	102
		8270 C	Soil/Sludge/Solid	2,4,6-Tribromophenol (SS)	66
		8270 C	Soil/Sludge/Solid	2-Fluorobiphenyl (SS)	63
		8270 C	Soil/Sludge/Solid	2-Fluorophenol (SS)	62
		8270 C	Soil/Sludge/Solid	4-Terphenyl-d14 (SS)	74
		8270 C	Soil/Sludge/Solid	Nitrobenzene-d5 (SS)	86
		8270 C	Soil/Sludge/Solid	Phenol-d5 (SS)	55

Legend: -1 = Surrogates diluted out -2 = Surrogates not used () = methods with different QC Limits

CHAIN OF CUSTODY RECORD

PROJ. NO. 9822-05				PROJECT NAME Allied Signal-Western Exp				Total No. of Con- tainers	Paint Filter Test Total Solids Total CAS Closure Cup Flashpoint Total Solids pH TCLP Metals (RCRA) Total PCBs (13 VOCs) Lab Order ID TAT Lab Number 45541							
SAMPLERS: (Print Name & Sign) Steve Murray [Signature]																
FIELD ID	DATE	TIME	COMP	GRAB	STATION LOCATION	Sample Type	TAT									
	9/14/97	1630	X		Area A Stock Pile 2	Sol										

Relinquished By: (Signature)	Date	Time	Received By: (Signature)	Ship To:	
	9-11-97	1640			[Signature]
	Date	Time			Received By: (Signature)
Relinquished By: (Signature)	9-12-97	0900	[Signature]		
Relinquished By: (Signature)	Date	Time	Received By: (Signature)		

NOTE: Instructions & area for comments are on reverse side.

SAMPLE RESULTS

CLIENT SAMPLE ID: SP-B-(37-47)
 CLIENT PROJECT: Carbon Brake Expansion
 Date Collected: 9/23/97
 Date Received: 9/24/97

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Report Date: 10/1/97
 EIS Sample No: 045919
 EIS Order No: 970900284

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
Corrosivity	6.4	SU	1	1	ShaneD	9/29/97	9045 C
Ignitability (Closed Cup)	>202	Fahrenheit			SzkarlatM	9/25/97	1010
Moisture	17	%	0.01	0.01	SzkarlatM	9/29/97	160.3
Paint Filter Liquids	0	ml/5min	0	0	ShaneD	9/25/97	9095 A
Reactivity (Total Cyanide)	<15	mg/kg(wet)	15	5	SzkarlatM	9/29/97	9012 A
Reactivity (Total Sulfide)	<15	mg/kg(wet)	15	5	SzkarlatM	9/29/97	9030 B

SAMPLE RESULTS

CLIENT SAMPLE ID: SP-B-(37-47)
 CLIENT PROJECT: Carbon Brake Expansion
 Date Collected: 9/23/97
 Date Received: 9/24/97

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Report Date: 10/1/97
 EIS Sample No: 045919
 EIS Order No: 970900284

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
POLYCHLORINATED BIPHENYLS							
PCB (AR1016)	nd	mg/kg(wet)	0.33	0.33	KlepperW	9/30/97	8081
PCB (AR1221)	nd	mg/kg(wet)	0.33	0.33	KlepperW	9/30/97	8081
PCB (AR1232)	nd	mg/kg(wet)	0.33	0.33	KlepperW	9/30/97	8081
PCB (AR1242)	nd	mg/kg(wet)	0.33	0.33	KlepperW	9/30/97	8081
PCB (AR1248)	nd	mg/kg(wet)	0.33	0.33	KlepperW	9/30/97	8081
PCB (AR1254)	nd	mg/kg(wet)	0.33	0.33	KlepperW	9/30/97	8081
PCB (AR1260)	nd	mg/kg(wet)	0.33	0.33	KlepperW	9/30/97	8081

SAMPLE RESULTS

CLIENT SAMPLE ID: SP-B-(37-47)
 CLIENT PROJECT: Carbon Brake Expansion
 Date Collected: 9/23/97
 Date Received: 9/24/97

Page 9 of 11

Report Date: 10/1/97
 EIS Sample No: 045819
 EIS Order No: 970600284

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
TCLP METALS							
Arsenic, TCLP	<0.05	mg/L	0.05	0.05	ClearN	9/29/97	6010
Barium, TCLP	0.77	mg/L	0.01	0.01	ClearN	9/29/97	6010
Cadmium, TCLP	<0.01	mg/L	0.01	0.01	ClearN	9/29/97	6010
Chromium, TCLP	<0.01	mg/L	0.01	0.01	ClearN	9/29/97	6010
Copper, TCLP	0.05	mg/L	0.01	0.01	ClearN	9/29/97	6010
Lead, TCLP	<0.05	mg/L	0.05	0.05	ClearN	9/29/97	6010
Mercury, TCLP	<0.001	mg/L	0.001	0.001	ShaneD	10/1/97	7410
Nickel, TCLP	<0.01	mg/L	0.01	0.05	ClearN	9/29/97	6010
Selenium, TCLP	<0.05	mg/L	0.05	0.05	ClearN	9/29/97	6010
Silver, TCLP	<0.01	mg/L	0.01	0.01	ClearN	9/29/97	6010
Zinc, TCLP	0.25	mg/L	0.01	0.01	ClearN	9/29/97	6010

SAMPLE RESULTS

CLIENT SAMPLE ID: SP-B-(37-47)

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 9/23/97

Date Received: 9/24/97

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Report Date: 10/1/97

EIS Sample No: 045919

EIS Order No: 970900284

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
TCLP SEMIVOLATILES							
Cresol (meta) TCLP	nd	mg/L	0.1	0.1	DavisW	9/29/97	8270 C
Cresol (ortho) TCLP	nd	mg/L	0.1	0.1	DavisW	9/29/97	8270 C
Cresol (para) TCLP	nd	mg/L	0.1	0.1	DavisW	9/29/97	8270 C
Dinitrotoluene (2,4) TCLP	nd	mg/L	0.1	0.1	DavisW	9/29/97	8270 C
Hexachloro-1,3-butadiene, TCLP	nd	mg/L	0.1	0.1	DavisW	9/29/97	8270 C
Hexachlorobenzene, TCLP	nd	mg/L	0.1	0.1	DavisW	9/29/97	8270 C
Hexachloroethane, TCLP	nd	mg/L	0.1	0.1	DavisW	9/29/97	8270 C
Nitrobenzene, TCLP	nd	mg/L	0.1	0.1	DavisW	9/29/97	8270 C
Pentachlorophenol, TCLP	nd	mg/L	1	1	DavisW	9/29/97	8270 C
Pyridine, TCLP	nd	mg/L	0.1	0.1	DavisW	9/29/97	8270 C
Total Cresols, TCLP	nd	mg/L	0.3	0.3	DavisW	9/29/97	8270 C
Trichlorophenol (2,4,5) TCLP	nd	mg/L	1	1	DavisW	9/29/97	8270 C
Trichlorophenol (2,4,6) TCLP	nd	mg/L	0.1	0.1	DavisW	9/29/97	8270 C

SAMPLE RESULTS

CLIENT SAMPLE ID: SP-B-(37-47)
 CLIENT PROJECT: Carbon Brake Expansion
 Date Collected: 9/23/97
 Date Received: 9/24/97

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Report Date: 10/1/97
 EIS Sample No: 045919
 EIS Order No: 970900284

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
TCLP VOLATILE ORGANICS							
Benzene,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/29/97	8260 B
Carbon Tetrachloride,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/29/97	8260 B
Chlorobenzene,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/29/97	8260 B
Chloroform,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/29/97	8260 B
Dichlorobenzene (1,4) TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/29/97	8260 B
Dichloroethane (1,2) TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/29/97	8260 B
Dichloroethylene (1,1) TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/29/97	8260 B
Methyl Ethyl Ketone,TCLP	nd	mg/L	0.2	0.2	WilliamsJ	9/29/97	8260 B
Tetrachloroethylene,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/29/97	8260 B
Trichloroethylene,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	9/29/97	8260 B
Vinyl Chloride,TCLP	nd	mg/L	0.1	0.1	WilliamsJ	9/29/97	8260 B

ANALYSIS SUPPORT INFORMATION

CLIENT NAME: AlliedSignal ALS

Report Date: 10/1/97
EIS Order No: 970900284

EIS Lab Number	Client Description	Sample Date	Procedure	Result	Date Completed	Analyst	Method
045918	SP-B-(1-36)	9/22/97	Digest Mercury(TCLP Extract)	Complete	9/30/97	ShaneD	7470
		9/22/97	Digest ICP Metals(TCLP Extract)	Complete	9/28/97	ShaneD	3005 A
		9/22/97	Extract PCB	Complete	9/25/97	GerenserC	3540 B
		9/22/97	Extract SVOC(TCLP Extract)	Complete	9/28/97	CarlsonS	3510 B
		9/22/97	TCLP Extraction	Complete	9/28/97	ShaneD	1311
		9/22/97	ZHE Formation	Complete	9/28/97	ShaneD	1311
045919	SP-B-(37-47)	9/23/97	Digest Mercury(TCLP Extract)	Complete	9/30/97	ShaneD	7470
		9/23/97	Digest ICP Metals(TCLP Extract)	Complete	9/28/97	ShaneD	3005 A
		9/23/97	Extract PCB	Complete	9/25/97	GerenserC	3540 B
		9/23/97	Extract SVOC(TCLP Extract)	Complete	9/28/97	CarlsonS	3510 B
		9/23/97	TCLP Extraction	Complete	9/28/97	ShaneD	1311
		9/23/97	ZHE Formation	Complete	9/28/97	ShaneD	1311

QUALITY ASSURANCE / QUALITY CONTROL DATA
Method Specific Surrogate Compound Recoveries

EIS Order ID: 970900284

QUALITY CONTROL LIMITS

Normal Test	Surrogate	Methods		QC Limits	
		Water	Soil	Water	Soil
BETX / TPH	2,4-Dichlorotoluene	8020 A	8020 A	70 - 130	60 - 130
BETX / TPH	Toluene, d8	8020 A	8020 A	85 - 125	80 - 125
Herbicides	2,4-Dichlorophenylacetic acid (DCAA)	615 / 8151 / (515.1)	8151	15 - 135 (70 - 130)	40 - 150
Pesticides / PCB	2,4,5,6-Tetrachloro-m-xylene (TCMX)	608 / 8081 / (508)	8081	22 - 135 (70 - 130)	40 - 150
Pesticides / PCB	Decachlorobiphenyl (DCB)	608 / 8081 / (508)	8081	22 - 135 (70 - 130)	40 - 150
SOC (svoc)	Perylene, d12	525.2		70 - 130	
SVOC (acid)	2-Fluorophenol	625 / 8270 B	8270 B	21 - 100	25 - 121
SVOC (acid)	Phenol, d5	625 / 8270 B	8270 B	10 - 94	24 - 113
SVOC (base/neutral)	Nitrobenzene, d5	625 / 8270 B	8270 B	35 - 114	23 - 120
SVOC (base/neutral)	2-Fluorobiphenyl	625 / 8270 B	8270 B	43 - 116	30 - 115
SVOC (acid)	2,4,6-Tribromophenol	625 / 8270 B	8270 B	10 - 123	19 - 122
SVOC (base/neutral)	Terphenyl, d14	625 / 8270 B	8270 B	33 - 141	16 - 137
TPH	Styrene	8015 M	8015 M		34 - 66
VOC	1,2-Dichloroethane, d4	601+602 / 8021 A / 502.2	8021 A	70 - 130	70 - 145
VOC	2,4-Dichlorotoluene	601+602 / 8021 A / 502.2	8021 A	70 - 130	60 - 130
VOC	Toluene, d8	601+602 / 8021 A / 502.2	8021 A	85 - 125	80 - 125
VOC	1,2-Dichloroethane, d4	624 / 8260 A / 524.2	8260 A	76 - 114	70 - 121
VOC	Toluene, d8	624 / 8260 A / 524.2	8260 A	88 - 110	80 - 117
VOC	Bromofluorobenzene (BFB)	624 / 8260 A / 524.2	8260 A	86 - 115	74 - 121

EIS Lab No	Client Sample ID	Method	Matrix	Surrogate	% Recovery
045918	SR-B-(1-36)	8081	Soil/Sludge/Solid	2,4,5,6-Tetrachloro-m-xylene(SS)(PCB)	79
		8081	Soil/Sludge/Solid	Dibutyl Chlorodate (SS)(PCB)	122
		8260 B	Soil/Sludge/Solid	1,2-Dichloroethane-d4 (SS)	99
		8260 B	Soil/Sludge/Solid	4-Bromofluorobenzene (SS)	98
		8260 B	Soil/Sludge/Solid	Toluene-d8 (SS)	100
		8270 C	Soil/Sludge/Solid	2,4,6-Tribromophenol (SS)	59
		8270 C	Soil/Sludge/Solid	2-Fluorobiphenyl (SS)	80
		8270 C	Soil/Sludge/Solid	2-Fluorophenol (SS)	42
		8270 C	Soil/Sludge/Solid	4-Terphenyl-d14 (SS)	71
		8270 C	Soil/Sludge/Solid	Nitrobenzene-d5 (SS)	89
		8270 C	Soil/Sludge/Solid	Phenol-d5 (SS)	42
045919	SP-B-(37-47)	8081	Soil/Sludge/Solid	2,4,5,6-Tetrachloro-m-xylene(SS)(PCB)	78
		8081	Soil/Sludge/Solid	Dibutyl Chlorodate (SS)(PCB)	22
		8260 B	Soil/Sludge/Solid	1,2-Dichloroethane-d4 (SS)	100
		8260 B	Soil/Sludge/Solid	4-Bromofluorobenzene (SS)	105
		8260 B	Soil/Sludge/Solid	Toluene-d8 (SS)	102
		8270 C	Soil/Sludge/Solid	2,4,6-Tribromophenol (SS)	61
		8270 C	Soil/Sludge/Solid	2-Fluorobiphenyl (SS)	66
		8270 C	Soil/Sludge/Solid	2-Fluorophenol (SS)	66
		8270 C	Soil/Sludge/Solid	4-Terphenyl-d14 (SS)	75
		8270 C	Soil/Sludge/Solid	Nitrobenzene-d5 (SS)	97
		8270 C	Soil/Sludge/Solid	Phenol-d5 (SS)	51

Legend: -1 = Surrogates diluted out -2 = Surrogates not used () = methods with different QC Limits

SAMPLE RESULTS

CLIENT SAMPLE ID: SP-79

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 6/3/98

Date Received: 6/3/98

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Report Date: 6/12/98

EIS Sample No: 051369

EIS Order No: 980600051

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
TCLP SEMIVOLATILES							
Cresol (meta) TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Cresol (ortho) TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Cresol (para) TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Dinitrotoluene (2,4) TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Hexachloro-1,3-butadiene, TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Hexachlorobenzene, TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Hexachloroethane, TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Nitrobenzene, TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Pentachlorophenol, TCLP	nd	mg/L	1	1	DavisW	6/10/98	8270 C
Pyridine, TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Total Cresols, TCLP	nd	mg/L	0.3	0.3	DavisW	6/10/98	8270 C
Trichlorophenol (2,4,5) TCLP	nd	mg/L	1	1	DavisW	6/10/98	8270 C
Trichlorophenol (2,4,6) TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
TCLP VOLATILE ORGANICS							
Benzene, TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Carbon Tetrachloride, TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Chlorobenzene, TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Chloroform, TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Dichlorobenzene (1,4) TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Dichloroethane (1,2) TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Dichloroethylene (1,1) TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Methyl Ethyl Ketone, TCLP	nd	mg/L	0.2	0.2	WilliamsJ	6/8/98	8260 B
Tetrachloroethylene, TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Trichloroethylene, TCLP	0.16	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Vinyl Chloride, TCLP	nd	mg/L	0.1	0.1	WilliamsJ	6/8/98	8260 B

SAMPLE RESULTS

CLIENT SAMPLE ID: SP-96

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 6/3/98

Date Received: 6/3/98

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Report Date: 6/12/98

EIS Sample No: 051370

EIS Order No: 980600051

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
TCLP SEMIVOLATILES							
Cresol (meta) TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Cresol (ortho) TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Cresol (para) TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Dinitrotoluene (2,4) TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Hexachloro-1,3-butadiene,TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Hexachlorobenzene,TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Hexachloroethane,TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Nitrobenzene,TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Pentachlorophenol,TCLP	nd	mg/L	1	1	DavisW	6/10/98	8270 C
Pyridine,TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Total Cresols,TCLP	nd	mg/L	0.3	0.3	DavisW	6/10/98	8270 C
Trichlorophenol (2,4,5) TCLP	nd	mg/L	1	1	DavisW	6/10/98	8270 C
Trichlorophenol (2,4,6) TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
TCLP VOLATILE ORGANICS							
Benzene,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Carbon Tetrachloride,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Chlorobenzene,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Chloroform,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Dichlorobenzene (1,4) TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Dichloroethane (1,2) TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Dichloroethylene (1,1) TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Methyl Ethyl Ketone,TCLP	nd	mg/L	0.2	0.2	WilliamsJ	6/8/98	8260 B
Tetrachloroethylene,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Trichloroethylene,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Vinyl Chloride,TCLP	nd	mg/L	0.1	0.1	WilliamsJ	6/8/98	8260 B

SAMPLE RESULTS

CLIENT SAMPLE ID: SP-83

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 6/3/98

Date Received: 6/3/98

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Report Date: 6/12/98

EIS Sample No: 051371

EIS Order No: 980600051

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
TCLP SEMIVOLATILES							
Cresol (meta) TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Cresol (ortho) TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Cresol (para) TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Dinitrotoluene (2,4) TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Hexachloro-1,3-butadiene, TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Hexachlorobenzene, TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Hexachloroethane, TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Nitrobenzene, TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Pentachlorophenol, TCLP	nd	mg/L	1	1	DavisW	6/10/98	8270 C
Pyridine, TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Total Cresols, TCLP	nd	mg/L	0.3	0.3	DavisW	6/10/98	8270 C
Trichlorophenol (2,4,5) TCLP	nd	mg/L	1	1	DavisW	6/10/98	8270 C
Trichlorophenol (2,4,6) TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
TCLP VOLATILE ORGANICS							
Benzene, TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Carbon Tetrachloride, TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Chlorobenzene, TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Chloroform, TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Dichlorobenzene (1,4) TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Dichloroethane (1,2) TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Dichloroethylene (1,1) TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Methyl Ethyl Ketone, TCLP	nd	mg/L	0.2	0.2	WilliamsJ	6/8/98	8260 B
Tetrachloroethylene, TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Trichloroethylene, TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Vinyl Chloride, TCLP	nd	mg/L	0.1	0.1	WilliamsJ	6/8/98	8260 B

SAMPLE RESULTS

CLIENT SAMPLE ID: SP-PCB 1

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 5/3/98

Date Received: 6/3/98

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Report Date: 6/12/98

EIS Sample No: 051372

EIS Order No: 980600051

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
POLYCHLORINATED BIPHENYLS							
PCB (AR1016)	nd	mg/kg(wet)	0.33	0.33	DavisW	6/10/98	8082
PCB (AR1221)	nd	mg/kg(wet)	0.33	0.33	DavisW	6/10/98	8082
PCB (AR1232)	nd	mg/kg(wet)	0.33	0.33	DavisW	6/10/98	8082
PCB (AR1242)	nd	mg/kg(wet)	0.33	0.33	DavisW	6/10/98	8082
PCB (AR1248)	1.6	mg/kg(wet)	0.33	0.33	DavisW	6/10/98	8082
PCB (AR1254)	0.66	mg/kg(wet)	0.33	0.33	DavisW	6/10/98	8082
PCB (AR1260)	nd	mg/kg(wet)	0.33	0.33	DavisW	6/10/98	8082
TCLP METALS							
Arsenic,TCLP	<0.05	mg/L	0.05	0.05	ShaneD	6/8/98	6010
Barium,TCLP	0.43	mg/L	0.01	0.01	ShaneD	6/8/98	6010
Cadmium,TCLP	<0.01	mg/L	0.01	0.01	ShaneD	6/8/98	6010
Chromium,TCLP	<0.01	mg/L	0.01	0.01	ShaneD	6/8/98	6010
Copper,TCLP	0.02	mg/L	0.01	0.01	ShaneD	6/8/98	6010
Lead,TCLP	<0.05	mg/L	0.05	0.05	ShaneD	6/8/98	6010
Mercury,TCLP	nd	mg/L	0.001	0.001			7470
Nickel,TCLP	<0.01	mg/L	0.05	0.05	ShaneD	6/8/98	6010
Selenium,TCLP	<0.05	mg/L	0.05	0.05	ShaneD	6/8/98	6010
Silver,TCLP	<0.01	mg/L	0.01	0.01	ShaneD	6/8/98	6010
Zinc,TCLP	0.29	mg/L	0.01	0.01	ShaneD	6/8/98	6010
TCLP SEMIVOLATILES							
Cresol (meta) TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Cresol (ortho) TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Cresol (para) TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Dinitrotoluene (2,4) TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Hexachloro-1,3-butadiene,TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Hexachlorobenzene,TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Hexachloroethane,TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Nitrobenzene,TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Pentachlorophenol,TCLP	nd	mg/L	1	1	DavisW	6/10/98	8270 C
Pyridine,TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
Total Cresols,TCLP	nd	mg/L	0.3	0.3	DavisW	6/10/98	8270 C
Trichlorophenol (2,4,5) TCLP	nd	mg/L	1	1	DavisW	6/10/98	8270 C
Trichlorophenol (2,4,6) TCLP	nd	mg/L	0.1	0.1	DavisW	6/10/98	8270 C
TCLP VOLATILE ORGANICS							
Benzene,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Carbon Tetrachloride,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Chlorobenzene,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Chloroform,TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Dichlorobenzene (1,4) TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B

SAMPLE RESULTS

CLIENT SAMPLE ID: SP-PCB 1

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 6/3/98

Date Received: 6/3/98

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Report Date: 6/12/98

EIS Sample No: 051372

EIS Order No: 980600051

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
Dichloroethane (1,2) TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Dichloroethylene (1,1) TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Methyl Ethyl Ketone, TCLP	nd	mg/L	0.2	0.2	WilliamsJ	6/8/98	8260 B
Tetrachloroethylene, TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Trichloroethylene, TCLP	nd	mg/L	0.02	0.02	WilliamsJ	6/8/98	8260 B
Vinyl Chloride, TCLP	nd	mg/L	0.1	0.1	WilliamsJ	6/8/98	8260 B

APPENDIX D - DRUM SAMPLING RESULTS

SUBJECT: Drum Sampling

PROJECT: AlliedSignal South Bend, Western Expansion Activities (9822.05)

PREPARED BY: Peter Kaczor and Don Walsh, Harding Lawson Associates

DATE: August 28, 1998

This memorandum describes the sampling procedures and results of drum sampling activities at the Carbon Brake Expansion, AlliedSignal Industrial Complex, South Bend, Indiana.

Sampling Locations

Sixty (60) 55-gallon drums of decontamination water, and one 55-gallon drum of trash were generated during the Western Expansion activities at the AlliedSignal facility. In May and August 1998, composite sampling of the drum water and sediments was performed for analysis of volatile organic compounds (VOCs) and polychlorinated biphenyls (PCBs). The drums were segregated for sampling purposes as follows:

- **DW-1:** one water sample and one sediment sample that were collected in May and represent a composite from 10 drums, approximately 500 gallons of water. Three drums had recoverable amounts of sediment.
- **DW-2:** one water sample and one sediment sample that were collected in May and represent a composite from 10 drums, approximately 475 gallons of water. Two drums had recoverable amounts of sediment.
- **DW-P:** one water sample collected in May that represents a composite from 4 drums, approximately 170 gallons of water. These four drums were segregated due to floating product on the water. The product was approximately 1- to 4 inches thick and dark brown in color. Sediments in these drums were not sampled due to the presence of product.
- **RW-1:** one water sample collected in August that represents a composite from 10 drums of approximately 500 gallons of water. No sediment was observed in these drums.

- RW-2: one water sample collected in August that represents a composite from 10 drums of approximately 500 gallons of water. No sediment was observed in these drums.
- RW-3: one water sample collected in August that represents a composite from 10 drums of approximately 500 gallons of water. No sediment was observed in these drums.

Sampling Procedure

Composite water samples were collected by removing the lids off each group of drums and sampling each group with a disposable bailer. The bailer was slowly lowered into each drum in order to collect a portion of the water with minimal agitation. After water from each drum had been collected into the bailer, the water was transferred into the appropriate sample container using the bailer's bottom-emptying device. A new bailer was used for each sample group. For the three drums with product, the bailer was passed through the product layer and the water drained from the bottom of the bailer so as to minimize product transfer into the sample containers.

Sediments in the drums were sampled with a hollow-core sediment sampler. The stainless-steel sampler, attached to a 5-foot-long rod with a "T" handle, was lowered into the sediments in the bottom of the drums (where recoverable) and twisted. Two one-way hinges trapped the sediment inside the sampler barrel while the sampler was being retracted. Using a stainless-steel scoopula, the sediments were then transferred into the appropriate sample container for laboratory analysis. Washing of the sampling equipment was performed using a solution of Liquinox soap and distilled water before each new sample was collected.

Lab Analysis

Samples were analyzed by E.I.S. Analytical Services, South Bend, Indiana, for VOCs by Method 8260 and for PCBs by Method 8080. The analytical results are included as Attachment 1.

Results

Water samples from drums not containing product reported total VOCs at concentrations less than 25 micrograms per liter (ug/L). Water sample DW-P reported total VOCs at 33,270 ug/L. All water samples were non-detectable for PCBs.

Sediment sample DW-1 reported total VOC concentrations at 4.71 milligrams per kilogram (mg/kg). Sediment sample DW-2 was non-detectable for VOCs. PCBs were reported at 13.6 mg/kg in sample DW-1 and at 23.3 mg/kg in sample DW-2. No sediment sample was collected from DW-P.

Based on these results, the water from sample groups DW-1, DW-2, RW-1, RW-2, and RW-3 can be put into the sewer system in accordance with the specification of AlliedSignal's industrial users permit. The water will be pumped from the drums to the sewer drain. While pumping, great care will be taken so as not to disturb the sediments on the bottom of the drums. Removal of the water from the drums will be discontinued when the water level is lowered to within 6 inches of the sediment layer, thereby preventing any sediment transfer to the sewer. The water from sample DW-P will be treated through AlliedSignal's on-site oil-water separator/wastewater treatment plant. Sediments will be composited into a single drum for disposal at the Toxic Substance Control Act (TSCA) permitted landfill used for disposal of other soils generated during Western Expansion activities.

ATTACHMENT 1
LABORATORY ANALYTICAL RESULTS



Mr. Ray White
AlliedSignal ALS
3520 Westmoor Street
South Bend, IN 46628
Tel No: 231-3412
Fax No: 231-3426
PO No: A00000813
Project Name: Carbon Brake Expansion

Report Date: 5/14/98
EIS Order No: 980500055
EIS Sample No: 050685
EIS Project No: 1640-4002-98

Client Sample ID: DW-1
Date Collected: 5/5/98
Date Received: 5/6/98
Collected By: Client

This report presents results of analysis for your sample(s) received under our Order No above. This Number is to be used in all inquiries concerning this report. The EIS Sample No above, as well as your Sample ID, refer to the first sample in a multi-sample submission

DEFINITIONS:

MDL = Method Detection Limit normally achieved in the absence of interferences or other matrix difficulties.
SDL = Sample Detection Limit achieved in your sample. If numerically greater than the MDL, dilutions were required in order to perform the analysis. If numerically less than the MDL, alternate techniques were employed.
nd = Not Detected at the SDL value. If present, result is less than this value.
< = Not Detected at the numerical value shown. If present, result is less than this value.

CHAIN-OF-CUSTODY is enclosed if received with your sample submission.

DRINKING WATER CERTIFICATIONS: Chemistry = C-71-02 Bacteriology = 52715

QUALITY ASSURANCE OFFICER

LABORATORY DIRECTOR

The data in this report has been reviewed and complies with EIS Quality Control unless specifically addressed above.

EIS Analytical Services Inc 1701 N. Ironwood Drive, Suite B * South Bend, IN 46635 * Tel: 219-277-0707 * Fax: 219-273-5699

SAMPLE RESULTS

CLIENT SAMPLE ID: DW-1
 CLIENT PROJECT: Carbon Brake Expansion
 Date Collected: 5/5/98
 Date Received: 5/6/98

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Report Date: 5/14/98
 EIS Sample No: 050685
 EIS Order No: 980500055

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
VOLATILE ORGANICS							
Acetone	nd	ug/L	10	10	WilliamsJ	5/11/98	8260 B
Acrolein	nd	ug/L	20	20	WilliamsJ	5/11/98	8260 B
Acrylonitrile	nd	ug/L	20	20	WilliamsJ	5/11/98	8260 B
Benzene	nd	ug/L	1	1	WilliamsJ	5/11/98	8260 B
Bromodichloromethane	nd	ug/L	1	1	WilliamsJ	5/11/98	8260 B
Bromoform	nd	ug/L	2	2	WilliamsJ	5/11/98	8260 B
Bromomethane	nd	ug/L	2	2	WilliamsJ	5/11/98	8260 B
Carbon disulfide	nd	ug/L	2	2	WilliamsJ	5/11/98	8260 B
Carbon Tetrachloride	nd	ug/L	2	2	WilliamsJ	5/11/98	8260 B
Chlorobenzene	nd	ug/L	1	1	WilliamsJ	5/11/98	8260 B
Chloroethane	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Chloroethyl vinyl ether (2)	nd	ug/l	10	10	WilliamsJ	5/11/98	8260 B
Chloroform	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Chloromethane	nd	ug/l	10	10	WilliamsJ	5/11/98	8260 B
Dibromochloromethane	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Dichlorobenzene (1,2)	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Dichlorobenzene (1,3)	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Dichlorobenzene (1,4)	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Dichlorodifluoromethane	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Dichloroethane (1,1)	5.5	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Dichloroethane (1,2)	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Dichloroethene (1,1)	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Dichloroethene (c-1,2)	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Dichloroethene (t-1,2)	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Dichloropropane (1,2)	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Dichloropropene (c-1,3)	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Dichloropropene (t-1,3)	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Ethylbenzene	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Hexanone (2-)	nd	ug/l	10	10	WilliamsJ	5/11/98	8260 B
Isopropylbenzene	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Methyl Ethyl Ketone (MEK)	nd	ug/l	10	10	WilliamsJ	5/11/98	8260 B
Methyl Isobutyl Ketone (MIBK)	nd	ug/l	10	10	WilliamsJ	5/11/98	8260 B
Methylbutylether (tert) (MTBE)	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Methylene chloride	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Naphthalene	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Propylbenzene (normal)	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Styrene	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Tetrachloroethane (1,1,2,2)	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Tetrachloroethene	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Toluene	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B

SAMPLE RESULTS

CLIENT SAMPLE ID: DW-1

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 5/5/98

Date Received: 5/6/98

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Report Date: 5/14/98

EIS Sample No: 050685

EIS Order No: 980500055

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
Trichloroethane (1,1,1)	3.7	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Trichloroethane (1,1,2)	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Trichloroethene	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Trichlorofluoromethane	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Trimethylbenzene (1,2,4)	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Trimethylbenzene (1,3,5)	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Vinyl acetate	nd	ug/l	10	10	WilliamsJ	5/11/98	8260 B
Vinyl Chloride	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Xylenes, Total	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B

SAMPLE RESULTS

CLIENT SAMPLE ID: DW-2

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 5/5/98

Date Received: 5/6/98

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Report Date: 5/14/98

EIS Sample No: 050686

EIS Order No: 980500055

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
VOLATILE ORGANICS							
Acetone	nd	ug/L	10	10	WilliamsJ	5/11/98	8260 B
Acrolein	nd	ug/L	20	20	WilliamsJ	5/11/98	8260 B
Acrylonitrile	nd	ug/L	20	20	WilliamsJ	5/11/98	8260 B
Benzene	nd	ug/L	1	1	WilliamsJ	5/11/98	8260 B
Bromodichloromethane	nd	ug/L	1	1	WilliamsJ	5/11/98	8260 B
Bromoform	nd	ug/L	2	2	WilliamsJ	5/11/98	8260 B
Bromomethane	nd	ug/L	2	2	WilliamsJ	5/11/98	8260 B
Carbon disulfide	nd	ug/L	2	2	WilliamsJ	5/11/98	8260 B
Carbon Tetrachloride	nd	ug/L	2	2	WilliamsJ	5/11/98	8260 B
Chlorobenzene	nd	ug/L	1	1	WilliamsJ	5/11/98	8260 B
Chloroethane	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Chloroethyl vinyl ether (2)	nd	ug/l	10	10	WilliamsJ	5/11/98	8260 B
Chloroform	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Chloromethane	nd	ug/l	10	10	WilliamsJ	5/11/98	8260 B
Dibromochloromethane	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Dichlorobenzene (1,2)	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Dichlorobenzene (1,3)	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Dichlorobenzene (1,4)	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Dichlorodifluoromethane	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Dichloroethane (1,1)	2.3	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Dichloroethane (1,2)	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Dichloroethene (1,1)	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Dichloroethene (c-1,2)	2.7	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Dichloroethene (t-1,2)	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Dichloropropane (1,2)	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Dichloropropene (c-1,3)	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Dichloropropene (t-1,3)	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Ethylbenzene	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Hexanone (2-)	nd	ug/l	10	10	WilliamsJ	5/11/98	8260 B
Isopropylbenzene	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Methyl Ethyl Ketone (MEK)	nd	ug/l	10	10	WilliamsJ	5/11/98	8260 B
Methyl Isobutyl Ketone (MIBK)	nd	ug/l	10	10	WilliamsJ	5/11/98	8260 B
Methylbutylether (tert) (MTBE)	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Methylene chloride	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Naphthalene	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Propylbenzene (normal)	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Styrene	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Tetrachloroethane (1,1,2,2)	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Tetrachloroethene	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Toluene	4.1	ug/l	1	1	WilliamsJ	5/11/98	8260 B

SAMPLE RESULTS

CLIENT SAMPLE ID: DW-2

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 5/5/98

Date Received: 5/6/98

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Report Date: 5/14/98

EIS Sample No: 050686

EIS Order No: 980500055

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
Trichloroethane (1,1,1)	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Trichloroethane (1,1,2)	nd	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Trichloroethene	4.6	ug/l	1	1	WilliamsJ	5/11/98	8260 B
Trichlorofluoromethane	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Trimethylbenzene (1,2,4)	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Trimethylbenzene (1,3,5)	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Vinyl acetate	nd	ug/l	10	10	WilliamsJ	5/11/98	8260 B
Vinyl Chloride	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B
Xylenes, Total	nd	ug/l	2	2	WilliamsJ	5/11/98	8260 B

SAMPLE RESULTS

CLIENT SAMPLE ID: DW-P

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 5/5/98

Date Received: 5/6/98

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Report Date: 5/14/98

EIS Sample No: 050687

EIS Order No: 980500055

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
VOLATILE ORGANICS							
Acetone	17700	ug/L	1000	10	WilliamsJ	5/11/98	8260 B
Acrolein	nd	ug/L	2000	20	WilliamsJ	5/11/98	8260 B
Acrylonitrile	nd	ug/L	2000	20	WilliamsJ	5/11/98	8260 B
Benzene	1090	ug/L	100	1	WilliamsJ	5/11/98	8260 B
Bromodichloromethane	nd	ug/L	100	1	WilliamsJ	5/11/98	8260 B
Bromoform	nd	ug/L	200	2	WilliamsJ	5/11/98	8260 B
Bromomethane	nd	ug/L	200	2	WilliamsJ	5/11/98	8260 B
Carbon disulfide	nd	ug/L	200	2	WilliamsJ	5/11/98	8260 B
Carbon Tetrachloride	nd	ug/L	200	2	WilliamsJ	5/11/98	8260 B
Chlorobenzene	nd	ug/L	100	1	WilliamsJ	5/11/98	8260 B
Chloroethane	nd	ug/l	200	2	WilliamsJ	5/11/98	8260 B
Chloroethyl vinyl ether (2)	nd	ug/l	1000	10	WilliamsJ	5/11/98	8260 B
Chloroform	nd	ug/l	100	1	WilliamsJ	5/11/98	8260 B
Chloromethane	nd	ug/l	1000	10	WilliamsJ	5/11/98	8260 B
Dibromochloromethane	nd	ug/l	100	1	WilliamsJ	5/11/98	8260 B
Dichlorobenzene (1,2)	nd	ug/l	200	2	WilliamsJ	5/11/98	8260 B
Dichlorobenzene (1,3)	nd	ug/l	200	2	WilliamsJ	5/11/98	8260 B
Dichlorobenzene (1,4)	nd	ug/l	200	2	WilliamsJ	5/11/98	8260 B
Dichlorodifluoromethane	nd	ug/l	200	2	WilliamsJ	5/11/98	8260 B
Dichloroethane (1,1)	nd	ug/l	100	1	WilliamsJ	5/11/98	8260 B
Dichloroethane (1,2)	nd	ug/l	100	1	WilliamsJ	5/11/98	8260 B
Dichloroethene (1,1)	nd	ug/l	200	2	WilliamsJ	5/11/98	8260 B
Dichloroethene (c-1,2)	nd	ug/l	100	1	WilliamsJ	5/11/98	8260 B
Dichloroethene (t-1,2)	nd	ug/l	100	1	WilliamsJ	5/11/98	8260 B
Dichloropropane (1,2)	nd	ug/l	100	1	WilliamsJ	5/11/98	8260 B
Dichloropropene (c-1,3)	nd	ug/l	200	2	WilliamsJ	5/11/98	8260 B
Dichloropropene (t-1,3)	nd	ug/l	200	2	WilliamsJ	5/11/98	8260 B
Ethylbenzene	310	ug/l	100	1	WilliamsJ	5/11/98	8260 B
Hexanone (2-)	nd	ug/l	1000	10	WilliamsJ	5/11/98	8260 B
Isopropylbenzene	nd	ug/l	200	2	WilliamsJ	5/11/98	8260 B
Methyl Ethyl Ketone (MEK)	1110	ug/l	1000	10	WilliamsJ	5/11/98	8260 B
Methyl Isobutyl Ketone (MIBK)	nd	ug/l	1000	10	WilliamsJ	5/11/98	8260 B
Methylbutylether (tert) (MTBE)	nd	ug/l	200	2	WilliamsJ	5/11/98	8260 B
Methylene chloride	nd	ug/l	200	2	WilliamsJ	5/11/98	8260 B
Naphthalene	680	ug/l	200	2	WilliamsJ	5/11/98	8260 B
Propylbenzene (normal)	nd	ug/l	100	1	WilliamsJ	5/11/98	8260 B
Styrene	nd	ug/l	100	1	WilliamsJ	5/11/98	8260 B
Tetrachloroethane (1,1,2,2)	nd	ug/l	100	1	WilliamsJ	5/11/98	8260 B
Tetrachloroethene	nd	ug/l	100	1	WilliamsJ	5/11/98	8260 B
Toluene	6790	ug/l	100	1	WilliamsJ	5/11/98	8260 B

SAMPLE RESULTS

CLIENT SAMPLE ID: DW-P

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 5/5/98

Date Received: 5/6/98

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Report Date: 5/14/98

EIS Sample No: 050687

EIS Order No: 980500055

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
Trichloroethane (1,1,1)	nd	ug/l	100	1	WilliamsJ	5/11/98	8260 B
Trichloroethane (1,1,2)	nd	ug/l	100	1	WilliamsJ	5/11/98	8260 B
Trichloroethene	nd	ug/l	100	1	WilliamsJ	5/11/98	8260 B
Trichlorofluoromethane	nd	ug/l	200	2	WilliamsJ	5/11/98	8260 B
Trimethylbenzene (1,2,4)	740	ug/l	200	2	WilliamsJ	5/11/98	8260 B
Trimethylbenzene (1,3,5)	450	ug/l	200	2	WilliamsJ	5/11/98	8260 B
Vinyl acetate	nd	ug/l	1000	10	WilliamsJ	5/11/98	8260 B
Vinyl Chloride	nd	ug/l	200	2	WilliamsJ	5/11/98	8260 B
Xylenes, Total	4400	ug/l	200	2	WilliamsJ	5/11/98	8260 B

SAMPLE RESULTS

CLIENT SAMPLE ID: DW-1
CLIENT PROJECT: Carbon Brake Expansion
Date Collected: 5/5/98
Date Received: 5/6/98

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Report Date: 5/14/98
EIS Sample No: 050685
EIS Order No: 980500055

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
POLYCHLORINATED BIPHENYLS							
PCB (AR1016)	nd	µg/L	1	0.5	DavisW	5/11/98	8081
PCB (AR1221)	nd	µg/L	1	0.5	DavisW	5/11/98	8081
PCB (AR1232)	nd	µg/L	1	0.5	DavisW	5/11/98	8081
PCB (AR1242)	nd	µg/L	1	0.5	DavisW	5/11/98	8081
PCB (AR1248)	nd	µg/L	1	0.5	DavisW	5/11/98	8081
PCB (AR1254)	nd	µg/L	1	0.5	DavisW	5/11/98	8081
PCB (AR1260)	nd	µg/L	1	0.5	DavisW	5/11/98	8081

SAMPLE RESULTS

CLIENT SAMPLE ID: DW-2

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 5/5/98

Date Received: 5/6/98

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Report Date: 5/14/98

EIS Sample No: 050686

EIS Order No: 980500055

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
POLYCHLORINATED BIPHENYLS							
PCB (AR1016)	nd	µg/L	1	0.5	DavisW	5/11/98	8081
PCB (AR1221)	nd	µg/L	1	0.5	DavisW	5/11/98	8081
PCB (AR1232)	nd	µg/L	1	0.5	DavisW	5/11/98	8081
PCB (AR1242)	nd	µg/L	1	0.5	DavisW	5/11/98	8081
PCB (AR1248)	nd	µg/L	1	0.5	DavisW	5/11/98	8081
PCB (AR1254)	nd	µg/L	1	0.5	DavisW	5/11/98	8081
PCB (AR1260)	nd	µg/L	1	0.5	DavisW	5/11/98	8081

SAMPLE RESULTS

CLIENT SAMPLE ID: DW-P
CLIENT PROJECT: Carbon Brake Expansion
Date Collected: 5/5/98
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Report Date: 5/14/98
EIS Sample No: 050687
EIS Order No: 980500055

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
POLYCHLORINATED BIPHENYLS							
PCB (AR1016)	nd	µg/L	1	0.5	DavisW	5/11/98	8081
PCB (AR1221)	nd	µg/L	1	0.5	DavisW	5/11/98	8081
PCB (AR1232)	nd	µg/L	1	0.5	DavisW	5/11/98	8081
PCB (AR1242)	nd	µg/L	1	0.5	DavisW	5/11/98	8081
PCB (AR1248)	nd	µg/L	1	0.5	DavisW	5/11/98	8081
PCB (AR1254)	nd	µg/L	1	0.5	DavisW	5/11/98	8081
PCB (AR1260)	nd	µg/L	1	0.5	DavisW	5/11/98	8081

SAMPLE RESULTS

CLIENT SAMPLE ID: DW-1

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 5/6/98

Date Received: 5/6/98

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Report Date: 5/14/98

EIS Sample No: 050688

EIS Order No: 980500055

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
VOLATILE ORGANICS							
Acetone	nd	mg/kg(wet)	2	1	WilliamsJ	5/12/98	8260 A
Acrolein	nd	mg/kg(wet)	2	1	WilliamsJ	5/12/98	8260 A
Acrylonitrile	nd	mg/kg(wet)	2	1	WilliamsJ	5/12/98	8260 A
Benzene	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Bromodichloromethane	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Bromoform	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Bromomethane	nd	mg/kg(wet)	0.2	0.1	WilliamsJ	5/12/98	8260 A
Carbon disulfide	nd	mg/kg(wet)	1	0.5	WilliamsJ	5/12/98	8260 A
Carbon Tetrachloride	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Chlorobenzene	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Chloroethane	nd	mg/kg(wet)	0.2	0.1	WilliamsJ	5/12/98	8260 A
Chloroethyl vinyl ether (2)	nd	mg/kg(wet)	0.2	0.1	WilliamsJ	5/12/98	8260 A
Chloroform	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Chloromethane	nd	mg/kg(wet)	0.2	0.1	WilliamsJ	5/12/98	8260 A
Dibromochloromethane	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Dichlorobenzene (1,2)	nd	mg/kg(wet)	1	0.5	WilliamsJ	5/12/98	8260 A
Dichlorobenzene (1,3)	nd	mg/kg(wet)	1	0.5	WilliamsJ	5/12/98	8260 A
Dichlorobenzene (1,4)	nd	mg/kg(wet)	1	0.5	WilliamsJ	5/12/98	8260 A
Dichlorodifluoromethane	nd	mg/kg(wet)	0.2	0.1	WilliamsJ	5/12/98	8260 A
Dichloroethane (1,1)	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Dichloroethane (1,2)	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Dichloroethene (1,1)	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Dichloroethene (c-1,2)	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Dichloroethene (t-1,2)	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Dichloropropane (1,2)	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Dichloropropene (c-1,3)	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Dichloropropene (t-1,3)	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Ethylbenzene	0.12	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Hexanone (2-)	nd	mg/kg(wet)	1	0.5	WilliamsJ	5/12/98	8260 A
Isopropylbenzene	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Methyl Ethyl Ketone (MEK)	nd	mg/kg(wet)	2	1	WilliamsJ	5/12/98	8260 A
Methyl Isobutyl Ketone (MIBK)	nd	mg/kg(wet)	1	0.5	WilliamsJ	5/12/98	8260 A
Methylbutylether (tert) (MTBE)	nd	mg/kg(wet)	0.2	0.1	WilliamsJ	5/12/98	8260 A
Methylene chloride	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Naphthalene	0.30	mg/kg(wet)	0.2	0.1	WilliamsJ	5/12/98	8260 A
Propylbenzene (normal)	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Styrene	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Tetrachloroethane (1,1,2,2)	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Tetrachloroethene	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Toluene	3.5	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A

SAMPLE RESULTS

CLIENT SAMPLE ID: DW-1

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 5/6/98

Date Received: 5/6/98

Page 13 of 1

Report Date: 5/14/98

EIS Sample No: 050688

EIS Order No: 980500055

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
Trichloroethane (1,1,1)	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Trichloroethane (1,1,2)	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Trichloroethene	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Trichlorofluoromethane	nd	mg/kg(wet)	0.2	0.1	WilliamsJ	5/12/98	8260 A
Trimethylbenzene (1,2,4)	0.21	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Trimethylbenzene (1,3,5)	nd	mg/kg(wet)	0.1	0.05	WilliamsJ	5/12/98	8260 A
Vinyl acetate	nd	mg/kg(wet)	1	0.5	WilliamsJ	5/12/98	8260 A
Vinyl Chloride	nd	mg/kg(wet)	0.2	0.1	WilliamsJ	5/12/98	8260 A
Xylenes, Total	0.58	mg/kg(wet)	0.2	0.1	WilliamsJ	5/12/98	8260 A

SAMPLE RESULTS

CLIENT SAMPLE ID: DW-2

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 5/6/98

Date Received: 5/6/98

Page 15 of 16

Report Date: 5/14/98

EIS Sample No: 050689

EIS Order No: 980500055

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
VOLATILE ORGANICS							
Acetone	nd	mg/kg(wet)	1	1	WilliamsJ	5/12/98	8260 A
Acrolein	nd	mg/kg(wet)	1	1	WilliamsJ	5/12/98	8260 A
Acrylonitrile	nd	mg/kg(wet)	1	1	WilliamsJ	5/12/98	8260 A
Benzene	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Bromodichloromethane	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Bromoform	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Bromomethane	nd	mg/kg(wet)	0.1	0.1	WilliamsJ	5/12/98	8260 A
Carbon disulfide	nd	mg/kg(wet)	0.5	0.5	WilliamsJ	5/12/98	8260 A
Carbon Tetrachloride	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Chlorobenzene	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Chloroethane	nd	mg/kg(wet)	0.1	0.1	WilliamsJ	5/12/98	8260 A
Chloroethyl vinyl ether (2)	nd	mg/kg(wet)	0.1	0.1	WilliamsJ	5/12/98	8260 A
Chloroform	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Chloromethane	nd	mg/kg(wet)	0.1	0.1	WilliamsJ	5/12/98	8260 A
Dibromochloromethane	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Dichlorobenzene (1,2)	nd	mg/kg(wet)	0.5	0.5	WilliamsJ	5/12/98	8260 A
Dichlorobenzene (1,3)	nd	mg/kg(wet)	0.5	0.5	WilliamsJ	5/12/98	8260 A
Dichlorobenzene (1,4)	nd	mg/kg(wet)	0.5	0.5	WilliamsJ	5/12/98	8260 A
Dichlorodifluoromethane	nd	mg/kg(wet)	0.1	0.1	WilliamsJ	5/12/98	8260 A
Dichloroethane (1,1)	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Dichloroethane (1,2)	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Dichloroethene (1,1)	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Dichloroethene (c-1,2)	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Dichloroethene (t-1,2)	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Dichloropropane (1,2)	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Dichloropropene (c-1,3)	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Dichloropropene (t-1,3)	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Ethylbenzene	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Hexanone (2-)	nd	mg/kg(wet)	0.5	0.5	WilliamsJ	5/12/98	8260 A
Isopropylbenzene	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Methyl Ethyl Ketone (MEK)	nd	mg/kg(wet)	1	1	WilliamsJ	5/12/98	8260 A
Methyl Isobutyl Ketone (MIBK)	nd	mg/kg(wet)	0.5	0.5	WilliamsJ	5/12/98	8260 A
Methylbutylether (tert) (MTBE)	nd	mg/kg(wet)	0.1	0.1	WilliamsJ	5/12/98	8260 A
Methylene chloride	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Naphthalene	nd	mg/kg(wet)	0.1	0.1	WilliamsJ	5/12/98	8260 A
Propylbenzene (normal)	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Styrene	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Tetrachloroethane (1,1,2,2)	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Tetrachloroethene	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Toluene	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A

SAMPLE RESULTS

CLIENT SAMPLE ID: DW-2

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 5/6/98

Date Received: 5/6/98

Page 16 of 16

Report Date: 5/14/98

EIS Sample No: 050689

EIS Order No: 980500055

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
Trichloroethane (1,1,1)	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Trichloroethane (1,1,2)	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Trichloroethene	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Trichlorofluoromethane	nd	mg/kg(wet)	0.1	0.1	WilliamsJ	5/12/98	8260 A
Trimethylbenzene (1,2,4)	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Trimethylbenzene (1,3,5)	nd	mg/kg(wet)	0.05	0.05	WilliamsJ	5/12/98	8260 A
Vinyl acetate	nd	mg/kg(wet)	0.5	0.5	WilliamsJ	5/12/98	8260 A
Vinyl Chloride	nd	mg/kg(wet)	0.1	0.1	WilliamsJ	5/12/98	8260 A
Xylenes, Total	nd	mg/kg(wet)	0.1	0.1	WilliamsJ	5/12/98	8260 A

SAMPLE RESULTS

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CLIENT SAMPLE ID: DW-1

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 5/6/98

Date Received: 5/6/98

Report Date: 5/14/98

EIS Sample No: 050688

EIS Order No: 980500055

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
POLYCHLORINATED BIPHENYLS							
PCB (AR1016)	nd	mg/kg(wet)	3.3	0.33	DavisW	5/12/98	8081
PCB (AR1221)	nd	mg/kg(wet)	3.3	0.33	DavisW	5/12/98	8081
PCB (AR1232)	nd	mg/kg(wet)	3.3	0.33	DavisW	5/12/98	8081
PCB (AR1242)	nd	mg/kg(wet)	3.3	0.33	DavisW	5/12/98	8081
PCB (AR1248)	9.9	mg/kg(wet)	3.3	0.33	DavisW	5/12/98	8081
PCB (AR1254)	3.7	mg/kg(wet)	3.3	0.33	DavisW	5/12/98	8081
PCB (AR1260)	nd	mg/kg(wet)	3.3	0.33	DavisW	5/12/98	8081

SAMPLE RESULTS

CLIENT SAMPLE ID: DW-2

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 5/6/98

Date Received: 5/6/98

Page 14 of 14

Report Date: 5/14/98

EIS Sample No: 050689

EIS Order No: 980500055

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
POLYCHLORINATED BIPHENYLS							
PCB (AR1016)	nd	mg/kg(wet)	3.3	0.33	DavisW	5/12/98	8081
PCB (AR1221)	nd	mg/kg(wet)	3.3	0.33	DavisW	5/12/98	8081
PCB (AR1232)	nd	mg/kg(wet)	3.3	0.33	DavisW	5/12/98	8081
PCB (AR1242)	nd	mg/kg(wet)	3.3	0.33	DavisW	5/12/98	8081
PCB (AR1248)	17	mg/kg(wet)	3.3	0.33	DavisW	5/12/98	8081
PCB (AR1254)	6.3	mg/kg(wet)	3.3	0.33	DavisW	5/12/98	8081
PCB (AR1260)	nd	mg/kg(wet)	3.3	0.33	DavisW	5/12/98	8081

CHAIN OF CUSTODY RECORD/ANALYTICAL REQUEST

1. Project Name: <u>Alfred Signal W-Expansion</u>		4. Project Manager: <u>Don Walsh</u>		7. Prepared by: <u>P. Kaczor</u>	
2. Project No.: <u>9822-05</u>		5. Manager's Phone No.: <u>248-494-8040</u>		8. Form checked before shipping by:	
3. SDG No.:		6. Work Release No.:		9. Airbill No.: <u>✓</u>	

Samplers (Print names): P. Kaczor

Date	Time	Water	Soil	Sample ID Number	Total No. of Containers:	VOC	HCl	PCB	VOC/PCB	1x902 CL										
						2x40-MI CG		1x1-L AG												
5/5/98		X		DW-1 (S)	3	X	X													
↓		X		DW-2 (S)	3	X	X													
↓		X		DW-P	3	X	X													
5/6/98		X		DW-1	1				X											
↓		X		DW-2	1				X											



ABB Environmental Services, Inc.

Office Address:

Phone: Fax:

Remarks: (Include MS/MSD information, composite or grab sample information, etc.)

Composite Decon water during

↓ ↓

10. Date Shipped:		11. Date Received:		12. Date Shipped:	
13. Relinquished by: <u>P. Kaczor</u> Date/Time: <u>5/6/98 1320 hr</u>		14. Received by: <u>Andrija Brijte</u> Date/Time: <u>5/6/98 1320 hrs</u>		15. Relinquished by: Date/Time:	
16. Received by: Date/Time:		17. Relinquished by: Date/Time:		18. Received for Disposal by: Date/Time:	

19. Comments (Special instructions):



REPORT OF ANALYSIS

Mr. Ray White
AlliedSignal ALS
3520 Westmoor Street
South Bend, IN 46628
Tel No: 231-3412

Fax No: 231-2863

PO No:

Project Name: Carbon Brake Expansion

Report Date: 8/19/98
EIS Order No: 980800059
EIS Sample No: 053078
EIS Project No: 1640-4002-98

Client Sample ID: RW-1
Date Collected: 8/5/98
Date Received: 8/5/98
Collected By: Client

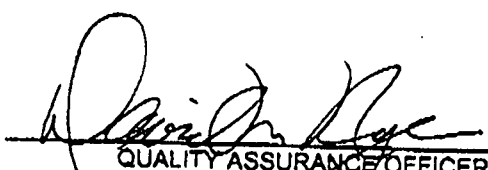
This report presents results of analysis for your sample(s) received under our Order No above. This Number is to be used in all inquiries concerning this report. The EIS Sample No above, as well as your Sample ID, refer to the first sample in a multi-sample submission

DEFINITIONS:

MDL = Method Detection Limit normally achieved in the absence of interferences or other matrix difficulties.
SDL = Sample Detection Limit achieved in your sample. If numerically greater than the MDL, dilutions were required in order to perform the analysis. If numerically less than the MDL, alternate techniques were employed.
nd = Not Detected at the SDL value. If present, result is less than this value.
< = Not Detected at the numerical value shown. If present, result is less than this value.

CHAIN-OF-CUSTODY is enclosed if received with your sample submission.

DRINKING WATER CERTIFICATIONS: Chemistry = C-71-02 Bacteriology = 52715


QUALITY ASSURANCE OFFICER


LABORATORY DIRECTOR

The data in this report has been reviewed and complies with EIS Quality Control unless specifically addressed above.

EIS Analytical Services Inc 1701 N. Ironwood Drive, Suite B • South Bend, IN 46635 • Tel: 219-277-0707 • Fax: 219-273-5699

SAMPLE RESULTS

CLIENT SAMPLE ID: RW-1

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 8/5/98

Date Received: 8/5/98

Page 2 of 10

Report Date: 8/19/98

EIS Sample No: 053078

EIS Order No: 980800059

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
POLYCHLORINATED BIPHENYLS							
PCB (AR1016)	nd	µg/L	1	1	DavisW	8/17/98	8082
PCB (AR1221)	nd	µg/L	1	1	DavisW	8/17/98	8082
PCB (AR1232)	nd	µg/L	1	1	DavisW	8/17/98	8082
PCB (AR1242)	nd	µg/L	1	1	DavisW	8/17/98	8082
PCB (AR1248)	nd	µg/L	1	1	DavisW	8/17/98	8082
PCB (AR1254)	nd	µg/L	1	1	DavisW	8/17/98	8082
PCB (AR1260)	nd	µg/L	1	1	DavisW	8/17/98	8082
	nd	µg/L	1	1	DavisW	8/17/98	8082

SAMPLE RESULTS

CLIENT SAMPLE ID: RW-1s

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 8/5/98

Date Received: 8/5/98

Page 3 of 10

Report Date: 8/19/98

EIS Sample No: 053078

EIS Order No: 980800059

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
VOLATILE ORGANICS							
Acetone	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Acrolein	nd	µg/L	20	20	WilliamsJ	8/13/98	8260 B
Acrylonitrile	nd	µg/L	20	20	WilliamsJ	8/13/98	8260 B
Benzene	2.1	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Bromobenzene	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Bromochloromethane	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Bromodichloromethane	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Bromoform	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Bromomethane	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Butylbenzene (normal)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Butylbenzene (sec)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Butylbenzene (tert)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Carbon disulfide	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Carbon Tetrachloride	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Chlorobenzene	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Chloroethane	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Chloroethyl vinyl ether (2)	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Chloroform	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Chlorohexane (1)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Chloromethane	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Chlorotoluene (2)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Chlorotoluene (4)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Cyclohexanone	nd	µg/L	100	100	WilliamsJ	8/13/98	8260 B
Dibromo-3-chloropropane (1,2)	nd	µg/L	30	30	WilliamsJ	8/13/98	8260 B
Dibromochloromethane	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Dibromoethane (1,2)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Dibromomethane	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Dichloro-2-butene (1,4)	nd	µg/L	30	30	WilliamsJ	8/13/98	8260 B
Dichlorobenzene (1,2)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Dichlorobenzene (1,3)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Dichlorobenzene (1,4)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Dichlorodifluoromethane	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Dichloroethane (1,1)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Dichloroethane (1,2)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Dichloroethene (1,1)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Dichloroethene (c-1,2)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Dichloroethene (t-1,2)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Dichlorofluoromethane	nd	µg/L	5	5	WilliamsJ	8/13/98	8260 B
Dichloropropane (1,2)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Dichloropropane (1,3)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B

SAMPLE RESULTS

CLIENT SAMPLE ID: RW-1

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 8/5/98

Date Received: 8/5/98

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Report Date: 8/19/98

EIS Sample No: 053078

EIS Order No: 980800059

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
Dichloropropane (2,2)	nd	µg/L	5	5	WilliamsJ	8/13/98	8260 B
Dichloropropene (1,1)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Dichloropropene (c-1,3)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Dichloropropene (t-1,3)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Diethyl ether	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Ethyl methacrylate	nd	µg/L	5	5	WilliamsJ	8/13/98	8260 B
Ethylbenzene	2.1	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Heptane (normal)	nd	µg/L	5	5	WilliamsJ	8/13/98	8260 B
Hexachlorobutadiene	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Hexanone (2-)	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Iodomethane	nd	µg/L	5	5	WilliamsJ	8/13/98	8260 B
Isopropylbenzene	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Isopropyltoluene (para)	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Methyl Ethyl Ketone (MEK)	nd	µg/L	5	5	WilliamsJ	8/13/98	8260 B
Methyl Isobutyl Ketone (MIBK)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Methyl methacrylate	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Methylbutylether (tert) (MTBE)	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Methylene chloride	nd	µg/L	5	5	WilliamsJ	8/13/98	8260 B
Naphthalene	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Propylbenzene (normal)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Styrene	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Tetrachloroethane (1,1,1,2)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Tetrachloroethane (1,1,2,2)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Tetrachloroethene	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Tetrahydrofuran	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Toluene	10	µg/L	10	10	WilliamsJ	8/13/98	8260 B
TPH	290	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Trichlorobenzene (1,2,3)	nd	µg/L	200	200	WilliamsJ	8/13/98	8260 B
Trichlorobenzene (1,2,4)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Trichloroethane (1,1,1)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Trichloroethane (1,1,2)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Trichloroethene	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Trichlorofluoromethane	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Trichloropropane (1,2,3)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Trichlorotrifluoroethane	nd	µg/L	5	5	WilliamsJ	8/13/98	8260 B
Trimethylbenzene (1,2,4)	4.4	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Trimethylbenzene (1,3,5)	2.8	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Vinyl acetate	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Vinyl Chloride	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Xylene (ortho)	4.1	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Xylenes (meta + para)	7.8	µg/L	1	1	WilliamsJ	8/13/98	8260 B
		µg/L	2	2	WilliamsJ	8/13/98	8260 B

SAMPLE RESULTS

CLIENT SAMPLE ID: RW-2

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 8/5/98

Date Received: 8/5/98

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Report Date: 8/19/98

EIS Sample No: 053079

EIS Order No: 980800059

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
POLYCHLORINATED BIPHENYLS							
PCB (AR1016)	nd	µg/L	1	1	DavisW	8/17/98	8082
PCB (AR1221)	nd	µg/L	1	1	DavisW	8/17/98	8082
PCB (AR1232)	nd	µg/L	1	1	DavisW	8/17/98	8082
PCB (AR1242)	nd	µg/L	1	1	DavisW	8/17/98	8082
PCB (AR1248)	nd	µg/L	1	1	DavisW	8/17/98	8082
PCB (AR1254)	nd	µg/L	1	1	DavisW	8/17/98	8082
PCB (AR1260)	nd	µg/L	1	1	DavisW	8/17/98	8082

SAMPLE RESULTS

CLIENT SAMPLE ID: RW-2

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 8/5/98

Date Received: 8/5/98

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Report Date: 8/19/98

EIS Sample No: 053079

EIS Order No: 980800059

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
VOLATILE ORGANICS							
Acetone	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Acrolein	nd	µg/L	20	20	WilliamsJ	8/13/98	8260 B
Acrylonitrile	nd	µg/L	20	20	WilliamsJ	8/13/98	8260 B
Benzene	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Bromobenzene	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Bromochloromethane	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Bromodichloromethane	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Bromoform	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Bromomethane	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Butylbenzene (normal)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Butylbenzene (sec)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Butylbenzene (tert)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Carbon disulfide	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Carbon Tetrachloride	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Chlorobenzene	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Chloroethane	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Chloroethyl vinyl ether (2)	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Chloroform	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Chlorohexane (1)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Chloromethane	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Chlorotoluene (2)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Chlorotoluene (4)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Cyclohexanone	nd	µg/L	100	100	WilliamsJ	8/13/98	8260 B
Dibromo-3-chloropropane (1,2)	nd	µg/L	30	30	WilliamsJ	8/13/98	8260 B
Dibromochloromethane	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Dibromoethane (1,2)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Dibromomethane	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Dichloro-2-butene (1,4)	nd	µg/L	30	30	WilliamsJ	8/13/98	8260 B
Dichlorobenzene (1,2)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Dichlorobenzene (1,3)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Dichlorobenzene (1,4)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Dichlorodifluoromethane	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Dichloroethane (1,1)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Dichloroethane (1,2)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Dichloroethene (1,1)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Dichloroethene (c-1,2)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Dichloroethene (t-1,2)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Dichlorofluoromethane	nd	µg/L	5	5	WilliamsJ	8/13/98	8260 B
Dichloropropane (1,2)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Dichloropropane (1,3)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B

SAMPLE RESULTS

CLIENT SAMPLE ID: RW-2

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 8/5/98

Date Received: 8/5/98

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Report Date: 8/19/98

EIS Sample No: 053079

EIS Order No: 980800059

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
Dichloropropane (2,2)	nd	µg/L	5	5	WilliamsJ	8/13/98	8260 B
Dichloropropene (1,1)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Dichloropropene (c-1,3)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Dichloropropene (t-1,3)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Diethyl ether	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Ethyl methacrylate	nd	µg/L	5	5	WilliamsJ	8/13/98	8260 B
Ethylbenzene	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Heptane (normal)	nd	µg/L	5	5	WilliamsJ	8/13/98	8260 B
Hexachlorobutadiene	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Hexanone (2-)	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Iodomethane	nd	µg/L	5	5	WilliamsJ	8/13/98	8260 B
Isopropylbenzene	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Isopropyltoluene (para)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Methyl Ethyl Ketone (MEK)	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Methyl Isobutyl Ketone (MIBK)	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Methyl methacrylate	nd	µg/L	5	5	WilliamsJ	8/13/98	8260 B
Methylbutylether (tert) (MTBE)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Methylene chloride	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Naphthalene	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Propylbenzene (normal)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Styrene	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Tetrachloroethane (1,1,1,2)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Tetrachloroethane (1,1,2,2)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Tetrachloroethene	51	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Tetrahydrofuran	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Toluene	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
TPH	nd	µg/L	200	200	WilliamsJ	8/13/98	8260 B
Trichlorobenzene (1,2,3)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Trichlorobenzene (1,2,4)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Trichloroethane (1,1,1)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Trichloroethane (1,1,2)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Trichloroethene	1.2	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Trichlorofluoromethane	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Trichloropropane (1,2,3)	nd	µg/L	5	5	WilliamsJ	8/13/98	8260 B
Trichlorotrifluoroethane	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Trimethylbenzene (1,2,4)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Trimethylbenzene (1,3,5)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Vinyl acetate	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Vinyl Chloride	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Xylene (ortho)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Xylenes (meta + para)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B

SAMPLE RESULTS

CLIENT SAMPLE ID: RW-3*

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 8/5/98

Date Received: 8/5/98

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Report Date: 8/19/98

EIS Sample No: 053080

EIS Order No: 980800059

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
POLYCHLORINATED BIPHENYLS							
PCB (AR1016)	nd	µg/L	1	1	DavisW	8/17/98	8082
PCB (AR1221)	nd	µg/L	1	1	DavisW	8/17/98	8082
PCB (AR1232)	nd	µg/L	1	1	DavisW	8/17/98	8082
PCB (AR1242)	nd	µg/L	1	1	DavisW	8/17/98	8082
PCB (AR1248)	nd	µg/L	1	1	DavisW	8/17/98	8082
PCB (AR1254)	nd	µg/L	1	1	DavisW	8/17/98	8082
PCB (AR1260)	nd	µg/L	1	1	DavisW	8/17/98	8082

SAMPLE RESULTS

CLIENT SAMPLE ID: RW-3

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 8/5/98

Date Received: 8/5/98

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Report Date: 8/19/98

EIS Sample No: 053080

EIS Order No: 980800059

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
VOLATILE ORGANICS							
Acetone	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Acrolein	nd	µg/L	20	20	WilliamsJ	8/13/98	8260 B
Acrylonitrile	nd	µg/L	20	20	WilliamsJ	8/13/98	8260 B
Benzene	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Bromobenzene	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Bromochloromethane	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Bromodichloromethane	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Bromoform	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Bromomethane	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Butylbenzene (normal)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Butylbenzene (sec)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Butylbenzene (tert)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Carbon disulfide	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Carbon Tetrachloride	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Chlorobenzene	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Chloroethane	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Chloroethyl vinyl ether (2)	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Chloroform	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Chlorohexane (1)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Chloromethane	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Chlorotoluene (2)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Chlorotoluene (4)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Cyclohexanone	nd	µg/L	100	100	WilliamsJ	8/13/98	8260 B
Dibromo-3-chloropropane (1,2)	nd	µg/L	30	30	WilliamsJ	8/13/98	8260 B
Dibromochloromethane	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Dibromoethane (1,2)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Dibromomethane	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Dichloro-2-butene (1,4)	nd	µg/L	30	30	WilliamsJ	8/13/98	8260 B
Dichlorobenzene (1,2)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Dichlorobenzene (1,3)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Dichlorobenzene (1,4)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Dichlorodifluoromethane	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Dichloroethane (1,1)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Dichloroethane (1,2)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Dichloroethene (1,1)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Dichloroethene (c-1,2)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Dichloroethene (t-1,2)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Dichlorofluoromethane	nd	µg/L	5	5	WilliamsJ	8/13/98	8260 B
Dichloropropane (1,2)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Dichloropropane (1,3)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B

SAMPLE RESULTS

CLIENT SAMPLE ID: RW-3

CLIENT PROJECT: Carbon Brake Expansion

Date Collected: 8/5/98

Date Received: 8/5/98

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Report Date: 8/19/98

EIS Sample No: 053080

EIS Order No: 980800059

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
Dichloropropane (2,2)	nd	µg/L	5	5	WilliamsJ	8/13/98	8260 B
Dichloropropene (1,1)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Dichloropropene (c-1,3)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Dichloropropene (t-1,3)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Diethyl ether	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Ethyl methacrylate	nd	µg/L	5	5	WilliamsJ	8/13/98	8260 B
Ethylbenzene	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Heptane (normal)	nd	µg/L	5	5	WilliamsJ	8/13/98	8260 B
Hexachlorobutadiene	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Hexanone (2-)	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Iodomethane	nd	µg/L	5	5	WilliamsJ	8/13/98	8260 B
Isopropylbenzene	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Isopropyltoluene (para)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Methyl Ethyl Ketone (MEK)	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Methyl Isobutyl Ketone (MIBK)	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Methyl methacrylate	nd	µg/L	5	5	WilliamsJ	8/13/98	8260 B
Methylbutylether (tert) (MTBE)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Methylene chloride	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Naphthalene	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Propylbenzene (normal)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Styrene	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Tetrachloroethane (1,1,1,2)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Tetrachloroethane (1,1,2,2)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Tetrachloroethene	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Tetrahydrofuran	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Toluene	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
TPH	nd	µg/L	200	200	WilliamsJ	8/13/98	8260 B
Trichlorobenzene (1,2,3)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Trichlorobenzene (1,2,4)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Trichloroethane (1,1,1)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Trichloroethane (1,1,2)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Trichloroethene	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Trichlorofluoromethane	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Trichloropropane (1,2,3)	nd	µg/L	5	5	WilliamsJ	8/13/98	8260 B
Trichlorotrifluoroethane	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Trimethylbenzene (1,2,4)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Trimethylbenzene (1,3,5)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Vinyl acetate	nd	µg/L	10	10	WilliamsJ	8/13/98	8260 B
Vinyl Chloride	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B
Xylene (ortho)	nd	µg/L	1	1	WilliamsJ	8/13/98	8260 B
Xylenes (meta + para)	nd	µg/L	2	2	WilliamsJ	8/13/98	8260 B

ANALYSIS SUPPORT INFORMATION

CLIENT NAME: AlliedSignal ALS

Report Date: 8/19/98
EIS Order No: 980800059

EIS Lab Number	Client Description	Sample Date	Procedure	Result	Date Completed	Analyst	Method
053078	RW-1	8/5/98	Extract PCB	Complete	8/10/98	CarlsenS	3510 B
053079	RW-2	8/5/98	Extract PCB	Complete	8/10/98	CarlsenS	3510 B
053080	RW-3	8/5/98	Extract PCB	Complete	8/10/98	CarlsenS	3510 B

QUALITY ASSURANCE / QUALITY CONTROL DATA
Method Specific Surrogate Compound Recoveries

EIS Order ID: 980800059

QUALITY CONTROL LIMITS

Normal Test	Surrogate	Methods		QC Limits	
		Water	Soil	Water	Soil
BETX / TPH	2,4-Dichlorotoluene	8020A	8020A	70 - 130	
BETX / TPH	Toluene, d8	8020A	8020A	85 - 125	60 - 130
Herbicides	2,4-Dichlorophenylacetic acid(DCAA)	615 / 8151A / 515.1	8151A	11 - 135	80 - 125
Pesticides / PCB	2,4,5,6-Tetrachloro-m-xylene(TCMX)	608 / 8081A / 8082 / 508	8082	22 - 135	
Pesticides / PCB	Decachlorobiphenyl(DCB)	608 / 8081A / 508	8082	22 - 135	40 - 150
SOC (svoc)	Perylene, d12	525.2		70 - 130	40 - 150
SVOC (acid)	2-Fluorophenol	625 / 8270C		21 - 100	
SVOC (acid)	Phenol, d5	625 / 8270C	8270C	10 - 94	25 - 121
SVOC (base/neutral)	Nitrobenzene, d5	625 / 8270C	8270C	35 - 114	24 - 113
SVOC (base/neutral)	2-Fluorobiphenyl	625 / 8270C	8270C	43 - 116	23 - 120
SVOC (acid)	2,4,6-Tribromophenol	625 / 8270C	8270C	10 - 123	30 - 115
SVOC (base/neutral)	Terphenyl, d14	625 / 8270C	8270C	33 - 141	19 - 122
TPH	Styrene	8015M	8015M	30 - 70	18 - 137
VOC	1,2-Dichloroethane, d4	801+802 / 8021A / 502.2	8021A	70 - 130	34 - 66
VOC	2,4-Dichlorotoluene	801+802 / 8021A / 502.2	8021A	70 - 130	70 - 145
VOC	Toluene, d8	801+802 / 8021A / 502.2	8021A	85 - 125	60 - 130
VOC	1,2-Dichloroethane, d4	624 / 8260B / 524.2	8260B	76 - 114	80 - 125
VOC	Toluene, d8	624 / 8260B / 524.2	8260B	88 - 110	70 - 121
VOC	Bromofluorobenzene(BFB)		8260B	86 - 115	81 - 117
					74 - 121

EIS Lab No	Client Sample ID	Method	Matrix	Surrogate	% Recovery
053078	RW-1	8082	Water(Non DW)	2,4,5,6-Tetrachloro-m-xylene(SS)	65
		8082	Water(Non DW)	Decachlorobiphenyl (SS)	46
		8260 B	Water(Non DW)	1,2-Dichloroethane-d4 (SS)	98
		8260 B	Water(Non DW)	4-Bromofluorobenzene (SS)	104
		8260 B	Water(Non DW)	Toluene-d8 (SS)	97
053079	RW-2	8082	Water(Non DW)	2,4,5,6-Tetrachloro-m-xylene(SS)	76
		8082	Water(Non DW)	Decachlorobiphenyl (SS)	40
		8260 B	Water(Non DW)	1,2-Dichloroethane-d4 (SS)	102
		8260 B	Water(Non DW)	4-Bromofluorobenzene (SS)	107
		8260 B	Water(Non DW)	Toluene-d8 (SS)	98
053080	RW-3	8082	Water(Non DW)	2,4,5,6-Tetrachloro-m-xylene(SS)	61
		8082	Water(Non DW)	Decachlorobiphenyl (SS)	49
		8260 B	Water(Non DW)	1,2-Dichloroethane-d4 (SS)	98
		8260 B	Water(Non DW)	4-Bromofluorobenzene (SS)	102
		8260 B	Water(Non DW)	Toluene-d8 (SS)	97

Legend: -1 = Surrogates diluted out -2 = Surrogates not used () = methods with different QC Limits

NOTE: Instructions & area for comments are on reverse side.

APPENDIX E – BORING LOGS

Project Name: AlliedSignal - South Bend		Project Number: 09822-00	Well Id: TW-12
Location: AlliedSignal Industrial Complex		Logged By: S. Murray	Page 1 of 1
Date(s): 09/27/97 - 09/27/97		Datum: Mean Sea Level	Static Water Level:
Riser: type: PVC dia: 2.00in fm: 3.0' to: 7.00'		Measuring Point: 0.00'	Completed Depth: 17.00'
		Elevation: 0.00'	Total Depth: 20.00'
Screens: type: Slotted size: 0.010in dia: 2.00in fm: 7.00' to: 17.00'		Contractor: AEC	
		Drilling Method: Hollow Stem Auger	Borehole Dia.: 8.25in
Annular Fill: type: Bentonite fm: 0.00' to: 5.00' type: Sand Filter fm: 5.00' to: 20.00' type: fm: to: to: type: fm: to: to:		Remarks: Temporary Well Constructed at this Location. Temporary Well Pulled. Borehole Grouted.	

Depth (ft)	Sample Id.	Blow Counts	PI Meter	Material Description	Graphic Log	Well Construction	Elevation (ft)
5				SAND - trace gravel, fine-medium grained, poorly graded, moist, light brown, (7.5YR6/3), SP			-5
10				SILT - with fine sand, gray, (7.5YR5/1), ML SAND - fine grained, wet, brown, (7.5YR5/3), SP			-10
15							-15
20				END OF BORING AT 20 FEET			-20
25							-25

Project Name: AlliedSignal - South Bend		Project Number: 09822-00	Well Id: TW-11
Location: AlliedSignal Industrial Complex		Logged By: S. Murray	Page 1 of 1
Date(s): 09/26/97 - 09/26/97		Datum: Mean Sea Level	Static Water Level:
Riser: type: PVC dia: 2.00in fm: -0.2' to: 13.00'		Measuring Point: 719.23'	Completed Depth: 23.00'
		Elevation: 0.00'	Total Depth: 25.00'
Screens: type: Slotted size: 0.010in dia: 2.00in fm: 13.00' to: 23.00'		Contractor: AEC	
Annular Fill: type: Bentonite fm: 0.00' to: 11.00' type: Sand Filter fm: 11.00' to: 25.00' type: fm: to: type: fm: to:		Drilling Method: Hollow Stem Auger	Borehole Dia.: 8.25in
Remarks: Monitoring Well Constructed at this Location.			

Depth (ft)	Sample Id.	Blow Counts	PI Meter	Material Description	Graphic Log	Well Construction	Elevation (ft)
5				SAND - trace fine gravel, fine-medium grained, poorly graded, dry, light brown, (7.5YR6/3), SP			-5
10							-10
15							-15
20				SAND - some gravel, fine-coarse grained, well graded, wet at 18.5 feet, brown, (7.5YR5/3), SW			-20
25				END OF BORING AT 25 FEET			-25

Project Name: AlliedSignal - South Bend		Project Number: 09822-00	Well Id: TW-10
Location: AlliedSignal Industrial Complex		Logged By: S. Murray	Page 1 of 1
Date(s): 09/25/97 - 09/25/97		Datum: Mean Sea Level	Static Water Level:
Riser: type: PVC dia: 2.00in fm: 3.0' to: 7.00'		Measuring Point: 715.80'	Completed Depth: 17.00'
		Elevation: 0.00'	Total Depth: 20.00'
Screens: type: Slotted size: 0.010in dia: 2.00in fm: 7.00' to: 17.00'		Contractor: AEC	
		Drilling Method: Hollow Stem Auger	Borehole Dia.: 8.25in
Annular Fill: type: Bentonite fm: 0.00' to: 5.00' type: Sand Filter fm: 5.00' to: 20.00' type: fm: to: type: fm: to:		Remarks: Temporary Well Constructed at this Location. Temporary Well Pulled. Borehole Grouted.	

Depth (ft)	Sample Id.	Blow Counts	PI Meter	Material Description	Graphic Log	Well Construction	Elevation (ft)
5				SAND - little silt, trace fine-medium gravel, fine-medium grained, poorly graded, damp, medium dense, damp, brown, (10YR5/3), SP			0
10	(9-11')			SAND - fine grained, poorly graded, medium dense, moist to wet, gray, (7.5YR5/1), SP			-5
	(11-13')			SILTY CLAY - silty plastic, moist, gray, (7.5YR5/1), CL			-10
15				SILTY SAND - very fine grained, dense, wet, gray, (7.5YR5/1), SM			-15
20				GRAVELLY SAND - wet, SW			-20
25				END OF BORING AT 20 FEET			-25

Project Name: AlliedSignal - South Bend		Project Number: 09822-00	Well Id: TW-9
Location: AlliedSignal Industrial Complex		Logged By: S. Murray	Page 1 of 1
Date(s): 09/26/97 - 09/26/97		Datum: Mean Sea Level	Static Water Level:
Riser: type: PVC dia: 2.00in fm: 3.0' to: 7.00'		Measuring Point: 715.40'	Completed Depth: 17.00'
		Elevation: 0.00'	Total Depth: 20.00'
Screens: type: Slotted size: 0.010in dia: 2.00in fm: 7.00' to: 17.00'		Contractor: AEC	
		Drilling Method: Hollow Stem Auger	Borehole Dia.: 8.25in
Annular Fill: type: Bentonite fm: 0.00' to: 5.00' type: Sand Filter fm: 5.00' to: 20.00' type: fm: to: to:		Remarks: Temporary Well Constructed at this Location. Temporary Well Pulled. Borehole Grouted.	

Depth (ft)	Sample Id.	Blow Counts	PI Meter	Material Description	Graphic Log	Well Construction	Elevation (ft)
5				SAND - little silt, trace fine-medium gravel, fine-medium grained, poorly graded, damp, medium dense, damp, brown, (10YR5/3), SP			
10	(9-11')	5 5 6 7 12 12 18		SAND - trace gravel, fine-medium grained, poorly graded, medium dense, moist, gray, (7.5YR5/1), 2-inch black stained silt seam at 10.8', SP			
15	(11-13')			GRAVEL & SAND - black, strong odor, SW-GW			
20				END OF BORING AT 20 FEET			
25							

Project Name: AlliedSignal - South Bend		Project Number: 09822-00	Well Id: TW-8
Location: AlliedSignal Industrial Complex		Logged By: S. Murray	Page 1 of 1
Date(s): 09/26/98 - 09/26/98		Datum: Mean Sea Level	Static Water Level:
Riser: type: PVC dia: 2.00in fm: 3.0' to: 7.00'		Measuring Point: 714.78'	Completed Depth: 17.00'
		Elevation: 0.00'	Total Depth: 20.00'
Screens: type: Slotted size: 0.010in dia: 2.00in fm: 7.00' to: 17.00'		Contractor: AEC	
Annular Fill: type: Bentonite fm: 0.00' to: 5.00' type: Sand Filter fm: 5.00' to: 20.00' type: fm: to: type: fm: to:		Drilling Method: Hollow Stem Auger Borehole Dia.: 8.25in	
Remarks: Monitoring Well Constructed at this Location.			

Depth (ft)	Sample Id.	Blow Counts	PI Meter	Material Description	Graphic Log	Well Construction	Elevation (ft)
5				SAND - little silt, trace fine-medium gravel, fine-medium grained, poorly graded, damp, medium dense, damp, brown, (10YR5/3), SP			0
10	(9-11') (11-13')	5 8 8	20 ppm	SAND - some gravel, fine-medium grained, poorly graded, medium dense, dry, brown, (7.5YR5/3), SP GRAVELLY SAND - trace silt, fine-coarse grained, well graded, wet, light brown, (7.5YR6/3), SW			-5 -10
15							-15
20	(18-20')			END OF BORING AT 20 FEET			-20
25							-25

Project Name: AlliedSignal - South Bend		Project Number: 09822-00	Well Id: TW-7
Location: AlliedSignal Industrial Complex		Logged By: S. Murray	Page 1 of 1
Date(s): 09/26/97 - 09/26/97		Datum: Mean Sea Level	Static Water Level:
Riser: type: PVC dia: 2.00in fm: 3.0' to: 7.00'		Measuring Point: 714.92'	Completed Depth: 17.00'
		Elevation: 0.00'	Total Depth: 20.00'
Screens: type: Slotted size: 0.010in dia: 2.00in fm: 7.00' to: 17.00'		Contractor: AEC	
		Drilling Method: Hollow Stem Auger	Borehole Dia.: 8.25in
Annular Fill: type: Bentonite fm: 0.00' to: 5.00' type: Sand Filter fm: 5.00' to: 20.00' type: fm: to: type: fm: to:		Remarks: Temporary Well Constructed at this Location. Temporary Well Pulled. Borehole Grouted.	

Depth (ft)	Sample Id.	Blow Counts	PI Meter	Material Description	Graphic Log	Well Construction	Elevation (ft)
5			100 ppm	SAND - little silt, trace fine-medium gravel, fine-medium grained, poorly graded, damp, medium dense, damp, brown, (10YR5/3), black staining observed on cuttings, SP			-5
10	(9-11')	5	200 ppm				-10
	(11-13')	10					
		12	50 ppm	SAND - some silt, fine grained, poorly graded, medium dense, wet, dark gray, (7.5YR4/1), shean and strong odor noted, SP			-15
15		6		Driller reports change possible silt 13 to 14 feet			-20
		8					-25
20		12		END OF BORING AT 20 FEET			-30
25							

Harding Lawson Associates

Project Name: AlliedSignal - South Bend		Project Number: 09822-00	Well Id: TW-5
Location: AlliedSignal Industrial Complex		Logged By: S. Murray	Page 1 of 1
Date(s): 09/25/97 - 09/25/97		Datum: Mean Sea Level	Static Water Level:
Riser:		Measuring Point: 714.87'	Completed Depth: 17.00'
type: PVC	dia: 2.00in fm: 3.0' to: 7.00'	Elevation: 0.00'	Total Depth: 20.00'
Screens:		Contractor: AEC	
type: Slotted	size: 0.010in dia: 2.00in fm: 7.00' to: 17.00'	Drilling Method: Hollow Stem Auger	Borehole Dia.: 8.25in
Annular Fill:		Remarks: Temporary Well Constructed at this Location. Temporary Well Pulled. Borehole Grouted.	
type: Bentonite	fm: 0.00' to: 5.00'		
type: Sand Filter	fm: 5.00' to: 20.00'		
type:	fm: to:		

Depth (ft)	Sample Id.	Blow Counts	PI Meter	Material Description	Graphic Log	Well Construction	Elevation (ft)
5				SAND - little silt, trace fine-medium gravel, fine-medium grained, poorly graded, damp, medium dense, damp, brown, (10YR5/3), SP			
10	(9-11')	4		SAND - some gravel, fine-medium grained, poorly graded, medium dense, dry, light brown, (7.5YR6/3), SP			
	(11-13')	10		SAND & GRAVEL - wet, SW-GW			
		10					
15							
20				END OF BORING AT 20 FEET			
25							

APPENDIX F – PRODUCT SAMPLING RESULTS

**REPORT OF ANALYSIS**

Mr. Ray White
AlliedSignal ALS
3520 Westmoor Street
South Bend, IN 46628

Tel No: 231-3412

Fax No: 231-2863

PO No: A00000813

Project Name: Carbon Brake Expansion

Report Date: 9/29/97
EIS Order No: 970900190
EIS Sample No: 045629
EIS Project No: 1640-4003-97

Client Sample ID: **GWTRS165 (Product)**
Date Collected: 9/16/97
Date Received: 9/16/97
Collected By: SM

This report presents results of analysis for your sample(s) received under our Order No above. This Number is to be used in all inquiries concerning this report. The EIS Sample No above, as well as your Sample ID, refer to the first sample in a multi-sample submission

DEFINITIONS:

MDL = Method Detection Limit normally achieved in the absence of interferences or other matrix difficulties.

SDL = Sample Detection Limit achieved in your sample. If numerically greater than the MDL, dilutions were required in order to perform the analysis. If numerically less than the MDL, alternate techniques were employed.

CHAIN-OF-CUSTODY is enclosed if received with your sample submission.

1. Total Xylenes (omitted from required report list) = 6800 mg/l.
2. Other VOC detected n-Heptane = 218000 mg/l.
3. TPH(FID) finger print chromatograms enclosed. The response is too weathered to identify.

QUALITY ASSURANCE OFFICER

LABORATORY DIRECTOR

The data in this report has been reviewed and complies with EIS Quality Control unless specifically addressed above.

EIS Analytical Services Inc 1701 N. Ironwood Drive, Suite B * South Bend, IN 46635 * Tel: 219-277-0707 * Fax: 219-273-5699

SAMPLE RESULTS

CLIENT SAMPLE ID: GWTRS165 (Product)
CLIENT PROJECT: Carbon Brake Expansion
Date Collected: 9/16/97
Date Received: 9/16/97

Page 2 of 5

Report Date: 9/29/97
EIS Sample No: 045629
EIS Order No: 970900190

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
Extract BETX/TPH	Complete				CarlsenS	9/22/97	3580 A
Extract PCB	Complete				KlepperW	9/19/97	3580 A
Extract VOC	Complete				WilliamsJ	9/19/97	3580 A

SAMPLE RESULTS

CLIENT SAMPLE ID: GWTRS165 (Product)
CLIENT PROJECT: Carbon Brake Expansion
Date Collected: 9/16/97
Date Received: 9/16/97

Page 3 of 5

Report Date: 9/29/97
EIS Sample No: 045629
EIS Order No: 970900190

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
PCB (AR1016)	nd	mg/L	2	0.5	KlepperW	9/19/97	8081
PCB (AR1221)	nd	mg/L	2	0.5	KlepperW	9/19/97	8081
PCB (AR1232)	nd	mg/L	2	0.5	KlepperW	9/19/97	8081
PCB (AR1242)	nd	mg/L	2	0.5	KlepperW	9/19/97	8081
PCB (AR1248)	nd	mg/L	2	0.5	KlepperW	9/19/97	8081
PCB (AR1254)	nd	mg/L	2	0.5	KlepperW	9/19/97	8081
PCB (AR1260)	nd	mg/L	2	0.5	KlepperW	9/19/97	8081

SAMPLE RESULTS

CLIENT SAMPLE ID: GWTRS165 (Product)
 CLIENT PROJECT: Carbon Brake Expansion
 Date Collected: 9/16/97
 Date Received: 9/16/97

Page 4 of 5

Report Date: 9/29/97
 EIS Sample No: 045629
 EIS Order No: 970900190

Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
Acetone	nd	mg/L	10000	500	WilliamsJ	9/19/97	8260 B
Acrolein	nd	mg/L	20000	1000	WilliamsJ	9/19/97	8260 B
Acrylonitrile	nd	mg/L	20000	1000	WilliamsJ	9/19/97	8260 B
Benzene	nd	mg/L	1000	50	WilliamsJ	9/19/97	8260 B
Bromodichloromethane	nd	mg/L	1000	50	WilliamsJ	9/19/97	8260 B
Bromoform	nd	mg/L	2000	100	WilliamsJ	9/19/97	8260 B
Bromomethane	nd	mg/L	2000	100	WilliamsJ	9/19/97	8260 B
Carbon disulfide	nd	mg/L	2000	100	WilliamsJ	9/19/97	8260 B
Carbon Tetrachloride	nd	mg/L	2000	100	WilliamsJ	9/19/97	8260 B
Chlorobenzene	nd	mg/L	1000	50	WilliamsJ	9/19/97	8260 B
Chloroethane	nd	mg/L	2000	100	WilliamsJ	9/19/97	8260 B
Chloroethyl vinyl ether (2)	nd	mg/L	10000	500	WilliamsJ	9/19/97	8260 B
Chloroform	nd	mg/L	1000	50	WilliamsJ	9/19/97	8260 B
Chloromethane	nd	mg/L	10000	500	WilliamsJ	9/19/97	8260 B
Dibromochloromethane	nd	mg/L	1000	50	WilliamsJ	9/19/97	8260 B
Dichlorobenzene (1,2)	nd	mg/L	2000	100	WilliamsJ	9/19/97	8260 B
Dichlorobenzene (1,3)	nd	mg/L	2000	100	WilliamsJ	9/19/97	8260 B
Dichlorobenzene (1,4)	nd	mg/L	2000	100	WilliamsJ	9/19/97	8260 B
Dichlorodifluoromethane	nd	mg/L	2000	100	WilliamsJ	9/19/97	8260 B
Dichloroethane (1,1)	nd	mg/L	1000	50	WilliamsJ	9/19/97	8260 B
Dichloroethane (1,2)	nd	mg/L	1000	50	WilliamsJ	9/19/97	8260 B
Dichloroethene (1,1)	nd	mg/L	2000	100	WilliamsJ	9/19/97	8260 B
Dichloroethene (c-1,2)	nd	mg/L	1000	50	WilliamsJ	9/19/97	8260 B
Dichloroethene (t-1,2)	nd	mg/L	1000	50	WilliamsJ	9/19/97	8260 B
Dichloropropane (1,2)	nd	mg/L	1000	50	WilliamsJ	9/19/97	8260 B
Dichloropropene (c-1,3)	nd	mg/L	2000	100	WilliamsJ	9/19/97	8260 B
Dichloropropene (t-1,3)	nd	mg/L	2000	100	WilliamsJ	9/19/97	8260 B
Ethylbenzene	3530	mg/L	1000	50	WilliamsJ	9/19/97	8260 B
Hexanone (2-)	nd	mg/L	10000	500	WilliamsJ	9/19/97	8260 B
Isopropylbenzene	nd	mg/L	2000	100	WilliamsJ	9/19/97	8260 B
Methyl Ethyl Ketone (MEK)	nd	mg/L	10000	500	WilliamsJ	9/19/97	8260 B
Methyl Isobutyl Ketone (MIBK)	nd	mg/L	10000	500	WilliamsJ	9/19/97	8260 B
Methylbutylether (tert) (MTBE)	nd	mg/L	2000	100	WilliamsJ	9/19/97	8260 B
Methylene chloride	nd	mg/L	2000	100	WilliamsJ	9/19/97	8260 B
Naphthalene	nd	mg/L	2000	100	WilliamsJ	9/19/97	8260 B
Propylbenzene (normal)	nd	mg/L	1000	50	WilliamsJ	9/19/97	8260 B
Styrene	1070	mg/L	1000	50	WilliamsJ	9/19/97	8260 B
Tetrachloroethane (1,1,2,2)	nd	mg/L	1000	50	WilliamsJ	9/19/97	8260 B
Tetrachloroethene	nd	mg/L	1000	50	WilliamsJ	9/19/97	8260 B
Toluene	4170	mg/L	1000	50	WilliamsJ	9/19/97	8260 B
Trichloroethane (1,1,1)	nd	mg/L	1000	50	WilliamsJ	9/19/97	8260 B

SAMPLE RESULTS

CLIENT SAMPLE ID: GWTRS165 (Product)
CLIENT PROJECT: Carbon Brake Expansion
Date Collected: 9/16/97
Date Received: 9/16/97

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Report Date: 9/29/97
EIS Sample No: 045629
EIS Order No: 970900190

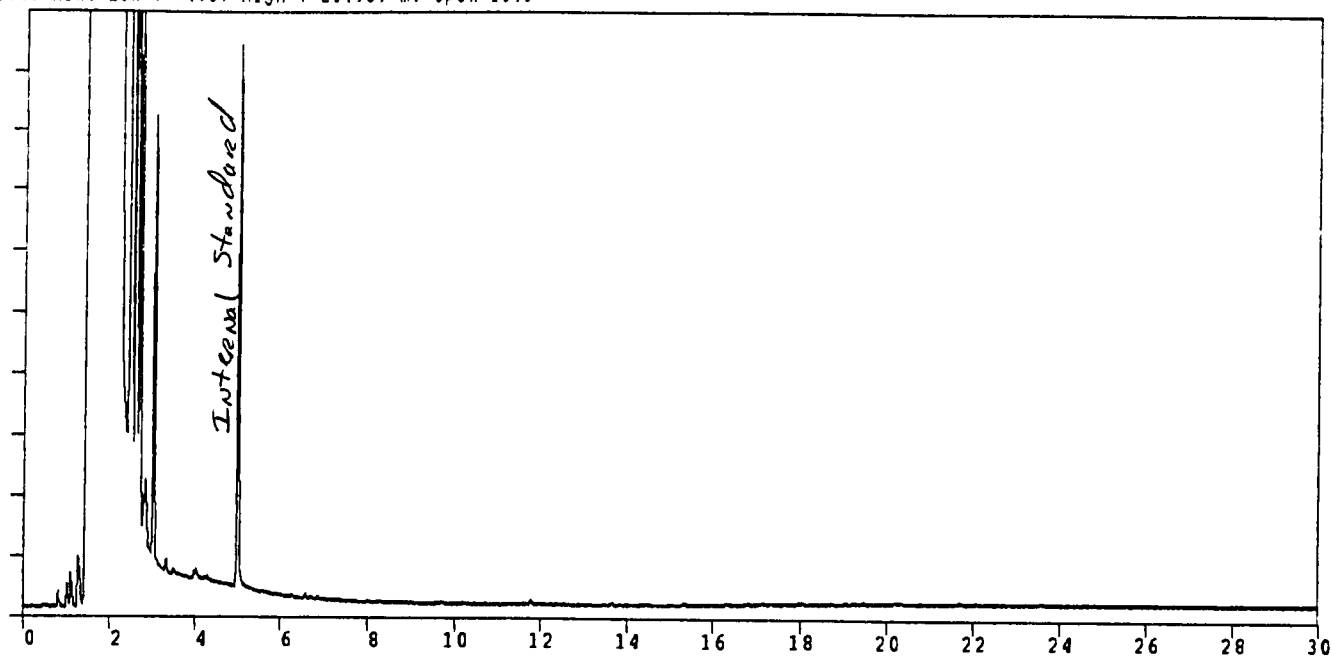
Parameter	Results	Units	SDL	MDL	Analyst	Test Date	Method
Trichloroethane (1,1,2)	nd	mg/L	1000	50	WilliamsJ	9/19/97	8260 B
Trichloroethene	nd	mg/L	1000	50	WilliamsJ	9/19/97	8260 B
Trichlorofluoromethane	nd	mg/L	2000	100	WilliamsJ	9/19/97	8260 B
Trimethylbenzene (1,2,4)	2130	mg/L	2000	100	WilliamsJ	9/19/97	8260 B
Trimethylbenzene (1,3,5)	nd	mg/L	2000	100	WilliamsJ	9/19/97	8260 B
Vinyl acetate	nd	mg/L	10000	500	WilliamsJ	9/19/97	8260 B
Vinyl Chloride	nd	mg/L	2000	100	WilliamsJ	9/19/97	8260 B

EIS ANALYTICAL SERVICES, INC. • 1701 NORTH IRONWOOD DRIVE SUITE B • SOUTH BEND IN 46635 • Phone (219)277-0707 • Fax (219)273-5699
Form Chain-of-Custody (6-12-97)

File=C:\CP2\9001\7269TPHF.01R Date printed=09-26-1997 Time= 08:24:22

Sample Name=hexane blank

0 to 30.0 min. Low Y=4.939 High Y=20.939 mv Span=16.0



TOTAL PETROLEUM HYDROCARBONS (FID)

SAMPLE NAME: hexane blank

SAMPLE FILE: C:\CP2\9001\7269TPHF.01R

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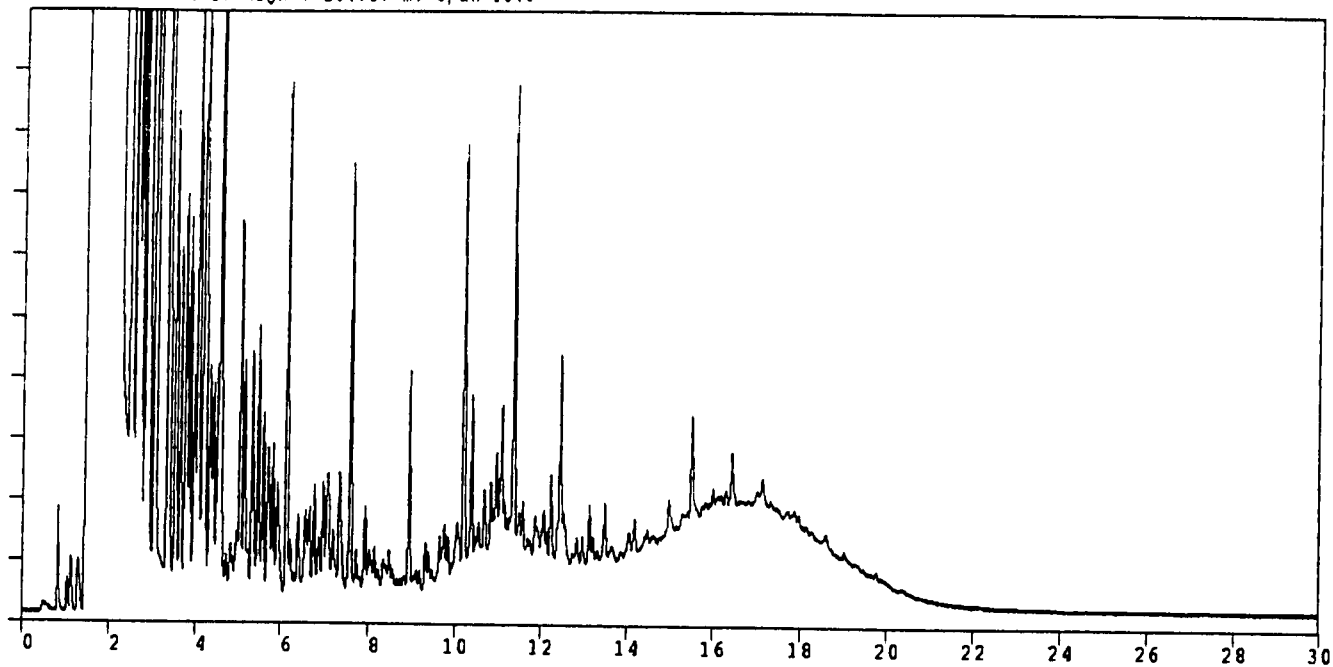
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Sample Name=45629 20ml Allied GWTRS165

0 to 30.0 min. Low Y=4.919 High Y=20.919 mv Span=16.0



TOTAL PETROLEUM HYDROCARBONS (FID)

SAMPLE NAME: 45629 20ml Allied GWTRS165

SAMPLE FILE: C:\CP2\9001\7269TPHF.02R

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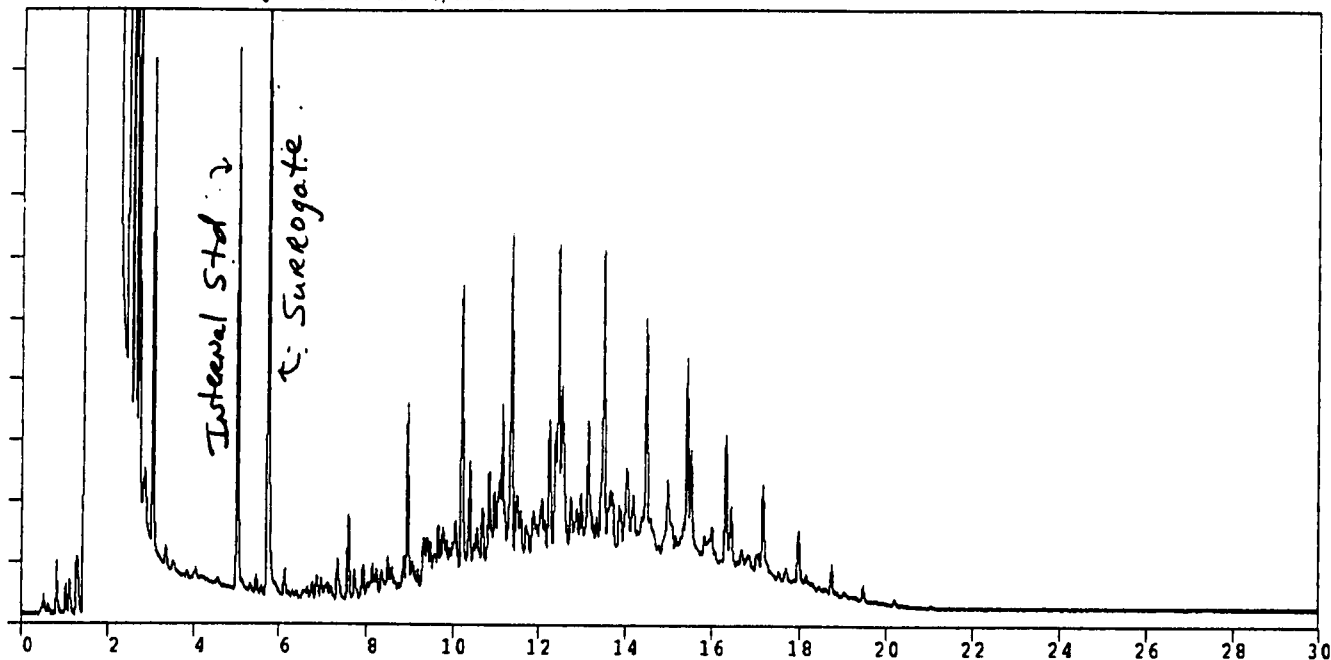
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Sample Name=SUPER DIESEL CHECK STD 515 ng/ul

0 to 30.0 min. Low Y=4.898 High Y=20.898 mv Span=16.0



TOTAL PETROLEUM HYDROCARBONS (FID)

SAMPLE NAME: SUPER DIESEL CHECK STD 515 ng/ul

SAMPLE FILE: C:\CP2\9001\7269TPHF.03R

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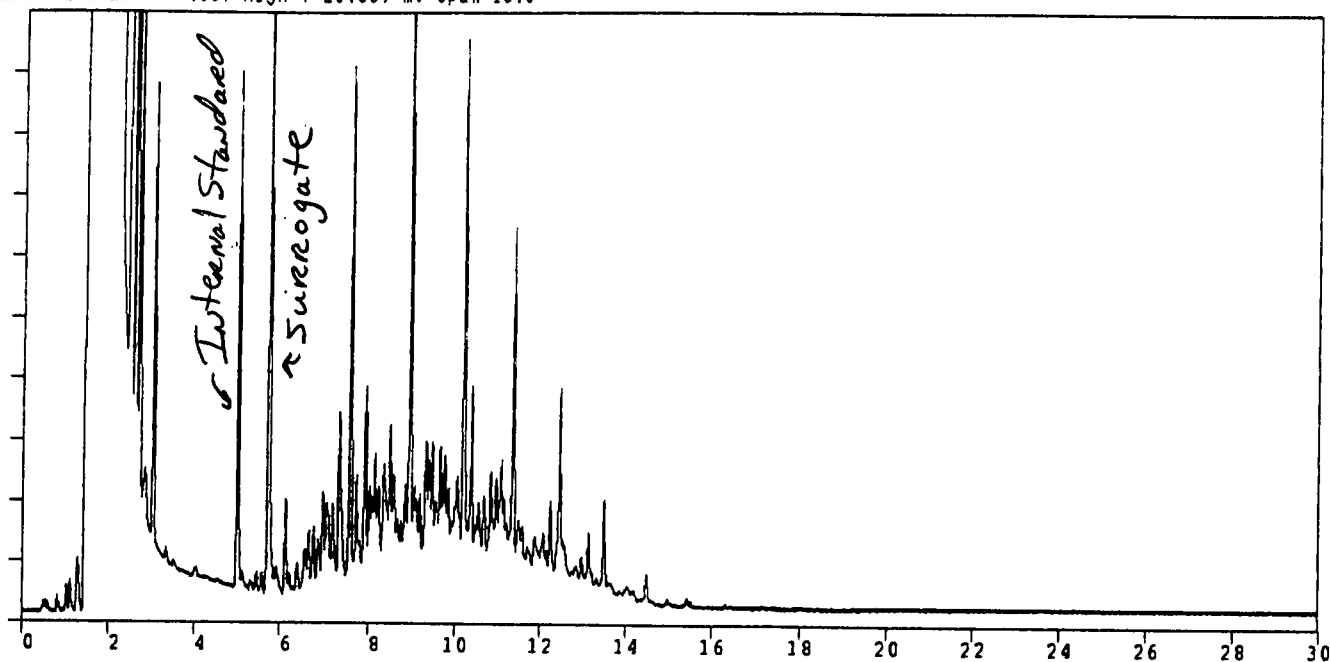
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File=C:\CP2\9001\7269TPHF.04R Date printed=09-26-1997 Time= 10:41:37

Sample Name=kerosene in hexane 523ng/ul

to 30.0 min. Low Y=4.889 High Y=20.889 mv Span=16.0



TOTAL PETROLEUM HYDROCARBONS (FID)

SAMPLE NAME: kerosene in hexane 523ng/ul

SAMPLE FILE: C:\CP2\9001\7269TPHF.04R

DATA COLLECTED ON 09-26-1997 10:30:35

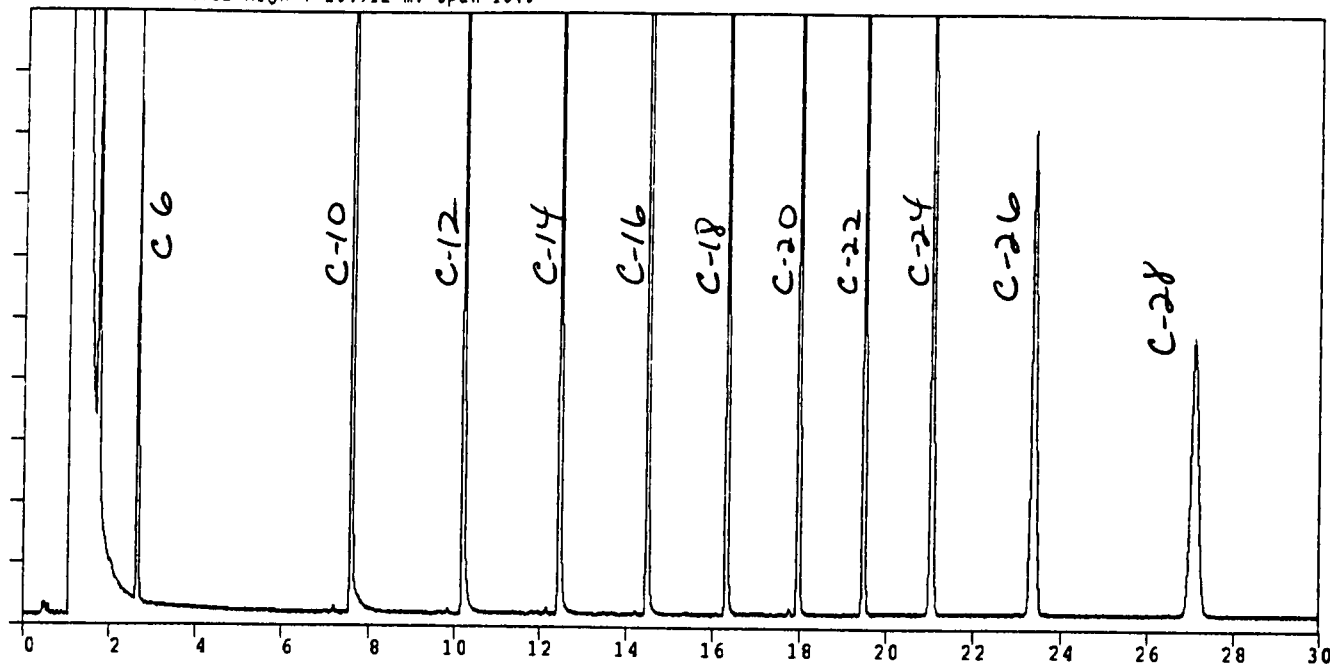
MET TPH-DB-1/FID

METHOD C:\CP2\CRT\TPH.MET\ 21

File=C:\CP2\9001\7269TPHF.05R Date printed=09-26-1997 Time= 11:18:31

Sample Name=Diesel range organics in methylene chloride

0 to 30.0 min. Low Y=4.912 High Y=20.912 mv Span=16.0



TOTAL PETROLEUM HYDROCARBONS (FID)

SAMPLE NAME: Diesel range organics in methylene chloride

SAMPLE FILE: C:\CP2\9001\7269TPHF.05R

DATA COLLECTED ON 09-26-1997 10:49:43

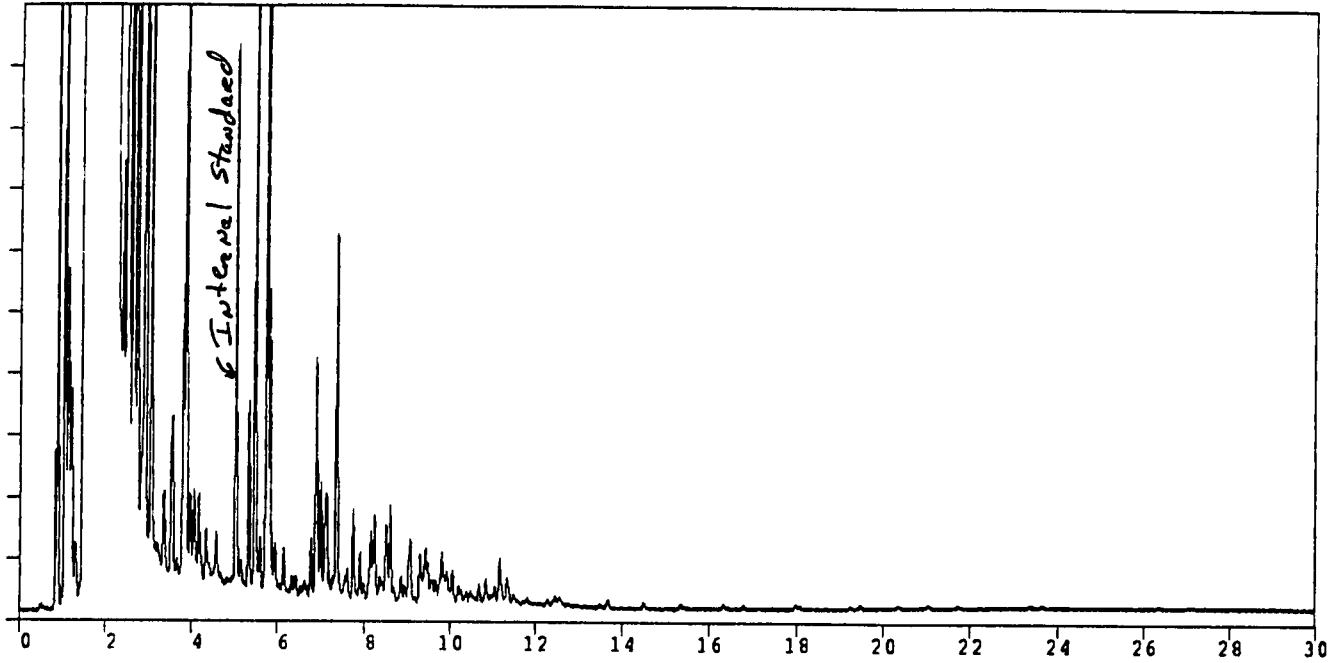
MET TPH-DB-1/FID

METHOD C:\CP2\CRT\TPH.MET\ 21

e=C:\CP2\9001\7269TPHF.06R Date printed=09-26-1997 Time= 11:59:15

Sample Name=Unleaded gasoline in hexane 540ng/ul

to 30.0 min. Low Y=4.896 High Y=20.896 mv Span=16.0



TOTAL PETROLEUM HYDROCARBONS (FID)

SAMPLE NAME: Unleaded gasoline in hexane 540ng/ul

SAMPLE FILE: C:\CP2\9001\7269TPHF.06R

DATA COLLECTED ON 09-26-1997 11:30:33

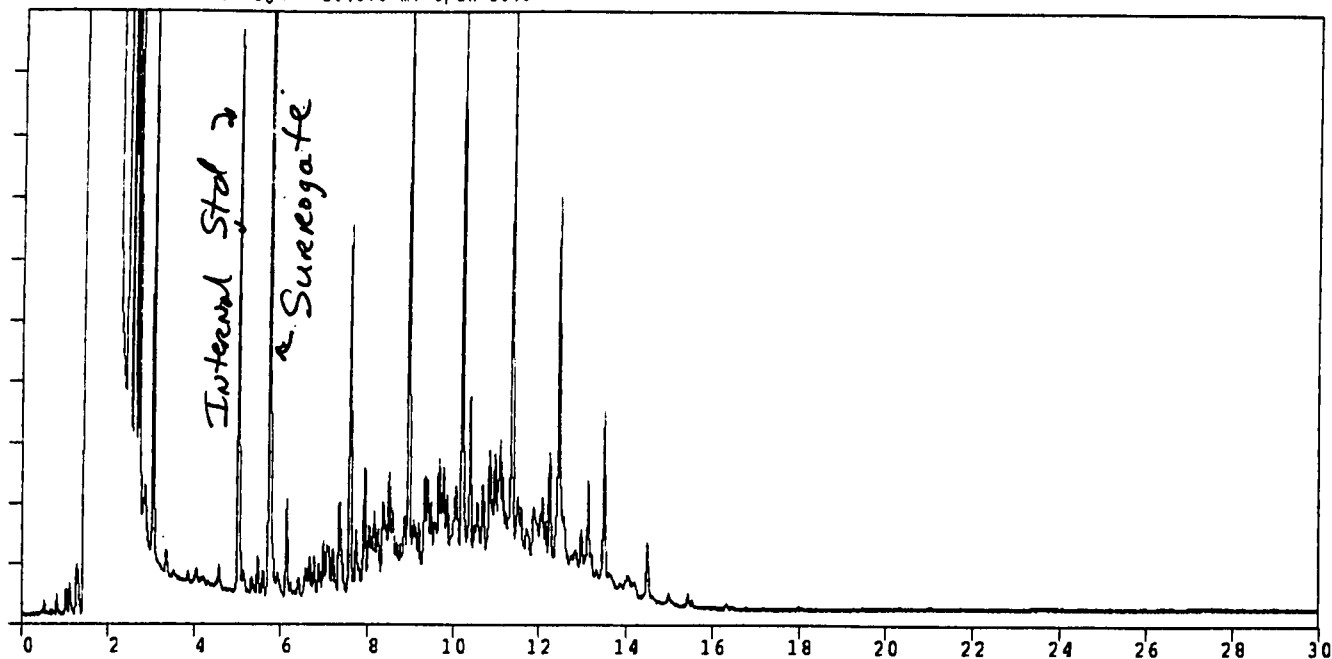
MET TPH-08-1/FID

METHOD C:\CP2\CRT\TPH.MET\ 21

e=C:\CP2\9001\7269TPHF.07R Date printed=09-26-1997 Time= 12:39:18

Sample Name=Jet fuel branded A 513 ng/ul

to 30.0 min. Low Y=4.893 High Y=20.893 mv Span=16.0



TOTAL PETROLEUM HYDROCARBONS (FID)

SAMPLE NAME: Jet fuel branded A 513 ng/ul

SAMPLE FILE: C:\CP2\9001\7269TPHF.07R

DATA COLLECTED ON 09-26-1997 12:33:22

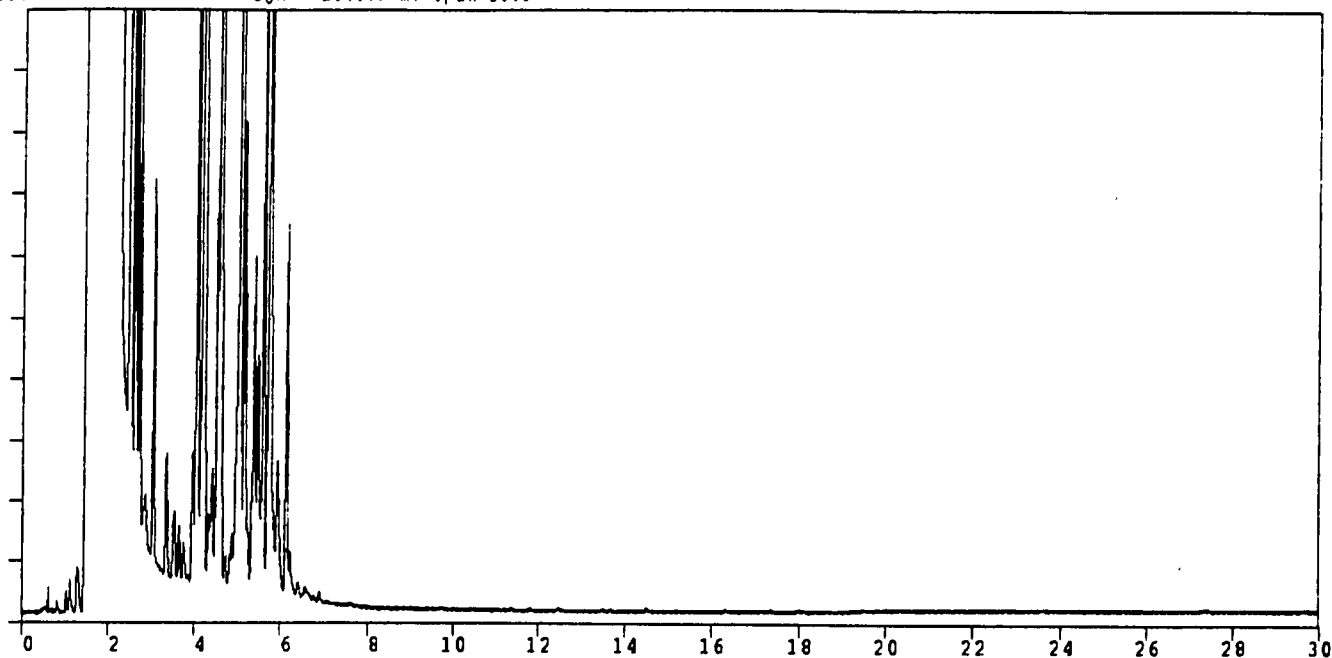
MET TPH-DB-1/FID

METHOD C:\CP2\CRT\TPH.MET\ 21

File=C:\CP2\9001\7269TPHF.08R Date printed=09-26-1997 Time= 13:15:32

Sample Name=VM+P Naphtha 467ng/u1

to 30.0 min. Low Y=4.897 High Y=20.897 mv Span=16.0



TOTAL PETROLEUM HYDROCARBONS (FID)

SAMPLE NAME: VM+P Naphtha 467ng/u1

SAMPLE FILE: C:\CP2\9001\7269TPHF.08R

DATA COLLECTED ON 09-26-1997 12:45:23

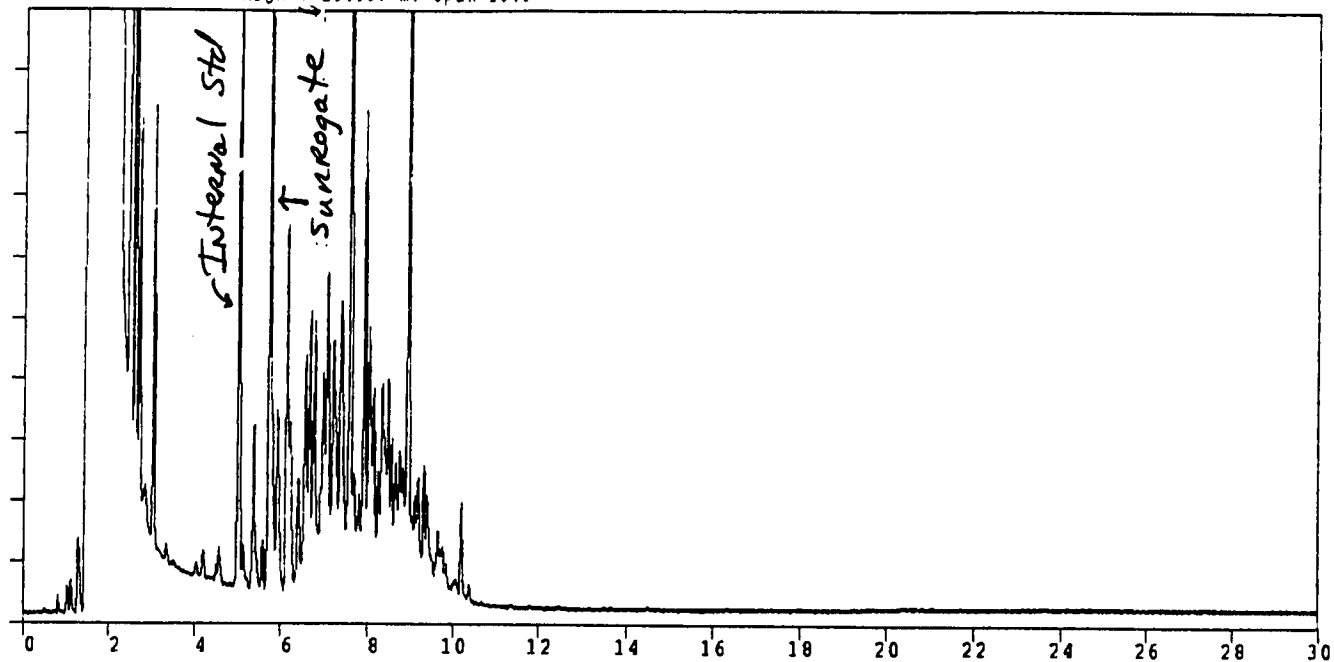
MET TPH-08-1/FID

METHOD C:\CP2\CRT\TPH.MET\ 21

File=C:\CP2\9001\7269TPHF.09R Date printed=09-26-1997 Time= 13:55:51

Sample Name=Mineral spirits in hexane 548ng/ul

Run to 30.0 min. Low Y=4.689 High Y=20.889 mv Span=16.0



TOTAL PETROLEUM HYDROCARBONS (FID)

SAMPLE NAME: Mineral spirits in hexane 548ng/ul

SAMPLE FILE: C:\CP2\9001\7269TPHF.09R

DATA COLLECTED ON 09-26-1997 13:26:59

MET TPH-08-1/FID

METHOD C:\CP2\CRT\TPH.MET\ 21