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SCREENING SITE INSPECTION REPORT

DENVER & RIO GRANDE WESTERN RAILROAD

ALAMOSA, COLORADO

TDD F08-9009-01 - PAN FC00157SBA

EPA ID COD980959134

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ALAMOSA, COLORADO
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1.0 INTRODUCTION

Under the provisions of Technical Directive Document (TDD) F08-9009-01, the Region VIII U.S. Environmental Protection Agency (EPA) tasked the Ecology and Environment, Inc. Field Investigation Team (FIT) to perform a Screening Site Inspection (SSI) at the Denver & Rio Grande Western Railroad (D&RGW) site in Alamosa, Colorado. The sampling was conducted under the approved sample plan originally submitted on July 11, 1989 with a revised submission on May 11, 1990. SSI field activities were performed June 26 through June 28, 1990. The FIT sampling team included Robert Henry (project officer), Dave Franzen (site safety officer), Steve Yarbrough and Annette Sackman (samplers). Twelve low concentration water samples, eleven low concentration soil/sediment samples and six medium concentration soil/sediment samples were collected and submitted for special analytical services (SAS) and routine analytical services (RAS) organic, inorganic, PCB and pesticide analysis. The samples were shipped to the following laboratories within the required holding times and under proper chain of custody: IT Analytical Services and Net Gulf Coast, Inc. (inorganic, RAS), Weyerhaeuser and Clayton Environmental Consultants (organic, RAS), Centec Analytical Services (inorganic, SAS) and S-Cubed (organic, SAS). Additionally, a sample that appeared to be asbestos containing material (ACM) was sent to Clayton Environmental Laboratories.

2.0 OBJECTIVES

The FIT identified five primary objectives in the site sampling plan. These objectives were:

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- Characterize the sources of contamination onsite by sampling any waste material encountered during the site inspection.

- Quantify any contaminant source material present which has the potential to migrate from the site.

- Assess whether contaminants attributable to the site are migrating to nearby surface water bodies by first evaluating local surface water drainage patterns, and by collecting upgradient and downgradient surface water and sediment samples from nearby West Side Ditch.

- Assess whether contaminants attributable to the site are migrating to the air and onsite pathways by collecting soil samples. In addition, a background soil sample will be collected for comparison purposes.

- Collect additional site inspection data as required by the revised Hazard Ranking System (HRS) to adequately evaluate the site.

3.0 BACKGROUND

3.1 LOCATION AND SITE DESCRIPTION

The D&RGW site is located at the corner of Ninth Street and La Due Avenue, also known as Highway 17 (Figure 1). There are three properties in question at this site. They are Denver and Rio Grande Western Railroad, Gallagher Oil and Helfin property. The site covers approximately 50 acres; (D&RGW covers 31 acres; Gallagher Oil, six acres; and Helfin, 13 acres). The site coordinates are 37° 28′ 7.5" latitude and 105° 52′ 30" longitude (Figure 2). The entire 50 acre site is referred to as D&RGW.

D&RGW operated the site as a railyard from the early 1900s to 1986. In the early 1960's, the D&RGW property consisted of: three buildings, one 5000 gallon (estimated) fuel oil tank, one water tower and a

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molybdenum loading area (Figure 3). Buildings currently found on D&RGW property, as observed during a FIT site visit on June 7, 1989, include a fueling building, a train round house and a building which formerly housed a lumber company (Figures 2 and 4). The fueling building is approximately 75 feet by 35 feet and is built off the ground. Underneath the fuel house are storage tanks of unknown size which are reportedly above ground. However, pipes from the storage tanks exit the front of the fuel house and could release material directly to the ground surface. The train round house was used to service locomotives. There were several service bays, eleven drums of unknown material and construction debris visible during the site visit. The third building found onsite recently housed a lumber company and did not appear to contain any hazardous material.

Gallagher Oil Company operated a refinery for Oriental Oil (Asamera Oil) at the eastern end of the railyard. The Gallagher Oil property currently houses two 50,000 gallon storage tanks and two rail cars (Figure 4). The tanks' contents are not presently known, however, they are believed to be empty. All refinery facilities have been dismantled and removed from the site (Figure 3).

Soils on Gallagher property are stained, presumably with spilled petroleum products. The area to the east of West Side Ditch has shallow pond-like or lagoon areas where a spill was reported in 1985. This area was reportedly used as unlined impoundments for overflow storage of crude oil during refinery operations. The spill area covered approximately one-half to one acre. Soils in this area have caked tarry residue in patches even though Asamera conducted a clean-up of the area (Colorado Department of Health 1987).

The Helfin property is located directly north of Gallagher Oil Company (Figures 2 and 3). Approximately 20 railroad cars were observed onsite. It is reported that Mr. Carl Helfin, property owner, was going to restore the rail cars.

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3.2 SITE HISTORY AND PREVIOUS WORK

A Preliminary Assessment (PA) was performed by the Colorado Department of Health (CDH) on October 18, 1987. No samples were collected at that time.

According to the PA, no hazardous waste or hazardous materials incidents have been recorded at the D&RGW site. The adjoining railyard routinely stored treated ties and poles on the south side of the railyard approximately 1.5 blocks west and one block south of the business office. No tie treating was performed at the railyard. The Gallagher Oil Company operated a refinery for Oriental Oil (a.k.a. Asamera) at the eastern end of the railyard, approximately three blocks south and four or five blocks east of the office location. A spill of crude petroleum and/or residues from overflow storage ponds were reported in complaints during 1985. The ponds are located at the eastern end of the refinery property and on the east side of the West Side Ditch which bisects the study area (Figure 2).

The site is only partially fenced. During the site inspection, dirt paths were observed crossing the site, particularly on the east side of the ditch.

All refinery facilities were dismantled and removed from the site, except for two 50,000 gallon tanks on the Gallagher Oil Company property. Soil around these tanks was stained. No liquids or wet odorous areas were observed at the site that would indicate more recent activity.

3.3 SITE GEOLOGY, HYDROGEOLOGY AND HYDROLOGY

3.3.1 Geology

The site is located in the middle of the San Luis Valley, which is bordered on the east by the Sangre De Cristo Mountains and on the west by the San Juan Mountains. The Sangre De Cristo Mountains consist

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mainly of Paleozoic conglomerate, sandstone, shale and limestone. The San Juan Mountains are composed principally of Tertiary volcanic rocks. However, there are areas of Precambrian granite, schist and gneiss, Paleozoic limestone, sandstone and shale.

Geology at the D&RGW site consists of three feet of alluvial soil, then ten to fifteen feet of a sandy material overlying the Quaternary Alamosa Formation. The Alamosa Formation is 919 feet thick consisting of beds of unconsolidated gravel, sand, silt and clay. The Alamosa Formation was laid down in a subsiding basin by streams originating in the adjacent mountains (Siebenthal 1910).

The Alamosa Formation overlies the Tertiary Santa Fe Formation which consists of unconsolidated gravel, sand, silt, volcanic ash and a small amount of clay. The Santa Fe Formation was deposited as coalescing alluvial fans in the basin (Siebenthal 1910).

3.3.2 Hydrogeology

Regional ground water resources of the San Luis Valley are described by Huntley (1979) as extending from the Sangre De Cristo Mountains on the east, the San Juan Mountains on the west to the New Mexico state border on the south. This area is known as the San Luis Drainage Basin. Recharge of the aquifer in the San Luis Basin is predominantly from mountain-front subsurface flow, but includes recharge from surface streams and direct infiltration of precipitation and irrigation seepage.

There are two aquifers in the vicinity of the site, a shallow unconfined aquifer and a deeper confined aquifer. Ground water in the unconfined aquifer can be encountered at five to ten feet near the site. Recharge of the shallow aquifer is by stream seepage into permeable alluvial sand and gravel deposits. Shallow ground water flow is approximately four feet per mile east or southeast near Alamosa (Emery et al. 1971), but flow direction near the site may be influenced by the Rio Grande River to the north and east.

A confining layer, comprised of clay with some lenses of sand and gravel, occurs 30 to 50 feet beneath the site. This confining zone is 200 to 300 feet thick near Alamosa. Manmade perforations, in the form of abandoned wells, are suspected to have made this an aquitard rather than an aquiclude (Felmlee 1989). Sand and gravel lenses within the aquitard are of limited capacity.

Water is encountered at more than 200 feet in the confined aquifer. The potentiometric surface of water in this aquifer is near or above ground level. Flowing artesian wells are often produced from the confined aquifer. Recharge is by lateral flow from the western edge of the basin. Water loss is via wells and upward migration into the surficial aquifer. The San Juan volcanic area to the west is the source of low baseline quantities of arsenic known to occur in the Alamosa Formation near Alamosa (Felmlee 1989).

3.3.3 Hydrology

Regional surface water bodies of importance include the West Side Ditch and the Rio Grande River. The Rio Grande River originates in the San Juan Mountains to the west. The West Side Ditch is an irrigation ditch diverted from the Rio Grande in east Alamosa. Both the West Side Ditch and the Rio Grande River flow in a south/southeast direction.

An extensive system of irrigation canals are developed over the San Luis Valley area, many of which feed off the Rio Grande River. The Rio Grande River borders the site (Figure 2) at the northeast corner of the site. The West Side Ditch flows through the site and rejoins the Rio Grande River approximately ten miles downstream from the site.

Surface water drainage from the site is into the West Side Ditch. However, the site is very flat and normal runoff would probably pool onsite or migrate into the ground.

Normal annual precipitation for the Alamosa area is about six inches. The San Juan Mountains to the west receive 40 inches in the higher elevations.

4.0 FIELD OPERATIONS

4.1 NON-SAMPLING DATA COLLECTION

The FIT arrived onsite at 0830 hours on June 26, 1990. After establishing the command post and decontamination station, FIT personnel performed an onsite reconnaissance to verify sample locations, determined if certain sample locations necessitated protection level upgrade and collected non-sampling data required under the revised Hazard Ranking System (rHRS). Specific data elements pertinent to the rHRS are discussed in Section 6.0.

4.2 SAMPLING ACTIVITIES

During the collection of samples, the following potentially responsible party representatives were present: Robert Sterrett of Hydrologic Consultants, Inc. representing D&RGW; Robert Lewis of ERM Rocky Mountain representing Gallagher Oil and Carl Helfin representing himself. Split samples were declined by all property owners for this inspection. Sample collection began at 1330 hours on June 26, 1990. All samples were collected in Level D respiratory and dermal protection as described by the EPA approved FIT SOP III-2. Sample locations are shown in Figure 4.

4.2.1 Waste Source Samples

For the purpose of this inspection, the waste source areas will be divided by property ownership. A discussion of the waste source areas is presented herein.

4.2.1.1 Denver & Rio Grande Western Property

During the site reconnaissance of the D&RGW property, no specific waste source was identifiable. Rather, the FIT selected sampling locations that appeared to be contaminated, based on visual observations.

The FIT collected five soil samples from D&RGW property. Sample DR-SO-2 was collected at the D&RGW fuel oil house (Figure 4). This sample was obtained by compositing soil from five locations within a one square foot area. The sample was collected beneath a drum hanging under the fuel oil house loading dock (Photo 1). Sample DR-SO-3 was collected approximately 100 feet north of the D&RGW roundhouse building. The sample collected was a white fibrous material (Photo 2) that appeared to be ACM. The ACM is estimated to be approximately five cubic feet in size. Soil sample DR-SO-4 was collected approximately 400 feet southeast of the D&RGW roundhouse (Figure 4, Photo 3).

A composite opportunity soil sample (DR-OP-1) was collected approximately 100 feet south of the D&RGW roadhouse. This sample was collected by augering to a depth of one and one-half feet below the ground surface.

One additional soil sample was collected east of West Side Ditch on D&RGW property. This sample, DR-SO-9 (Figure 4, Photo 4) was collected in a 10 foot by 10 foot depression. The depression contained oily material with two open drums. It is unknown if the drums contained the oily material or if it is residual waste from the 1985 spill.

4.2.1.2 Gallagher Oil Property

As previously mentioned, this property was used as a refinery. All refining equipment excluding two tanks have been removed. Two soil samples were collected from this property. Sample DR-SO-13 (Figure 4) was collected approximately 100 feet northeast of the two existing storage tanks on Gallagher property. Sample DR-SO-5 was collected at

the northern Gallagher property line. Both samples were collected from oily areas on the ground surface.

4.2.1.3 Helfin Property

A total of five soil samples were collected from the Helfin property. During the initial site reconnaissance, the FIT located two areas approximately 200 square feet in size where black oily material was ponded (Photos 5 and 6). Soil samples DR-SO-6 and DR-SO-7 were collected from each of these locations. The depth of the oily material was not determined during the inspection. Three soil samples were collected on the east side of West Side Ditch. As previously mentioned, an oil spill occurred in this area. Various locations in the spill area exhibited residual black, oily material. Samples DR-SO-10 and DR-SO-11 were collected to determine the nature of the residual material. Sample DR-SO-12 was collected approximately 50 feet east of West Side Ditch. The sample collected was dark brown in color and had a white-tan crust on the surface. The sample was collected at a pipe opening. The origin of the pipe is unknown.

4.2.2 Ground Water Samples

Two ground water samples were collected during the inspection. Sample DR-GW-1 was collected approximately one-quarter mile south of the site at a private residence. The second ground water sample collected was also obtained from a private residence well. This well is located north of the Rio Grande River and is approximately one and one-half miles northeast of the site. Both of the wells are flowing artesian wells. Well logs for these two wells could not be found in the State Engineer files. According to the well owners, both wells were thought to be approximately 400 to 500 feet in depth. At the time of ground water sample collection, both wells had been running for approximately 45 minutes to one hour. Flow rates were documented at ten gallons per minute (gpm) at well DR-GW-1 and three gpm at DR-GW-2. Therefore, estimated purge volume for DR-GW-1 and DR-GW-2 are approximately 450 gallons and 135 gallons, respectively.

4.2.3 Surface Water and Sediment Samples

A total of four surface water and sediment samples were collected for this inspection. Two surface water/sediment samples were collected from the West Side Ditch. Samples DR-SW-1 and DR-SE-1 were collected as background, north of the D&RGW railroad tracks (Figure 4). Samples DR-SW-3 and DR-SE-3 were collected from West Side Ditch on Helfin property, adjacent to soil sample DR-SO-7. These samples were collected to determine if waste material from the Helfin property has migrated to the ditch. Two surface water/sediment samples were collected from ponds located east of West Side Ditch. Samples DR-SW-2 and DR-SE-2 were collected from a pond, approximately 4,000 square feet in size (Photo 7). Above ground pipeline structures are evident on the southwest side of the pond. Samples DR-SW-8 and DR-SE-8 were collected from a ponded area 20 feet north of the soil sample (DR-SO-9) location. As previously mentioned, this soil sample was collected from a small depression containing a drum and oily waste material as evident in Photo 4.

During the site reconnaissance, a non-functional artesian well was found on D&RGW property. According to information obtained from the Colorado State Engineers Office, this well is 915 feet deep and is completed in the confined aquifer. Two cisterns (Photo 8) located at the well were used to collect overflow from the well. At the time of the inspection, each cistern was sampled. Samples DR-OP-2 and DR-OP-3 were collected. Access to the closed cisterns was obtained by D&RGW.

4.2.4 Quality Control Samples

The FIT maintained the integrity of each sample by following extensive decontamination procedures during sample collection. The FIT prepared one rinsate blank sample (DR-SW-5), one duplicate sample (DR-SW-4) and two trip blank samples (DR-SW-6 and DR-SW-7). All samples were collected as specified in the sampling plan. The rinsate blank sample was prepared by pouring organics free and metals free water over

and through decontaminated sampling equipment as described in FIT SOP III-2, Chapter 11.

4.3 QUALITY CONTROL

4.3.1 Sample Containers

The sample containers used for this inspection included 80-ounce glass jars, one-liter polyethylene bottles, 40-ounce glass VOA vials and 8-ounce wide mouth glass jars. The sample containers were obtained through the Sample Management Office (SMO) Sample Bottle Repository (I-Chem and Eagle Picher).

4.3.2 Background Samples

Background samples collected during the inspection are used as a basis for comparison with sample data collected at downgradient locations. Surface water and sediment samples DR-SW-1 and DR-SE-1 represent background conditions for surface water and sediment. These samples were collected north of the D&RGW railroad from West Side Ditch. Background soil quality will be established from sample DR-SO-1.

Two ground water samples were collected for this inspection. Pending further review of well log information for the wells sampled and local hydrogeology, upgradient ground water is yet to be determined.

4.3.3 Instrument Calibration

The HNu and OVA organic vapor analyzers were calibrated prior to conducting daily field work. Calibration was accomplished in accordance with the manufacturer's specifications for survey operations. The conductivity meter was calibrated using standards of 37.5, 375 and 3750 micromhos per centimeter. The pH meter used during the inspection was calibrated using solutions of pH 4, pH 7 and pH 10.

4.3.4 Investigation Derived Waste

Solvents and waste water used for decontamination during the inspection were contained and returned to Ecology and Environment, Inc. for future disposal. Protective clothing was shredded, bagged and returned to Ecology and Environment, Inc. for disposal.

4.4 DOCUMENTATION

After collection, all samples were handled in strict accordance with chain of custody protocol described by the NEIC Procedures Manual for the Evidence Audit of Enforcement Investigations by Contractor Evidence Audit Teams, April 1984 (EPA-330/9-81-003R). Appendix B summarizes sample documentation, including sample numbers, sample tags, traffic reports, chain of custody and airbill numbers.

4.5 OBSERVATIONS

The following observations were made during the sampling activities and general reconnaissance of the three properties and surrounding areas:

- No specific waste sources were identified on D&RGW or Gallagher Oil property. Sampling locations on these properties were determined based on visual observation of potentially contaminated materials;

- One sample (DR-SO-9) located on D&RGW property was collected east of the West Side Ditch from a ten foot by ten foot ground depression that contained oily material. Two open 55-gallon drums were observed in the depression;

- Two samples (DR-SO-6 and DR-SO-7), collected from Helfin property, were taken from oily areas each approximately 200 square feet in size. The depth of the material was not determined during the inspection;

- Residual waste material is evident east of West Side Ditch. This area was subject to an oil spill and removal in 1985;

- Wetlands along the Rio Grande River and adjacent to the site were documented and estimated at approximately 25 acres in size (Photo 10);

- The airborne transport of onsite soils to offsite residential areas was observed during windy periods.

5.0 QUALITY ASSURANCE REVIEW

All of the Routine Analytical Services (RAS) and Special Analytical Services (SAS) data packages were thoroughly reviewed by FIT chemists for compliance using EPA's "Functional Guidelines for Data Validation of Organic Data", "Functional Guidelines for Data Validation of Inorganic Data", and the approved Region VIII FIT CLP Quality Assurance Operating Procedures. The Region VIII Summary of Data Quality Assurance Reviews are attached as Appendix C. The data packages were judged to be of high quality with only minor quality control problems noted in the reviews.

5.1 ROUTINE ANALYTICAL SERVICES

Samples requiring RAS analysis were sent to one of three laboratories participating in the contract laboratory program (CLP). Organic analyses were performed by either Clayton Environmental of Novi, Michigan or Weyerhaueser of San Diego, California. Inorganic analyses were performed by NET Gulf Coast, Inc. and IT Analytical. The RAS analysis for target compound list (TCL) components included volatile organics analysis (VOA), semi-volatile analysis (BNA), and pesticides analysis. The data quality for all these analyses ranged from very good to excellent so that very few qualifications were necessary. Although there were a number of quality control problems, none were out of the ordinary, all were accounted for and the data was not adversely affected.

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5.2 SPECIAL ANALYTICAL SERVICES

Three laboratories provided the requested special analytical services for this investigation. S-Cubed performed all the organic analysis and Centec Analytical Services performed all the inorganic analyses. Clayton Environmental Services performed the asbestos analysis. Organic analyses included volatile and semi-volatile fractions, as well as PCB analysis. Data quality ranged from very good to excellent so that very few qualifications were necessary. Therefore, the data was determined acceptable and usable. All quality control problems were minor and did not adversely affect the data. Details can be found in the review summaries shown in Appendix C.

The asbestos sample was analyzed in accordance with EPA Method CFR, Title 40, Part 763, Subpart F, Appendix A, Section 1 (Polarized Light Microscopy). The sample was ashed in a 500 degree Fahrenheit muffle furnace prior to preparation. The sample contained 65 percent asbestos with a duplicate analysis yielding similar results.

6.0 RESULTS

Non-sampling data and analytical results are presented in the following section. Information collected to characterize waste sources is presented first followed by presentation of results specific to each migration pathway.

6.1 WASTE CHARACTERIZATION

As previously mentioned, waste source areas were divided by property ownership. Soil samples were collected from small areas of observed contamination. Specific waste sources identified at the site include two areas with an approximate total size of 400 square feet (on the Helfin property) and an area of approximate size equal to 100 square feet (on D&RGW property).

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The analyses of samples collected from these areas showed elevated levels of polynuclear aromatic hydrocarbon (PAH) compounds.

6.2 AIR MIGRATION PATHWAY

During the initial site reconnaissance and sample collection, no organic vapors were detected by organic vapor detection devices. The areas appearing to be contaminated were open to the atmosphere. Suspected ACM was documented and sampled on D&RGW property. The volume of the ACM is estimated at ten cubic feet. Analysis of the suspended ACM showed the material contained 65 percent total asbestos (Table 11).

Surface soil material from the site was observed blowing offsite to residences located south of the site. The nearest regularly occupied building for the maximally exposed individual (MEI) is located 50 feet south of the site. The nearest park is located one and one-half miles north of the site.

6.3 GROUND WATER MIGRATION PATHWAY

6.3.1 Analytical Results

The inorganic analysis of ground water samples collected show no elevated element concentrations. The inorganic concentrations (Table 4) at a the downgradient well DR-GW-2 are consistent with the concentrations at the upgradient location, DR-GW-1. It should be noted that these samples were collected from the deep confined aquifer, which serves as the primary drinking water source for the Alamosa area.

The organic ground water results show no detectable contaminant concentrations.

6.3.2 Non-Sampling Results

Municipal ground water usage in Alamosa is from deep artesian wells. There are three wells used by Alamosa and all are 1,000 feet or

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deeper. The potential for contaminant migration from the site to the artesian aquifer is minimal, therefore, the shallow unconfined aquifer was targeted as the aquifer of concern for this inspection. According to the Colorado State Engineer, there are 104 domestic use wells drawing water from the shallow unconfined aquifer within four miles of the site.

6.4 SURFACE WATER MIGRATION PATHWAY

6.4.1 Analytical Results

Surface water and sediment samples DR-SW-1 and DR-SE-1 were collected as background samples. These samples serve as a basis of comparison for surface water and sediment collected at downgradient locations.

6.4.1.1 Inorganic Results

The inorganic analytical results indicate elevated inorganics in surface water sample DR-SW-2. This sample, collected from a pond on Helfin property contained elevated barium, iron, magnesium and potassium. These elements are 6,4, 3.7, and 5 times greater than background, respectively. Sediment sample DR-SE-2 inorganic analysis shows elevated barium, copper, lead, manganese, vanadium and zinc. The concentrations detected are 7.5, 7, 29, 7, 6 and 5 times greater than background, respectively.

Sediment sample DR-SE-3, collected from West Side Ditch on Helfin property, also exhibits elevated inorganic elemental concentrations. Barium was found to be 6 times greater than background, chromium (19 mg/kg) was 5 times greater; cobalt was 5 times greater; copper was 30 times greater; lead was 53 times greater; manganese was 8 times greater; vanadium was 7 times greater and zinc was 10 times greater than background. No inorganic contamination was detected in surface water sample DR-SW-3.

Samples DR-SW-8 and DR-SE-8 also exhibited elevated inorganic contamination. These samples were collected from ponded wetlands on D&RGW property (Figure 4). The surface water (DR-SW-8) analysis show elevated levels of barium, iron and magnesium. The reported concentrations are 6, 113, and 20 times greater than background, respectively. Manganese concentration was found to be approximately seven times greater in DR-SE-8, compared to background levels.

Two water samples DR-OP-2 and DR-OP-3 were collected as surface water during the inspection. The water was found in two cisterns on D&RGW property, which are used as overflow receptacles for an onsite well. The inorganic concentrations are elevated for a few elements relative to surface water background conditions. However, a comparison to ground water samples collected show consistency of reported concentrations. No sediment samples were collected from the cisterns.

6.4.1.2 Organic Results

The organic fraction analysis for surface water samples collected indicate no significant contamination. Toluene was detected at 1.0 µg/l and 3 µg/l in samples DR-SW-2 and DR-SW-5, respectively. Acetone at a concentration of 9 µg/l was detected in the blank sample DR-SW-8. This may be due to laboratory error or carry over from field decontamination procedures. Methylene chloride was detected in the trip blank sample DR-SW-6. Presence of this compound is most likely attributable to laboratory error, as methylene chloride is used in laboratory glassware cleaning procedures.

As is evident in Table 7, the downgradient sediment samples contained significant organic contamination. Most notable are the elevated levels of PAH compounds. The background sediment sample (DR-SE-1) contained no detectable organic contaminants.

Sediment sample DR-SE-2 (Helfin property) contained pyrene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene and benzo(g,h,i)perylene at concentrations of 82000 mg/kg, 40000 mg/kg, 12000 mg/kg, 11000 mg/kg

and 33000 mg/kg, respectively. Sediment sample DR-SE-3, collected from West Side Ditch, also exhibited elevated levels of PAH compounds. The herbicides 4,4-DDD and 4,4-DDT were also evident in sample DR-SE-3 at concentrations of 170 mg/kg and 160 mg/kg, respectively. Sediment from the wetland area, east of West Side Ditch on D&RGW property, also exhibited elevated PAH compounds relative to background.

6.4.2 Non-Sampling Results

Wetlands comprising approximately 25 acres were identified along the Rio Grande River and adjacent to (north of) the site. The site is located approximately one-quarter mile from the Rio Grande River. No contaminant migration routes were observed during the inspection. East of West Side Ditch, the area subjected to the 1985 oil spill and subsequent clean-up, was bermed along the northern extent. This berm, approximately eight feet high, appeared to be adequate in limiting any overland contaminant migration to the Rio Grande River.

West Side Ditch flows through Helfin property in the northeastern part of the site. Oily contamination was observed on Helfin property approximately 100 feet from the ditch. A berm is evident along both sides of the ditch thereby restricting overland migration of surface contaminants to the ditch. No overland drainages leading from the site to the ditch were observed. However, no run-off control was observed in any areas of the site and no maintained, engineered cover is currently in place. During the inspection, the FIT was unable to observe potential surface run-off migration routes.

6.5 SOIL EXPOSURE PATHWAY

6.5.1 Analytical Results

The results from soil sampling are presented in Tables 1, 5, 9 and 10. The following discussion of results will be divided by property ownership:

6.5.1.1 Denver & Rio Grande Western Property

A total of five soil samples were collected from D&RGW property and include DR-SO-2, DR-SO-3, DR-SO-4, DR-OP-1 and DR-SO-9.

A review of inorganic analytical results (Tables 1, 9 and 11) for the above specified samples indicate elevated contamination of certain elements. Arsenic was detected at 26.7 mg/kg in sample DR-SO-2. This concentration is approximately eight times higher than background concentrations. Similarly, copper (241 mg/kg), lead (700 mg/kg) and zinc (628 mg/kg) were detected in sample DR-SO-2. These concentrations are approximately seven times, five times and three times greater than background, respectively. Soil samples DR-SO-4, DR-OP-1 and DR-SO-9 did not exhibit inorganic contaminant concentrations significantly greater than background. Soil sample DR-SO-3 was collected as suspected ACM. The analysis showed the ACM was 65 percent asbestos (Table 11).

The organic analytical results for soil samples collected on D&RGW property are discussed herein. Soil sample DR-SO-2 contained 14000 mg/kg 2-butanone, 3900 mg/kg toluene and 140 mg/kg chlorobenzene. Acetone was also found in DR-SO-2 at a concentration of 6600 mg/kg. Similar results were reported for soil sample DR-SO-4. Acetone (4000 mg/kg), 2-butanone (8800 mg/kg) and toluene (200 mg/kg) were detected. Soil sample DR-OP-1 exhibited 1700 µg/kg toluene and the pesticide 4,4-DDE (36 µg/kg) and dieldrin (16 µg/kg). The chlorinated biphenol Aroclor 1260 was also found in DR-OP-1 at a concentration of 1200 µg/kg (Table 5). As previously mentioned, this sample was collected as a composite, one and a half feet in depth. The sampling location of DR-OP-1 (Figure 4) was in an area that was once part of the D&RGW roundhouse facility.

6.5.1.2 Gallagher Oil Property

Inorganic analyses of soil samples collected on the Gallagher property indicate no elevated levels of contamination other than arsenic, copper and lead. The elevated concentrations in sample DR-SO-5

were: 12.5 mg/kg, 199 mg/kg and 748 mg/kg, respectively. These values are approximately four times, six times and five times greater than background, respectively. Organic analysis of samples collected from the Gallagher property indicate elevated 2-methylnaphthalene (3700 µg/kg) and 2-butanone (4700 µg/kg) in sample DR-SO-5. The pesticides 4,4-DDE, 4,4-DDT and 4,4-DDD were also found in sample DR-SO-13, however, similar contaminant concentrations were detected in the background sample DR-SO-1.

6.5.1.3 Helfin Property

Soil samples collected from Helfin property include DR-SO-6, DR-SO-7, DR-SO-10, DR-SO-11 and DR-SO-12. Two samples (DR-SO-6 and DR-SO-7), collected west of West Side Ditch exhibited high levels of organic PAH compounds. Table 10 depicts the organic concentrations detected. No PAH compounds were detected in the background sample DR-SO-1. Tetrachloroethene (PCE) was also detected in sample DR-SO-6 at 160 µg/kg. Samples collected from the Helfin property east of West Side Ditch show limited contamination. Pyrene (57000 µg/kg) and endrin ketone (2000 µg/kg) were detected in sample DR-SO-10. Endrin ketone (240 µg/kg) was also detected in DR-SO-12. The pesticides 4,4-DDT and 4,4-DDD were also detected in DR-SO-10 and DR-SO-12, however, similar concentrations were detected in the background soil sample. Inorganic analysis of soil samples from Helfin property indicate concentrations consistent with background levels.

6.5.2 Non-Sampling Results

The D&RGW and Gallagher Oil properties do not have barriers restricting access. The Helfin property (west of the West Side Ditch) has barbed wire fencing, however several openings in the fence were observed. A trail is evident leading from the southern end of the site across Gallagher Oil and D&RGW property. During the inspection, pedestrians and horses were observed on the trail.

7.0 PATHWAY ANALYSIS

7.1 AIR PATHWAY

No samples were collected to document an observed release. The potential to release is evaluated based on source containment, source type, and source mobility for particulates and vapors. For this inspection the waste sources were divided by property ownership. No specific waste sources were documented on the Gallagher property, however areas of observed contamination were sampled. The Helfin and D&RGW properties did have locations where oily material had accumulated. These are considered waste sources. During the inspection no organic vapors were detected at any location. Particulate offsite transport was observed from D&RGW property during the inspection. The PCB, Aroclor 1260, was detected in soils from the D&RGW property and may potentially migrate offsite via the air pathway.

The targets for the air pathway are low. The nearest population is located 50 yards due south of the site. The town of Alamosa is located within the four mile target distance with an estimated population of 7,000 residents.

7.2 GROUND WATER PATHWAY

Two ground water samples were collected from the deep confined aquifer of the San Luis Valley. Potential contaminant migration to the shallow aquifer was not determined. Ground water samples exhibited consistent concentrations of inorganic constituents. Organic contamination was not detected in ground water samples.

The potential to release via the ground water pathway is evaluated based on source containment, net precipitation, the depth to aquifer,and the hydraulic conductivity of overlying geologic materials. As previously mentioned, the depth to the shallow unconfined aquifer is approximately 5 to 10 feet below ground surface. According to Colorado State Engineer Water Rights information, there are 104 shallow domestic

use wells within the four mile target distance. Updated U.S. Census data (1987) for Alamosa County indicate there are 2.68 persons per household in Alamosa County. Therefore, approximately 279 people may be subject to potential contamination from the shallow unconfined aquifer.

It is unknown what discharge/recharge relationship exists for the shallow unconfined aquifer and local surface water bodies.

7.3 SURFACE WATER PATHWAY

Surface water and sediment samples were collected from West Side Ditch and from wetlands located east of West Side Ditch. Samples DR-SW-1 and DR-SE-1 served as background for this inspection. Contamination was evident in sediment sample DR-SE-3 collected from West Side Ditch, adjacent to Helfin property. Chromium (19 mg/kg), copper (194 mg/kg), iron (49200 mg/kg), lead (218 mg/kg), manganese (1090 mg/kg), nickel (23.5 mg/kg), vanadium (52 mg/kg), and zinc (226 mg/kg) were detected at concentrations greater than three times background conditions. The organic analyses for DR-SE-3 indicate elevated PAH contamination. As is evident from Table 7, these compounds range in concentration from 150 mg/kg (fluoranthene) to 4700 mg/kg (benzo(g,h,i) perylene). The pesticides 4,4-DDD and 4,4-DDT were also detected. West Side Ditch flows south through the site from the Rio Grande River. The ditch is used for irrigation and stock watering. No domestic consumptive use of the ditch has been documented. The source of these contaminants may be from the Helfin property. Figure 4 depicts the locations of soil samples DR-SO-6 and DR-SO-7. These samples also contained elevated levels of PAH compounds collected from waste material located approximately 50 feet from West Side Ditch. The bank of the ditch is bermed to a height of approximately five feet. Thus, contaminant migration from the Helfin property may occur via the ground water pathway, recharging West Side Ditch.

Similar PAH compounds were detected in sediment sample DR-SE-2 and DR-SE-8 (Figure 4). These sample locations are in close proximity to the oil spill cleanup area. Sample DR-SE-8 was collected from a

wetlands area comprising approximately 25 acres along the south side of the Rio Grande River. The organic contamination of surface water bodies appears to be limited to sediment, as no contamination was detected in surface water samples.

7.4 SOIL EXPOSURE PATHWAY

Access to the three properties at the D&RGW site is unrestricted. The Helfin property has perimeter fencing, however, several holes in the fencing were observed. Pedestrian and equestrian traffic was observed passing through the site at the time of the inspection. Access to the site is essentially unrestricted, however, the quantity of waste containing hazardous constituents is low. Additionally, the nearby population which could potentially come into contact with the waste is low. The estimated population within one-quarter mile of the site is 200. The population within four miles of the site is approximately 8,000 people (U.S. Census 1980).

8.0 CONCLUSIONS

The D&RGW site was divided by property ownership for the purpose of delineating waste source areas. Contamination was evident on all three properties.

Organic contamination was evident onsite, specifically PAH compounds. Elevated inorganic contaminants were also detected at various locations onsite. An observed release to surface water was documented, as contamination was detected in sediments of West Side Ditch and wetlands associated with the Rio Grande River. The potential for release to the shallow unconfined ground water aquifer is high due to poor containment of waste and depth to ground water. However, the target population for the ground water pathway is low. The likelihood of exposure via the soil exposure pathway is also high due to the accessibility of onsite wastes. The overall potential threat posed by the site is low due to the relatively low target population.

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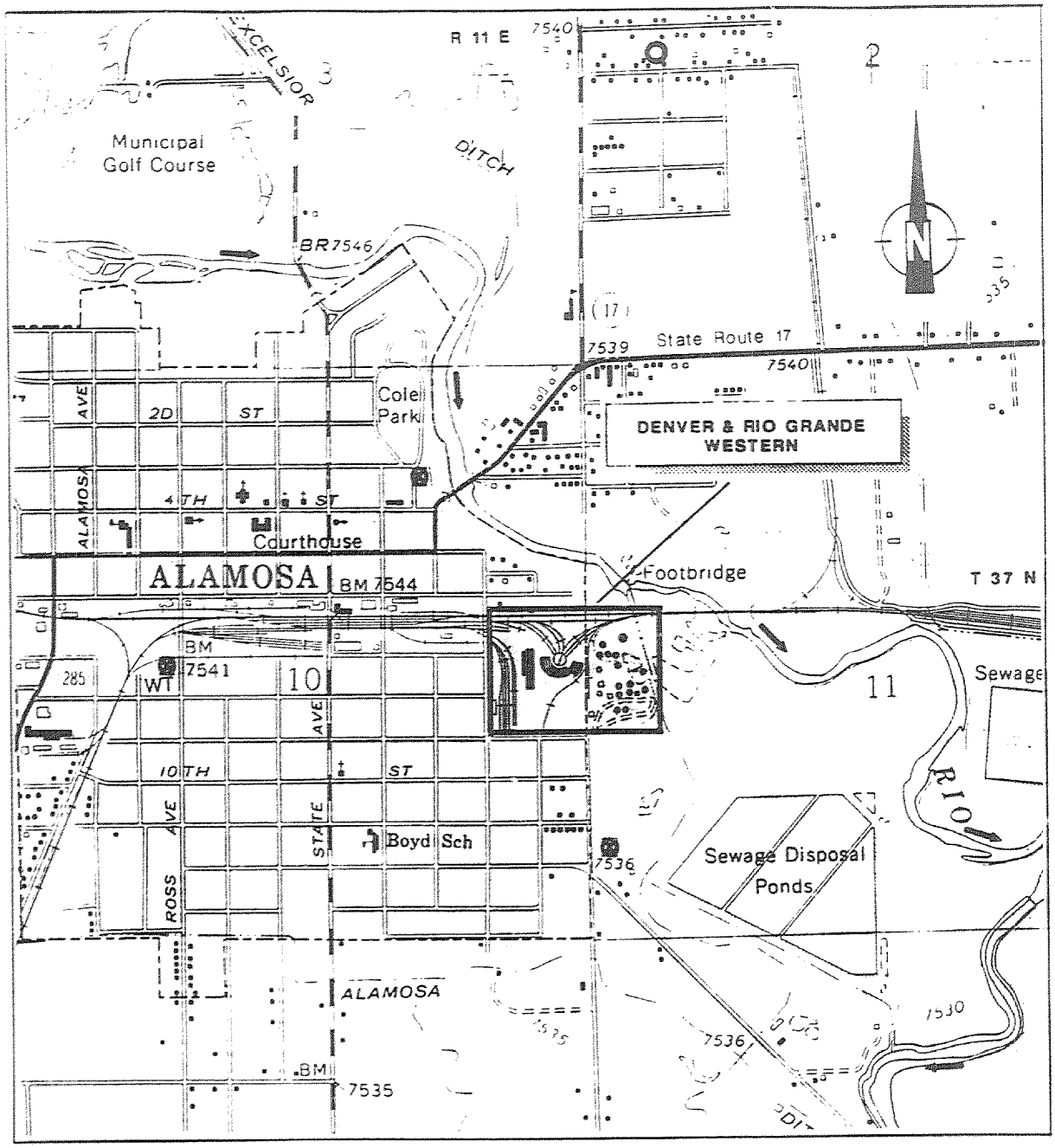
SITE/SITE ASSESSMENT
SASOIS

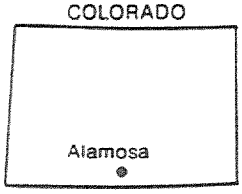


Source: Alamosa Quadrangle, Colorado. USGS, 1966

0 1/2 1 Mile

LOCATION MAP

COLORADO



LEGEND

- Site location
- Municipal supply wells
- Trailor Park supply well

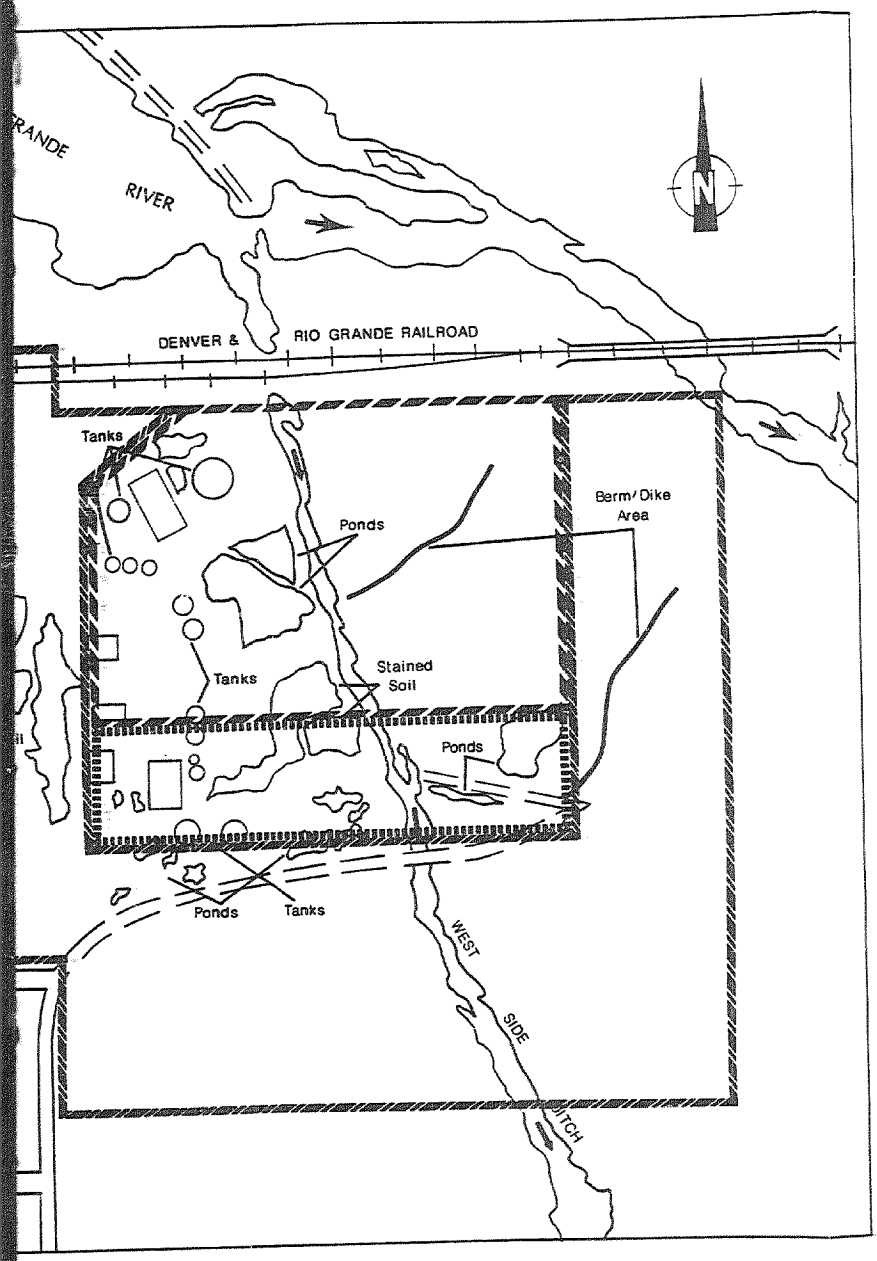
FIELD INVESTIGATIONS OF UNCONTROLLED HAZARDOUS WASTE SITES
TASK REPORT TO THE E.P.A.

TITLE:
DENVER & RIO GRANDE WESTERN
Alamosa, Colorado
SITE LOCATION MAP &
LOCATION OF DRINKING WATER WELLS
T.D.D. F08-9009-01

ecology & environment, inc.
DENVER, COLORADO

FIG. 1

Date: 10/90 Drawn by: RSM Scale: _____



LEGEND

- Denver & Rio Grande Railroad
- Gallagher Oil (A.K.A. Asamera #1)
- Carl Helfins' Property

Source: NCI Aerial Photo. 1960

FIELD INVESTIGATIONS OF UNCONTROLLED HAZARDOUS WASTE SITES
TASK REPORT TO THE E.P.A.

TITLE:
DENVER & RIO GRANDE WESTERN
Alamosa, Colorado
DETAILED SITE LOCATION MAP

T.D.D. F08-9009-01

ecology & environment, inc.
DENVER, COLORADO

FIG. 2

Date: 10/90 Drawn by: RSM Scale:

NOTICE: If the film image is less clear than this notice, it is due to the quality of the document being filmed

SITE / SITE ASSESSMENT
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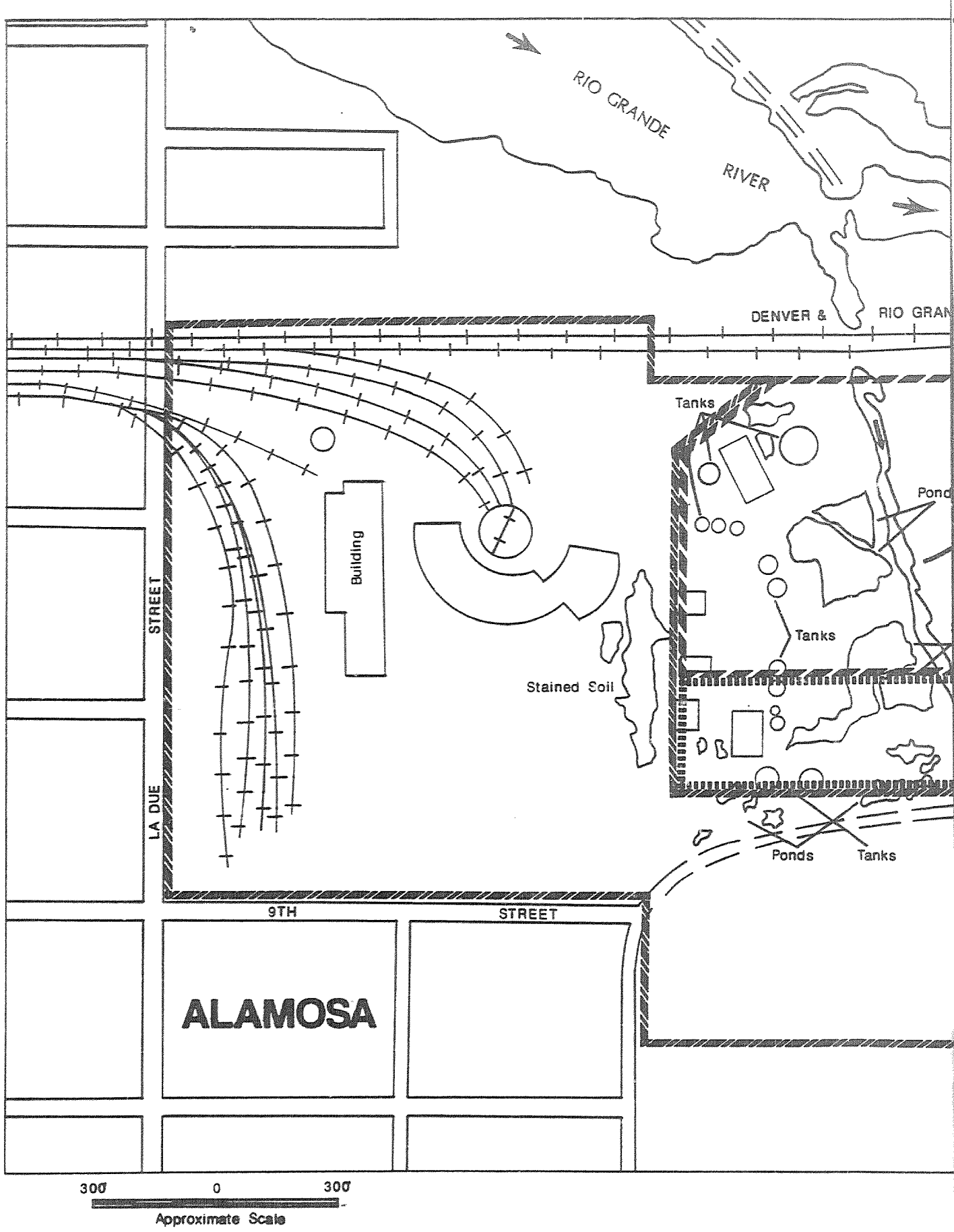
RIO GRANDE
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RIO GRAN
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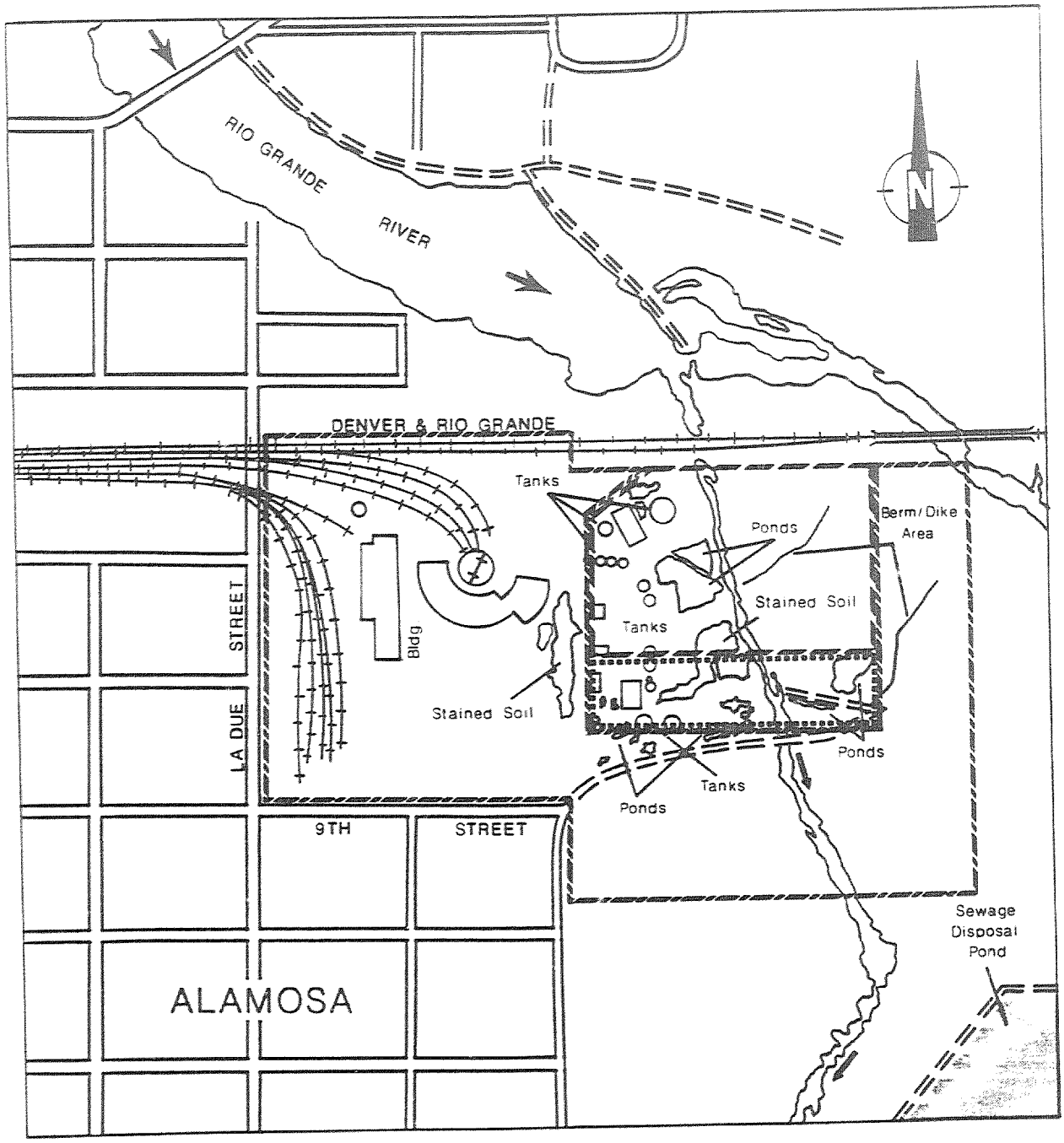
Approximate Scale



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Approximate Scale

LEGEND

- Denver & Rio Grande Railroad
- Gallagher Oil (A.K.A. Asamera)
- Carl Helfins' Property

FIELD INVESTIGATIONS OF UNCONTROLLED HAZARDOUS WASTE SITES
TASK REPORT TO THE E.P.A.

TITLE:
DENVER & RIO GRANDE WESTERN
Alamosa, Colorado
STRUCTURES PRESENT IN 1961

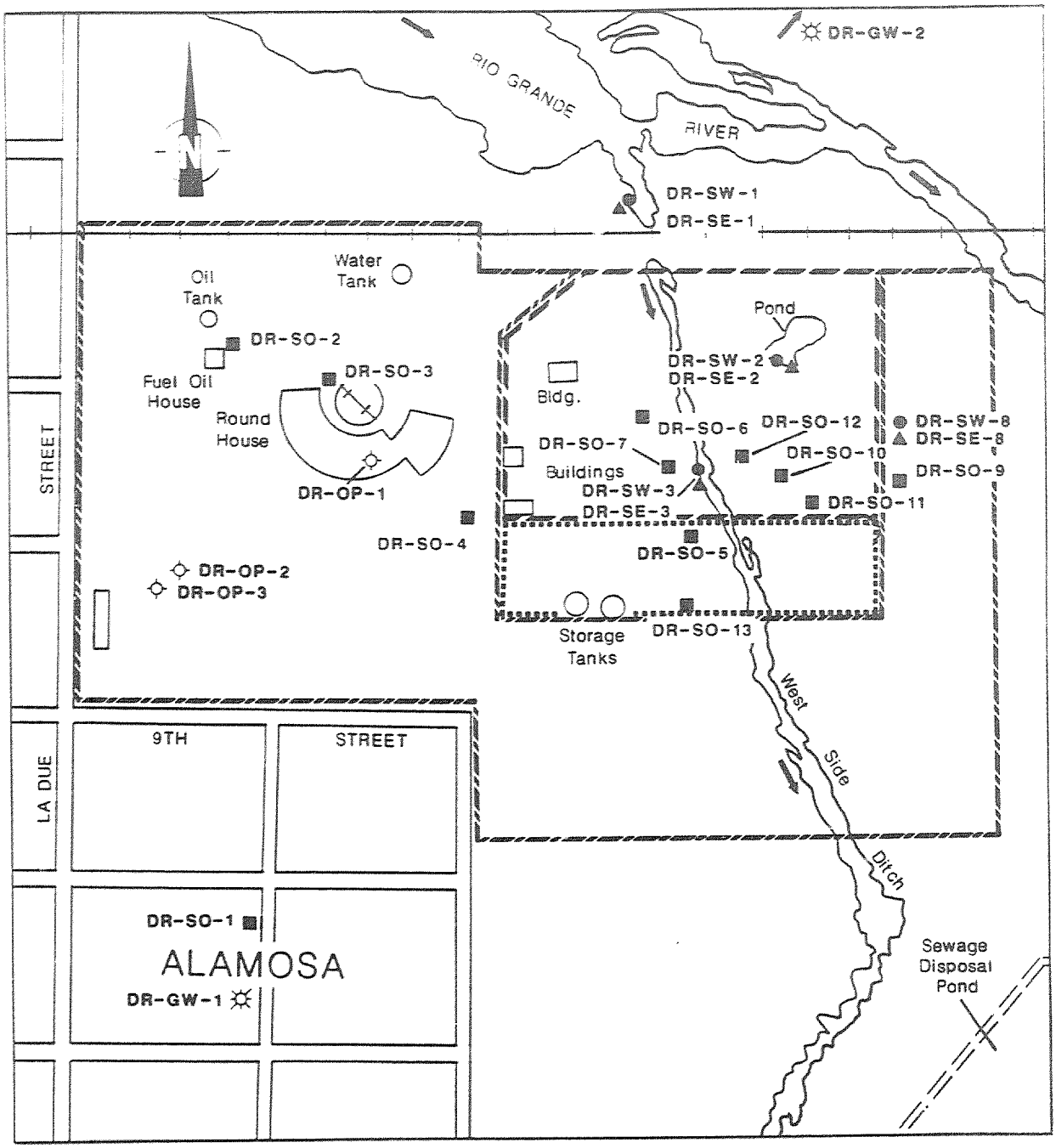
T.D.D. F08-9009-01

ecology & environment, inc.
DENVER, COLORADO

FIG. 3

Date: 10/90 Drawn by: RSM Scale:

Source: NCI, Aerial Photo, 1960



500' 0 500'

Approximate Scale

LEGEND

- Denver & Rio Grande Railroad
- Gallagher (A.K.A. Asamera)
- Carl Helfins' Property
- Soil sample
- Surface water sample
- Sediment sample
- Opportunity surface water sample
- Domestic well

Source: NCI, Aerial Photo. 1960

FIELD INVESTIGATIONS OF UNCONTROLLED HAZARDOUS WASTE SITES
TASK REPORT TO THE E.P.A.

TITLE
DENVER & RIO GRANDE WESTERN
Alamosa, Colorado

SAMPLE LOCATION MAP

T.D.D. F08-9009-01

ecology & environment, inc.
DENVER, COLORADO

FIG. 4

Date: 10/90 Drawn by: RSM Scale:

TABLE 1
ROUTINE ANALYTICAL SERVICES (RAS) INORGANIC RESULTS FOR SOIL SAMPLES
FROM THE DENVER & RIO GRANDE WESTERN SITE
ALAMOSA, COLORADO
CASE #14431
VALUES REPORTED IN mg/kg

SAMPLE #	DR-SO-1	DR-SO-10	DR-SO-11	DR-SO-12	DR-SO-13	DR-OP-1
TRAFFIC RPT #	MHQ394	MHP631	MHQ277	MHP630	MHP629	MHQ384
LOCATION	BKGRND	HELFIN	HELFIN	HELFIN	GALLAGHER	D&RGW
Aluminum	7140	7160	3680	4420	4540	5480
Antimony	3.4uj	6.4uj	3.9uj	4.0uj	3.4uj	3.6uj
Arsenic	3.3j	17j	3.6j	9.0j	3.9uj	6.7j
Barium	163	166	87.5	116	138	161
Beryllium	[0.74]	1.5	1.4	[1.1]	[0.79]	1.2
Cadmium	[0.63]	[0.89]	0.46u	[0.64]	[0.91]	[0.72]
Calcium	7740	5480	2620	4880	4700	8290
Chromium	6.7	7.5	7.1	5.8	5.0	6.9
Cobalt	[5.2]	[5.9]	[4.2]	[4.9]	[4.5]	[5.0]
Copper	32.8j	92.9j	24.5j	76.7j	35.3j	144j
Iron	12200	12500	9480	10200	10700	13000
Lead	141j	2540j	229j	1530j	147j	354j
Magnesium	2840	2480	1290	1940	1680	1780
Manganese	483	841	269	965	330	400
Mercury	0.1j	0.21	0.12u	0.61	0.1u	0.1u
Nickel	[6.7]	[8.4]	4.4u	[8.5]	[5.0]	[6.3]
Potassium	3510	1900	[1000]	1510	1630	1360
Selenium	0.61uj	NR	0.69uj	0.7uj	0.61uj	0.73j
Silver	0.61uj	0.64uj	0.7uj	0.7uj	0.61uj	0.63j
Sodium	[835]	528u	577u	[704]	504u	524u
Thallium	0.81uj	0.85uj	0.92uj	0.94uj	0.81uj	0.84uj
Vanadium	24.4	86.5	38.2	48.3	22.2	24.1
Zinc	203j	192j	74.2j	144j	206j	207j

j - The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the material is reliable, however.

u - The material was analyzed for, but was not detected. The associated numerical value is the estimated sample quantitation limit or CRDL.

NR - Analysis not performed.

[] - The associated numerical value is an estimated quantity because the amount detected is below the contract required detection limit (CRDL). Presence of the material is reliable. 'j' flags can be used in conjunction with brackets.

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TABLE 2
ROUTINE ANALYTICAL SERVICES (RAS) INORGANIC RESULTS FOR SURFACE WATER SAMPLES
FROM THE DENVER & RIO GRANDE WESTERN SITE
ALAMOSA, COLORADO
CASE #14431
VALUES REPORTED IN µg/l

SAMPLE #	DR-SW-1	DR-SW-2	DR-SW-3	DR-SW-4
TRAFFIC RPT #	MHQ386	MHQ397	MHQ388	MHQ389
LOCATION	BKGRND	HELFIN	HELFIN	DUP. SW-2
Aluminum	426	[148]	526	246
Antimony	17.0u	17.0u	17.0u	17.0u
Arsenic	8.0u	8.0u	8.0u	8.0u
Barium	[28.4]	[172]	[28.6]	[146]
Beryllium	1.0u	1.0u	1.0u	1.0u
Cadmium	2.0u	2.0u	2.0u	2.0u
Calcium	15600	58200	15300	51500
Chromium	3.8uj	3.5uj	3.0u	3.2uj
Cobalt	9.0u	9.0u	9.0u	9.0u
Copper	8.8uj	9.1uj	6.8uj	7.2uj
Iron	608	2530	691	2380
Lead	6.4	7.0j	11.6j	4.0
Magnesium	[2980]	11200	[2940]	11000
Manganese	141	6990	137	5920
Mercury	0.2u	0.2u	0.2u	0.2u
Nickel	19.0u	[22.80]	19.0u	[26.40]
Potassium	3300u	16800	3300u	16100
Selenium	3.0r	3.0r	3.0r	3.0r
Silver	3.0u	3.0u	3.0u	3.0u
Sodium	9090	76800	9170	76700
Thallium	4.0uj	40uj	4.0uj	40uj
Vanadium	8.0u	8.0u	8.0u	8.0u
Zinc	54.3j	48.9j	42.9j	42.0j

j - The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the material is reliable, however.

r - Quality control indicates that the data is not usable. Material presence or quantitation is unknown.

u - The material was analyzed for, but was not detected. The associated numerical value is the estimated sample quantitation limit or CRDL.

[] - The associated numerical value is an estimated quantity because the amount detected is below the contract required detection limit (CRDL). Presence of the material is reliable. 'j' flags can be used in conjunction with brackets.

being filmed

TABLE 2 CONT.
ROUTINE ANALYTICAL SERVICES (RAS) INORGANIC RESULTS FOR SURFACE WATER SAMPLES
FROM THE DENVER & RIO GRANDE WESTERN SITE
ALAMOSA, COLORADO
CASE #14431
VALUES REPORTED IN µg/l

SAMPLE #	DR-SW-5	DR-SW-8	DR-OP-2	DR-OP-3
TRAFFIC RPT #	MHQ390	MHQ385	MHP621	MHT013
LOCATION	BLANK	D&RGW	D&RGW	D&RGW
Aluminum	[136]	275	244	1100
Antimony	17.0u	17.0u	17.0u	17.0u
Arsenic	8.0u	8.0uj	13.9	16.0u
Barium	20.0u	[119]	20.0u	[51.1]
Beryllium	1.0u	1.0u	1.0u	[1.1]
Cadmium	2.0u	2.0u	2.0u	2.0u
Calcium	1490u	50700	5560	12900
Chromium	3.0u	3.4uj	3.0u	7.6uj
Cobalt	9.0u	9.0u	9.0u	9.0u
Copper	10.2uj	7.4uj	8.5uj	102j
Iron	46u	5200	[83.3]	13100
Lead	[2.6]	[2.8]	[2.6]	115j
Magnesium	459u	9170	459u	[911]
Manganese	3.0u	6470	[7.0]	65.2
Mercury	0.2u	0.2u	0.2u	0.2u
Nickel	19.0u	[33.1]	19.0u	19.0u
Potassium	3300u	[4150]	[3600]	[3820]
Selenium	3.0r	3.0r	3.0r	3.0r
Silver	3.0u	3.0u	3.0u	3.0u
Sodium	2480u	87600	33900	34200
Thallium	4.0uj	40.0uj	4.0uj	4.0uj
Vanadium	8.0u	8.0u	182	321
Zinc	40.6j	54.5j	44j	228j

j - The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the material is reliable, however.

r - Quality control indicates that the data is not usable. Material presence or quantitation is unknown.

u - The material was analyzed for, but was not detected. The associated numerical value is the estimated sample quantitation limit or CRDL.

[] - The associated numerical value is an estimated quantity because the amount detected is below the contract required detection limit (CRDL). Presence of the material is reliable. 'j' flags can be used in conjunction with brackets.

TABLE 3
ROUTINE ANALYTICAL SERVICES (RAS) INORGANIC RESULTS FOR SEDIMENT SAMPLES
FROM THE DENVER & RIO GRANDE WESTERN SITE
ALAMOSA, COLORADO
CASE #14431
VALUES REPORTED IN mg/kg

SAMPLE #	DR-SE-1	DR-SE-2	DR-SE-3	DR-SE-8
TRAFFIC RPT #	MHQ391	MHQ392	MHQ393	MHQ383
LOCATION	BKGRND	HELFIN	HELFIN	D&RGW
Aluminum	3200j	5070	5970	252
Antimony	4.1uj	10uj	6.4uj	3.4uj
Arsenic	1.9uj	4.7uj	4.0j	2.8j
Barium	28.3b	214	180	[19.2]
Beryllium	0.5b	[1.6]	0.37u	[0.22]
Cadmium	0.49u	1.2u	0.75u	0.4u
Calcium	2420	7020	4480	1070
Chromium	3.9	8.1	19.0	[0.91]
Cobalt	2.3b	[5.4]	[11.3]	1.8u
Copper	6.6j	47.4j	194j	2.1j
Iron	4270	10200	49200	1840
Lead	4.1j	122j	218j	2.6j
Magnesium	1370	[1890]	1920	[150]
Manganese	132	962	1090	917
Mercury	0.12u	0.27u	0.54	0.1u
Nickel	4.6u	11.2u	23.5	[4.8]
Potassium	802u	1950u	[1240]	666
Selenium	0.72uj	1.8uj	1.1uj	0.6uj
Silver	0.73uj	1.8uj	1.1uj	0.6uj
Sodium	603u	1470u	931u	501u
Thallium	0.96uj	2.4uj	1.5uj	0.81uj
Vanadium	7.5b	49.7	52	[2.2]
Zinc	22.4j	113j	226j	13.3j

j - The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the material is reliable, however.

u - The material was analyzed for, but was not detected. The associated numerical value is the estimated sample quantitation limit or CRDL.

[] - The associated numerical value is an estimated quantity because the amount detected is below the contract required detection limit (CRDL). Presence of the material is reliable. 'j' flags can be used in conjunction with brackets.

TABLE 4
ROUTINE ANALYTICAL SERVICES (RAS) INORGANIC RESULTS FOR
GROUND WATER SAMPLES
FROM THE DENVER & RIO GRANDE WESTERN SITE
ALAMOSA, COLORADO
CASE #14431
VALUES REPORTED IN mg/kg

SAMPLE #	DR-GW-1	DR-GW-2
TRAFFIC RPT #	MHP628	MHP627
LOCATION	BKGRND	DNGRDNT
Aluminum	[131]	[133]
Antimony	17.0u	17.0u
Arsenic	33.0	28.3
Barium	20.0u	20.0u
Beryllium	1.0u	1.0u
Cadmium	2.0u	2.0u
Calcium	5530	[4950]
Chromium	3.2uj	3.0u
Cobalt	9.0u	9.0u
Copper	[22.2]	8.6uj
Iron	[57.2]	46u
Lead	3.8	9.3
Magnesium	459u	459u
Manganese	3.0u	3.0u
Mercury	0.2u	0.2u
Nickel	19.0u	19.0u
Potassium	[4730]	[3600]
Selenium	30.0r	30.0r
Silver	3.0u	3.0u
Sodium	36100	33800
Thallium	4.0uj	4.0uj
Vanadium	96.2	195
Zinc	48.6j	40.7j

j - The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the material is reliable, however.

r - Quality control indicates that the data is not usable. Material presence or quantitation is unknown.

u - The material was analyzed for, but was not detected. The associated numerical value is the estimated sample quantitation limit or CRDL.

[] - The associated numerical value is an estimated quantity because the amount detected is below the contract required detection limit (CRDL). Presence of the material is reliable. 'j' flags can be used in conjunction with brackets.

TABLE 5
ROUTINE ANALYTICAL SERVICES (RAS) ORGANIC RESULTS FOR
SOIL SAMPLES
FROM THE DENVER & RIO GRANDE WESTERN SITE
ALAMOSA, COLORADO
CASE #14431
VALUES REPORTED IN µg/kg

SAMPLE # TRAFFIC RPT # LOCATION	DR-SO-1 HL285 BKGRND	DR-SO-10 HL294 HELFIN	DR-SO-11 HL295 HELFIN	DR-SO-12 HL296 HELFIN	DR-SO-13 HL297 GALLAGHER	DR-OP-1 HL287 D&RGW
Toluene	5800	1000	11	12j	700	1700
Acetone	--	--	--	7.0j	--	--
bis(2-ethylhexyl)-phthalate	1700	74000j	--	--	--	--
Pyrene	--	57000j	--	--	--	--
Beta-BHC	49j	--	--	--	--	--
Gamma-BHC (Lindane)	3.3j	--	--	--	--	--
4,4' DDE	1900	--	--	--	470	36j
4,4' DDT	1000	710	--	130j	680	--
4,4' DDD	--	1200	--	260	920	--
Dieldrin	--	--	--	--	--	16j
Araclor 1260	--	--	--	--	--	1200j
Endrin ketone	--	2000	--	240	--	--
Heptachlor epoxide	--	--	--	--	33j	--

j - The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the material is reliable, however.

-- - Not detected.

TABLE 6
ROUTINE ANALYTICAL SERVICES (RAS) ORGANIC RESULTS FOR SURFACE WATER SAMPLES
FROM THE DENVER & RIO GRANDE WESTERN SITE
ALAMOSA, COLORADO
CASE #14431
VALUES REPORTED IN µg/l

SAMPLE #	DR-SW-1	DR-SW-2	DR-SW-3	DR-SW-4	DR-SW-5
TRAFFIC RPT #	HL276	HL277	HL278	HL279	HL280
LOCATION	BKGRND	HELFIN	HELFIN	DUP. SW-2	BLANK
bis(2-ethylhexyl)-phthalate	--	9j	--	--	--
Toluene	--	1j	--	--	3j
Acetone	--	--	--	--	9j

j - The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the material is reliable, however.

-- - Not detected.

Being Filmed

TABLE 6 CONT.
ROUTINE ANALYTICAL SERVICES (RAS) ORGANIC RESULTS FOR SURFACE WATER SAMPLES
FROM THE DENVER & RIO GRANDE WESTERN SITE
ALAMOSA, COLORADO
CASE #14431
VALUES REPORTED IN µg/l

SAMPLE # TRAFFIC RPT # LOCATION	DR-SW-6 HL281 TRIP BLNK	DR-SW-7 HL302 TRIP BLNK	DR-SW-8 HL286 D&RGW	DR-OP-2 HL292 D&RGW	DR-OP-3 HL293 D&RGW
4-methylphenol	--	--	2j	--	--
Methylene chloride	13	--	--	--	--

j - The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the material is reliable, however.

-- - Not detected.

TABLE 7
ROUTINE ANALYTICAL SERVICES (RAS) ORGANIC RESULTS FOR SEDIMENT SAMPLES
FROM THE DENVER & RIO GRANDE WESTERN SITE
ALAMOSA, COLORADO
CASE #14431
VALUES REPORTED IN mg/kg

SAMPLE # TRAFFIC RPT # LOCATION	DR-SE-1 HL282 BKGRND	DR-SE-2 HL283 HELFIN	DR-SE-3 HL284 HELFIN	DR-SE-8 HL288 D&RGW
2-butanone	--	100j	--	--
Toluene	--	210j	--	24j
Pyrene	--	82000	3300	1500j
Chrysene	--	40000	2200	1400j
bis(2-ehtylhexyl) phthalate	--	4600bj	--	--
Benzo(b)fluoranthene	--	12000j	--	--
Benzo(a)pyrene	--	11000j	1300	--
Benzo(g,h,i)perylene	--	33000j	4700	--
2,4-dimethylphenol	--	--	120j	--
Naphthalene	--	--	660j	--
2-methylnaphthalene	--	--	2300	--
Acenaphthene	--	--	140j	--
Fluorene	--	--	290j	--
Phenanthrene	--	--	2200	1300j
Anthracene	--	--	490j	--
Fluoranthene	--	--	150j	2100j
Benzo(k)fluoranthene	--	--	1000j	770j
Phenol	--	--	--	3100j
4-methylphenol	--	--	--	34000
Benzoic acid	--	--	--	8500j
Pentachlorophenol	--	--	--	840j
Benzo(a)anthracene	--	--	--	960j
4,4-DDD	--	650	170	--
4,4-DDT	--	--	160	--

j - The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the material is reliable, however.

-- - Not detected.

TABLE 8
ROUTINE ANALYTICAL SERVICES (RAS) ORGANIC RESULTS
FOR GROUND WATER SAMPLES
FROM THE DENVER & RIO GRANDE WESTERN SITE
ALAMOSA, COLORADO
CASE #14431
VALUES REPORTED IN mg/kg

SAMPLE #	DR-GW-1	DR-GW-2
TRAFFIC RPT #	HL298	HL299
LOCATION	BKGRND	DNGRDNT

No organic compound detected

TABLE 9
SPECIAL ANALYTICAL SERVICES (SAS) INORGANIC RESULTS FOR SOIL SAMPLES
DENVER & RIO GRANDE WESTERN SITE
CASE #5438H
VALUES REPORTED IN mg/kg

SAMPLE #	DR-SO-2	DR-SO-4	DR-SO-5	DR-SO-6	DR-SO-7	DR-SO-9
TRAFFIC RPT #	5438H-7	5438H-8	5438H-9	5438H-10	5438H-11	5438H-12
LOCATION	D&RGW	D&RGW	GALLAGHER	HELFIN	HELFIN	D&RGW
Aluminum	7270	4650	10200	1280	1120	2520
Antimony	[5.4]j	4.6uj	4.1uj	4.2uj	5.8uj	3.8uj
Arsenic	26.7j	4.1j	12.5j	2.9uj	4.3j	1.2j
Barium	344	150	170	36.3	37.0	52.7
Beryllium	0.86	0.5	0.62	[0.2]	[0.2]	[0.24]
Cadmium	3.9	1.6	1.7	0.42u	0.58u	0.38
Calcium	8470	8690	5990	1730	2030	4720
Chromium	21.1	5.8	10.0	1.5	1.9	1.9
Cobalt	[4.1]	[3.7]	6.4	0.83u	[2.1]	[1.7]
Copper	241	172	199	9.1	68.6	20.4
Iron	20300	18800	24900	3200	2600	4810
Lead	700	193	748	141	306	35.3
Magnesium	1270	1250	3240	429	591	1050
Manganese	270	170	362	64.5	121	187
Mercury	0.17j	0.19j	0.31j	0.11uj	0.14uj	0.11uj
Nickel	9.6	7.4	10.1	5.5	6.2	7.8
Potassium	1090	738	2930	[397]j	[435]j	868
Selenium	1.7j	1.1j	0.2uj	0.27j	[0.33]j	0.16uj
Silver	[0.86]	0.46u	[0.43]	0.42u	0.58u	0.38
Sodium	[487]	[381]j	[397]	[326]	[351]j	[212]
Thallium	0.1	0.1uj	0.1	0.11uj	0.09uj	0.08
Vanadium	23.5	15.4	39.6	8.3	14.1	11.0
Zinc	628	159	154	38.2	71.2	71.7

j - The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the material is reliable, however.

u - The material was analyzed for, but was not detected. The associated numerical value is the estimated sample quantitation limit or CRDL.

[] - The associated numerical value is an estimated quantity because the amount detected is below the contract required detection limit (CRDL). Presence of the material is reliable. 'j' flags can be used in conjunction with brackets.

TABLE 10
SPECIAL ANALYTICAL SERVICES (SAS) ORGANIC RESULTS FOR SOIL SAMPLES
FROM THE DENVER & RIO GRANDE WESTERN SITE
CASE #5438H
VALUES REPORTED IN µg/kg

SAMPLE #	DR-SO-2	DR-SO-4	DR-SO-5	DR-SO-6	DR-SO-7	DR-SO-9
TRAFFIC RPT #	5438H-1	5438H-2	5438H-3	5438H-4	5438H-5	5438H-6
LOCATION	D&RGW	D&RGW	GALLAGHER	HELFIN	HELFIN	D&RGW
2-methyl-naphthalene	--	--	3700j	82000j	--	--
Fluorene	--	--	--	47000j	--	--
Phenanthrene	--	--	--	320000	390000	57000j
Anthracene	--	--	--	58000j	--	--
Fluoranthene	--	--	--	4800j	55000j	--
Pyrene	--	--	--	340000	410000	240000
Chrysene	--	--	--	170000j	--	96000j
Benzo(a)pyrene	--	--	--	92000j	110000j	70000
Benzo(a)anthra-cene	--	--	--	--	170000j	--
Acetone	6600	4000	3700	3500	4000	4000
2-butanone	14000	8800	4700	5100	8000	8000
Toluene	3900	200j	240j	--	510j	--
Chlorobenzene	140j	--	--	--	--	--
Carbon disulfide	--	--	150j	--	--	--
Tetrachloroethene	--	--	--	170j	--	--

j - The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the material is reliable, however.

-- - Not detected.

TABLE 11
SPECIAL ANALYTICAL SERVICES (SAS) ANALYSIS OF
SUSPECTED ASBESTOS CONTAINING MATERIAL FROM THE
DENVER & RIO GRANDE WESTERN SITE
ALAMOSA, COLORADO

SAMPLE #	DR-SO-3
LOCATION	D&RGW
	65% Asbestos

being filmed

APPENDIX A

PHOTO LOG

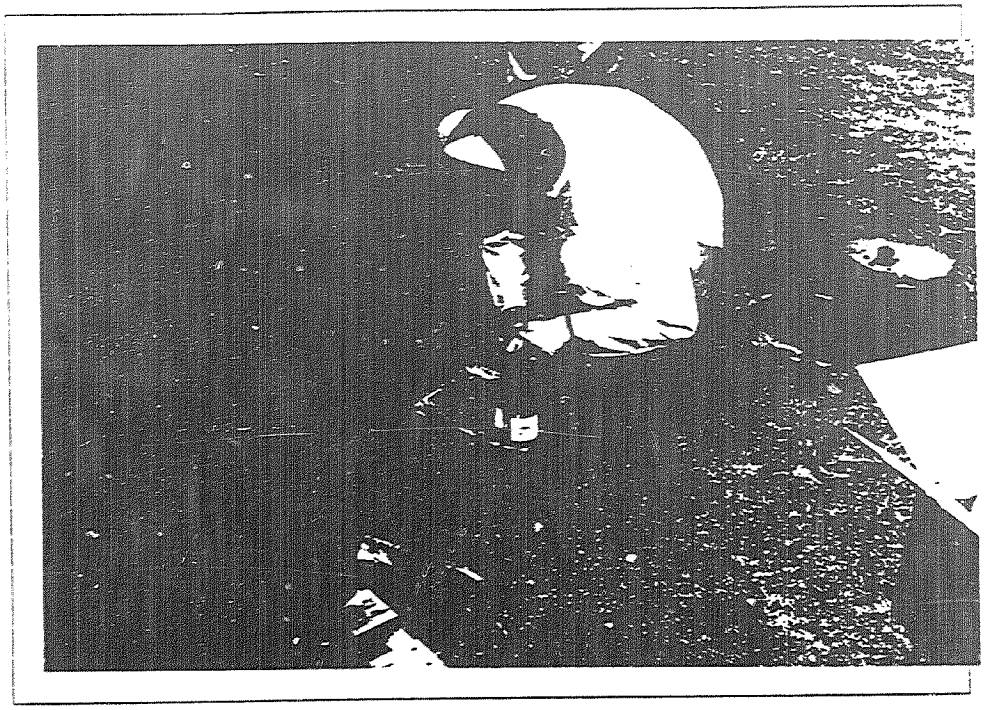

PHOTO 1: Collection of sample DR-SO-2. Drum hanging under loading dock evident in upper left corner.

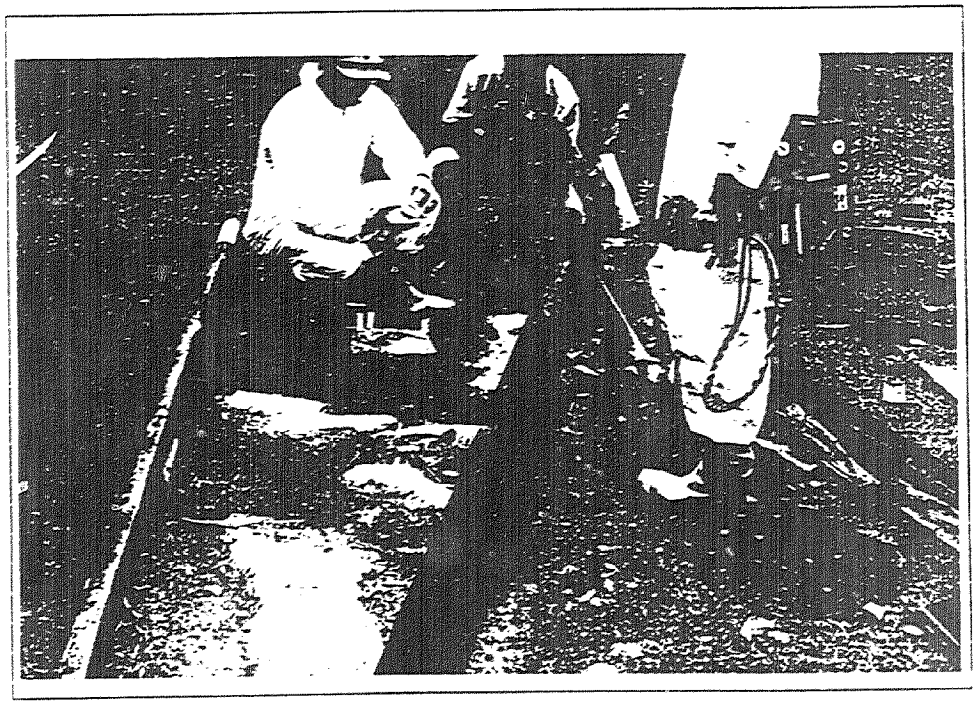

PHOTO 2: Suspected asbestos containing material located on D&RGW property.

PHOTO 3: Collection of sample DR-SO-4 on D&RGW property. Helfin property fence evident in background. View to the southeast.

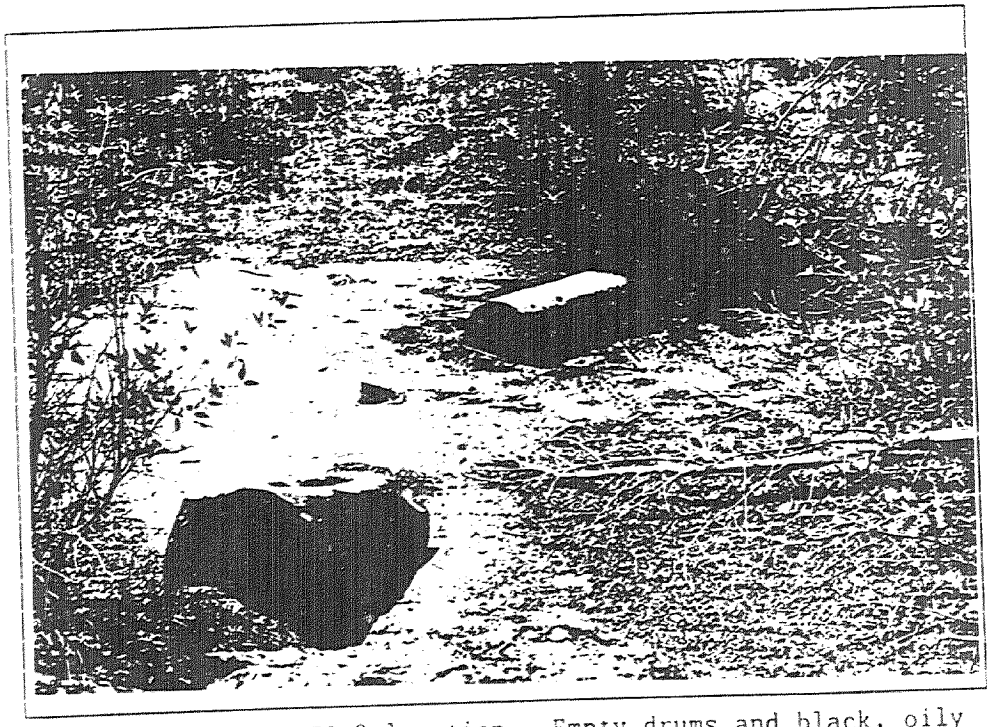

PHOTO 4: Sample DR-SO-9 location. Empty drums and black, oily material evident. View to the south.

being filmed

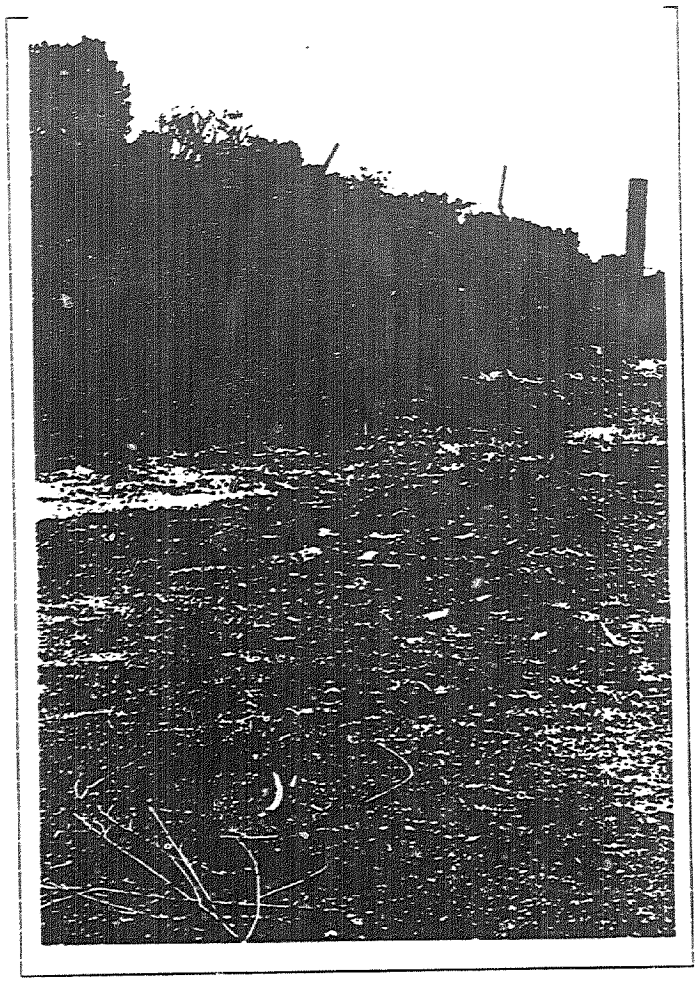

PHOTO 5: Sample DR-SO-6 location. West Side Ditch is located on the other side of the fence. View to the southeast.

being filmed

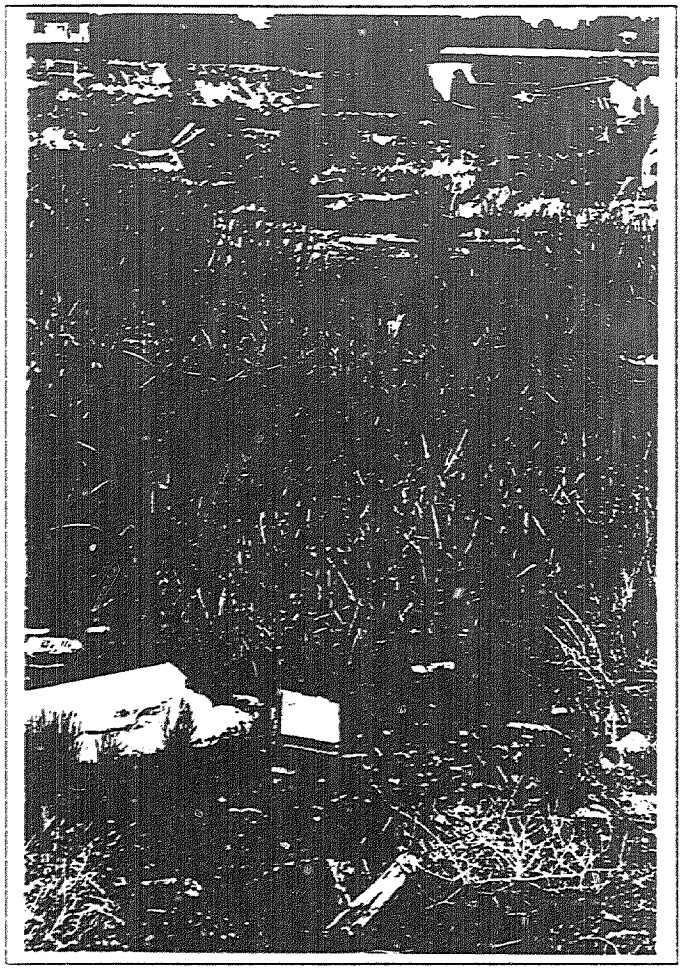

PHOTO 6: Sample DR-SO-7 location. Material is oily in nature. View to the northwest.

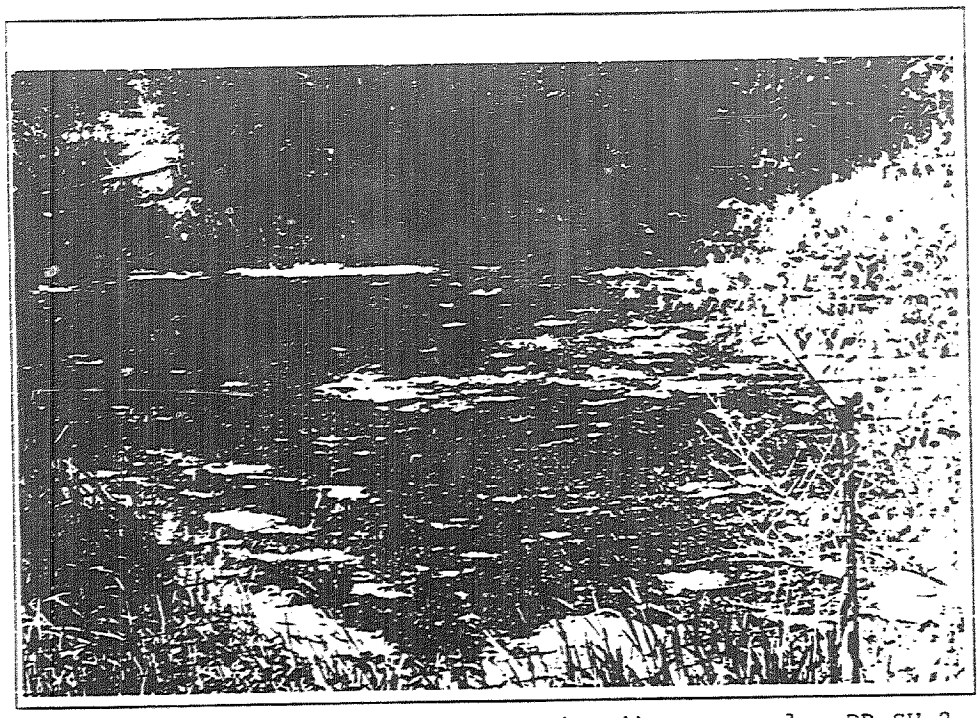

PHOTO 7: Pond where surface water and sediment samples DR-SW-2 and DR-SE-2 were collected. View to the south.

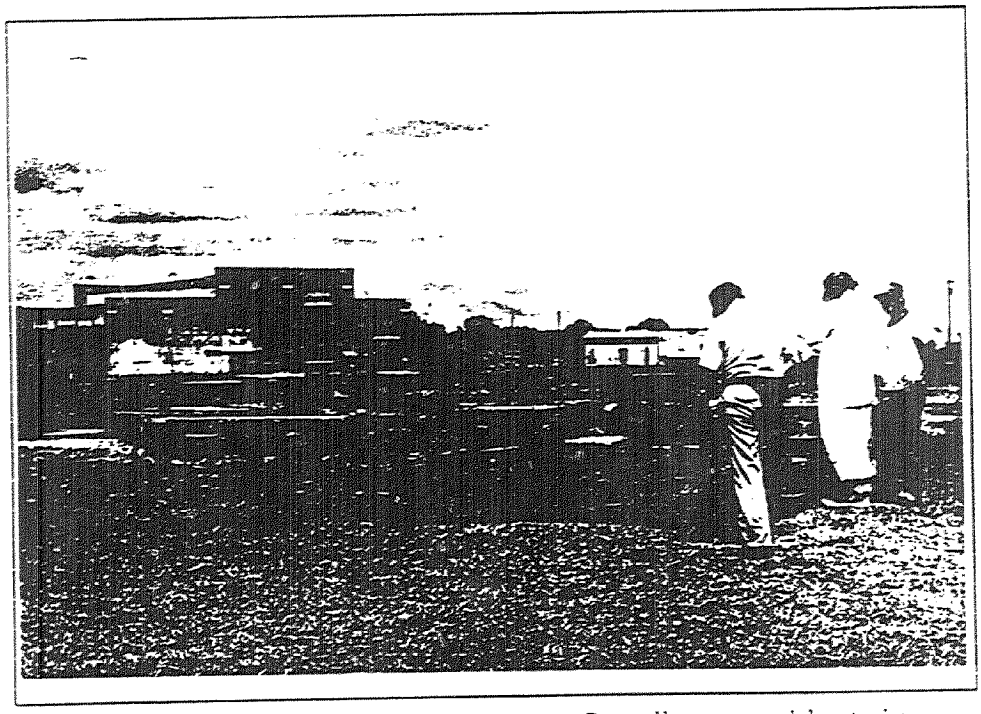

PHOTO 8: Cisterns on D&RGW property. Roundhouse evident in background. View to the northeast.

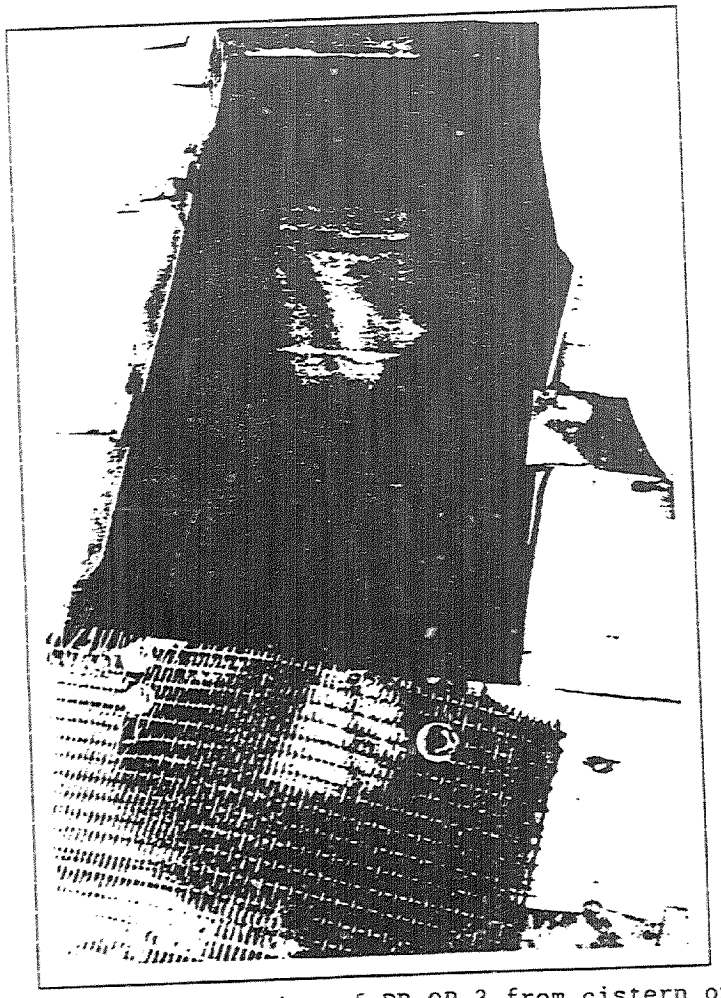

PHOTO 9: Collection location of DR-OP-3 from cistern on D&RGW property.

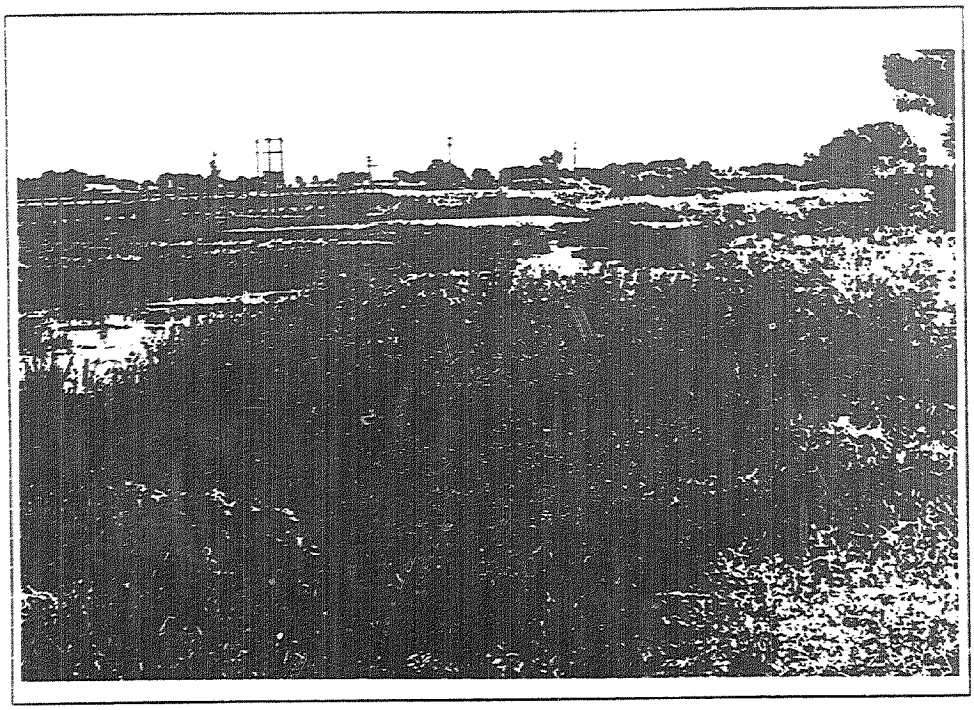

PHOTO 10: View to the northeast of wetlands located adjacent to the northeast section of the site.

APPENDIX B

SAMPLE DOCUMENTATION

TABLE ___ SITE Denver & Rio Grande Western

SAMPLE ID	BNA	VOA	METALS	OTHER PCB	HAZARD LEVEL E M H	ORGANIC TRAFFIC REPORT	ORGANIC TAGS	ORGANIC CHAIN OF CUSTODY	INORGANIC TRAFFIC REPORT	INORGANIC TAGS	INORGANIC CHAIN OF CUSTODY
DR-SW-1	✓	✓	✓	✓	E	HL276	8-07151 8-07152 8-07153 8-07154	8-12471	MHQ386	8-07155	8-12473
DR-SW-2	✓	✓	✓	✓	E	HL277	8-07156 8-07157 8-07158 8-07159	8-12471	MHQ387	8-07160	8-12473
DR-SW-3	✓	✓	✓	✓	E	HL278	8-07170 8-07172 8-07163 8-07164	8-12471	MHQ388	8-07173	8-12473
DR-SW-3	✓	✓	✓	✓	E	HL278	8-07161 8-07171 8-07167 8-07168	8-12471	MHQ388	8-07174	8-12473
DR-SW-3	✓	✓	✓	✓	E	HL278	8-07169 8-07162 8-07165 8-07166	8-12471	—	—	—
DR-SW-4	✓	✓	✓	✓	E	HL279	8-07175 8-07176 8-07177 8-07178	8-12471	MHQ389	8-07179	8-12473
DR-SW-5	✓	✓	✓	✓	E	HL280	8-07180 8-07181 8-07182 8-07183	8-12471	MHQ390	8-07184	8-12473
DR-SW-6		✓			E	HL281	8-07185 8-07186	8-12474	—	—	—
DR-SE-1	✓	✓	✓	✓	E	HL282	8-07187 8-07188 8-07189 8-07190	8-12471	MHQ391	8-07191	8-12473
DR-SE-2	✓	✓	✓	✓	E	HL283	8-07192 8-07193 8-07194 8-07195	8-12471	MHQ392	8-07196	8-12473
DR-SE-3	✓	✓	✓	✓	E	HL284	8-07197 8-07198 8-07199 8-07200	8-12472	MHQ393	8-07201	8-12473
DR-SW-7		✓			E	HL302	8-01666 8-01667	8-12477	—	—	—
DR-SW-8	✓	✓	✓	✓	E	HL286	8-10668 8-10669 8-10670 8-10671	8-12477	MHQ385	8-10672	8-12478
DR-SE-8	✓	✓	✓	✓	E	HL288	8-10673 8-10674 8-10675 8-10676	8-12477	MHQ383	8-10647	8-12478
DR-SO-1	✓	✓	✓	✓	E	HL285	8-07202 8-07203 8-07204 8-07205	8-12474 8-12476	MHQ394	8-07206	8-12484

TABLE ___ SITE Denver & Rio Grande Western

SAMPLE ID	BNA	VOA	METALS	OTHER PCB	HAZARD LEVEL E M H	ORGANIC TRAFFIC REPORT	ORGANIC TAGS	ORGANIC CHAIN OF CUSTODY	INORGANIC TRAFFIC REPORT	INORGANIC TAGS	INORGANIC CHAIN OF CUSTODY
DR-SO-2	✓	✓	✓	✓	M	5438H-01A 5438H-01B 5438H-01C	8-07208 8-07209 8-07207 8-07210	8-12475	5438H-07	8-07211	8-12483
DR-SO-3				Asbestos	E	—	8-07216	—	—	—	—
DR-SO-4	✓	✓	✓	✓	M	5438H-02A 5438H-02B 5438H-02C	8-07217 8-07218 8-07219 8-07220	8-12475	5438H-08	8-07221	8-12483
DR-SO-5	✓	✓	✓	✓	M	5438H-03A 5438H-03B 5438H-03C	8-07222 8-07223 8-07224 8-07225	8-12475	5438H-09	8-07226	8-12483
DR-SO-6	✓	✓	✓	✓	M	5438H-04A 5438H-04B 5438H-04C	8-07227 8-07228 8-07229 8-07230	8-12475	5438H-10	8-07231	8-12483
DR-SO-7	✓	✓	✓	✓	M	5438H-05A 5438H-05B 5438H-05C	8-07232 8-07233 8-07234 8-07235	8-12475	5438H-11	8-07236	8-12483
DR-SO-9	✓	✓	✓	✓	M	5438H-06A 5438H-06B 5438H-06C	8-07242 8-07243 8-07244 8-07245	8-12475	5438H-12	8-07246	8-12483
DR-SO-10	✓	✓	✓	✓	E	HL-294	8-07247 8-07248 8-07249 8-07250	8-12476 8-12474	MHP-631	8-10601	8-12484
DR SO-11	✓	✓	✓	✓	E	HL-295	8-10602 8-10603 8-10604 8-10605	8-12476 8-12474	MHQ-277	8-10606	8-12484
DR-SO-12	✓	✓	✓	✓	E	HL-296	8-10607 8-10608 8-10609 8-10610	8-12476 8-12474	MHP-630	8-10611	8-12484
DR-SO-13	✓	✓	✓	✓	E	HL-297	8-10612 8-10613 8-10614 8-10615	8-12476 8-12474	MHP-629	8-10616	8-12484
DR-OP-1	✓	✓	✓	✓	E	HL-287	8-10655 8-10654 8-10653 8-10652	8-12474	MHQ-384	8-10651	8-12484
DR-GW-1	✓	✓	✓	✓	E	HL298	8-10617 8-10618 8-10619 8-10620	8-12472	MHP-628	8-10621	8-12473
DR-GW-2	✓	✓	✓	✓	E	HL299	8-10622 8-10625 8-10628 8-10629	8-12472	MHP-627	8-10634	8-12473

TABLE ___ SITE Denver & Rio Grande Western

SAMPLE ID	BNA	VOA	METALS	OTHER PCB	HAZARD LEVEL E M H	ORGANIC TRAFFIC REPORT	ORGANIC TAGS	ORGANIC CHAIN OF CUSTODY	INORGANIC TRAFFIC REPORT	INORGANIC TAGS	INORGANIC CHAIN OF CUSTODY
DR-OP-2	✓	✓	✓	✓	E	HL292	8-10656 8-10657 8-10658 8-10659	8-12472	MHP621	8-10660	8-12473
DR-OP-3	✓	✓	✓	✓	E	HL293	8-10661 8-10662 8-10663 8-10664	8-12472	MHT013	8-10665	8-12473

TABLE ____ SOIL AND SEDIMENT FIELD DATA SITE Denver & Rio Grande Western

SAMPLE ID	SAMPLING		SHIPPING DATE	COMMENTS
	DATE	TIME		
DR-SE-1	6-27-90	1140	6-28-90	Collected upgradient on west side ditch; environmental sample
DR-SE-2	6-27-90	1115	6-28-90	Collected east of west side ditch in pond; environmental sample
DR-SE-3	6-27-90	1015	6-28-90	Collected from west side ditch adjacent to oily material on Helfin property; environmental sample
DR-SO-1	6-26-90	1635	6-27-90	Background, environmental sample
DR-SO-2	6-26-90	1410	6-27-90	Collected beneath hanging drum at DRGW fuel pump house; medium hazard sample
DR-SO-3	6-26-90	1400	6-27-90	Collected north of roundhouse, DRGW property. Suspected asbestos.
DR-SO-4	6-26-90	1330	6-27-90	Collected southeast of roundhouse, DRGW property; medium hazard sample
DR-SO-5	6-26-90	1615	6-27-90	Collected from Gallagher property; medium hazard sample
DR-SO-6	6-26-90	1505	6-27-90	Collected from pond of oily material on Helfin property; medium hazard sample.
DR-SO-7	6-26-90	1455	6-27-90	Collected from 2nd pond of oily material on Helfin property; medium hazard sample.
DR-SO-9	6-26-90	1555	6-27-90	Collected east of west side ditch, DRGW property in small depression with drum and oil waste; medium hazard sample.
DR-SO-10	6-26-90	1530	6-27-90	Collected from area that previously underwent oil removal, Helfin property; environmental sample
DR-SO-11	6-26-90	1540	6-27-90	Collected from area that previously underwent oil removal, Helfin property; environmental sample
DR-SO-12	6-26-90	1525	6-27-90	Collected just east of west side ditch, Helfin property; environmental sample

TABLE ____ SOIL AND SEDIMENT FIELD DATA SITE Denver & Rio Grande Western

SAMPLE ID	SAMPLING DATE	SAMPLING TIME	SHIPPING DATE	COMMENTS
DR-SO-13	6-26-90	1610	6-27-90	collected under pipe stand/refinery structure, Gallagher property; environmental sample
DR-OP-1	6-26-90	1350	6-27-90	South of roundhouse, DRGW property. Auger used to collect sample from 0 to 1.5 ft. below ground surface.
DR-SE-8	6-27-90	1357	6-28-90	collected from ponded backwater, north on soil sample OR-SO-9; environmental sample

TABLE SURFACE WATER FIELD DATA SITE: Denver & Rio Grande Western

SAMPLE ID.	SAMPLING		SHIPPING DATE	FIELD DATA			COMMENTS
	DATE	TIME		pH	COND. umho	TEMP. C	
DR-SW-1	6-27-90	1140	6-28-90	8.7	140	20	Background sample collected from west side ditch
DR-SW-2	6-27-90	1115	6-28-90	7.6	560	20	Collected east of west side ditch in pond.
DR-SW-3	6-27-90	1015	6-28-90	8.0	120	18	Collected from west side ditch adjacent to oily material on Helfin property Triple Volume sample
DR-SW-4	6-27-90	1120	6-28-90	7.6	560	20	Duplicate of DR-SW-2
DR-SW-5	6-28-90	1210	6-28-90	—	—	—	Decontamination/Field Blank
DR-SW-6	6-26-90	1605	6-27-90	—	—	—	Trip blank
DR-SW-7	6-27-90	1000	6-28-90	—	—	—	Trip blank
DR-SW-8	6-27-90	1357	6-28-90	7.4	300	26	Collected from pond, north of Soil sample DR-SO-9
DR-GW-1	6-28-90	1050	6-28-90	8.8	200	25	Domestic well located south of the site at 1011 E. Ave.
DR-GW-2	6-28-90	1125	6-28-90	8.3	160	17	Domestic well located north of the site at 328 Castilla
DR-OP-2	6-27-90	1455	6-28-90	8.95	100	17	Collected from large system on DRGW property

TABLE SURFACE WATER FIELD DATA SITE: Denver & Rio Grande Western

SAMPLE ID.	SAMPLING		SHIPPING DATE	FIELD DATA			COMMENTS
	DATE	TIME		pH	COND. umho	TEMP. C	
DR-OP-3	6-27-90	1540	6-28-90	8.1	120	20°C	Collected as surface water from small system on ORGW property

APPENDIX C

DATA QUALITY ASSURANCE REVIEW

REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

Case No.: 5438-H TDD No.: F08-9009-02

Site: Denver and Rio Grande Western Railroad

Contractor Laboratory: ETS Analytical Services

Data Reviewer : Christopher Sundeen Date of Review: Sept. 24, 1990.

Sample Matrix: Six (6) Soil Samples.

Analysis: HSL Metals

Sample Nos.: H38-07, H38-08, H38-09, H38-10, H38-11, H38-12.

( ) Data are acceptable for use.

(X) Data are acceptable for use with qualifications noted.

( ) Data are preliminary - pending verification.

( ) Data are unacceptable.

Action required by DPO?

No X

Action required by project officer?

No X

REVIEW SUMMARY: The data is acceptable for use with the qualifications noted.

* Mercury calibration curve (r) is less than 0.995.
* Blank results for Iron, Potassium, and Thallium are greater than IDL.
* ICS results for Sodium are outside of control limits. However, none of the samples have comparable or higher amounts of interferents. The data is therefore acceptable.
* Matrix spike results for Antimony, Mercury, and Selenium are outside of control limits.
* Duplicate results for Arsenic are outside of control limits.
* The Arsenic MSA correlation coefficient (r) for sample 5438H-10 is less than 0.995.
* Selenium results for samples 5438H-9 and 5438H-12 and Thallium results for samples 5438H-8 and 5438H-9 have post digestion spikes outside of control limits.

1.0 HOLDING TIMES

Holding times are established and monitored to ensure analytical results accurately represent analyte concentrations in a sample at the time of collection. Exceeding the holding time for a sample generally affects a loss of the analyte due to a variety of mechanisms, such as deposition on the sample container walls or precipitation.

REVIEW RESULTS: All Holding time and preservation criteria were met.

2.0 INITIAL AND CONTINUING CALIBRATION VERIFICATION

Initial and continuing calibration verification solutions contain known concentrations of elements being analyzed for and are repeatedly checked throughout a sample batch run. The inability of the lab to perform acceptably on the calibration criteria may indicate that severe problems exist in the laboratory's analytical system. Associated sample data generated under such conditions should be considered suspect.

REVIEW RESULTS: All ICVs and CCVs achieved control limit requirements. All calibration curves meet SOW defined requirements with the exception of Mercury. These results are estimated and are flagged "J".

3.0 CRDL STANDARDS

CRDL standards contain analytes at concentrations corresponding to their respective CRDL values. These standards are run prior to and following sample analysis. These standards serve as a check for the linearity of the analytical system at or near an analyte's CRDL value.

REVIEW RESULTS: All CRDL results are acceptable.

4.0 BLANKS

Laboratory blank samples are analyzed and evaluated to determine the existence and magnitude of possible contamination problems. Generally, if analyte concentrations greater than the CRDL for a given analyte are found in a laboratory blank, it is likely that the analyte is present as a contaminant in some phase of the analysis procedure and associated sample concentrations may be biased high.

REVIEW RESULTS: Blank results for Iron, Potassium, and Thallium are greater than IDL but less than CRDL. Iron and Potassium results less than CRDL are estimated and are flagged "J". Thallium results less than two times CRDL are estimated and are flagged "J".

5.0 ICP INTERFERENCE CHECK SAMPLE

EPA Interference check samples are run to verify interelement and background correction factors used by the lab during sample analysis. If lab results for the interference check sample (ICS) do not match the actual, known concentration, it is possible that certain elements in solution are affecting the results when analyzing for other elements. Such matrix effects could be due to chemical interactions or physical interferences. It is assumed that similar problems would exist for sample results and they should therefore be treated with caution.

REVIEW RESULTS: ICS results for Sodium are outside of control limits. However, none of the samples have comparable or higher amounts of interferents. Therefore the data is acceptable.

6.0 SPIKE SAMPLE ANALYSIS

The spiked sample analysis is also designed to provide information about the effect of the sample matrix on the digestion and measurement methodology. Sample spike recovery values which do not meet EPA/CLP criteria may indicate that sample analyte results are being attenuated in the analysis procedure. It is possible to estimate the bias of other sample results by noting the degree to which the spike concentration was elevated or lowered in the spike analysis. These bias results should be considered only crude approximations however, as sample specific problems may be the cause of the discrepancy, particularly in soil samples.

REVIEW RESULTS: Matrix spike recoveries for Antimony, Mercury, and Selenium are outside of control limits. Sample results for these elements are estimated and are flagged "J".

7.0 DUPLICATES ANALYSIS

Duplicate samples are run to evaluate the precision of the sample results. The failure of the lab to reproduce similar results for a duplicate sample may indicate that the sample was of a non-homogeneous nature (particularly in soil samples), or perhaps method defects exist in the laboratory technique.

REVIEW RESULTS: Duplicate results for Arsenic are outside of control limits. Sample results for Arsenic are estimated and are flagged "J".

8.0 LABORATORY CONTROL SAMPLE ANALYSIS

The laboratory control sample (LCS) is analyzed to serve as a monitor of the efficiency of the digestion procedure. The inability of the lab to successfully analyze an LCS is indicative of an analytical problem related to the digestion/sample preparation procedures and/or instrument operations.

REVIEW RESULTS: All LCS results are within control limits.

9.0 FURNACE ATOMIC ABSORPTION (AA) QC ANALYSIS

Each sample containing analytes requiring analysis by AA undergoes a post-digest spike for those analytes. The post digest spike recovery obtained determines how the analysis will proceed or whether analysis by Methods of Standards Addition (MSA) will be required. Low spike recovery values may indicate matrix effects are affecting sample results or there may be a problem with the analysis procedure. MSA is generally considered less desirable as it may involve establishing a separate calibration for each analyte in each sample. The linearity of these individual calibration curves is assessed by computing the correlation coefficient. A low correlation coefficient is indicative of a poor calibration curve and the results should be considered suspect.

REVIEW RESULTS: The Arsenic MSA correlation coefficient (r) for sample 5438H-10 is less than 0.995. The corresponding sample result is estimated and is flagged "J". Selenium results for samples 5438H-9 and 5438H-12 and Thallium results for samples 5438H-8 and 5438H-9 have post digestion spikes outside of control limits. These results are estimated and are flagged "J".

10.0 ICP SERIAL DILUTION

Serial dilution analysis is also used to ascertain if significant physical or chemical interferences exist due to the sample matrix. A sample is reanalyzed following a five-fold dilution and the results are compared relative to the original, undiluted sample results. Poor comparability indicates that sample results may be affected by relative concentrations of analytes in the sample and some type of chemical or physical interference may be suspected.

REVIEW RESULTS: All ICP serial dilution results are acceptable.

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

H38-07

Lab Name: Centec Analytical Svcs Contract: 68-D9-0135

Lab Code: CENTEC Case No.: SAS No.: 5438-H SDG No.: H38-07

Matrix (soil/water): SOIL Lab Sample ID: 101188

Level (low/med): MED Date Received: 06/28/90

% Solids: 97.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7270			P
7440-36-0	Antimony	[5.4]	B	N J	P
7440-38-2	Arsenic	26.7		J	F
7440-39-3	Barium	344			P
7440-41-7	Beryllium	0.86			P
7440-43-9	Cadmium	3.9			P
7440-70-2	Calcium	8470			P
7440-47-3	Chromium	21.1			P
7440-48-4	Cobalt	[4.1]	B		P
7440-50-8	Copper	241			P
7439-89-6	Iron	20300			P
7439-92-1	Lead	700			P
7439-95-4	Magnesium	1270			P
7439-96-5	Manganese	270			P
7439-97-6	Mercury	0.17		N J	CV
7440-02-0	Nickel	9.6			P
7440-09-7	Potassium	1090			P
7782-49-2	Selenium	1.7		N J	F
7440-22-4	Silver	[0.86]	B		P
7440-23-5	Sodium	487	B		P
7440-28-0	Thallium	0.10	U	UJ	F
7440-62-2	Vanadium	23.5			P
7440-66-6	Zinc	628			P
	Cyanide				NR

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:
The EPA Sample No. has been modified to fit the six character field required by this software. The complete EPA Sample No. is 5438H-07.
Sample digestion by SW-846 Method 3050.

MP 10-4-90

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

H38-08

Lab Name: Centec Analytical Svcs Contract: 68-D9-0135

Lab Code: CENTEC Case No.: SAS No.: 5438-H SDG No.: H38-07

Matrix (soil/water): SOIL Lab Sample ID: 101189

Level (low/med): MED Date Received: 06/28/90

% Solids: 98.7

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4650			P
7440-36-0	Antimony	4.6		~~U~~ ~~N~~ mcUJ	P
7440-38-2	Arsenic	4.1		*mc J	P
7440-39-3	Barium	150			P
7440-41-7	Beryllium	0.50			P
7440-43-9	Cadmium	1.6			P
7440-70-2	Calcium	8690			P
7440-47-3	Chromium	5.8			P
7440-48-4	Cobalt	[3.7]		~~B~~ mc	P
7440-50-8	Copper	172			P
7439-89-6	Iron	18800			P
7439-92-1	Lead	193			P
7439-95-4	Magnesium	1250			P
7439-96-5	Manganese	170			P
7439-97-6	Mercury	0.19		~~N~~ J	CV
7440-02-0	Nickel	7.4			P
7440-09-7	Potassium	738			P
7782-49-2	Selenium	1.1		~~NS~~ J	F
7440-22-4	Silver	0.46		~~U~~ mc UL	P
7440-23-5	Sodium	[381]		~~B~~ mc J	P
7440-28-0	Thallium	0.10		~~U~~ ~~W~~ mc UJ	F
7440-62-2	Vanadium	15.4			P
7440-66-6	Zinc	159			P
	Cyanide				NR

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:
The EPA Sample No. has been modified to fit the six character field required by this software. The complete EPA Sample No. is 5438H-08.
Sample digestion by SW-846 Method 3050.

MC
10-4-90

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

H38-09

Lab Name: Centec Analytical Svcs Contract: 68-D9-0135

Lab Code: CENTEC Case No.: SAS No.: 5438-H SDG No.: H38-07

Matrix (soil/water): SOIL Lab Sample ID: 101190

Level (low/med): MED Date Received: 06/28/90

% Solids: 97.9

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10200			P
7440-36-0	Antimony	4.1	U	N	P
7440-38-2	Arsenic	12.5			F
7440-39-3	Barium	170			P
7440-41-7	Beryllium	0.62			P
7440-43-9	Cadmium	1.7			P
7440-70-2	Calcium	5990			P
7440-47-3	Chromium	10.0			P
7440-48-4	Cobalt	6.4			P
7440-50-8	Copper	199			P
7439-89-6	Iron	24900			P
7439-92-1	Lead	748			P
7439-95-4	Magnesium	3240			P
7439-96-5	Manganese	362			P
7439-97-6	Mercury	0.31		N	CV
7440-02-0	Nickel	10.1			P
7440-09-7	Potassium	2930			P
7782-49-2	Selenium	0.20	U	NW	F
7440-22-4	Silver	[0.43]	B		P
7440-23-5	Sodium	[397]	B		P
7440-28-0	Thallium	0.10	U	W	F
7440-62-2	Vanadium	39.6			P
7440-66-6	Zinc	154			P
	Cyanide				NR

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:
The EPA Sample No. has been modified to fit the six character field required by this software. The complete EPA Sample No. is 5438H-09.
Sample digestion by SW-846 Method 3050.

10-4-90

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

H38-10

Lab Name: Centec Analytical Svcs Contract: 68-D9-0135

Lab Code: CENTEC Case No.: SAS No.: 5438-H SDG No.: H38-07

Matrix (soil/water): SOIL Lab Sample ID: 101191

Level (low/med): MED Date Received: 06/28/90

% Solids: 83.5

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1280			P
7440-36-0	Antimony	4.2	U	N	P
7440-38-2	Arsenic	2.9			F
7440-39-3	Barium	36.3			P
7440-41-7	Beryllium	[0.20]	B		P
7440-43-9	Cadmium	0.42	U		P
7440-70-2	Calcium	1730			P
7440-47-3	Chromium	1.5			P
7440-48-4	Cobalt	0.83	U		P
7440-50-8	Copper	9.1			P
7439-89-6	Iron	3200			P
7439-92-1	Lead	141			P
7439-95-4	Magnesium	429			P
7439-96-5	Manganese	64.5			P
7439-97-6	Mercury	0.11	U	N	CV
7440-02-0	Nickel	5.5			P
7440-09-7	Potassium	[397]	B		P
7782-49-2	Selenium	[0.27]	B	N	F
7440-22-4	Silver	0.42	U		P
7440-23-5	Sodium	[326]	B		P
7440-28-0	Thallium	0.11	U		F
7440-62-2	Vanadium	8.3			P
7440-66-6	Zinc	38.2			P
	Cyanide				NR

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:
The EPA Sample No. has been modified to fit the six character field required by this software. The complete EPA Sample No. is 5438H-10.
Sample digestion by SW-846 Method 3050.

MC 10-4-90

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

H38-11

Lab Name: Centec Analytical Svcs Contract: 68-D9-0135

Lab Code: CENTEC Case No.: SAS No.: 5438-H SDG No.: H38-07

Matrix (soil/water): SOIL Lab Sample ID: 101192

Level (low/med): MED Date Received: 06/28/90

% Solids: 77.4

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1120			P
7440-36-0	Antimony	5.8	U	N	P
7440-38-2	Arsenic	4.3			F
7440-39-3	Barium	37.0			P
7440-41-7	Beryllium	[0.20]	B		P
7440-43-9	Cadmium	0.58	U		P
7440-70-2	Calcium	2030			P
7440-47-3	Chromium	1.9			P
7440-48-4	Cobalt	[2.1]	B		P
7440-50-8	Copper	68.6			P
7439-89-6	Iron	2600			P
7439-92-1	Lead	306			P
7439-95-4	Magnesium	591			P
7439-96-5	Manganese	121			P
7439-97-6	Mercury	0.14	U	N	CV
7440-02-0	Nickel	6.2			P
7440-09-7	Potassium	[435]	B		P
7782-49-2	Selenium	[0.33]	B	N	F
7440-22-4	Silver	0.58	U		P
7440-23-5	Sodium	[351]	B		P
7440-28-0	Thallium	0.09	U		F
7440-62-2	Vanadium	14.1			P
7440-66-6	Zinc	71.2			P
	Cyanide				NR

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:
The EPA Sample No. has been modified to fit the six character field required by this software. The complete EPA Sample No. is 5438H-11.
Sample digestion by SW-846 Method 3050.

10-4-90

U.S. EPA - CLP

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

H38-12

Lab Name: Centec Analytical Svcs Contract: 68-D9-0135

Lab Code: CENTEC Case No.: SAS No.: 5438-H SDG No.: H38-07

Matrix (soil/water): SOIL Lab Sample ID: 101193

Level (low/med): MED Date Received: 06/28/90

% Solids: 89.6

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2520			P
7440-36-0	Antimony	3.8	U	N UJ	P
7440-38-2	Arsenic	1.2			F
7440-39-3	Barium	52.7			P
7440-41-7	Beryllium	[0.24]	B		P
7440-43-9	Cadmium	0.38	U		P
7440-70-2	Calcium	4720			P
7440-47-3	Chromium	1.9			P
7440-48-4	Cobalt	[1.7]	B		P
7440-50-8	Copper	20.4			P
7439-89-6	Iron	4810			P
7439-92-1	Lead	35.3			P
7439-95-4	Magnesium	1050			P
7439-96-5	Manganese	187			P
7439-97-6	Mercury	0.11	U	N UJ	CV
7440-02-0	Nickel	7.8			P
7440-09-7	Potassium	868			P
7782-49-2	Selenium	0.16	U	NW UJ	F
7440-22-4	Silver	0.38	U		P
7440-23-5	Sodium	[212]	B		P
7440-28-0	Thallium	0.08	U	UJ	F
7440-62-2	Vanadium	11.0			P
7440-66-6	Zinc	71.7			P
	Cyanide				NR

Color Before: BLACK Clarity Before: Texture: MEDIUM

Color After: YELLOW Clarity After: Artifacts:

Comments:
The EPA Sample No. has been modified to fit the six character field required by this software. The complete EPA Sample No. is 5438H-12.
Sample digestion by SW-846 Method 3050.

10-4-90

CLP DATA FLAGS

j - The associated numerical value is an estimated quantity because quality control criteria were not met. Presence of the material is reliable, however.

u - The material was analyzed for, but was not detected. The associated numerical value is the estimated sample quantitation limit or CRDL.

r - Quality control indicates that the data is not usable. Material presence or quantitation is unknown.

uj - Detection limit is estimated because quality control criteria were not met. A false negative may exist.

[] - The associated numerical value is an estimated quantity because the amount detected is below the contract required detection limit (CRDL). Presence of the material is reliable. 'j' flags can be used in conjunction with brackets.

jb - (Used with inorganics). The analyte was present in the blanks in amounts that indicate an estimated sample quantitation. A false positive result may exist.

b - (Used with organics). The compound was detected in the laboratory blanks. Quantity reported is >5x the amount found in the blank (>10x for methylene chloride, acetone, toluene and phthalates). A false positive result may exist.

ub - (Used with organics). The compound was detected in the laboratory blanks. Quantity reported is ≤5X the amount found in the blank (<10x for methylene chloride, acetone, toluene and phthalates) and the sample quantitation limit is therefore increased.

REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

Case No.: 14431 TDD No.: F08-9009-02

Site: Denver and Rio Grande Western Railroad

Contractor Laboratory: NET Gulf Coast, Inc.

Data Reviewer : Christopher Sundeen Date of Review: Sept. 14,1990.

Sample Matrix: Ten (10) Soil Samples and Ten (10) Water Samples.

Analysis: HSL Metals

Sample Nos.: MHP 621, MHP 627, MHP 628, MHP 629, MHP 630, MHP 631, MHQ 277, MHQ 383, MHQ 384, MHQ 385, MHQ 386, MHQ 387, MHQ 388, MHQ 389, MHQ 390, MHQ 391, MHQ 392, MHQ 393, MHQ 394, MHT 013.

( ) Data are acceptable for use.

(X) Data are acceptable for use with qualifications noted.

( ) Data are preliminary - pending verification.

( ) Data are unacceptable.

Action required by DPO?

No X

Action required by project officer?

No X

REVIEW SUMMARY: The data is acceptable for use with the qualifications noted. The laboratory failed to analyze sample MHP 631 for selenium. A result of "R", unusable, has been assigned to MHP 631 for selenium. The GFAA Thallium calibration curves for samples MHQ 385, MHQ 387, MHQ 389, MHQ 391, MHQ 392, MHQ 393, and MHQ 394 have r values less than 0.995. Soil matrix blank results for Aluminum and Antimony, and water matrix blank results for Aluminum, Chromium, Copper, and Zinc are greater than IDL but less than CRDL. ICS results for Antimony, Nickel, Cadmium, Beryllium, Copper, Silver, Zinc, and Lead are outside of control limits, however, none of the samples have comparable or higher amounts of interferents. The soil matrix spike recoveries for Antimony, Arsenic, Selenium, Silver, and Thallium, and the water matrix spike results for Chromium, Selenium, and Thallium are outside of control limits. Lead duplicate results for soils are outside of control limits. The Lead MSA correlation coefficient (r) for sample MHT 013 is less than 0.995. Arsenic results for samples MHQ 385 and MHQ 392, Lead results for samples MHQ 387 and MHQ 388, Selenium results for samples MHP 621, MHP 630, MHQ 383, MHQ 384, MHQ 386, MHQ 387, MHQ 389, MHQ 391, MHQ 394, and MHT 013, and Thallium results for samples MHP 621, MHP 627, MHP 628, MHP 629, MHQ 277, MHQ 384, MHQ 386, MHQ 388, and MHT 013 have post digestion spikes outside of control limits. ICP serial dilution results for Copper and Zinc are outside of control limits.

1.0 HOLDING TIMES

Holding times are established and monitored to ensure analytical results accurately represent analyte concentrations in a sample at the time of collection. Exceeding the holding time for a sample generally affects a loss of the analyte due to a variety of mechanisms, such as deposition on the sample container walls or precipitation.

REVIEW RESULTS: All holding time and preservation criteria were met.

2.0 INITIAL AND CONTINUING CALIBRATION VERIFICATION

Initial and continuing calibration verification solutions contain known concentrations of elements being analyzed for and are repeatedly checked throughout a sample batch run. The inability of the lab to perform acceptably on the calibration criteria may indicate that severe problems exist in the laboratory's analytical system. Associated sample data generated under such conditions should be considered suspect.

REVIEW RESULTS: All ICVs and CCVs achieved control limit requirements. All GFAA calibration curves meet SOW defined requirements with the exception of Thallium for samples MHQ 385, MHQ 387, MHQ 389, MHQ 391, MHQ 392, MHQ 393, and MHQ 394. These results are estimated and are flagged "J".

3.0 CRDL STANDARDS

CRDL standards contain analytes at concentrations corresponding to their respective CRDL values. These standards are run prior to and following sample analysis. These standards serve as a check for the linearity of the analytical system at or near an analyte's CRDL value.

REVIEW RESULTS: All CRDL results are acceptable.

4.0 BLANKS

Laboratory blank samples are analyzed and evaluated to determine the existence and magnitude of possible contamination problems. Generally, if analyte concentrations greater than the CRDL for a given analyte are found in a laboratory blank, it is likely that the analyte is present as a contaminant in some phase of the analysis procedure and associated sample concentrations may be biased high.

REVIEW RESULTS: Soil matrix blank results for Aluminum and Antimony are greater than IDL but less than CRDL. Water matrix blank results for Aluminum, Chromium, Copper, and Zinc are greater than IDL but less than CRDL. Sample results greater than IDL but less than five times IDL are flagged "U".

5.0 ICP INTERFERENCE CHECK SAMPLE

EPA Interference check samples are run to verify interelement and background correction factors used by the lab during sample analysis. If lab results for the interference check sample (ICS) do not match the actual, known concentration, it is possible that certain elements in solution are affecting the results when analyzing for other elements. Such matrix effects could be due to chemical interactions or physical interferences. It is assumed that similar problems would exist for sample results and they should therefore be treated with caution.

REVIEW RESULTS: ICS results for Antimony, Nickel, Cadmium, Beryllium, Copper, Silver, Zinc, and Lead are outside of control limits. However, none of the samples have comparable or higher amounts of interferents. Therefore the data is acceptable.

6.0 SPIKE SAMPLE ANALYSIS

The spiked sample analysis is also designed to provide information about the effect of the sample matrix on the digestion and measurement methodology. Sample spike recovery values which do not meet EPA/CLP criteria may indicate that sample analyte results are being attenuated in the analysis procedure. It is possible to estimate the bias of other sample results by noting the degree to which the spike concentration was elevated or lowered in the spike analysis. These bias results should be considered only crude approximations however, as sample specific problems may be the cause of the discrepancy, particularly in soil samples.

REVIEW RESULTS: The soil matrix spike recoveries for Antimony, Arsenic, Selenium, Silver and Thallium are outside of control limits. Sample results for these elements are estimated and are flagged "J". The water matrix spike recoveries for Chromium, Selenium, and Thallium are outside control limits. Sample results for Chromium greater than IDL are estimated and are flagged "J". Sample results for Selenium greater than IDL are estimated and are flagged "J". Sample results for Selenium less than IDL are unusable and are flagged "R". Sample results for Thallium are estimated and are flagged "J"

7.0 DUPLICATES ANALYSIS

Duplicate samples are run to evaluate the precision of the sample results. The failure of the lab to reproduce similar results for a duplicate sample may indicate that the sample was of a non-homogeneous nature (particularly in soil samples), or perhaps method defects exist in the laboratory technique.

REVIEW RESULTS: All duplicate sample results all acceptable with the exception of Lead in the soil matrix. Lead results for soils are estimated and are flagged "J".

8.0 LABORATORY CONTROL SAMPLE ANALYSIS

The laboratory control sample (LCS) is analyzed to serve as a monitor of the efficiency of the digestion procedure. The inability of the lab to successfully analyze an LCS is indicative of an analytical problem related to the digestion/sample preparation procedures and/or instrument operations.

REVIEW RESULTS: All LCS results are within control limits.

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9.0 FURNACE ATOMIC ABSORPTION (AA) QC ANALYSIS

Each sample containing analytes requiring analysis by AA undergoes a post-digest spike for those analytes. The post digest spike recovery obtained determines how the analysis will proceed or whether analysis by Methods of Standards Addition (MSA) will be required. Low spike recovery values may indicate matrix effects are affecting sample results or there may be a problem with the analysis procedure. MSA is generally considered less desirable as it may involve establishing a separate calibration for each analyte in each sample. The linearity of these individual calibration curves is assessed by computing the correlation coefficient. A low correlation coefficient is indicative of a poor calibration curve and the results should be considered suspect.

REVIEW RESULTS: The Lead MSA correlation coefficient (r) for sample MHT 013 is less than 0.995. The corresponding sample result is estimated and is flagged "J". Arsenic results for samples MHQ 385 and MHQ 392, Lead results for samples MHQ 387 and MHQ 388, Selenium results for samples MHP 621, MHP 630, MHQ 383, MHQ 384, MHQ 386, MHQ 387, MHQ 389, MHQ 391, MHQ 394, and MHT 013, and Thallium results for samples MHP 621, MHP 627, MHP 628, MHP 629, MHQ 277, MHQ 384, MHQ 386, MHQ 388, and MHT 013 have post digestion spikes outside of control limits. These results are estimated and are flagged "J".

10.0 ICP SERIAL DILUTION

Serial dilution analysis is also used to ascertain if significant physical or chemical interferences exist due to the sample matrix. A sample is reanalyzed following a five-fold dilution and the results are compared relative to the original, undiluted sample results. Poor comparability indicates that sample results may be affected by relative concentrations of analytes in the sample and some type of chemical or physical interference may be suspected.

REVIEW RESULTS: All ICP serial dilution results are acceptable with the exceptions of Copper and Zinc. Results for these elements are estimated and are flagged "J".

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INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

MHQ391

b Name: NET-GC Contract: 68-W8-0059

o Code: ALLIED Case No.: 14431 SAS No.: SDG No.: MHP621

trix (soil/water): SOIL Lab Sample ID: 06136-16S

vel (low/med): LOW Date Received: 06/30/90

Solids: 82.4

Concentration Units (ug/L or mg/Kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3200.00		J*E mpc	P
7440-36-0	Antimony	4.10	U	JN mpc	P
7440-38-2	Arsenic	1.90	U	JN mpc	F
7440-39-3	Barium	28.30	B		P
7440-41-7	Beryllium	0.50	B		P
7440-41-7	Cadmium	0.49	U		P
7440-70-2	Calcium	2420.00			P
7440-47-3	Chromium	3.90			P
7440-48-4	Cobalt	2.30	B		P
7440-50-8	Copper	6.60		JE mpc	P
7439-89-6	Iron	4270.00			P
7439-92-1	Lead	4.10		J* mpc	F
7439-95-4	Magnesium	1370.00			P
7439-96-5	Manganese	132.00			P
7439-97-6	Mercury	0.12	U		CV
7440-02-0	Nickel	4.60	U		P
7440-09-7	Potassium	802.00	U		P
7782-49-2	Selenium	0.72	U	JNW mpc	F
7440-22-4	Silver	0.73	U	JN mpc	P
7440-23-5	Sodium	603.00	U		P
7440-28-0	Thallium	0.96	U	JN mpc	F
7440-62-2	Vanadium	7.50	B		P
7440-66-6	Zinc	22.40		JE mpc	P
	Cyanide				NR

lor Before: BROWN Clarity Before: Texture: MEDIUM

lor After: YELLOW Clarity After: Artifacts: YES

mments:

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REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

Case No.: SAS 5532H TDD No.: FC001570AA

Site: Denver and Rio Grande Western Railroad

Contractor Laboratory: Clayton Environmental Services

Data Reviewer : Michael P. Charney Date of Review: Sept. 11, 1990

Sample Matrix: Soil

Analysis: ASBESTOS -- bulk analysis by PLM

Sample Nos.: 5532H-1

(X) Data are acceptable for use.

( ) Data are acceptable for use with qualifications noted.

( ) Data are preliminary - pending verification.

( ) Data are unacceptable.

Action required by DPO?

No XX Yes The following items require action:

Action required by project officer?

No XX Yes

REVIEW SUMMARY:

The asbestos in soil analysis was conducted in duplicate with similar results obtained by two (2) different analysts. The sample was ashed at 500° F for two hours prior to analysis and then analyzed per methods described in CFR Title 40, Part 763, Subpart F, Appendix F (EPA method for bulk asbestos analysis). This method is also equivalent to the NVLAP bulk asbestos procedure. Documentation was submitted to support the analytical results. Data results may be used without qualification.

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Midwestern Operations

22345 Roethel Drive
Novi, MI 48050
(313) 344-1770
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SAS 5532H-010-01

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CASE NARRATIVE

Case No.: SAS 5532H
EPA Sample Nos.: 5532H-1
SDG No.: 5532H-1
Contract No.: All SAS

Case Summary

Case SAS 5532H was receive on August 1, 1990, and consisted of 1 soil sample for bulk asbestos analysis.

As specified in the SAS contract, the sample was analyzed in accordance with method CFR, Title 40, Part 763, Subpart F, Appendix A, Section 1 (Polarized Light Microscopy). The sample was ashed in a 500 degree Farenheit muffle furnace prior to preparation.

The sample analyzed contained 65% total asbestos. A duplicate analysis was performed with similar results.

I certify that this data package is in compliance with the terms and the conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or his disignee, as verified by the following signature.

Todd J. Outhouse
Project Leader, CLP

08-08-90
Date

CLAYTON ENVIRONMENTAL CONSULTANTS, INC.
22345 Roethel Drive Novi, Michigan 48050

Ms. Susan Grove
UNITED STATES ENVIRONMENTAL
PROTECTION AGENCY
Sample Management Office
300 North Lee Street, Suite 200
Alexandria, VA 22314

Date Reported: 8-AUG-90
Date Received: 1-AUG-90
Clayton Project No. 67157-17
P.O. No. SAS5532H

The following is our report on the sample submitted for analysis.

Lab Number	Sample Description	Asbestos Identification	Non-Asbestos Fibers	Non-Fibrc Material
836834	5532H-1 ASBESTOS; homogeneous gray fiber and filler mixture	30% amosite 35% crocidolite (total asbestos: 65%)	no fibers detected	binder/ filler

Analytical Method: U.S. EPA, "Interim Method for the Determination of Asbestos in Bulk Insulation Samples", EPA-600/M4-82-020, December 1982.

Percentages are visual estimates based on volume.

Limit of Detection: <1%
Limit of Quantitation: 1%

The reliable limit of quantitation of the method is 1%, although asbestos may be qualitatively detected at concentrations less than 1%. Samples for which asbestos is detected at <1% are reported as "trace, <1%". No asbestos detected (NAD) indicates that no fibers were observed.

Analyst: L. Hasspacher

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REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

Case No.: 14431 (14306) TDD No.: F08-9009-02

Site: DENVER RIO GRANDE

Contractor Laboratory: WEYERHAEUSER

Data Reviewer : STACEY SMITH Date of Review: 9-20-90

Sample Matrix: SOIL

Analysis: RAS ORGANICS: VOA, BNA, and Pesticides/PCB

Sample Nos.: HL281, HL285, HL287, HL294, HL295, HL296, HL297

( ) Data are acceptable for use.

(X) Data are acceptable for use with qualifications noted.

( ) Data are preliminary - pending verification.

( ) Data are unacceptable.

Action required by DPO?

No X Yes The following items require action:

Action required by project officer?

No X Yes

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REVIEW SUMMARY:

The following findings were observed upon review of data.

1) All holding times exceeded CRF Title 40 Part 136, however, the data is usable.

2) All GC/MS and GC tune requirements were achieved.

3) All calibration parameters were generally achieved except as noted in Section 3.0.

4) All blanks were free of interfering and target compounds with the exception of the BNA blanks which had some contaminants. See Section 4.0 for details.

5) With few exceptions, surrogate recoveries were generally within control limits. See Section 5.0 for details.

The overall quality of the gas chromatography and mass spectroscopy is excellent. Some Semi-Volatile (BNA) Tenatively Identified Compounds (TIC) were overly specific and exceeded the supporting mass spectral data.

ORGANICS (VOA, SEMIVOLATILES, BNA)

1.0 HOLDING TIMES

Holding times are established and monitored to ensure analytical results accurately represent analyte concentrations in a sample at the time of collection. Exceeding the holding time for a sample generally affects a loss of the analyte due to a variety of mechanisms, such as deposition on the sample container walls, co-precipitation with particulates and volatilization through leaks in the container.

REVIEW RESULTS:

According to the holding times established for water smaples, holding times were not met for either fraction. However, all samples were soils and definitive guidelines for soil holding times have not been established yet.

VOA holding times ranged from 15 to 16 days except for samples HL296 and HL297 which had nine day holding times. Data associated with the nine day holding time is acceptable. However, results may be biased low and the potential for false negatives increases as the holding time increases due to the nature of volatile compounds.

Holding times for the BNA fraction ranged from 30 to 31 days. Due to the nature of the compounds searched for in this analysis, these lengthy holding times may not affect the data.

2.0 GC/MS TUNING

Prior to sample analysis, GC/MS tuning is carried out on the analytical instrumentation using Bromofluorobenzene (BFB) for the volatile (VOA) fraction and Decafluorotriphenylphosphine (DFTPP) for the semivolatile (BNA) fraction. For these compounds, certain ions in their mass spectra must be present in specific amounts to ensure the instrumentation is correctly tuned and can produce proper mass resolution, identification and sensitivity. The failure of the lab to meet GC/MS tuning criteria indicates severe deficiencies exist with the GC/MS system being used.

REVIEW RESULTS:

All required tune criteria for BFB and DFTPP were achieved.

3.0 CALIBRATION

Prior to sample analysis the GC/MS system is initially calibrated at five concentrations for each VOA and BNA Target Compound List (TCL) compound to determine the linearity of response. For each compound an Average Relative Response Factor (RRF) is determined which is later used for compound quantification in sample results. A Relative Standard Deviation (RSD) for the average RRF is also calculated and must be less than the established quality control percentage value. Low RRF values and high RSD values are indicative of unsatisfactory instrument calibration and the system may not be capable of acceptable performance for compounds exhibiting such deficiencies. Calibration must be verified each 12 hour period for a GC/MS system; continuing calibration results check satisfactory maintenance and adjustment on a day to day basis. A continuing calibration RRF value is calculated for each TCL compound and this value is compared to the initial calibration average RRF value. Continuing calibration compound results with low RRF values and/or high RRF % difference values indicate the instrument is no longer correctly calibrated for these compounds.

REVIEW RESULTS:

The relative response factors (RRF) for the initial and continuing calibrations for the VOA fraction analyses were within QC limits. The percent Relative Standard Deviation (%RSD) were within QC limits for the initial calibration, but several analytes were out of QC limits in continuing calibrations as follows:

DATE	ANALYTE	%D
6-22-90	Carbon Tetrachloride	26.1
7-11-90 #	Chloromethane	40.1
7-11-90 #	Bromoform	27.3
7-11-90 *	Bromoform	33.7

= Continuing Calibration number 1.
* = Continuing Calibration number 2.

The RRF values for the initial and continuing calibrations for both instruments used for the BNA fraction analyses were within QC limits. However, the %RSD requirements for the following compounds were not met:

DATE	ANALYTE	%D	%RSD	MS#1	MS#2
7-26-90 *	Bis(2-chloroisopropyl)ether		47.0	X	
7-26-90 *	3,3'-Dichlorobenzidine		41.0	X	
7-26-90 *	3,3'-Dichlorobenzidine		30.2		X
7-31-90 #	Butylbenzyl phthalate	46.0		X	
7-31-90 #	3,3'-Dichlorobenzidine	30.0			X

* = Initial Calibration
# = Continuing Calibration

The data has been flagged appropriately to reflect these difficulties.

4.0 BLANKS

Laboratory method blank samples are evaluated to assess the existence and magnitude of possible contamination problems. Comparison of sample results to compound concentrations found in blanks makes it possible to determine if these compounds were actually present in the sample or perhaps were introduced as a contaminant during some phase of the analysis procedure.

REVIEW RESULTS:

No target compounds nor any interfering compounds were found in the VOA fraction blanks.

Both blanks for the BNA fraction contained contaminants, some of which were siloxanes which may indicate a problem with instrument setup. Due to this contamination, a few tentatively identified compounds (TIC) were qualified "UB".

5.0 SURROGATE SPIKE RECOVERY

Laboratory performance of individual samples is established by means of surrogate spiking activities. All samples are spiked with surrogate compounds prior to preparation and analysis. Unusually low or high surrogate recovery values may indicate some deficiency in the analytical system or some matrix effect exists, resulting in similarly low or high sample results for other compounds as well.

REVIEW RESULTS:

One VOA surrogate exceeded control limits. Howerver, the data was not adversely affected. Sample HL295RE had a Toluene recovery of 120% (limit = 81-117).

BNA surrogate recoveries were within control limits.

6.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE ANALYSIS (MS/MSD)

The MS/MSD analysis is designed to evaluate what possible affect the inherent sample matrix might have on compound recovery. To assess the possible matrix effect, specific compounds are spiked into a selected sample and a duplicate of that sample. The spike recoveries and relative % difference (RPD) between the sample and the duplicate are then determined. Poor spike recoveries and high RPD values may indicate a significant matrix is present and is adversely affecting sample results for that particular matrix or sample medium.

REVIEW RESULTS:

Control limits were satisfied in both fractions for both water and soil matrices.

7.0 INTERNAL STANDARDS PERFORMANCE

Target compound list (TCL) components identified in samples are quantified using internal standards which are spiked at specific concentrations into each sample. The retention times and chromatogram peak areas for the internal standards in each sample must fall within established quality control limits to ensure that sample quantitation is correct.

REVIEW RESULTS:

The internal standard Chlorobenzene did not satisfy the required control limits in samples HL296 and VBLKS1 on 7-5-90 and samples HL295RE and HL296RE on 8-1-90 for the VOA fraction. Results for analytes quantitated on this standard have been flagged appropriately.

All internal standards in the BNA fraction satisfied established control limits.

8.0 COMPOUND IDENTIFICATION

The presence of all TCL compounds found in samples is verified by comparing the mass spectra for the sample compounds to mass spectra obtained from pure standard compounds when run through the GC/MS systems. Retention times for sample compounds are also checked and should match retention times established by the calibration standards. If a sample compound does not meet these criteria, it should be rejected on the basis of tentative evidence.

REVIEW RESULTS:

All TCL compound identifications were appropriate and acceptable. Some TIC "hits" were modified to less specific identifications.

PESTICIDE DATA

1.0 HOLDING TIMES

REVIEW RESULTS:

All holding times were exceeded by water standards, but this should not affect the results considering the sample matrix is soil.

2.0 INSTRUMENT PERFORMANCE

Four separate requirements are established to ensure that adequate resolution are achieved by the chromatographic system: 1) DDT retention times are evaluated to check for adequate separation of individual components; 2) retention time windows are calculated and used in compound identification; 3) DDT/Endrin degradation and 4) Retention time shifts for dibutylchlorendate (DBC) are checked to evaluate the condition of the separation column.

REVIEW RESULTS:

All parameters were within acceptable control limits.

3.0 CALIBRATION

Prior to sample analysis, "calibration factors" and % relative standard deviations (%RSD) are checked in "linearity standards" to ensure satisfactory instrument calibration. Following the successful analysis of these standards a specific 72 hour sample and standard analysis sequence must be followed.

REVIEW RESULTS:

Both the initial and continuing calibrations were within acceptable control limits.

4.0 BLANKS

REVIEW RESULTS:

No target compounds nor interfering compounds were found in the blanks.

5.0 SURROGATE RECOVERY

REVIEW RESULTS:

Surrogate recovery was out of control limits for one sample, HL294. This sample had a Dibutylchlorendate recovery of 229% (limit 24-150). The case narrative provided by the laboratory attributes this to an interference.

6.0 MS/MSD

REVIEW RESULTS:

RPD: 0 out of 6 outside control limits.
Spike Recovery: 1 of 12 outside control limits.

7.0 COMPOUND IDENTIFICATION

Target pesticide compounds identified in a sample are confirmed by checking retention times. Confirmation is also achieved by running the sample through a second column (dual column confirmation). Positive sample results are tentative unless these criteria are met.

REVIEW RESULTS:

All target compound identifications are acceptable.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL281

Lab Name: WEYERHAEUSER Contract: 68D90026

Lab Code: WEYER Case No.: 14431 SAS No.: _____ SDG No.: HL281

Matrix: (soil/water) WATER Lab Sample ID: 52317

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A3714

Level: (low/med) LOW Date Received: 06/28/90

% Moisture: not dec. ____ Date Analyzed: 07/11/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene chloride	13	
67-64-1	Acetone	10	U
75-15-0	Carbon disulfide	5	U
75-35-4	1,1-Dichloroethene	5	U
75-34-3	1,1-Dichloroethane	5	U
540-59-0	1,2-Dichloroethene (total)	5	U
67-66-3	Chloroform	5	U
107-06-2	1,2-Dichloroethane	5	U
78-93-3	2-Butanone	10	U
71-55-6	1,1,1-Trichloroethane	5	U
56-23-5	Carbon tetrachloride	5	U
108-05-4	Vinyl acetate	10	U
75-27-4	Bromodichloromethane	5	U
78-87-5	1,2-Dichloropropane	5	U
10061-01-5	cis-1,3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1,1,2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-02-6	trans-1,3-Dichloropropene	5	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
1330-20-7	Xylene (total)	5	U

* These compds did not meet QC ~~crits~~ criteria on CONCAL 7-11-90 SCS 9-17-90.

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HL281

Lab Name: WEYERHAEUSER Contract: 68D90026

Lab Code: WEYER Case No.: 14431 SAS No.: _____ SDG No.: HL281

Matrix: (soil/water) WATER Lab Sample ID: 52317

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: A3714

Level: (low/med) LOW Date Received: 06/28/90

% Moisture: not dec. ____ Date Analyzed: 07/11/90

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL285

Lab Name: WEYERHAEUSER Contract: 68D90026

Lab Code: WEYER Case No.: 14431 SAS No.: _____ SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52318

Sample wt/vol: 4.0 (g/mL) G Lab File ID: A3732

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 1 Date Analyzed: 07/12/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1300	U
74-83-9	Bromomethane	1300	U
75-01-4	Vinyl chloride	1300	U
75-00-3	Chloroethane	1300	U
75-09-2	Methylene chloride	630	U
67-64-1	Acetone	1300	U
75-15-0	Carbon disulfide	630	U
75-35-4	1,1-Dichloroethene	630	U
75-34-3	1,1-Dichloroethane	630	U
540-59-0	1,2-Dichloroethene (total)	630	U
67-66-3	Chloroform	630	U
107-06-2	1,2-Dichloroethane	630	U
78-93-3	2-Butanone	1300	U
71-55-6	1,1,1-Trichloroethane	630	U
56-23-5	Carbon tetrachloride	630	U
108-05-4	Vinyl acetate	1300	U
75-27-4	Bromodichloromethane	630	U
78-87-5	1,2-Dichloropropane	630	U
10061-01-5	cis-1,3-Dichloropropene	630	U
79-01-6	Trichloroethene	630	U
124-48-1	Dibromochloromethane	630	U
79-00-5	1,1,2-Trichloroethane	630	U
71-43-2	Benzene	630	U
10061-02-6	trans-1,3-Dichloropropene	630	U
75-25-2	Bromoform	630	U
108-10-1	4-Methyl-2-pentanone	1300	U
591-78-6	2-Hexanone	1300	U
127-18-4	Tetrachloroethene	630	U
79-34-5	1,1,2,2-Tetrachloroethane	630	U
108-88-3	Toluene	5800	
108-90-7	Chlorobenzene	630	U
100-41-4	Ethylbenzene	630	U
100-42-5	Styrene	630	U
1330-20-7	Xylene (total)	630	U

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HL285

Lab Name: WEYERHAEUSER Contract: 68D90026

Lab Code: WEYER Case No.: 14431 SAS No.: _____ SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52318

Sample wt/vol: 4.0 (g/mL) G Lab File ID: A3732

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 1 Date Analyzed: 07/12/90

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL287

Lab Name: WEYERHAEUSER Contract: 68D90026

Lab Code: WEYER Case No.: 14431 SAS No.: _____ SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52319

Sample wt/vol: 4.0 (g/mL) G Lab File ID: A3735

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 5 Date Analyzed: 07/12/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1300	U
74-83-9	Bromomethane	1300	U
75-01-4	Vinyl chloride	1300	U
75-00-3	Chloroethane	1300	U
75-09-2	Methylene chloride	660	U
67-64-1	Acetone	1300	U
75-15-0	Carbon disulfide	660	U
75-35-4	1,1-Dichloroethene	660	U
75-34-3	1,1-Dichloroethane	660	U
540-59-0	1,2-Dichloroethene (total)	660	U
67-66-3	Chloroform	660	U
107-06-2	1,2-Dichloroethane	660	U
78-93-3	2-Butanone	1300	U
71-55-6	1,1,1-Trichloroethane	660	U
56-23-5	Carbon tetrachloride	660	U
108-05-4	Vinyl acetate	1300	U
75-27-4	Bromodichloromethane	660	U
78-87-5	1,2-Dichloropropane	660	U
10061-01-5	cis-1,3-Dichloropropene	660	U
79-01-6	Trichloroethene	660	U
124-48-1	Dibromochloromethane	660	U
79-00-5	1,1,2-Trichloroethane	660	U
71-43-2	Benzene	660	U
10061-02-6	trans-1,3-Dichloropropene	660	U
75-25-2	Bromoform	660	U
108-10-1	4-Methyl-2-pentanone	1300	U
591-78-6	2-Hexanone	1300	U
127-18-4	Tetrachloroethene	660	U
79-34-5	1,1,2,2-Tetrachloroethane	660	U
108-88-3	Toluene	1700	
108-90-7	Chlorobenzene	660	U
100-41-4	Ethylbenzene	660	U
100-42-5	Styrene	660	U
1330-20-7	Xylene (total)	660	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HL287

Lab Name: WEYERHAEUSER Contract: 68D90026

Lab Code: WEYER Case No.: 14431 SAS No.: _____ SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52319

Sample wt/vol: 4.0 (g/mL) G Lab File ID: A3735

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 5 Date Analyzed: 07/12/90

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL294

Lab Name: WEYERHAEUSER Contract: 68D90026

Lab Code: WEYER Case No.: 14431 SAS No.: _____ SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52320

Sample wt/vol: 4.0 (g/mL) G Lab File ID: A3736

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 2 Date Analyzed: 07/12/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1300	U
74-83-9	Bromomethane	1300	U
75-01-4	Vinyl chloride	1300	U
75-00-3	Chloroethane	1300	U
75-09-2	Methylene chloride	640	U
67-64-1	Acetone	1300	U
75-15-0	Carbon disulfide	640	U
75-35-4	1,1-Dichloroethene	640	U
75-34-3	1,1-Dichloroethane	640	U
540-59-0	1,2-Dichloroethene (total)	640	U
67-66-3	Chloroform	640	U
107-06-2	1,2-Dichloroethane	640	U
78-93-3	2-Butanone	1300	U
71-55-6	1,1,1-Trichloroethane	640	U
56-23-5	Carbon tetrachloride	640	U
108-05-4	Vinyl acetate	1300	U
75-27-4	Bromodichloromethane	640	U
78-87-5	1,2-Dichloropropane	640	U
10061-01-5	cis-1,3-Dichloropropene	640	U
79-01-6	Trichloroethene	640	U
124-48-1	Dibromochloromethane	640	U
79-00-5	1,1,2-Trichloroethane	640	U
71-43-2	Benzene	640	U
10061-02-6	trans-1,3-Dichloropropene	640	U
75-25-2	Bromoform	640	U
108-10-1	4-Methyl-2-pentanone	1300	U
591-78-6	2-Hexanone	1300	U
127-18-4	Tetrachloroethene	640	U
79-34-5	1,1,2,2-Tetrachloroethane	640	U
108-88-3	Toluene	1000	
108-90-7	Chlorobenzene	640	U
100-41-4	Ethylbenzene	640	U
100-42-5	Styrene	640	U
1330-20-7	Xylene (total)	640	U

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HL294

Lab Name: WEYERHAEUSER Contract: 68D90026

Lab Code: WEYER Case No.: 14431 SAS No.: _____ SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52320

Sample wt/vol: 4.0 (g/mL) G Lab File ID: A3736

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 2 Date Analyzed: 07/12/90

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL295

Lab Name: WEYERHAEUSER Contract: 68D90026

Lab Code: WEYER Case No.: 14431 SAS No.: _____ SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52321

Sample wt/vol: 5.0 (g/mL) G Lab File ID: A3543

Level: (low/med) LOW Date Received: 06/28/90

% Moisture: not dec. 14 Date Analyzed: 07/05/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene chloride	6	U
67-64-1	Acetone	14	
75-15-0	Carbon disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon tetrachloride	6	U
108-05-4	Vinyl acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	11	
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylene (total)	6	U

* Cmpd. did not meet QC limits on CONCAL 6-22-90. SCJ 7-17-90

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HL295

Lab Name: WEYERHAEUSER Contract: 68D90026

Lab Code: WEYER Case No.: 14431 SAS No.: _____ SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52321

Sample wt/vol: 5.0 (g/mL) G Lab File ID: A3543

Level: (low/med) LOW Date Received: 06/28/90

% Moisture: not dec. 14 Date Analyzed: 07/05/90

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown hydrocarbon	20.32	37	J
2.	Unknown hydrocarbon	23.18	92	J

* Misprinted value is 25.13 not 3.18 [illegible]

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EPA SAMPLE NO.

HL295RE

Lab Name: WEYERHAEUSER Contract: 68D90026

Lab Code: WEYER Case No.: 14431 SAS No.: _____ SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52321RE

Sample wt/vol: 5.0 (g/mL) G Lab File ID: A4215

Level: (low/med) LOW Date Received: 06/28/90

% Moisture: not dec. 14 Date Analyzed: 08/01/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene chloride	6	U
67-64-1	Acetone	12	U
75-15-0	Carbon disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon tetrachloride	6	U
108-05-4	Vinyl acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylene (total)	6	U

* holding time grossly exceeded SD 9-11-90

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HL295RE

Lab Name: WEYERHAEUSER Contract: 68D90026

Lab Code: WEYER Case No.: 14431 SAS No.: _____ SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52321RE

Sample wt/vol: 5.0 (g/mL) G Lab File ID: A4215

Level: (low/med) LOW Date Received: 06/28/90

% Moisture: not dec. 14 Date Analyzed: 08/01/90

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 91203	Naphthalene	19.67	35	J K *

* holding time grossly exceeded

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL296

Lab Name: WEYERHAEUSER Contract: 68D90026

Lab Code: WEYER Case No.: 14431 SAS No.: _____ SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52322

Sample wt/vol: 5.0 (g/mL) G Lab File ID: A3544

Level: (low/med) LOW Date Received: 06/28/90

% Moisture: not dec. 15 Date Analyzed: 07/05/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene chloride	6	U
67-64-1	Acetone	7	J
75-15-0	Carbon disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon tetrachloride	6	U
108-05-4	Vinyl acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	12	
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylene (total)	6	U

* Quantities are estimated because quantitated on internal standard, chlorobenzene, that was out of QC limits for this sample. Quantitate [illegible] SCS [illegible]

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HL296

Lab Name: WEYERHAEUSER Contract: 68D90026

Lab Code: WEYER Case No.: 14431 SAS No.: _____ SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52322

Sample wt/vol: 5.0 (g/mL) G Lab File ID: A3544

Level: (low/med) LOW Date Received: 06/28/90

% Moisture: not dec. 15 Date Analyzed: 07/05/90

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL296RE

Lab Name: WEYERHAEUSER Contract: 68D90026

Lab Code: WEYER Case No.: 14431 SAS No.: _____ SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52322RE

Sample wt/vol: 5.0 (g/mL) G Lab File ID: A4216

Level: (low/med) LOW Date Received: 06/28/90

% Moisture: not dec. 15 Date Analyzed: 08/01/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	U
74-83-9	Bromomethane	12	U
75-01-4	Vinyl chloride	12	U
75-00-3	Chloroethane	12	U
75-09-2	Methylene chloride	640	E
67-64-1	Acetone	15	
75-15-0	Carbon disulfide	6	U
75-35-4	1,1-Dichloroethene	6	U
75-34-3	1,1-Dichloroethane	6	U
540-59-0	1,2-Dichloroethene (total)	6	U
67-66-3	Chloroform	6	U
107-06-2	1,2-Dichloroethane	6	U
78-93-3	2-Butanone	12	U
71-55-6	1,1,1-Trichloroethane	6	U
56-23-5	Carbon tetrachloride	6	U
108-05-4	Vinyl acetate	12	U
75-27-4	Bromodichloromethane	6	U
78-87-5	1,2-Dichloropropane	6	U
10061-01-5	cis-1,3-Dichloropropene	6	U
79-01-6	Trichloroethene	6	U
124-48-1	Dibromochloromethane	6	U
79-00-5	1,1,2-Trichloroethane	6	U
71-43-2	Benzene	6	U
10061-02-6	trans-1,3-Dichloropropene	6	U
75-25-2	Bromoform	6	U
108-10-1	4-Methyl-2-pentanone	12	U
591-78-6	2-Hexanone	12	U
127-18-4	Tetrachloroethene	6	U
79-34-5	1,1,2,2-Tetrachloroethane	6	U
108-88-3	Toluene	6	U
108-90-7	Chlorobenzene	6	U
100-41-4	Ethylbenzene	6	U
100-42-5	Styrene	6	U
1330-20-7	Xylene (total)	6	U

* all data R due to holding times being grossly exceeded

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HL296RE

Lab Name: WEYERHAEUSER Contract: 68D90026

Lab Code: WEYER Case No.: 14431 SAS No.: _____ SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52322RE

Sample wt/vol: 5.0 (g/mL) G Lab File ID: A4216

Level: (low/med) LOW Date Received: 06/28/90

% Moisture: not dec. 15 Date Analyzed: 08/01/90

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL297

Lab Name: WEYERHAEUSER Contract: 68D90026

Lab Code: WEYER Case No.: 14431 SAS No.: _____ SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52323

Sample wt/vol: 4.0 (g/mL) G Lab File ID: A3737

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 2 Date Analyzed: 07/12/90

Column: (pack/cap) CAP Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1300	U
74-83-9	Bromomethane	1300	U
75-01-4	Vinyl chloride	1300	U
75-00-3	Chloroethane	1300	U
75-09-2	Methylene chloride	640	U
67-64-1	Acetone	1300	U
75-15-0	Carbon disulfide	640	U
75-35-4	1,1-Dichloroethene	640	U
75-34-3	1,1-Dichloroethane	640	U
540-59-0	1,2-Dichloroethene (total)	640	U
67-66-3	Chloroform	640	U
107-06-2	1,2-Dichloroethane	640	U
78-93-3	2-Butanone	1300	U
71-55-6	1,1,1-Trichloroethane	640	U
56-23-5	Carbon tetrachloride	640	U
108-05-4	Vinyl acetate	1300	U
75-27-4	Bromodichloromethane	640	U
78-87-5	1,2-Dichloropropane	640	U
10061-01-5	cis-1,3-Dichloropropene	640	U
79-01-6	Trichloroethene	640	U
124-48-1	Dibromochloromethane	640	U
79-00-5	1,1,2-Trichloroethane	640	U
71-43-2	Benzene	640	U
10061-02-6	trans-1,3-Dichloropropene	640	U
75-25-2	Bromoform	640	U
108-10-1	4-Methyl-2-pentanone	1300	U
591-78-6	2-Hexanone	1300	U
127-18-4	Tetrachloroethene	640	U
79-34-5	1,1,2,2-Tetrachloroethane	640	U
108-88-3	Toluene	700	
108-90-7	Chlorobenzene	640	U
100-41-4	Ethylbenzene	640	U
100-42-5	Styrene	640	U
1330-20-7	Xylene (total)	660	

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1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HL297

Lab Name: WEYERHAEUSER Contract: 68D90026

Lab Code: WEYER Case No.: 14431 SAS No.: _____ SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52323

Sample wt/vol: 4.0 (g/mL) G Lab File ID: A3737

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 2 Date Analyzed: 07/12/90

Column (pack/cap) CAP Dilution Factor: 1.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL285

Name: WEYERHAEUSER Contract: 68D90026

Code: WEYER Case No.: 14431 SAS No.: SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52318

Sample wt/vol: 1.2 (g/mL) G Lab File ID: 2BN0731B

Level: (low/med) MED Date Received: 06/28/90

Moisture: not dec. 1 dec. Date Extracted: 07/26/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/31/90

GPC Cleanup: (Y/N) Y pH: 7.6 Dilution Factor: ~~0.50~~ ~~1.0~~ ~~JHS~~ 0.50 ~~03/15/92~~ JHS 09/07/9

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	17000	U
111-44-4	bis(2-Chloroethyl)Ether	17000	U
95-57-8	2-Chlorophenol	17000	U
541-73-1	1,3-Dichlorobenzene	17000	U
106-46-7	1,4-Dichlorobenzene	17000	U
100-51-6	Benzyl Alcohol	17000	U
95-50-1	1,2-Dichlorobenzene	17000	U
95-48-7	2-Methylphenol	17000	U
108-60-1	bis(2-Chloroisopropyl)Ether	17000	U
106-44-5	4-Methylphenol	17000	U
621-64-7	N-Nitroso-Di-n-Propylamine	17000	U
67-72-1	Hexachloroethane	17000	U
98-95-3	Nitrobenzene	17000	U
78-59-1	Isophorone	17000	U
88-75-5	2-Nitrophenol	17000	U
105-67-9	2,4-Dimethylphenol	17000	U
65-85-0	Benzoic Acid	81000	U
111-91-1	bis(2-Chloroethoxy)Methane	17000	U
120-83-2	2,4-Dichlorophenol	17000	U
120-82-1	1,2,4-Trichlorobenzene	17000	U
91-20-3	Naphthalene	17000	U
106-47-8	4-Chloroaniline	17000	U
87-68-3	Hexachlorobutadiene	17000	U
59-50-7	4-Chloro-3-Methylphenol	17000	U
91-57-6	2-Methylnaphthalene	17000	U
77-47-4	Hexachlorocyclopentadiene	17000	U
88-06-2	2,4,6-Trichlorophenol	17000	U
95-95-4	2,4,5-Trichlorophenol	81000	U
91-58-7	2-Chloronaphthalene	17000	U
88-74-4	2-Nitroaniline	81000	U
131-11-3	Dimethyl Phthalate	17000	U
208-96-8	Acenaphthylene	17000	U
606-20-2	2,6-Dinitrotoluene	17000	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL285

Name: WEYERHAEUSER Contract: 68D90026

Code: WEYER Case No.: 14431 SAS No.: SDG No.: HL281

trix: (soil/water) SOIL Lab Sample ID: 52318

mple wt/vol: 1.2 (g/mL) G Lab File ID: 2BN0731B

vel: (low/med) MED Date Received: 06/28/90

Moisture: not dec. 1 dec. Date Extracted: 07/26/90

traction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/31/90

C Cleanup: (Y/N) Y pH: 7.6 Dilution Factor: ~~0.50~~ ~~1.0~~ ~~JMS~~ 0.50 ~~08/15/90~~ JMS 09/07/90

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	0
99-09-2	3-Nitroaniline	81000	U
83-32-9	Acenaphthene	17000	U
51-28-5	2,4-Dinitrophenol	81000	U
100-02-7	4-Nitrophenol	81000	U
132-64-9	Dibenzofuran	17000	U
121-14-2	2,4-Dinitrotoluene	17000	U
84-66-2	Diethylphthalate	17000	U
7005-72-3	4-Chlorophenyl-phenylether	17000	U
86-73-7	Fluorene	17000	U
100-01-6	4-Nitroaniline	81000	U
534-52-1	4,6-Dinitro-2-Methylphenol	81000	U
86-30-6	N-Nitrosodiphenylamine (1)	17000	U
101-55-3	4-Bromophenyl-phenylether	17000	U
118-74-1	Hexachlorobenzene	17000	U
87-86-5	Pentachlorophenol	81000	U
85-01-8	Phenanthrene	17000	U
120-12-7	Anthracene	17000	U
84-74-2	Di-n-Butylphthalate	17000	U
206-44-0	Fluoranthene	17000	U
129-00-0	Pyrene	17000	U
85-68-7	Butylbenzylphthalate	17000	U
91-94-1	3,3'-Dichlorobenzidine	33000	U J *
56-55-3	Benzo(a)Anthracene	17000	U
218-01-9	Chrysene	17000	U
117-81-7	bis(2-Ethylhexyl)phthalate	1700	J
117-84-0	Di-n-Octyl Phthalate	17000	U
205-99-2	Benzo(b)Fluoranthene	17000	U
207-08-9	Benzo(k)Fluoranthene	17000	U
50-32-8	Benzo(a)Pyrene	17000	U
193-39-5	Indeno(1,2,3-cd)Pyrene	17000	U
53-70-3	Dibenz(a,h)Anthracene	17000	U
191-24-2	Benzo(g,h,i)Perylene	17000	U

(1) - Cannot be separated from Diphenylamine

* [illegible] 3,3'-Dichlorobenzidine [illegible] [illegible] [illegible]. [illegible] 9-10-90

FORM I SV-2

1/87 Rev.

2216

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HL285

Lab Name: WEYERHAEUSER Contract: 68D90026

Lab Code: WEYER Case No.: 14431 SAS No.: SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52318

Sample wt/vol: 1.2 (g/mL) G Lab File ID: 2BN0731B

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 1 dec. Date Extracted: 07/26/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/31/90

GPC Cleanup: (Y/N) Y pH: 7.6 Dilution Factor: ~~0.50~~ ~~1.0~~ ~~JHS~~ 0.50 ~~08/16/90~~

Number TICs found: 13 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG JHS 09/07/90

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	4.92	61000	JX
2.	UNKNOWN	12.17	12000	JX LB
3.	UNKNOWN	15.77	17000	JX
4. 128-37-0	PHENOL, ~~2,6-BIS(1,~~ 1-DIMETHYL	17.79	5200	JX
5.	UNKNOWN	18.97	15000	JX
6.	UNKNOWN	24.27	8300	JX
7.	UNKNOWN	26.57	25000	JX
8.	UNKNOWN	26.79	34000	JX
9.	UNKNOWN	28.89	510000	JX LB
10.	UNKNOWN	29.09	10000	JX
11.	UNKNOWN	30.99	9300	JX
12.	UNKNOWN	33.01	340000	JX
13.	UNKNOWN	40.39	24000	JX

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL2X7

.b Name: WEYERHAEUSER Contract: 68D90026

Code: WEYER Case No.: 14431 SAS No.: SDG No.: HL2B1

atrix: (soil/water) SOIL Lab Sample ID: 52319

mple wt/vol: 1.6 (g/mL) G Lab File ID: 2BN0731A

evel: (low/med) MED Date Received: 06/28/90

Moisture: not dec. 5 dec. Date Extracted: 07/26/90

traction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/31/90

C Cleanup: (Y/N) Y pH: 7.9 Dilution Factor: ~~1.0~~ 0.50 ~~JHS~~ ~~9/7/~~

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG Q JHS 9/7/

CAS NO.	COMPOUND	(ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	13000	U
111-44-4	bis(2-Chloroethyl)Ether	13000	U
95-57-8	2-Chlorophenol	13000	U
541-73-1	1,3-Dichlorobenzene	13000	U
106-46-7	1,4-Dichlorobenzene	13000	U
100-51-6	Benzyl Alcohol	13000	U
95-50-1	1,2-Dichlorobenzene	13000	U
95-48-7	2-Methylphenol	13000	U
108-60-1	bis(2-Chloroisopropyl)Ether	13000	U
106-44-5	4-Methylphenol	13000	U
621-64-7	N-Nitroso-Di-n-Propylamine	13000	U
67-72-1	Hexachloroethane	13000	U
98-95-3	Nitrobenzene	13000	U
78-59-1	Isophorone	13000	U
88-75-5	2-Nitrophenol	13000	U
105-67-9	2,4-Dimethylphenol	13000	U
65-85-0	Benzoic Acid	63000	U
111-91-1	bis(2-Chloroethoxy)Methane	13000	U
120-83-2	2,4-Dichlorophenol	13000	U
120-82-1	1,2,4-Trichlorobenzene	13000	U
91-20-3	Naphthalene	13000	U
106-47-8	4-Chloroaniline	13000	U
87-68-3	Hexachlorobutadiene	13000	U
59-50-7	4-Chloro-3-Methylphenol	13000	U
91-57-6	2-Methylnaphthalene	13000	U
77-47-4	Hexachlorocyclopentadiene	13000	U
88-06-2	2,4,6-Trichlorophenol	13000	U
95-95-4	2,4,5-Trichlorophenol	63000	U
91-58-7	2-Chloronaphthalene	13000	U
88-74-4	2-Nitroaniline	63000	U
131-11-3	Dimethyl Phthalate	13000	U
208-96-8	Acenaphthylene	13000	U
606-20-2	2,6-Dinitrotoluene	13000	U

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1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HL287

Name: WEYERHAEUSER Contract: 68D90026

Code: WEYER Case No.: 14431 SAS No.: SDG No.: HL281

atrix: (soil/water) SOIL Lab Sample ID: 52319

ample wt/vol: 1.6 (g/mL) G Lab File ID: 2BN0731A

evel: (low/med) MED Date Received: 06/28/90

Moisture: not dec. 5 dec. Date Extracted: 07/26/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/31/90

GPC Cleanup: (Y/N) Y pH: 7.9 Dilution Factor: ~~0.50~~ ~~HB~~ ~~JHS~~ 0.50 ~~08/15/90~~ JHS 9/7/9.

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	63000	U
83-32-9	Acenaphthene	13000	U
51-28-5	2,4-Dinitrophenol	63000	U
100-02-7	4-Nitrophenol	63000	U
132-64-9	Dibenzofuran	13000	U
121-14-2	2,4-Dinitrotoluene	13000	U
84-66-2	Diethylphthalate	13000	U
7005-72-3	4-Chlorophenyl-phenylether	13000	U
86-73-7	Fluorene	13000	U
100-01-6	4-Nitroaniline	63000	U
534-52-1	4,6-Dinitro-2-Methylphenol	63000	U
86-30-6	N-Nitrosodiphenylamine (1)	13000	U
101-55-3	4-Bromophenyl-phenylether	13000	U
118-74-1	Hexachlorobenzene	13000	U
87-86-5	Pentachlorophenol	63000	U
85-01-8	Phenanthrene	13000	U
120-12-7	Anthracene	13000	U
84-74-2	Di-n-Butylphthalate	13000	U
206-44-0	Fluoranthene	13000	U
129-00-0	Pyrene	13000	U
85-68-7	Butylbenzylphthalate	13000	U
91-94-1	3,3'-Dichlorobenzidine	26000	U J *
56-55-3	Benzo(a)Anthracene	13000	U
218-01-9	Chrysene	13000	U
117-81-7	bis(2-Ethylhexyl)phthalate	13000	U
117-84-0	Di-n-Octyl Phthalate	13000	U
205-99-2	Benzo(b)Fluoranthene	13000	U
207-08-9	Benzo(k)Fluoranthene	13000	U
50-32-8	Benzo(a)Pyrene	13000	U
193-39-5	Indeno(1,2,3-cd)Pyrene	13000	U
53-70-3	Dibenz(a,h)Anthracene	13000	U
191-24-2	Benzo(g,h,i)Perylene	13000	U

(1) - Cannot be separated from Diphenylamine

* [illegible] Limits for this compd.

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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HL287

Name: WEYERHAEUSER Contract: 68D90026

Code: WEYER Case No.: 14431 SAS No.: SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52319

Sample wt/vol: 1.6 (g/mL) G Lab File ID: 2BN0731A

Level: (low/med) MED Date Received: 06/28/90

Moisture: not dec. 5 dec. Date Extracted: 07/26/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/31/90

GPC Cleanup: (Y/N) Y pH: 7.9 Dilution Factor: ~~1.0~~ ~~1.0~~ ~~JHS~~ 0.50 ~~8/15/90~~ JHS 9/7/90

Number TICs found: 13 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN	15.77	9700	JX
2.		UNKNOWN	18.97	9200	JX
3.	74645-98-0	~~DODECANE~~, 2,7,10-TRIMETHYL-	20.54	14000	JX
		UNKNOWN	24.27	5000	JX
5.		UNKNOWN	26.59	12000	JX
6.		UNKNOWN	26.79	17000	JX
7.		UNKNOWN	28.91	260000	JX
8.		UNKNOWN	29.09	7000	JX
9.		UNKNOWN	31.11	8900	JX
10.		UNKNOWN	32.07	5400	JX
11.		UNKNOWN	33.01	170000	JX
12.		UNKNOWN	33.89	7100	JX
13.		UNKNOWN	40.41	28000	JX

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL294

b Name: WEYERHAEUSER Contract: 68D90026

b Code: WEYER Case No.: 14431 SAS No.: SDG No.: HL281

atrix: (soil/water) SOIL Lab Sample ID: 52320

ole wt/vol: 1.1 (g/mL) G Lab File ID: BN0731F

vel: (low/med) MED Date Received: 06/28/90

oisture: not dec. 2 dec. Date Extracted: 07/27/90

traction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/31/90

C Cleanup: (Y/N) Y pH: 5.5 Dilution Factor: ~~4.0~~ ~~4.0~~ JMS 2.0 ~~8/13/91~~

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG Q JMS 9/7/91

CAS NO.	COMPOUND		Q
108-95-2	Phenol	74000	U
111-44-4	bis(2-Chloroethyl)Ether	74000	U
95-57-8	2-Chlorophenol	74000	U
541-73-1	1,3-Dichlorobenzene	74000	U
106-46-7	1,4-Dichlorobenzene	74000	U
100-51-6	Benzyl Alcohol	74000	U
95-50-1	1,2-Dichlorobenzene	74000	U
95-48-7	2-Methylphenol	74000	U
108-60-1	bis(2-Chloroisopropyl)Ether	74000	U
106-44-5	4-Methylphenol	74000	U
621-64-7	N-Nitroso-Di-n-Propylamine	74000	U
67-72-1	Hexachloroethane	74000	U
98-95-3	Nitrobenzene	74000	U
78-59-1	Isophorone	74000	U
88-75-5	2-Nitrophenol	74000	U
105-67-9	2,4-Dimethylphenol	74000	U
65-85-0	Benzoic Acid	360000	U
111-91-1	bis(2-Chloroethoxy)Methane	74000	U
120-83-2	2,4-Dichlorophenol	74000	U
120-82-1	1,2,4-Trichlorobenzene	74000	U
91-20-3	Naphthalene	74000	U
106-47-8	4-Chloroaniline	74000	U
87-68-3	Hexachlorobutadiene	74000	U
59-50-7	4-Chloro-3-Methylphenol	74000	U
91-57-6	2-Methylnaphthalene	74000	U
77-47-4	Hexachlorocyclopentadiene	74000	U
88-06-2	2,4,6-Trichlorophenol	74000	U
95-95-4	2,4,5-Trichlorophenol	360000	U
91-58-7	2-Chloronaphthalene	74000	U
88-74-4	2-Nitroaniline	360000	U
131-11-3	Dimethyl Phthalate	74000	U
208-96-8	Acenaphthylene	74000	U
606-20-2	2,6-Dinitrotoluene	74000	U

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1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL294

Name: WEYERHAEUSER Contract: 68D90026

Code: WEYER Case No.: 14431 SAS No.: SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52320

Sample wt/vol: 1.1 (g/mL) G Lab File ID: BN0731F

Level: (low/med) MED Date Received: 06/28/90

Moisture: not dec. 2 dec. Date Extracted: 07/27/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/31/90

GPC Cleanup: (Y/N) Y pH: 5.5 Dilution Factor: ~~2.0~~ ~~4.0~~ ~~JHS~~ 2.0 JHS 9/7/90 ~~08/15/90~~

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		
99-09-2	3-Nitroaniline	360000	U	
83-32-9	Acenaphthene	74000	U	
51-28-5	2,4-Dinitrophenol	360000	U	
100-02-7	4-Nitrophenol	360000 ~~15000~~ ~~13~~	U	JHS 9/19/90
132-64-9	Dibenzofuran	74000	U	
121-14-2	2,4-Dinitrotoluene	74000	U	
84-66-2	Diethylphthalate	74000	U	
7005-72-3	4-Chlorophenyl-phenylether	74000	U	
86-73-7	Fluorene	74000	U	
100-01-6	4-Nitroaniline	360000	U	
534-52-1	4,6-Dinitro-2-Methylphenol	360000	U	
86-30-6	N-Nitrosodiphenylamine (1)	74000	U	
101-55-3	4-Bromophenyl-phenylether	74000	U	
118-74-1	Hexachlorobenzene	74000	U	
87-86-5	Pentachlorophenol	360000	U	
85-01-8	Phenanthrene	74000	U	
120-12-7	Anthracene	74000	U	
84-74-2	Di-n-Butylphthalate	74000	U	
206-44-0	Fluoranthene	74000	U	
129-00-0	Pyrene	57000	J	
85-68-7	Butylbenzylphthalate	74000	U	
91-94-1	3,3'-Dichlorobenzidine	150000	U J	
56-55-3	Benzo(a)Anthracene	74000	U	
218-01-9	Chrysene	74000	U	
117-81-7	bis(2-Ethylhexyl)phthalate	74000	U	
117-84-0	Di-n-Octyl Phthalate	74000	U	
205-99-2	Benzo(b)Fluoranthene	74000	U	
207-08-9	Benzo(k)Fluoranthene	74000	U	
50-32-8	Benzo(a)Pyrene	74000	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	74000	U	
53-70-3	Dibenz(a,h)Anthracene	74000	U	
191-24-2	Benzo(g,h,i)Perylene	74000	U	

(1) - Cannot be separated from Diphenylamine

Attachment 3

1/87 Revision 3

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FORM I SV-2

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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
HL294

Name: WEYERHAEUSER Contract: 68D90026

Code: WEYER Case No.: 14431 SAS No.: SDG No.: HL281

atrix: (soil/water) SOIL Lab Sample ID: 52320

ple wt/vol: 1.1 (g/mL) G Lab File ID: BN0731F

evel: (low/med) MED Date Received: 06/28/90

oisture: not dec. 2 dec. Date Extracted: 07/27/90

raction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/31/90

C Cleanup: (Y/N) Y pH: 5.5 Dilution Factor: ~~2.0~~ ~~4.0~~ ~~JHS~~ 2.0 ~~08/13/90~~ JHS 9/7/90

umber TICs found: 20 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	19.87	100000	JX
2. 55045-11-9	TRIDECANE, 5-PROPYL-	20.72	290000	JX
3.	UNKNOWN	22.17	180000	JX
.	UNKNOWN	23.29	160000	JX
5.	UNKNOWN	24.65	83000	JX
6.	UNKNOWN	25.19	89000	JX
7.	UNKNOWN	25.44	50000	JX
8.	UNKNOWN	25.61	110000	JX
9.	UNKNOWN	26.29	58000	JX
10.	UNKNOWN	26.74	38000	JX
11. 3674-73-5	~~PHENANTHRENE, 2,3,5-TRIMETHY~~	26.89	78000	JX
12.	UNKNOWN	27.16	140000	JX
13.	UNKNOWN	27.49	110000	JX
14.	UNKNOWN	27.94	30000	JX
15.	UNKNOWN	28.21	58000	JX
16.	UNKNOWN	28.31	23000	JX
17.	UNKNOWN	28.41	45000	JX
18.	UNKNOWN	28.96	110000	JX
19.	UNKNOWN	30.92	40000	JX
20.	UNKNOWN	33.27	30000	JX

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL295

b Name: WEYERHAEUSER Contract: 68D90026

b Code: WEYER Case No.: 14431 SAS No.: SDG No.: HL281

trix: (soil/water) SOIL Lab Sample ID: 52321

m le wt/vol: 1.2 (g/mL) G Lab File ID: 2BN0731C

vel: (low/med) MED Date Received: 06/28/90

M isture: not dec. 14 dec. Date Extracted: 07/26/90

t action: (SepF/Cont/Sonc) SONC Date Analyzed: 07/31/90

C Cleanup: (Y/N) Y pH: 6.7 Dilution Factor: ~~1.0~~ ~~1.0~~ ~~JMS~~ 0.50 8/15/90

CONCENTRATION UNITS: (ug/L or ug/kg) UG/KG Q JMS 9/7/90

CAS NO.	COMPOUND		Q
108-95-2	Phenol	19000	U
111-44-4	bis(2-Chloroethyl)Ether	19000	U
95-57-8	2-Chlorophenol	19000	U
541-73-1	1,3-Dichlorobenzene	19000	U
106-46-7	1,4-Dichlorobenzene	19000	U
100-51-6	Benzyl Alcohol	19000	U
95-50-1	1,2-Dichlorobenzene	19000	U
95-48-7	2-Methylphenol	19000	U
108-60-1	bis(2-Chloroisopropyl)Ether	19000	U
106-44-5	4-Methylphenol	19000	U
621-64-7	N-Nitroso-Di-n-Propylamine	19000	U
67-72-1	Hexachloroethane	19000	U
98-95-3	Nitrobenzene	19000	U
78-59-1	Isophorone	19000	U
88-75-5	2-Nitrophenol	19000	U
105-67-9	2,4-Dimethylphenol	19000	U
65-85-0	Benzoic Acid	93000	U
111-91-1	bis(2-Chloroethoxy)Methane	19000	U
120-83-2	2,4-Dichlorophenol	19000	U
120-82-1	1,2,4-Trichlorobenzene	19000	U
91-20-3	Naphthalene	19000	U
106-47-8	4-Chloroaniline	19000	U
87-68-3	Hexachlorobutadiene	19000	U
59-50-7	4-Chloro-3-Methylphenol	19000	U
91-57-6	2-Methylnaphthalene	19000	U
77-47-4	Hexachlorocyclopentadiene	19000	U
88-06-2	2,4,6-Trichlorophenol	19000	U
95-95-4	2,4,5-Trichlorophenol	93000	U
91-58-7	2-Chloronaphthalene	19000	U
88-74-4	2-Nitroaniline	93000	U
131-11-3	Dimethyl Phthalate	19000	U
208-96-8	Acenaphthylene	19000	U
606-20-2	2,6-Dinitrotoluene	19000	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL295

Name: WEYERHAEUSER Contract: 68D90026

Code: WEYER Case No.: 14431 SAS No.: SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52321

Sample wt/vol: 1.2 (g/mL) G Lab File ID: 2BN0731C

Level: (low/med) MED Date Received: 06/28/90

Moisture: not dec. 14 dec. Date Extracted: 07/26/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/31/90

GPC Cleanup: (Y/N) Y pH: 6.7 Dilution Factor: ~~0.50~~ ~~1.0~~ ~~JMS~~ 0.50 ~~8/15/90~~

@ JMS 9/7/90

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		
99-09-2	3-Nitroaniline	93000	U	
83-32-9	Acenaphthene	19000	U	
51-28-5	2,4-Dinitrophenol	93000	U	
100-02-7	4-Nitrophenol	93000	U	
132-64-9	Dibenzofuran	19000	U	
121-14-2	2,4-Dinitrotoluene	19000	U	
84-66-2	Diethylphthalate	19000	U	
7005-72-3	4-Chlorophenyl-phenylether	19000	U	
86-73-7	Fluorene	19000	U	
100-01-6	4-Nitroaniline	93000	U	
534-52-1	4,6-Dinitro-2-Methylphenol	93000	U	
86-30-6	N-Nitrosodiphenylamine (1)	19000	U	
101-55-3	4-Bromophenyl-phenylether	19000	U	
118-74-1	Hexachlorobenzene	19000	U	
87-86-5	Pentachlorophenol	93000	U	
85-01-8	Phenanthrene	19000	U	
120-12-7	Anthracene	19000	U	
84-74-2	Di-n-Butylphthalate	19000	U	
206-44-0	Fluoranthene	19000	U	
129-00-0	Pyrene	19000	U	
85-68-7	Butylbenzylphthalate	19000	U	
91-94-1	3,3'-Dichlorobenzidine	38000	UJ	
56-55-3	Benzo(a)Anthracene	19000	U	
218-01-9	Chrysene	19000	U	
117-81-7	bis(2-Ethylhexyl)phthalate	19000	U	
117-84-0	Di-n-Octyl Phthalate	19000	U	
205-99-2	Benzo(b)Fluoranthene	19000	U	
207-08-9	Benzo(k)Fluoranthene	19000	U	
50-32-8	Benzo(a)Pyrene	19000	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	19000	U	
53-70-3	Dibenz(a,h)Anthracene	19000	U	
191-24-2	Benzo(g,h,i)Perylene	19000	U	

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HL290

Name: WEYERHAEUSER Contract: 68D90026

Code: WEYER Case No.: 14431 SAS No.: SDG No.: HL281

atrix: (soil/water) SOIL Lab Sample ID: 52321

ple wt/vol: 1.2 (g/mL) G Lab File ID: 2BN0731C

evel: (low/med) MED Date Received: 06/28/90

Moisture: not dec. 14 dec. Date Extracted: 07/26/90

Fraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/31/90

PC Cleanup: (Y/N) Y pH: 6.7 Dilution Factor: ~~1.0~~ ~~JHS~~ 0.50 ~~DGH 8/17~~

JHS 9/7/90

umber TICs found: 16 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	12.17	9700	JX
2.	UNKNOWN	15.77	14000	JX
3.	UNKNOWN	18.97	12000	JX
4.	UNKNOWN	24.32	18000	JX
5.	UNKNOWN	26.62	23000	JX
6.	UNKNOWN	26.84	23000	JX
7.	UNKNOWN	28.92	350000	JX
8.	UNKNOWN	29.14	5800	JX
9.	UNKNOWN	31.04	10000	JX
10.	UNKNOWN	33.04	120000	JX
11.	UNKNOWN	33.47	23000	JX
12.	UNKNOWN	33.84	5000	JX
13.	UNKNOWN	33.87	6600	JX
14.	UNKNOWN	35.17	19000	JX
15.	UNKNOWN	36.46	9900	JX
16. 123-28-4	PROPANOIC ACID, 3,3'-THIOBIS	40.42	29000	JX

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL296

at Name: WEYERHAEUSER Contract: 68D90026

Code: WEYER Case No.: 14431 SAS No.: SDG No.: HL281

atrix: (soil/water) SOIL Lab Sample ID: 52322

m le wt/vol: 1.0 (g/mL) G Lab File ID: 2BN0731D

vel: (low/med) MED Date Received: 06/28/90

M isture: not dec. 15 dec. Date Extracted: 07/26/90

t action: (SepF/Cont/Sonc) SONC Date Analyzed: 07/31/90

C Cleanup: (Y/N) Y pH: 6.4 Dilution Factor: ~~2.0~~ ~~4.0~~ ~~JHS~~ 2.0 ~~08/10/90~~

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q JHS 9/7/90
108-95-2	Phenol	93000	U
111-44-4	bis(2-Chloroethyl)Ether	93000	U
95-57-8	2-Chlorophenol	93000	U
541-73-1	1,3-Dichlorobenzene	93000	U
106-46-7	1,4-Dichlorobenzene	93000	U
100-51-6	Benzyl Alcohol	93000	U
95-50-1	1,2-Dichlorobenzene	93000	U
95-48-7	2-Methylphenol	93000	U
108-60-1	bis(2-Chloroisopropyl)Ether	93000	U
106-44-5	4-Methylphenol	93000	U
621-64-7	N-Nitroso-Di-n-Propylamine	93000	U
67-72-1	Hexachloroethane	93000	U
98-95-3	Nitrobenzene	93000	U
78-59-1	Isophorone	93000	U
88-75-5	2-Nitrophenol	93000	U
105-67-9	2,4-Dimethylphenol	93000	U
65-85-0	Benzoic Acid	450000	U
111-91-1	bis(2-Chloroethoxy)Methane	93000	U
120-83-2	2,4-Dichlorophenol	93000	U
120-82-1	1,2,4-Trichlorobenzene	93000	U
91-20-3	Naphthalene	93000	U
106-47-8	4-Chloroaniline	93000	U
87-68-3	Hexachlorobutadiene	93000	U
59-50-7	4-Chloro-3-Methylphenol	93000	U
91-57-6	2-Methylnaphthalene	93000	U
77-47-4	Hexachlorocyclopentadiene	93000	U
88-06-2	2,4,6-Trichlorophenol	93000	U
95-95-4	2,4,5-Trichlorophenol	450000	U
91-58-7	2-Chloronaphthalene	93000	U
88-74-4	2-Nitroaniline	450000	U
131-11-3	Dimethyl Phthalate	93000	U
208-96-8	Acenaphthylene	93000	U
606-20-2	2,6-Dinitrotoluene	93000	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL296

b Name: WEYERHAEUSER Contract: 68D90026

b Code: WEYER Case No.: 14431 SAS No.: SDG No.: HL281

atrix: (soil/water) SOIL Lab Sample ID: 52322

mple wt/vol: 1.0 (g/mL) G Lab File ID: 2BN0731D

evel: (low/med) MED Date Received: 06/28/90

Moisture: not dec. 15 dec. Date Extracted: 07/26/90

traction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/31/90

PC Cleanup: (Y/N) Y pH: 6.4 Dilution Factor: ~~9.0~~ ~~4.0~~ ~~JHS~~ 2.0 ~~08/15/91~~ JHS 9/7/91

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	450000	U
83-32-9	Acenaphthene	93000	U
51-28-5	2,4-Dinitrophenol	450000	U
100-02-7	4-Nitrophenol	450000	U
132-64-9	Dibenzofuran	93000	U
121-14-2	2,4-Dinitrotoluene	93000	U
84-66-2	Diethylphthalate	93000	U
7005-72-3	4-Chlorophenyl-phenylether	93000	U
86-73-7	Fluorene	93000	U
100-01-6	4-Nitroaniline	450000	U
534-52-1	4,6-Dinitro-2-Methylphenol	450000	U
86-30-6	N-Nitrosodiphenylamine (1)	93000	U
101-55-3	4-Bromophenyl-phenylether	93000	U
118-74-1	Hexachlorobenzene	93000	U
87-86-5	Pentachlorophenol	450000	U
85-01-8	Phenanthrene	93000	U
120-12-7	Anthracene	93000	U
84-74-2	Di-n-Butylphthalate	93000	U
206-44-0	Fluoranthene	93000	U
129-00-0	Pyrene	93000	U
85-68-7	Butylbenzylphthalate	93000	U
91-94-1	3,3'-Dichlorobenzidine	190000	UJ
56-55-3	Benzo(a)Anthracene	93000	U
218-01-9	Chrysene	93000	U
117-81-7	bis(2-Ethylhexyl)phthalate	93000	U
117-84-0	Di-n-Octyl Phthalate	93000	U
205-99-2	Benzo(b)Fluoranthene	93000	U
207-08-9	Benzo(k)Fluoranthene	93000	U
50-32-8	Benzo(a)Pyrene	93000	U
193-39-5	Indeno(1,2,3-cd)Pyrene	93000	U
53-70-3	Dibenz(a,h)Anthracene	93000	U
191-24-2	Benzo(g,h,i)Perylene	93000	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HL296

ab Name: WEYERHAEUSER Contract: 68D90026

ab Code: WEYER Case No.: 14431 SAS No.: SDG No.: HL281

atrix: (soil/water) SOIL Lab Sample ID: 52322

ample wt/vol: 1.0 (g/mL) G Lab File ID: 2BN0731D

evel: (low/med) MED Date Received: 06/28/90

Moisture: not dec. 15 dec. Date Extracted: 07/26/90

xtraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/31/90

PC Cleanup: (Y/N) Y pH: 6.4 Dilution Factor: ~~1.40~~ ~~JHS~~ 2.0 ~~08/14/90~~

JHS 9/7/90

umber TICs found: 6 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	28.89	390000	JX
2.	UNKNOWN	33.02	150000	JX
3.	UNKNOWN	34.51	75000	JX
4.	UNKNOWN	35.17	940000	JX
5.	UNKNOWN	36.44	390000	JX
6. 123-28-4	PROPANOIC ACID, 3,3'-THIOBIS	40.44	230000	JX

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL297

Name: WEYERHAEUSER Contract: 68D90026

Code: WEYER Case No.: 14431 SAS No.: SDG No.: HL281

atrix: (soil/water) SOIL Lab Sample ID: 52323

ample wt/vol: 1.2 (g/mL) G Lab File ID: BN0731C

evel: (low/med) MED Date Received: 06/28/90

Moisture: not dec. 2 dec. Date Extracted: 07/26/90

xtraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/31/90

PC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: ~~1.0~~ JMS 0.50 ~~08/15/90~~ @ JMS 9/7/90

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		
108-95-2	Phenol	17000	U
111-44-4	bis(2-Chloroethyl)Ether	17000	U
95-57-8	2-Chlorophenol	17000	U
541-73-1	1,3-Dichlorobenzene	17000	U
106-46-7	1,4-Dichlorobenzene	17000	U
100-51-6	Benzyl Alcohol	17000	U
95-50-1	1,2-Dichlorobenzene	17000	U
95-48-7	2-Methylphenol	17000	U
108-60-1	bis(2-Chloroisopropyl)Ether	17000	U
106-44-5	4-Methylphenol	17000	U
621-64-7	N-Nitroso-Di-n-Propylamine	17000	U
67-72-1	Hexachloroethane	17000	U
98-95-3	Nitrobenzene	17000	U
78-59-1	Isophorone	17000	U
88-75-5	2-Nitrophenol	17000	U
105-67-9	2,4-Dimethylphenol	17000	U
65-85-0	Benzoic Acid	82000	U
111-91-1	bis(2-Chloroethoxy)Methane	17000	U
120-83-2	2,4-Dichlorophenol	17000	U
120-82-1	1,2,4-Trichlorobenzene	17000	U
91-20-3	Naphthalene	17000	U
106-47-8	4-Chloroaniline	17000	U
87-68-3	Hexachlorobutadiene	17000	U
59-50-7	4-Chloro-3-Methylphenol	17000	U
91-57-6	2-Methylnaphthalene	17000	U
77-47-4	Hexachlorocyclopentadiene	17000	U
88-06-2	2,4,6-Trichlorophenol	17000	U
95-95-4	2,4,5-Trichlorophenol	82000	U
91-58-7	2-Chloronaphthalene	17000	U
88-74-4	2-Nitroaniline	82000	U
131-11-3	Dimethyl Phthalate	17000	U
208-96-8	Acenaphthylene	17000	U
606-20-2	2,6-Dinitrotoluene	17000	U

being filmed

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL297

Name: WEYERHAEUSER Contract: 68D90026

Code: WEYER Case No.: 14431 SAS No.: SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52323

Sample wt/vol: 1.2 (g/mL) G Lab File ID: BN0731C

Level: (low/med) MED Date Received: 06/28/90

Moisture: not dec. 2 dec. Date Extracted: 07/26/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/31/90

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 0.50

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	U
99-09-2	3-Nitroaniline	82000	U
83-32-9	Acenaphthene	17000	U
51-28-5	2,4-Dinitrophenol	82000	U
100-02-7	4-Nitrophenol	82000	U
132-64-9	Dibenzofuran	17000	U
121-14-2	2,4-Dinitrotoluene	17000	U
84-66-2	Diethylphthalate	17000	U
7005-72-3	4-Chlorophenyl-phenylether	17000	U
86-73-7	Fluorene	17000	U
100-01-6	4-Nitroaniline	82000	U
534-52-1	4,6-Dinitro-2-Methylphenol	82000	U
86-30-6	N-Nitrosodiphenylamine (1)	17000	U
101-55-3	4-Bromophenyl-phenylether	17000	U
118-74-1	Hexachlorobenzene	17000	U
87-86-5	Pentachlorophenol	82000	U
85-01-8	Phenanthrene	17000	U
120-12-7	Anthracene	17000	U
84-74-2	Di-n-Butylphthalate	17000	U
206-44-0	Fluoranthene	17000	U
129-00-0	Pyrene	17000	U
85-68-7	Butylbenzylphthalate	17000	U
91-94-1	3,3'-Dichlorobenzidine	34000	U
56-55-3	Benzo(a)Anthracene	17000	U
218-01-9	Chrysene	17000	U
117-81-7	bis(2-Ethylhexyl)phthalate	17000	U
117-84-0	Di-n-Octyl Phthalate	17000	U
205-99-2	Benzo(b)Fluoranthene	17000	U
207-08-9	Benzo(k)Fluoranthene	17000	U
50-32-8	Benzo(a)Pyrene	17000	U
193-39-5	Indeno(1,2,3-cd)Pyrene	17000	U
53-70-3	Dibenz(a,h)Anthracene	17000	U
191-24-2	Benzo(g,h,i)Perylene	17000	U

(1) - Cannot be separated from Diphenylamine

being filmed
SITE/SITE ASSESSMENT
SAMPLING

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HL297

ab Name: WEYERHAEUSER Contract: 68D90026

ab Code: WEYER Case No.: 14431 SAS No.: SDG No.: HL281

atrix: (soil/water) SOIL Lab Sample ID: 52323

mple wt/vol: 1.2 (g/mL) G Lab File ID: BN0731C

evel: (low/med) MED Date Received: 06/28/90

Moisture: not dec. 2 dec. Date Extracted: 07/26/90

traction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/31/90

PC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: ~~1.50 1.0 JMS~~ 0.50 ~~08/15/90~~

JHD 9/7/90

umber TICs found: 10 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	12.30	9900	JX
2.	UNKNOWN	15.90	10000	JX
3.	UNKNOWN	19.12	7900	JX
4.	UNKNOWN	22.72	11000	JX
5.	UNKNOWN	25.42	20000	JX
6.	UNKNOWN	26.66	45000	JX
7.	UNKNOWN	26.87	29000	JX
8.	UNKNOWN	27.47	27000	JX
9.	UNKNOWN	28.97	250000	JX
10.	UNKNOWN	33.27	80000	JX

notice, it is due to the quality of the document being filmed

SITE / SITE ASSESSMENT SAS019

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL285

Lab Name: WEYERHAEUSER Contract: 68D90026

Lab Code: WEYER Case No.: ~~14306~~ 14431 JMB 8/20/90 SAS No.: _____ SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52318

Sample wt/vol: 1.2 (g/mL) G Lab File ID: _____

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 1 dec. __ Date Extracted: 07/26/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/27/90

GPC Cleanup: (Y/N) N pH: 7.7 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	100	U
319-85-7	beta-BHC	49	J
319-86-8	delta-BHC	100	U
58-89-9	gamma-BHC (Lindane)	3.3	J
76-44-8	Heptachlor	100	U
309-00-2	Aldrin	100	U
1024-57-3	Heptachlor epoxide	100	U
959-98-8	Endosulfan I	100	U
60-57-1	Dieldrin	210	U
72-55-9	4,4'-DDE	1900	
72-20-8	Endrin	210	U
33213-65-9	Endosulfan II	210	U
72-54-8	4,4'-DDD	210	U
1031-07-8	Endosulfan sulfate	210	U
50-29-3	4,4'-DDT	1000	
72-43-5	Methoxychlor	1000	U
53494-70-5	Endrin ketone	210	U
5103-71-9	alpha-Chlordane	1000	U
5103-74-2	gamma-Chlordane	1000	U
8001-35-2	Toxaphene	2100	U
12674-11-2	Aroclor-1016	1000	U
11104-28-2	Aroclor-1221	1000	U
11141-16-5	Aroclor-1232	1000	U
53469-21-9	Aroclor-1242	1000	U
12672-29-6	Aroclor-1248	1000	U
11097-69-1	Aroclor-1254	2100	U
11096-82-5	Aroclor-1260	2100	U

Notice, it is due to the quality of the document being filmed

SITE / SITE ASSESSMENT SAS019

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL287

Lab Name: WEYERHAEUSER Contract: 68D90026

Lab Code: WEYER Case No.: 14431 SAS No.: _____ SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52319

Sample wt/vol: 1.4 (g/mL) G Lab File ID: _____

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 5 dec. __ Date Extracted: 07/26/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/27/90

GPC Cleanup: (Y/N) N pH: 7.9 Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
319-84-6	alpha-BHC	90	U
319-85-7	beta-BHC	90	U
319-86-8	delta-BHC	90	U
58-89-9	gamma-BHC (Lindane)	90	U
76-44-8	Heptachlor	90	U
309-00-2	Aldrin	90	U
1024-57-3	Heptachlor epoxide	90	U
959-98-8	Endosulfan I	90	U
60-57-1	Dieldrin	16	J
72-55-9	4,4'-DDE	36	J
72-20-8	Endrin	180	U
33213-65-9	Endosulfan II	180	U
72-54-8	4,4'-DDD	180	U
1031-07-8	Endosulfan sulfate	180	U
50-29-3	4,4'-DDT	180	U
72-43-5	Methoxychlor	900	U
53494-70-5	Endrin ketone	180	U
5103-71-9	alpha-Chlordane	900	U
5103-74-2	gamma-Chlordane	900	U
8001-35-2	Toxaphene	1800	U
12674-11-2	Aroclor-1016	900	U
11104-28-2	Aroclor-1221	900	U
11141-16-5	Aroclor-1232	900	U
53469-21-9	Aroclor-1242	900	U
12672-29-6	Aroclor-1248	900	U
11097-69-1	Aroclor-1254	1800	U
11096-82-5	Aroclor-1260	1200	J

0698 29 8/16/90

notice, it is due to the quality of the document being filmed
SITE/SITE ASSESSMENT SAS019

1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL294

Lab Name: WEYERHAEUSER Contract: 68D90026

Lab Code: WEYER Case No.: 14431 SAS No.: _____ SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52320

Sample wt/vol: 1.1 (g/mL) G Lab File ID: _____

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 3 dec. __ Date Extracted: 07/27/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/28/90

GPC Cleanup: (Y/N) N pH: 5.6 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	110	U
319-85-7	beta-BHC	110	U
319-86-8	delta-BHC	110	U
58-89-9	gamma-BHC (Lindane)	110	U
76-44-8	Heptachlor	110	U
309-00-2	Aldrin	110	U
1024-57-3	Heptachlor epoxide	110	U
959-98-8	Endosulfan I	110	U
60-57-1	Dieldrin	220	U
72-55-9	4,4'-DDE	220	U
72-20-8	Endrin	220	U
33213-65-9	Endosulfan II	220	U
72-54-8	4,4'-DDD	1200	
1031-07-8	Endosulfan sulfate	220	U
50-29-3	4,4'-DDT	710	
72-43-5	Methoxychlor	1100	U
53494-70-5	Endrin ketone	2000	
5103-71-9	alpha-Chlordane	1100	U
5103-74-2	gamma-Chlordane	1100	U
8001-35-2	Toxaphene	2200	U
12674-11-2	Aroclor-1016	1100	U
11104-28-2	Aroclor-1221	1100	U
11141-16-5	Aroclor-1232	1100	U
53469-21-9	Aroclor-1242	1100	U
12672-29-6	Aroclor-1248	1100	U
11097-69-1	Aroclor-1254	2200	U
11096-82-5	Aroclor-1260	2200	U

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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL295

Lab Name: WEYERHAEUSER Contract: 68D90026

Lab Code: WEYER Case No.: 14431 SAS No.: _____ SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52321

Sample wt/vol: 1.5 (g/mL) G Lab File ID: _____

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 15 dec. __ Date Extracted: 07/26/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/27/90

GPC Cleanup: (Y/N) N pH: 6.7 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	94	U
319-85-7	beta-BHC	94	U
319-86-8	delta-BHC	94	U
58-89-9	gamma-BHC (Lindane)	94	U
76-44-8	Heptachlor	94	U
309-00-2	Aldrin	94	U
1024-57-3	Heptachlor epoxide	94	U
959-98-8	Endosulfan I	94	U
60-57-1	Dieldrin	190	U
72-55-9	4,4'-DDE	190	U
72-20-8	Endrin	190	U
33213-65-9	Endosulfan II	190	U
72-54-8	4,4'-DDD	190	U
1031-07-8	Endosulfan sulfate	190	U
50-29-3	4,4'-DDT	190	U
72-43-5	Methoxychlor	940	U
53494-70-5	Endrin ketone	190	U
5103-71-9	alpha-Chlordane	940	U
5103-74-2	gamma-Chlordane	940	U
8001-35-2	Toxaphene	1900	U
12674-11-2	Aroclor-1016	940	U
11104-28-2	Aroclor-1221	940	U
11141-16-5	Aroclor-1232	940	U
53469-21-9	Aroclor-1242	940	U
12672-29-6	Aroclor-1248	940	U
11097-69-1	Aroclor-1254	1900	U
11096-82-5	Aroclor-1260	1900	U

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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL296

Lab Name: WEYERHAEUSER Contract: 68D90026

Lab Code: WEYER Case No.: 14431 SAS No.: _____ SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52322

Sample wt/vol: 1.6 (g/mL) G Lab File ID: _____

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 15 dec. __ Date Extracted: 07/26/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/27/90

GPC Cleanup: (Y/N) N pH: 6.5 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	88	U
319-85-7	beta-BHC	88	U
319-86-8	delta-BHC	88	U
58-89-9	gamma-BHC (Lindane)	88	U
76-44-8	Heptachlor	88	U
309-00-2	Aldrin	88	U
1024-57-3	Heptachlor epoxide	88	U
959-98-8	Endosulfan I	88	U
60-57-1	Dieldrin	180	U
72-55-9	4,4'-DDE	180	U
72-20-8	Endrin	180	U
33213-65-9	Endosulfan II	180	U
72-54-8	4,4'-DDD	260	
1031-07-8	Endosulfan sulfate	180	U
50-29-3	4,4'-DDT	130	J
72-43-5	Methoxychlor	880	U
53494-70-5	Endrin ketone	240	
5103-71-9	alpha-Chlordane	880	U
5103-74-2	gamma-Chlordane	880	U
8001-35-2	Toxaphene	1800	U
12674-11-2	Aroclor-1016	880	U
11104-28-2	Aroclor-1221	880	U
11141-16-5	Aroclor-1232	880	U
53469-21-9	Aroclor-1242	880	U
12672-29-6	Aroclor-1248	880	U
11097-69-1	Aroclor-1254	1800	U
11096-82-5	Aroclor-1260	1800	U

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1D
PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL297

Lab Name: WEYERHAEUSER Contract: 68D90026

ab Code: WEYER Case No.: 14431 SAS No.: _____ SDG No.: HL281

Matrix: (soil/water) SOIL Lab Sample ID: 52323

ample wt/vol: 1.3 (g/mL) G Lab File ID: _____

evel: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 2 dec. __ Date Extracted: 07/26/90

xtraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/27/90

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
319-84-6	alpha-BHC	94	U
319-85-7	beta-BHC	94	U
319-86-8	delta-BHC	94	U
58-89-9	gamma-BHC (Lindane)	94	U
76-44-8	Heptachlor	94	U
309-00-2	Aldrin	94	U
1024-57-3	Heptachlor epoxide	33	J
959-98-8	Endosulfan I	94	U
60-57-1	Dieldrin	190	U
72-55-9	4,4'-DDE	470	
72-20-8	Endrin	190	U
33213-65-9	Endosulfan II	190	U
72-54-8	4,4'-DDD	920	
1031-07-8	Endosulfan sulfate	190	U
50-29-3	4,4'-DDT	680	
72-43-5	Methoxychlor	940	U
53494-70-5	Endrin ketone	190	U
5103-71-9	alpha-Chlordane	940	U
5103-74-2	gamma-Chlordane	940	U
8001-35-2	Toxaphene	1900	U
12674-11-2	Aroclor-1016	940	U
11104-28-2	Aroclor-1221	940	U
11141-16-5	Aroclor-1232	940	U
53469-21-9	Aroclor-1242	940	U
12672-29-6	Aroclor-1248	940	U
11097-69-1	Aroclor-1254	1900	U
11096-82-5	Aroclor-1260	1900	U

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SITE/SITE ASSESSMENT SAS016

REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

Case No.: 14431 (14306) TDD No.: F08-9009-02

Site: DENVER RIO GRANDE

Contractor Laboratory: WEYERHAEUSER

Data Reviewer : STACEY SMITH Date of Review: 9-20-90

Sample Matrix: SOIL

Analysis: SAS ORGANICS: VOA, BNA and PCB

Sample Nos.: 5438H-01, 5438H-02, 5438H-03, 5438H-04, 5438H-05, 5438H-06

( ) Data are acceptable for use.

(X) Data are acceptable for use with qualifications noted.

( ) Data are preliminary - pending verification.

( ) Data are unacceptable.

Action required by DPO?

No X Yes The following items require action:

Action required by project officer?

No X Yes

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REVIEW SUMMARY:

The following findings were observed upon review of the data:

1) Holding times were not met for any fraction, however the data is usable. See Section 1.0 for details.

2) Calibration criteria was generally achieved. See Section 2.0 for details.

3) Some contaminants were found in both VOA laboratory blanks. The BNA blanks were free of contaminants. See Section 3.0 for details.

4) All surrogate recoveries were satisfactory.

5) Internal standard performance was generally satisfactory. See section 7.0 for details.

In general, the overall quality of the gas chromatography and mass spectroscopy was excellent. Few qualifications were necessary to render the data acceptable and usable.

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SITE/SITE ASSESSMENT

ORGANICS (VOA, SEMIVOLATILES, BNA)

1.0 HOLDING TIMES

Holding times are established and monitored to ensure analytical results accurately represent analyte concentrations in a sample at the time of collection. Exceeding the holding time for a sample generally affects a loss of the analyte due to a variety of mechanisms, such as deposition on the sample container walls, co-precipitation with particulates and volatilization through leaks in the container.

REVIEW RESULTS:

According to standards established for water samples, holding times were not met for either fraction. However, the samples were soils and definitive guidelines for soil holding times have not been established yet. VOA holding times ranged from 15 to 16 days. Results may be biased low and the potential for false negatives increases as the holding time increases due to the nature of volatile compounds.

The BNA holding time was 42 days due to the need to reextract the samples using an alternative method. Due to the nature of the compounds searched for in this analysis, this lengthy holding time may not adversely affect the data.

2.0 GC/MS TUNING

Prior to sample analysis, GC/MS tuning is carried out on the analytical instrumentation using Bromofluorobenzene (BFB) for the volatile (VOA) fraction and Decafluorotriphenylphosphine (DFTPP) for the semivolatile (BNA) fraction. For these compounds, certain ions in their mass spectra must be present in specific amounts to ensure the instrumentation is correctly tuned and can produce proper mass resolution, identification and sensitivity. The failure of the lab to meet GC/MS tuning criteria indicates severe deficiencies exist with the GC/MS system being used.

REVIEW RESULTS:

All required tune criteria for BFB and DFTPP were achieved.

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3.0 CALIBRATION

Prior to sample analysis the GC/MS system is initially calibrated at five concentrations for each VOA and BNA Target Compound List (TCL) compound to determine the linearity of response. For each compound an Average Relative Response Factor (RRF) is determined which is later used for compound quantification in sample results. A Relative Standard Deviation (RSD) for the average RRF is also calculated and must be less than the established quality control percentage value. Low RRF values and high RSD values are indicative of unsatisfactory instrument calibration and the system may not be capable of acceptable performance for compounds exhibiting such deficiencies. Calibration must be verified each 12 hour period for a GC/MS system; continuing calibration results check satisfactory maintenance and adjustment on a day to day basis. A continuing calibration RRF value is calculated for each TCL compound and this value is compared to the initial calibration average RRF value. Continuing calibration compound results with low RRF values and/or high RRF % difference values indicate the instrument is no longer correctly calibrated for these compounds.

REVIEW RESULTS:

VOA:

The initial and continuing calibrations satisfied all calibration criteria with one exception. In the continuing calibration on 7-10-90, the %D for Chloromethane was 26.4% which exceeded the control limit of <25%.

BNA:

All RRFs for the initial and continuing calibrations satisfied control criteria.

In the initial calibration, one analyte, 3,3'-Dichlorobenzidine, had a %RSD of 36.6% which exceeds the control limit of 30.0%.

In the continuing calibration on 8-15-90, the analyte Hexachlorocyclopentadiene had a %D of 33.9% which exceeded its control limit of 25%.

In the continuing calibration on 8-20-90, the analyte 3,3'-Dichlorobenzidine had a %D of 56.2% which exceeded its control limit of 25%.

The data has been flagged appropriately to reflect these minor calibration difficulties.

4.0 BLANKS

Laboratory method blank samples are evaluated to assess the existence and magnitude of possible contamination problems. Comparison of sample results to compound concentrations found in blanks makes it possible to determine if these compounds were actually present in the sample or perhaps were introduced as a contaminant during some phase of the analysis procedure.

REVIEW RESULTS:

The target compound Methylene chloride was found in both VOA laboratory blanks, LBY09 and LBY10. Also, 1,1,2,2-Tetrachloroethane was found in LBY09. Results have been flagged appropriately.

The BNA blanks were free of target compounds.

5.0 SURROGATE SPIKE RECOVERY

Laboratory performance of individual samples is established by means of surrogate spiking activities. All samples are spiked with surrogate compounds prior to preparation and analysis. Unusually low or high surrogate recovery values may indicate some deficiency in the analytical system or some matrix effect exists, resulting in similarly low or high sample results for other compounds as well.

REVIEW RESULTS:

VOA surrogate recovery criteria was achieved.

Two BNA samples had surrogate recoveries that exceeded the upper limit of control values. In sample 5438H-04, the recovery for 2-Fluorobiphenyl was 124% (limit 30-115). In sample 5438H-01MSD, 2,4,6-Tribromophenol was recovered at 126% (limit 19-122).

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6.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE ANALYSIS (MS/MSD)

The MS/MSD analysis is designed to evaluate what possible affect the inherent sample matrix might have on compound recovery. To assess the possible matrix effect, specific compounds are spiked into a selected sample and a duplicate of that sample. The spike recoveries and relative % difference (RPD) between the sample and the duplicate are then determined. Poor spike recoveries and high RPD values may indicate a significant matrix is present and is adversely affecting sample results for that particular matrix or sample medium.

REVIEW RESULTS:

VOA

RPD: 1 out of 6 outside control limits.
Spike Recovery: 0 out of 12 outside control limits.

BNA

RPD: 0 out of 6 outside control limits.
Spike Recovery: 9 out of 12 outside control limits.

All recoveries outside control limits slightly exceed the upper limit of the QC range.

7.0 INTERNAL STANDARDS PERFORMANCE

Target compound list (TCL) components identified in samples are quantified using internal standards which are spiked at specific concentrations into each sample. The retention times and chromatogram peak areas for the internal standards in each sample must fall within established quality control limits to ensure that sample quantitation is correct.

REVIEW RESULTS:

All VOA internal standard criteria was achieved.

One BNA sample did not meet internal standard performance criteria. Two standards in this sample were recovered at extremely low levels. Compounds quantitated on the bases of these standards have been flagged appropriately for this sample.

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8.0 COMPOUND IDENTIFICATION

The presence of all TCL compounds found in samples is verified by comparing the mass spectra for the sample compounds to mass spectra obtained from pure standard compounds when run through the GC/MS systems. Retention times for sample compounds are also checked and should match retention times established by the calibration standards. If a sample compound does not meet these criteria, it should be rejected on the basis of tentative evidence.

REVIEW RESULTS:

In general compound identifications were appropriate. However, a few semi-volatile (BNA) Tentatively Identified Compounds (TIC) were overly specific and exceeded the supporting mass spectral data. These "hits" were modified to less specific identifications.

PCB DATA

1.0 HOLDING TIMES

REVIEW RESULTS:

Holding times for all soil samples were 22 days. This did not adversely affect the data generated.

2.0 INSTRUMENT PERFORMANCE

REVIEW RESULTS:

Instrument performance for PCB analyses was within acceptable limits.

3.0 CALIBRATION

REVIEW RESULTS:

All parameters were within acceptable limits.

4.0 BLANKS

REVIEW RESULTS:

No target compounds nor interfering compounds were found in any blanks.

5.0 SURROGATE RECOVERY

REVIEW RESULTS:

All surrogate recoveries were within acceptable limits.

6.0 MS/MSD

REVIEW RESULTS:

Arochlor 1254 was used as the matrix spiking compound. Acceptable RSD and percent Spike Recovery were achieved.

7.0 COMPOUND IDENTIFICATION

REVIEW RESULTS:

No PCBs were identified.

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

5438H-01

Lab Name: S-CUBED Contract: 68D90027

Lab Code: S3 Case No.: SAS No.: 5438H SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: H3801

Sample wt/vol: 1.0 (g/mL) G Lab File ID: H3801

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 4 dec._____ Date Extracted: 08/07/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/15/90

GPC Cleanup: (Y/N) Y pH: 7.8 Dilution Factor: 1.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	21000	U
111-44-4	bis(2-Chloroethyl)ether	21000	U
95-57-8	2-Chlorophenol	21000	U
541-73-1	1,3-Dichlorobenzene	21000	U
106-46-7	1,4-Dichlorobenzene	21000	U
100-51-6	Benzyl alcohol	21000	U
95-50-1	1,2-Dichlorobenzene	21000	U
95-48-7	2-Methylphenol	21000	U
108-60-1	bis(2-Chloroisopropyl)ether	21000	U
106-44-5	4-Methylphenol	21000	U
621-64-7	N-Nitroso-di-n-propylamine	21000	U
67-72-1	Hexachloroethane	21000	U
98-95-3	Nitrobenzene	21000	U
78-59-1	Isophorone	21000	U
88-75-5	2-Nitrophenol	21000	U
105-67-9	2,4-Dimethylphenol	21000	U
65-85-0	Benzoic acid	100000	U
111-91-1	bis(2-Chloroethoxy)methane	21000	U
120-83-2	2,4-Dichlorophenol	21000	U
120-82-1	1,2,4-Trichlorobenzene	21000	U
91-20-3	Naphthalene	21000	U
106-47-8	4-Chloroaniline	21000	U
87-68-3	Hexachlorobutadiene	21000	U
59-50-7	4-Chloro-3-methylphenol	21000	U
91-57-6	2-Methylnaphthalene	21000	U
77-47-4	Hexachlorocyclopentadiene	21000	U
88-06-2	2,4,6-Trichlorophenol	21000	U
95-95-4	2,4,5-Trichlorophenol	100000	U
91-58-7	2-Chloronaphthalene	21000	U
88-74-4	2-Nitroaniline	100000	U
131-11-3	Dimethylphthalate	21000	U
208-96-8	Acenaphthylene	21000	U
606-20-2	2,6-Dinitrotoluene	21000	U

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1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S438H-01

Lab Name: S-CUBED Contract: S8D90027

Lab Code: S3 Case No.: SAS No.: S438H SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: H3801

Sample wt/vol: 1.0 (g/mL) G Lab File ID: H3801

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 4 dec._____ Date Extracted: 08/07/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/15/90

GPC Cleanup: (Y/N) Y pH: 7.8 Dilution Factor: 1.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	100000	U
83-32-9	Acenapthene	21000	U
51-28-5	2,4-Dinitrophenol	100000	U
100-02-7	4-Nitrophenol	100000	U
132-64-9	Dibenzofuran	21000	U
121-14-2	2,4-Dinitrotoluene	21000	U
84-66-2	Diethylphthalate	21000	U
7005-72-3	4-Chlorophenyl-phenylether	21000	U
86-73-7	Fluorene	21000	U
100-01-6	4-Nitroaniline	100000	U
534-52-1	4,6-Dinitro-2-methylphenol	100000	U
86-30-6	N-Nitrosodiphenylamine (1)	21000	U
101-55-3	4-Bromophenyl-phenylether	21000	U
118-74-1	Hexachlorobenzene	21000	U
87-86-5	Pentachlorophenol	100000	U
85-01-8	Phenanthrene	21000	U
120-12-7	Anthracene	21000	U
84-74-2	Di-n-butylphthalate	21000	U
206-44-0	Fluoranthene	21000	U
129-00-0	Pyrene	21000	U
85-68-7	Butylbenzylphthalate	21000	U
91-94-1	3,3'-Dichlorobenzidine	41000	U
56-55-3	Benzo(a)anthracene	21000	U
218-01-9	Chrysene	21000	U
117-81-7	bis(2-Ethylhexyl)phthalate	21000	U
117-84-0	Di-n-octylphthalate	21000	U
205-99-2	Benzo(b)fluoranthene	21000	U
207-08-9	Benzo(k)fluoranthene	21000	U
50-32-8	Benzo(a)pyrene	21000	U
193-39-5	Indeno(1,2,3-cd)pyrene	21000	U
53-70-3	Dibenz(a,h)anthracene	21000	U
191-24-2	Benzo(g,h,i)perylene	21000	U

(1) - Cannot be separated from Diphenylamine

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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

S438H-01

Lab Name: S-CUBED Contract: 68D90027

Lab Code: S3 Case No.: SAS No.: S438H SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: H3801

Sample wt/vol: 1.0 (g/mL) G Lab File ID: H3801

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 4 dec._____ Date Extracted: 08/07/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/15/90

GPC Cleanup : (Y/N) Y pH: 7.8 Dilution Factor: 1.000

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 00100-52-7	BENZALDEHYDE	11.03	8000	J
2.				
3.				
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S438H-02

Lab Name: S-CUBED Contract: S8D90027

Lab Code: S3 Case No.: SAS No.: S438H SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: H3802

Sample wt/vol: 1.0 (g/mL) G Lab File ID: H3802

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 2 dec._____ Date Extracted: 08/07/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/15/90

GPC Cleanup: (Y/N) Y pH: 5.3 Dilution Factor: 1.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	20000	U
111-44-4	bis(2-Chloroethyl)ether	20000	U
95-57-8	2-Chlorophenol	20000	U
541-73-1	1,3-Dichlorobenzene	20000	U
106-46-7	1,4-Dichlorobenzene	20000	U
100-51-6	Benzyl alcohol	20000	U
95-50-1	1,2-Dichlorobenzene	20000	U
95-48-7	2-Methylphenol	20000	U
108-60-1	bis(2-Chloroisopropyl)ether	20000	U
106-44-5	4-Methylphenol	20000	U
621-64-7	N-Nitroso-di-n-propylamine	20000	U
67-72-1	Hexachloroethane	20000	U
98-95-3	Nitrobenzene	20000	U
78-59-1	Isophorone	20000	U
88-75-5	2-Nitrophenol	20000	U
105-67-9	2,4-Dimethylphenol	20000	U
65-85-0	Benzoic acid	98000	U
111-91-1	bis(2-Chloroethoxy)methane	20000	U
120-83-2	2,4-Dichlorophenol	20000	U
120-82-1	1,2,4-Trichlorobenzene	20000	U
91-20-3	Naphthalene	20000	U
106-47-8	4-Chloroaniline	20000	U
87-68-3	Hexachlorobutadiene	20000	U
59-50-7	4-Chloro-3-methylphenol	20000	U
91-57-6	2-Methylnaphthalene	20000	U
77-47-4	Hexachlorocyclopentadiene	20000	U
88-06-2	2,4,6-Trichlorophenol	20000	U
95-95-4	2,4,5-Trichlorophenol	98000	U
91-58-7	2-Chloronaphthalene	20000	U
88-74-4	2-Nitroaniline	98000	U
131-11-3	Dimethylphthalate	20000	U
208-96-8	Acenaphthylene	20000	U
606-20-2	2,6-Dinitrotoluene	20000	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S438H-02

Lab Name: S-CUBED Contract: 68D90027

Lab Code: S3 Case No.: SAS No.: S438H SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: H3802

Sample wt/vol: 1.0 (g/mL) G Lab File ID: H3802

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 2 dec._____ Date Extracted: 08/07/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/15/90

GPC Cleanup: (Y/N) Y pH: 5.3 Dilution Factor: 1.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	98000	U
83-32-9	Acenapthene	20000	U
51-28-5	2,4-Dinitrophenol	98000	U
100-02-7	4-Nitrophenol	98000	U
132-64-9	Dibenzofuran	20000	U
121-14-2	2,4-Dinitrotoluene	20000	U
84-66-2	Diethylphthalate	20000	U
7005-72-3	4-Chlorophenyl-phenylether	20000	U
86-73-7	Fluorene	20000	U
100-01-6	4-Nitroaniline	98000	U
534-52-1	4,6-Dinitro-2-methylphenol	98000	U
86-30-6	N-Nitrosodiphenylamine (1)	20000	U
101-55-3	4-Bromophenyl-phenylether	20000	U
118-74-1	Hexachlorobenzene	20000	U
87-86-5	Pentachlorophenol	98000	U
85-01-8	~~Phenanthrene~~	~~5200~~	~~J~~
120-12-7	Anthracene	20000	U
84-74-2	Di-n-butylphthalate	20000	U
206-44-0	Fluoranthene	20000	U
129-00-0	Pyrene	20000	U
85-68-7	Butylbenzylphthalate	20000	U
91-94-1	3,3'-Dichlorobenzidine	40000	U
56-55-3	Benzo(a)anthracene	20000	U
218-01-9	Chrysene	20000	U
117-81-7	bis(2-Ethylhexyl)phthalate	20000	U
117-84-0	Di-n-octylphthalate	20000	U
205-99-2	Benzo(b)fluoranthene	20000	U
207-08-9	Benzo(k)fluoranthene	20000	U
50-32-8	Benzo(a)pyrene	20000	U
193-39-5	Indeno(1,2,3-cd)pyrene	20000	U
53-70-3	Dibenz(a,h)anthracene	20000	U
191-24-2	Benzo(g,h,i)perylene	20000	U

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 1/87 Rev.

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

S438H-02

Lab Name: S-CUBED Contract: 68D90027

Lab Code: S3 Case No.: SAS No.: S438H SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: H3802

Sample wt/vol: 1.0 (g/mL) G Lab File ID: H3802

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 2 dec._____ Date Extracted: 08/07/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/15/90

GPC Cleanup : (Y/N) Y pH: 5.3 Dilution Factor: 1.000

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 20

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	20.16	91000	J
2.	UNKNOWN HYDROCARBON	21.24	170000	J
3.	UNKNOWN HYDROCARBON	21.88	210000	J
4.	UNKNOWN HYDROCARBON	23.47	490000	J
5.	UNKNOWN HYDROCARBON	25.01	66000	J
6.	UNKNOWN HYDROCARBON	25.11	87000	J
7.	UNKNOWN	25.90	19000	J
8.	UNKNOWN HYDROCARBON	26.60	70000	J
9.	UNKNOWN	27.31	20000	J
10.	UNKNOWN HYDROCARBON	27.85	79000	J
11.	UNKNOWN	28.91	18000	J
12.	UNKNOWN HYDROCARBON	29.18	75000	J
13.	UNKNOWN HYDROCARBON	30.13	28000	J
14.	UNKNOWN HYDROCARBON	30.43	56000	J
15.	UNKNOWN	30.80	57000	J
16.	UNKNOWN	31.55	81000	J
17.	UNKNOWN	32.06	81000	J
18.	UNKNOWN HYDROCARBON	38.74	88000	J
19.	UNKNOWN HYDROCARBON	39.72	81000	J
20.	UNKNOWN HYDROCARBON	40.84	56000	J
21.				
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being filmed

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S438H-03

Lab Name: S-CUBED Contract: 68D90027

Lab Code: S3 Case No.: SAS No.: S438H SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: H3803

Sample wt/vol: 1.0 (g/mL) G Lab File ID: H3803

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 2 dec._____ Date Extracted: 08/07/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/16/90

GPC Cleanup: (Y/N) Y pH: 6.3 Dilution Factor: 1.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	20000	U
111-44-4	bis(2-Chloroethyl)ether	20000	U
95-57-8	2-Chlorophenol	20000	U
541-73-1	1,3-Dichlorobenzene	20000	U
106-46-7	1,4-Dichlorobenzene	20000	U
100-51-6	Benzyl alcohol	20000	U
95-50-1	1,2-Dichlorobenzene	20000	U
95-48-7	2-Methylphenol	20000	U
108-60-1	bis(2-Chloroisopropyl)ether	20000	U
106-44-5	4-Methylphenol	20000	U
621-64-7	N-Nitroso-di-n-propylamine	20000	U
67-72-1	Hexachloroethane	20000	U
98-95-3	Nitrobenzene	20000	U
78-59-1	Isophorone	20000	U
88-75-5	2-Nitrophenol	20000	U
105-67-9	2,4-Dimethylphenol	20000	U
65-85-0	Benzoic acid	98000	U
111-91-1	bis(2-Chloroethoxy)methane	20000	U
120-83-2	2,4-Dichlorophenol	20000	U
120-82-1	1,2,4-Trichlorobenzene	20000	U
91-20-3	Naphthalene	20000	U
106-47-8	4-Chloroaniline	20000	U
87-68-3	Hexachlorobutadiene	20000	U
59-50-7	4-Chloro-3-methylphenol	20000	U
91-57-6	2-Methylnaphthalene	3700	J
77-47-4	Hexachlorocyclopentadiene	20000	U
88-06-2	2,4,6-Trichlorophenol	20000	U
95-95-4	2,4,5-Trichlorophenol	98000	U
91-58-7	2-Chloronaphthalene	20000	U
88-74-4	2-Nitroaniline	98000	U
131-11-3	Dimethylphthalate	20000	U
208-96-8	Acenaphthylene	20000	U
606-20-2	2,6-Dinitrotoluene	20000	U

being filmed

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

5438H-03

Lab Name: S-CUBED Contract: 68D90027

Lab Code: S3 Case No.: SAS No.: 5438H SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: H3803

Sample wt/vol: 1.0 (g/mL) G Lab File ID: H3803

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 2 dec._____ Date Extracted: 08/07/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/16/90

GPC Cleanup: (Y/N) Y pH: 6.3 Dilution Factor: 1.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	98000	U
83-32-9	Acenapthene	20000	U
51-28-5	2,4-Dinitrophenol	98000	U
100-02-7	4-Nitrophenol	98000	U
132-64-9	Dibenzofuran	20000	U
121-14-2	2,4-Dinitrotoluene	20000	U
84-66-2	Diethylphthalate	20000	U
7005-72-3	4-Chlorophenyl-phenylether	20000	U
86-73-7	Fluorene	20000	U
100-01-6	4-Nitroaniline	98000	U
534-52-1	4,6-Dinitro-2-methylphenol	98000	U
86-30-6	N-Nitrosodiphenylamine (1)	20000	U
101-55-3	4-Bromophenyl-phenylether	20000	U
118-74-1	Hexachlorobenzene	20000	U
87-86-5	Pentachlorophenol	98000	U
85-01-8	Phenanthrene	13000	J
120-12-7	Anthracene	20000	U
84-74-2	Di-n-butylphthalate	20000	U
206-44-0	Fluoranthene	20000	U
129-00-0	Pyrene	20000	U
85-68-7	Butylbenzylphthalate	20000	U
91-94-1	3,3'-Dichlorobenzidine	40000	U
56-55-3	Benzo(a)anthracene	20000	U
218-01-9	Chrysene	20000	U
117-81-7	bis(2-Ethylhexyl)phthalate	20000	U
117-84-0	Di-n-octylphthalate	20000	U
205-99-2	Benzo(b)fluoranthene	20000	U
207-08-9	Benzo(k)fluoranthene	20000	U
50-32-8	Benzo(a)pyrene	20000	U
193-39-5	Indeno(1,2,3-cd)pyrene	20000	U
53-70-3	Dibenz(a,h)anthracene	20000	U
191-24-2	Benzo(g,h,i)perylene	20000	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

S438H-03

Lab Name: S-CUBED Contract: 68D90027

Lab Code: S3 Case No.: SAS No.: S438H SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: H3803

Sample wt/vol: 1.0 (g/mL) G Lab File ID: H3803

Level: (low/med) MED Date Received: 06/29/90

% Moisture: not dec. 2 dec._____ Date Extracted: 08/07/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/16/90

GPC Cleanup : (Y/N) Y pH: 6.3 Dilution Factor: 1.000

Number TICs found: 20

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		UNKNOWN HYDROCARBON	20.20	94000	J
2.		UNKNOWN	21.02	59000	J
3.		UNKNOWN HYDROCARBON	21.25	170000	J
4.		UNKNOWN HYDROCARBON	21.89	360000	J
5.		UNKNOWN	22.80	73000	J
6.		UNKNOWN	22.91	100000	J
7.		UNKNOWN HYDROCARBON	24.26	650000	J
8.		UNKNOWN	24.45	200000	J
9.		UNKNOWN HYDROCARBON	25.07	110000	J
10.		UNKNOWN	25.69	25000	J
11.		UNKNOWN	25.82	17000	J
12.		UNKNOWN	26.69	80000	J
13.		UNKNOWN HYDROCARBON	27.95	40000	J
14.		UNKNOWN HYDROCARBON	37.80	72000	J
15.		UNKNOWN HYDROCARBON	38.71	81000	J
16.		UNKNOWN HYDROCARBON	39.71	81000	J
17.		UNKNOWN HYDROCARBON	40.87	64000	J
18.		UNKNOWN HYDROCARBON	42.18	47000	J
19.		UNKNOWN HYDROCARBON	43.74	31000	J
20.		UNKNOWN HYDROCARBON	45.55	22000	J
21.					
22.					
23.					
24.					
25.					
26.					
27.					
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S438H-04

Lab Name: S-CUBED Contract: 68D90027

Lab Code: S3 Case No.: SAS No.: S438H SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: S5404

Sample wt/vol: 1.0 (g/mL) G Lab File ID: S5404

Level: (low/med) MED Date Received: 08/23/90

% Moisture: not dec. 9 dec._____ Date Extracted: 08/07/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/20/90

GPC Cleanup: (Y/N) Y pH: 8.0 Dilution Factor: 10.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	220000	U
111-44-4	bis(2-Chloroethyl)ether	220000	U
95-57-8	2-Chlorophenol	220000	U
541-73-1	1,3-Dichlorobenzene	220000	U
106-46-7	1,4-Dichlorobenzene	220000	U
100-51-6	Benzyl alcohol	220000	U
95-50-1	1,2-Dichlorobenzene	220000	U
95-48-7	2-Methylphenol	220000	U
108-60-1	bis(2-Chloroisopropyl)ether	220000	U
106-44-5	4-Methylphenol	220000	U
621-64-7	N-Nitroso-di-n-propylamine	220000	U
67-72-1	Hexachloroethane	220000	U
98-95-3	Nitrobenzene	220000	U
78-59-1	Isophorone	220000	U
88-75-5	2-Nitrophenol	220000	U
105-67-9	2,4-Dimethylphenol	220000	U
65-85-0	Benzoic acid	1100000	U
111-91-1	bis(2-Chloroethoxy)methane	220000	U
120-83-2	2,4-Dichlorophenol	220000	U
120-82-1	1,2,4-Trichlorobenzene	220000	U
91-20-3	Naphthalene	220000	U
106-47-8	4-Chloroaniline	220000	U
87-68-3	Hexachlorobutadiene	220000	U
59-50-7	4-Chloro-3-methylphenol	220000	U
91-57-6	2-Methylnaphthalene	82000	J
77-47-4	Hexachlorocyclopentadiene	220000	U
88-06-2	2,4,6-Trichlorophenol	220000	U
95-95-4	2,4,5-Trichlorophenol	1100000	U
91-58-7	2-Chloronaphthalene	220000	U
88-74-4	2-Nitroaniline	1100000	U
131-11-3	Dimethylphthalate	220000	U
208-96-8	Acenaphthylene	220000	U
606-20-2	2,6-Dinitrotoluene	220000	U

FORM I SV-1 1/87 Rev.

being filmed

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S438H-04

Lab Name: S-CUBED Contract: 68D90027

Lab Code: S3 Case No.: SAS No.: S438H SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: S5404

Sample wt/vol: 1.0 (g/mL) G Lab File ID: S5404

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 9 dec._____ Date Extracted: 08/07/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/20/90

GPC Cleanup: (Y/N) Y pH: 8.0 Dilution Factor: 10.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1100000	U
83-32-9	~~Acenaphthene~~	~~160000~~	~~J~~
51-28-5	2,4-Dinitrophenol	1100000	U
100-02-7	4-Nitrophenol	1100000	U
132-64-9	Dibenzofuran	220000	U
121-14-2	2,4-Dinitrotoluene	220000	U
84-66-2	Diethylphthalate	220000	U
7005-72-3	4-Chlorophenyl-phenylether	220000	U
86-73-7	Fluorene	47000	J
100-01-6	4-Nitroaniline	1100000	U
534-52-1	4,6-Dinitro-2-methylphenol	1100000	U
86-30-6	N-Nitrosodiphenylamine (1)	220000	U
101-55-3	4-Bromophenyl-phenylether	220000	U
118-74-1	Hexachlorobenzene	220000	U
87-86-5	Pentachlorophenol	1100000	U
85-01-8	Phenanthrene	320000	
120-12-7	Anthracene	58000	J
84-74-2	Di-n-butylphthalate	220000	U
206-44-0	Fluoranthene	48000	J
129-00-0	Pyrene	340000	
85-68-7	Butylbenzylphthalate	220000	U
91-94-1	3,3'-Dichlorobenzidine	430000	U
56-55-3	Benzo(a)anthracene	220000	U
218-01-9	Chrysene	170000	J
117-81-7	bis(2-Ethylhexyl)phthalate	220000	U
117-84-0	Di-n-octylphthalate	220000	U
205-99-2	Benzo(b)fluoranthene	220000	U
207-08-9	Benzo(k)fluoranthene	220000	U
50-32-8	Benzo(a)pyrene	92000	J
193-39-5	Indeno(1,2,3-cd)pyrene	220000	U
53-70-3	Dibenz(a,h)anthracene	220000	U
191-24-2	Benzo(g,h,i)perylene	220000	U

(1) - Cannot be separated from Diphenylamine

FORM I SV-2

1/87 Rev.

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

5438H-04

Lab Name: S-CUBED Contract: 68D90027

Lab Code: S3 Case No.: SAS No.: 5438H SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: S5404

Sample wt/vol: 1.0 (g/mL) G Lab File ID: S5404

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 3 dec._____ Date Extracted: 08/07/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/20/90

GPC Cleanup : (Y/N) Y pH: 0.0 Dilution Factor: 10.000

Number TICs found: 20

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME		RT	EST. CONC.	Q
1.	DIMETHYL NAPHTHALENE		20.60	690000	J
2.	TRIMETHYL NAPHTHALENE		22.02	560000	J
3.	UNKNOWN HYDROCARBON		24.97	270000	J
4.	METHYL FLUORENE		25.26	150000	J
5.	UNKNOWN		26.91	130000	J
6.	UNKNOWN PNA	C15H12	27.95	190000	J
7.	UNKNOWN PNA	C15H12	28.05	310000	J
8.	UNKNOWN PNA	C15H12	28.32	220000	J
9.	UNKNOWN PNA	C15H12	28.40	270000	J
10.	UNKNOWN		28.76	120000	J
11.	UNKNOWN		28.94	140000	J
12.	UNKNOWN PNA	C16H14	29.42	160000	J
13.	UNKNOWN PNA	C16H14	29.55	200000	J
14.	UNKNOWN PNA	C16H14	29.80	290000	J
15.	UNKNOWN PNA	C16H14	29.90	250000	J
16. 03674-73-5	TRIMETHYL PHENANTHRENE		31.29	300000	J
17.	UNKNOWN PNA	C17H12	32.35	230000	J
18.	UNKNOWN PNA	C17H12	32.66	280000	J
19.	UNKNOWN PNA	C17H12	32.73	290000	J
20.	UNKNOWN		33.06	210000	J
21.					
22.					
23.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

5438H-05

Lab Name: S-CUBED Contract: S8D90027

Lab Code: S3 Case No.: SAS No.: 5438H SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: R5405

Sample wt/vol: 1.0 (g/mL) G Lab File ID: R5405

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 25 dec._____ Date Extracted: 08/07/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/20/90

GPC Cleanup: (Y/N) Y pH: 0.0 Dilution Factor: 10.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	260000	U
111-44-4	bis(2-Chloroethyl)ether	260000	U
95-57-8	2-Chlorophenol	260000	U
541-73-1	1,3-Dichlorobenzene	260000	U
106-46-7	1,4-Dichlorobenzene	260000	U
100-51-6	Benzyl alcohol	260000	U
95-50-1	1,2-Dichlorobenzene	260000	U
95-48-7	2-Methylphenol	260000	U
108-60-1	bis(2-Chloroisopropyl)ether	260000	U
106-44-5	4-Methylphenol	260000	U
621-64-7	N-Nitroso-di-n-propylamine	260000	U
67-72-1	Hexachloroethane	260000	U
98-95-3	Nitrobenzene	260000	U
78-59-1	Isophorone	260000	U
88-75-5	2-Nitrophenol	260000	U
105-67-9	2,4-Dimethylphenol	260000	U
65-85-0	Benzoic acid	1300000	U
111-91-1	bis(2-Chloroethoxy)methane	260000	U
120-83-2	2,4-Dichlorophenol	260000	U
120-82-1	1,2,4-Trichlorobenzene	260000	U
91-20-3	Naphthalene	260000	U
106-47-8	4-Chloroaniline	260000	U
87-68-3	Hexachlorobutadiene	260000	U
59-50-7	4-Chloro-3-methylphenol	260000	U
91-57-6	2-Methylnaphthalene	260000	U
77-47-4	Hexachlorocyclopentadiene	260000	U
88-06-2	2,4,6-Trichlorophenol	260000	U
95-95-4	2,4,5-Trichlorophenol	1300000	U
91-58-7	2-Chloronaphthalene	260000	U
88-74-4	2-Nitroaniline	1300000	U
131-11-3	Dimethylphthalate	260000	U
208-96-8	Acenaphthylene	260000	U
606-20-2	2,6-Dinitrotoluene	260000	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

5438H-05

Lab Name: S-CUBED Contract: 68D90027

Lab Code: S3 Case No.: SAS No.: 5438H SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: R5405

Sample wt/vol: 1.0 (g/mL) G Lab File ID: R5405

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 25 dec._____ Date Extracted: 08/07/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/20/90

GPC Cleanup: (Y/N) Y pH: 0.0 Dilution Factor: 10.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1300000	U
83-32-9	Acenapthene	260000	U
51-28-5	2,4-Dinitrophenol	1300000	U
100-02-7	4-Nitrophenol	1300000	U
132-64-9	Dibenzofuran	260000	U
121-14-2	2,4-Dinitrotoluene	260000	U
84-66-2	Diethylphthalate	260000	U
7005-72-3	4-Chlorophenyl-phenylether	260000	U
86-73-7	Fluorene	33000	J
100-01-6	4-Nitroaniline	1300000	U
534-52-1	4,6-Dinitro-2-methylphenol	1300000	U
86-30-6	N-Nitrosodiphenylamine (1)	260000	U
101-55-3	4-Bromophenyl-phenylether	260000	U
118-74-1	Hexachlorobenzene	260000	U
87-86-5	Pentachlorophenol	1300000	U
85-01-8	Phenanthrene	390000	
120-12-7	Anthracene	41000	J
84-74-2	Di-n-butylphthalate	260000	U
206-44-0	Fluoranthene	55000	J
129-00-0	Pyrene	410000	
85-68-7	Butylbenzylphthalate	260000	U
91-94-1	3,3'-Dichlorobenzidine	530000	U
56-55-3	Benzo(a)anthracene	170000	J
218-01-9	Chrysene	260000	U
117-81-7	bis(2-Ethylhexyl)phthalate	260000	U
117-84-0	Di-n-octylphthalate	260000	U
205-99-2	Benzo(b)fluoranthene	260000	U
207-08-9	Benzo(k)fluoranthene	260000	U
50-32-8	Benzo(a)pyrene	110000	J
193-39-5	Indeno(1,2,3-cd)pyrene	260000	U
53-70-3	Dibenz(a,h)anthracene	260000	U
191-24-2	Benzo(g,h,i)perylene	260000	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

5438H-05

Lab Name: S-CUBED Contract: 68D90027

Lab Code: S3 Case No.: SAS No.: 5438H SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: R5405

Sample wt/vol: 1.0 (g/mL) G Lab File ID: R5405

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 25 dec._____ Date Extracted: 08/07/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/20/90

GPC Cleanup : (Y/N) Y pH: 0.0 Dilution Factor: 10.000

Number TICs found: 20

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	24.88	440000	J
2.	UNKNOWN HYDROCARBON	24.97	400000	J
3.	UNKNOWN HYDROCARBON	27.59	150000	J
4.	UNKNOWN HYDROCARBON	27.69	600000	J
5.	UNKNOWN PNA C15H12	28.06	180000	J
6.	UNKNOWN PNA C15H12	28.41	160000	J
7.	UNKNOWN HYDROCARBON	29.00	650000	J
8.	UNKNOWN PNA C16H14	29.81	170000	J
9.	UNKNOWN	29.91	210000	J
10.	UNKNOWN HYDROCARBON	31.45	1700000	J
11.	UNKNOWN HYDROCARBON	31.86	460000	J
12.	UNKNOWN HYDROCARBON	32.57	1500000	J
13.	UNKNOWN	32.77	400000	J
14.	UNKNOWN HYDROCARBON	33.67	1400000	J
15.	UNKNOWN	34.68	540000	J
16.	UNKNOWN HYDROCARBON	35.72	1200000	J
17.	UNKNOWN HYDROCARBON	36.69	770000	J
18.	UNKNOWN HYDROCARBON	37.63	830000	J
19.	UNKNOWN HYDROCARBON	38.58	750000	J
20.	UNKNOWN HYDROCARBON	39.58	570000	J
21.				
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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

5438H-06

Lab Name: S-CUBED Contract: 68D90027

Lab Code: S3 Case No.: SAS No.: 5438H SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: R5406

Sample wt/vol: 1.0 (g/mL) G Lab File ID: R5406

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 17 dec._____ Date Extracted: 08/07/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/20/90

GPC Cleanup: (Y/N) Y pH: 0.0 Dilution Factor: 10.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	240000	U
111-44-4	bis(2-Chloroethyl)ether	240000	U
95-57-8	2-Chlorophenol	240000	U
541-73-1	1,3-Dichlorobenzene	240000	U
106-46-7	1,4-Dichlorobenzene	240000	U
100-51-6	Benzyl alcohol	240000	U
95-50-1	1,2-Dichlorobenzene	240000	U
95-48-7	2-Methylphenol	240000	U
108-60-1	bis(2-Chloroisopropyl)ether	240000	U
106-44-5	4-Methylphenol	240000	U
621-64-7	N-Nitroso-di-n-propylamine	240000	U
67-72-1	Hexachloroethane	240000	U
98-95-3	Nitrobenzene	240000	U
78-59-1	Isophorone	240000	U
88-75-5	2-Nitrophenol	240000	U
105-67-9	2,4-Dimethylphenol	240000	U
65-85-0	Benzoic acid	1200000	U
111-91-1	bis(2-Chloroethoxy)methane	240000	U
120-83-2	2,4-Dichlorophenol	240000	U
120-82-1	1,2,4-Trichlorobenzene	240000	U
91-20-3	Naphthalene	240000	U
106-47-8	4-Chloroaniline	240000	U
87-68-3	Hexachlorobutadiene	240000	U
59-50-7	4-Chloro-3-methylphenol	240000	U
91-57-6	2-Methylnaphthalene	240000	U
77-47-4	Hexachlorocyclopentadiene	240000	U
88-06-2	2,4,6-Trichlorophenol	240000	U
95-95-4	2,4,5-Trichlorophenol	1200000	U
91-58-7	2-Chloronaphthalene	240000	U
88-74-4	2-Nitroaniline	1200000	U
131-11-3	Dimethylphthalate	240000	U
208-96-8	Acenaphthylene	240000	U
606-20-2	2,6-Dinitrotoluene	240000	U

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1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S438H-06

Lab Name: S-CUBED Contract: 68D90027

Lab Code: S3 Case No.: SAS No.: S438H SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: R5406

Sample wt/vol: 1.0 (g/mL) G Lab File ID: R5406

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 17 dec._____ Date Extracted: 08/07/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/20/90

GPC Cleanup: (Y/N) Y pH: 0.0 Dilution Factor: 10.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1200000	U
83-32-9	Acenapthene	240000	U
51-28-5	2,4-Dinitrophenol	1200000	U
100-02-7	4-Nitrophenol	1200000	U
132-64-9	Dibenzofuran	240000	U
121-14-2	2,4-Dinitrotoluene	240000	U
84-66-2	Diethylphthalate	240000	U
7005-72-3	4-Chlorophenyl-phenylether	240000	U
86-73-7	Fluorene	240000	U
100-01-6	4-Nitroaniline	1200000	U
534-52-1	4,6-Dinitro-2-methylphenol	1200000	U
86-30-6	N-Nitrosodiphenylamine (1)	240000	U
101-55-3	4-Bromophenyl-phenylether	240000	U
118-74-1	Hexachlorobenzene	240000	U
87-86-5	Pentachlorophenol	1200000	U
85-01-8	Phenanthrene	57000	J
120-12-7	Anthracene	240000	U
84-74-2	Di-n-butylphthalate	240000	U
206-44-0	Fluoranthene	240000	U
129-00-0	Pyrene	240000	
85-68-7	Butylbenzylphthalate	240000	U
91-94-1	3,3'-Dichlorobenzidine	480000	U
56-55-3	Benzo(a)anthracene	240000	U
218-01-9	Chrysene	96000	J
117-81-7	bis(2-Ethylhexyl)phthalate	240000	U
117-84-0	Di-n-octylphthalate	240000	U
205-99-2	Benzo(b)fluoranthene	240000	U
207-08-9	Benzo(k)fluoranthene	240000	U
50-32-8	Benzo(a)pyrene	70000	J
193-39-5	Indeno(1,2,3-cd)pyrene	240000	U
53-70-3	Dibenz(a,h)anthracene	240000	U
191-24-2	Benzo(g,h,i)perylene	240000	U

(1) - Cannot be separated from Diphenylamine

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

S438H-06

Lab Name: S-CUBED Contract: 68D90027

Lab Code: S3 Case No.: SAS No.: S438H SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: RS406

Sample wt/vol: 1.0 (g/mL) G Lab File ID: RS406

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 17 dec._____ Date Extracted: 08/07/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/20/90

GPC Cleanup : (Y/N) Y pH: 0.0 Dilution Factor: 10.000

Number TICs found: 20

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN HYDROCARBON	27.67	420000	J
2.	UNKNOWN HYDROCARBON	28.98	580000	J
3.	UNKNOWN PNA C16H14	29.79	130000	J
4.	UNKNOWN	29.88	160000	J
5.	UNKNOWN HYDROCARBON	30.23	600000	J
6.	UNKNOWN HYDROCARBON	31.42	1100000	J
7.	UNKNOWN HYDROCARBON	31.83	210000	J
8.	UNKNOWN PNA C17H12	32.33	220000	J
9.	UNKNOWN HYDROCARBON	32.56	1300000	J
10. 00243-17-4	BENZO B FLUORENE	32.74	180000	J
11.	UNKNOWN HYDROCARBON	33.66	1400000	J
12.	UNKNOWN HYDROCARBON	34.30	1800000	J
13.	UNKNOWN	34.66	400000	J
14.	UNKNOWN HYDROCARBON	35.70	1200000	J
15.	UNKNOWN HYDROCARBON	36.69	1100000	J
16.	UNKNOWN HYDROCARBON	37.63	1300000	J
17.	UNKNOWN HYDROCARBON	38.56	1300000	J
18.	UNKNOWN HYDROCARBON	39.55	1100000	J
19.	UNKNOWN HYDROCARBON	40.72	720000	J
20.	UNKNOWN HYDROCARBON	42.03	320000	J
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

5438H-01

Lab Name: S-CUBED Contract: 68D90027

Lab Code: S3 Case No.: SAS No.: 5438H SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: H3801

Sample wt/vol: 4.000 (g/mL) G Lab File ID: H3801

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 4 Date Analyzed: 07/09/90

Column: (pack/cap) PACK Dilution Factor: 1.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1300	U
74-83-9	Bromomethane	1300	U
75-01-4	Vinyl Chloride	1300	U
75-00-3	Chloroethane	1300	U
75-09-2	Methylene Chloride	1100	BU
67-64-1	Acetone	6600	
75-15-0	Carbon Disulfide	650	U
75-35-4	1,1-Dichloroethene	650	U
75-34-3	1,1-Dichloroethane	650	U
540-59-0	1,2-Dichloroethene (Total)	650	U
67-66-3	Chloroform	650	U
107-06-2	1,2-Dichloroethane	650	U
78-93-3	2-Butanone	14000	
71-55-6	1,1,1-Trichloroethane	650	U
56-23-5	Carbon Tetrachloride	650	U
108-05-4	Vinyl Acetate	1300	U
75-27-4	Bromodichloromethane	650	U
78-87-5	1,2-Dichloropropane	650	U
10061-02-6	trans-1,3-Dichloropropene	650	U
79-01-6	Trichloroethene	650	U
124-48-1	Dibromochloromethane	650	U
79-00-5	1,1,2-Trichloroethane	650	U
71-43-2	Benzene	650	U
10061-01-5	cis-1,3-Dichloropropene	650	U
75-25-2	Bromoform	650	U
591-78-6	2-Hexanone	1300	U
108-10-1	4-Methyl-2-Pentanone	1300	U
127-18-4	Tetrachloroethene	650	U
79-34-5	1,1,2,2-Tetrachloroethane	650	UB
108-88-3	Toluene	3900	
108-90-7	Chlorobenzene	140	J
100-41-4	Ethylbenzene	650	U
100-42-5	Styrene	650	U
1330-20-7	Xylene (total)	650	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

5438H-02

Lab Name: S-CUBED Contract: 68D90027

Lab Code: S3 Case No.: SAS No.: 5438H SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: H3802

Sample wt/vol: 4.000 (g/mL) G Lab File ID: 54382

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 2 Date Analyzed: 07/09/90

Column: (pack/cap) PACK Dilution Factor: 1.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1300	U
74-83-9	Bromomethane	1300	U
75-01-4	Vinyl Chloride	1300	U
75-00-3	Chloroethane	1300	U
75-09-2	Methylene Chloride	970	BU
67-64-1	Acetone	4000	
75-15-0	Carbon Disulfide	640	U
75-35-4	1,1-Dichloroethene	640	U
75-34-3	1,1-Dichloroethane	640	U
540-59-0	1,2-Dichloroethene (Total)	640	U
67-66-3	Chloroform	640	U
107-06-2	1,2-Dichloroethane	640	U
78-93-3	2-Butanone	8800	
71-55-6	1,1,1-Trichloroethane	640	U
56-23-5	Carbon Tetrachloride	640	U
108-05-4	Vinyl Acetate	1300	U
75-27-4	Bromodichloromethane	640	U
78-87-5	1,2-Dichloropropane	640	U
10061-02-6	trans-1,3-Dichloropropene	640	U
79-01-6	Trichloroethene	640	U
124-48-1	Dibromochloromethane	640	U
79-00-5	1,1,2-Trichloroethane	640	U
71-43-2	Benzene	640	U
10061-01-5	cis-1,3-Dichloropropene	640	U
75-25-2	Bromoform	640	U
591-78-6	2-Hexanone	1300	U
108-10-1	4-Methyl-2-Pentanone	1300	U
127-18-4	Tetrachloroethene	640	U
79-34-5	1,1,2,2-Tetrachloroethane	640	UB
108-88-3	Toluene	200	J
108-90-7	Chlorobenzene	640	U
100-41-4	Ethylbenzene	640	U
100-42-5	Styrene	640	U
1330-20-7	Xylene (total)	640	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S438H-03

Lab Name: S-CUBED Contract: 68D90027

Lab Code: S3 Case No.: SAS No.: S438H SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: H3803

Sample wt/vol: 4.000 (g/mL) G Lab File ID: S4383

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 2 Date Analyzed: 07/09/90

Column: (pack/cap) PACK Dilution Factor: 1.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1300	U
74-83-9	Bromomethane	1300	U
75-01-4	Vinyl Chloride	1300	U
75-00-3	Chloroethane	1300	U
75-09-2	Methylene Chloride	900	BU
67-64-1	Acetone	3700	
75-15-0	Carbon Disulfide	150	J
75-35-4	1,1-Dichloroethene	640	U
75-34-3	1,1-Dichloroethane	640	U
540-59-0	1,2-Dichloroethene (Total)	640	U
67-66-3	Chloroform	640	U
107-06-2	1,2-Dichloroethane	640	U
78-93-3	2-Butanone	4700	
71-55-6	1,1,1-Trichloroethane	640	U
56-23-5	Carbon Tetrachloride	640	U
108-05-4	Vinyl Acetate	1300	U
75-27-4	Bromodichloromethane	640	U
78-87-5	1,2-Dichloropropane	640	U
10061-02-6	trans-1,3-Dichloropropene	640	U
79-01-6	Trichloroethene	640	U
124-48-1	Dibromochloromethane	640	U
79-00-5	1,1,2-Trichloroethane	640	U
71-43-2	Benzene	640	U
10061-01-5	cis-1,3-Dichloropropene	640	U
75-25-2	Bromoform	640	U
591-78-6	2-Hexanone	1300	U
108-10-1	4-Methyl-2-Pentanone	1300	U
127-18-4	Tetrachloroethene	640	U
79-34-5	1,1,2,2-Tetrachloroethane	640	UB
108-88-3	Toluene	240	J
108-90-7	Chlorobenzene	640	U
100-41-4	Ethylbenzene	640	U
100-42-5	Styrene	640	U
1330-20-7	Xylene (total)	640	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S438H-04

Lab Name: S-CUBED Contract: 68D90027

Lab Code: S3 Case No.: SAS No.: S438H SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: S5404

Sample wt/vol: 4.000 (g/mL) G Lab File ID: 54384

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 9 Date Analyzed: 07/10/90

Column: (pack/cap) PACK Dilution Factor: 1.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1400	U
74-83-9	Bromomethane	1400	U
75-01-4	Vinyl Chloride	1400	U
75-00-3	Chloroethane	1400	U
75-09-2	Methylene Chloride	890	BU
67-64-1	Acetone	3500	
75-15-0	Carbon Disulfide	680	U
75-35-4	1,1-Dichloroethene	680	U
75-34-3	1,1-Dichloroethane	680	U
540-59-0	1,2-Dichloroethene (Total)	680	U
67-66-3	Chloroform	680	U
107-06-2	1,2-Dichloroethane	680	U
78-93-3	2-Butanone	5100	
71-55-6	1,1,1-Trichloroethane	680	U
56-23-5	Carbon Tetrachloride	680	U
108-05-4	Vinyl Acetate	1400	U
75-27-4	Bromodichloromethane	680	U
78-87-5	1,2-Dichloropropane	680	U
10061-02-6	trans-1,3-Dichloropropene	680	U
79-01-6	Trichloroethene	680	U
124-48-1	Dibromochloromethane	680	U
79-00-5	1,1,2-Trichloroethane	680	U
71-43-2	Benzene	680	U
10061-01-5	cis-1,3-Dichloropropene	680	U
75-25-2	Bromoform	680	U
591-78-6	2-Hexanone	1400	U
108-10-1	4-Methyl-2-Pentanone	1400	U
127-18-4	Tetrachloroethene	170	J
79-34-5	1,1,2,2-Tetrachloroethane	680	U
108-88-3	Toluene	680	U
108-90-7	Chlorobenzene	680	U
100-41-4	Ethylbenzene	680	U
100-42-5	Styrene	680	U
1330-20-7	Xylene (total)	680	U

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

S438H-05

Lab Name: S-CUBED Contract: 68D90027

Lab Code: S3 Case No.: SAS No.: S438H SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: R5405

Sample wt/vol: 4.000 (g/mL) G Lab File ID: R4385

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 25 Date Analyzed: 07/10/90

Column: (pack/cap) PACK Dilution Factor: 1.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1700	U
74-83-9	Bromomethane	1700	U
75-01-4	Vinyl Chloride	1700	U
75-00-3	Chloroethane	1700	U
75-09-2	Methylene Chloride	3000	BU
67-64-1	Acetone	4000	
75-15-0	Carbon Disulfide	840	U
75-35-4	1,1-Dichloroethene	840	U
75-34-3	1,1-Dichloroethane	840	U
540-59-0	1,2-Dichloroethene (Total)	840	U
67-66-3	Chloroform	840	U
107-06-2	1,2-Dichloroethane	840	U
78-93-3	2-Butanone	8000	
71-55-6	1,1,1-Trichloroethane	840	U
56-23-5	Carbon Tetrachloride	840	U
108-05-4	Vinyl Acetate	1700	U
75-27-4	Bromodichloromethane	840	U
78-87-5	1,2-Dichloropropane	840	U
10061-02-6	trans-1,3-Dichloropropene	840	U
79-01-6	Trichloroethene	840	U
124-48-1	Dibromochloromethane	840	U
79-00-5	1,1,2-Trichloroethane	840	U
71-43-2	Benzene	840	U
10061-01-5	cis-1,3-Dichloropropene	840	U
75-25-2	Bromoform	840	U
591-78-6	2-Hexanone	1700	U
108-10-1	4-Methyl-2-Pentanone	1700	U
127-18-4	Tetrachloroethene	840	U
79-34-5	1,1,2,2-Tetrachloroethane	840	U
108-88-3	Toluene	510	J
108-90-7	Chlorobenzene	840	U
100-41-4	Ethylbenzene	840	U
100-42-5	Styrene	840	U
1330-20-7	Xylene (total)	840	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

5438H-06

Lab Name: S-CUBED Contract: 68D90027

Lab Code: S3 Case No.: SAS No.: 5438H SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: R5406

Sample wt/vol: 4.000 (g/mL) G Lab File ID: R4386

Level: (low/med) MED Date Received: 06/28/90

% Moisture: not dec. 17 Date Analyzed: 07/10/90

Column: (pack/cap) PACK Dilution Factor: 1.000

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	1500	U
74-83-9	Bromomethane	1500	U
75-01-4	Vinyl Chloride	1500	U
75-00-3	Chloroethane	1500	U
75-09-2	Methylene Chloride	2600	BU
67-64-1	Acetone	4000	
75-15-0	Carbon Disulfide	750	U
75-35-4	1,1-Dichloroethene	750	U
75-34-3	1,1-Dichloroethane	750	U
540-59-0	1,2-Dichloroethene (Total)	750	U
67-66-3	Chloroform	750	U
107-06-2	1,2-Dichloroethane	750	U
78-93-3	2-Butanone	8000	
71-55-6	1,1,1-Trichloroethane	750	U
56-23-5	Carbon Tetrachloride	750	U
108-05-4	Vinyl Acetate	1500	U
75-27-4	Bromodichloromethane	750	U
78-87-5	1,2-Dichloropropane	750	U
10061-02-6	trans-1,3-Dichloropropene	750	U
79-01-6	Trichloroethene	750	U
124-48-1	Dibromochloromethane	750	U
79-00-5	1,1,2-Trichloroethane	750	U
71-43-2	Benzene	750	U
10061-01-5	cis-1,3-Dichloropropene	750	U
75-25-2	Bromoform	750	U
591-78-6	2-Hexanone	1500	U
108-10-1	4-Methyl-2-Pentanone	1500	U
127-18-4	Tetrachloroethene	750	U
79-34-5	1,1,2,2-Tetrachloroethane	750	U
108-88-3	Toluene	750	U
108-90-7	Chlorobenzene	750	U
100-41-4	Ethylbenzene	750	U
100-42-5	Styrene	750	U
1330-20-7	Xylene (total)	750	U

ANALYSIS DATA SHEET

Laboratory: [illegible]-UBED Sample No: 5438H-01

Contract No: 32214-11

Date Extracted: July-11-1990 Date Analyzed: July-18-1990

Dilution Factor: 1 Percent Moisture: 3.6

CAS No.	Analyte	ug/L or ug/Kg
12674-11-2	AR 1016	524 U
11096-82-5	AR 1260	524 U
11104-28-2	AR 1221	524 U
11141-16-5	AR 1232	524 U
53469-21-9	AR 1242	524 U
12672-29-6	AR 1248	524 U
11097-69-1	AR 1254	524 U

U Analyte not detected. Reported as minimum detection limit.
J Analyte tentatively detected at less than MDL. Value is an estimate.
B Analyte found in blank as well as sample.

ANALYSIS DATA SHEET

Laboratory: [illegible] Sample No: 5458H-02

Contract No: 3221-4

Date Extracted: July-11-90 Date Analyzed: July-18-1990

Dilution Factor: 1 Percent Moisture: 1.6

CAS No.	Analyte	ug/L or ug/Kg
12674-11-2	AR 1016	535U
11096-82-5	AR 1260	535U
11104-28-2	AR 1221	535U
11141-16-5	AR 1232	535U
53469-21-9	AR 1242	535U
12672-29-6	AR 1248	535U
11097-69-1	AR 254	535U

U Analyte not detected. Reported as minimum detection limit.
J Analyte tentatively detected at less than MDL. Value is an estimate.
B Analyte found in blank as well as sample.

ANALYSIS DATA SHEET

Laboratory: [illegible] Sample No: [illegible]

Contract No: 32214-11

Date Extracted: July-11-1990 Date Analyzed: July-12-1990

Dilution Factor: 1 Percent Moisture: 1.8

CAS No.	Analyte	ug/L or ug/Kg
12674-11-2	AR 1016	520 U
11096-82-5	AR 1260	520 U
11104-28-2	AR 1221	520 U
11141-16-5	AR 1232	520 U
53469-21-9	AR 1242	520 U
12672-29-6	AR 1248	520 U
11097-69-1	AR 1254	520 U

U Analyte not detected. Reported as minimum detection limit.
J Analyte tentatively detected at less than MDL. Value is an estimate.
B Analyte found in blank as well as sample.

ANALYSIS DATA SHEET

Laboratory: [illegible]-LABED Sample No: 542PH-24

Contract No: 32214-11

Date Extracted: July-12-1990 Date Analyzed: July-18-1990

Dilution Factor: 1 Percent Moisture: 27

CAS No.	Analyte	ug/L or ug/Kg
12674-11-2	AR 1016	542 U
11096-82-5	AR 1260	542 U
11104-28-2	AR 1221	542 U
11141-16-5	AR 1232	542 U
53469-21-9	AR 1242	542 U
12672-29-6	AR 1248	542 U
11097-69-1	AR 1254	542 U

U Analyte not detected. Reported as minimum detection limit.
J Analyte tentatively detected at less than MDL. Value is an estimate.
B Analyte found in blank as well as sample.

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ANALYSIS DATA SHEET

Laboratory: [illegible] Sample No: 5238H-05

Contract No: 32214-11

Date Extracted: July-12-1990 Date Analyzed: July-18-1990

Dilution Factor: _____ Percent Moisture: 25.2

CAS No.	Analyte	ug/L or ug/Kg
12674-11-2	AR 1016	682 U
11096-82-5	AR 1260	682 U
11104-28-2	AR 1221	682 U
11141-16-5	AR 1232	682 U
53469-21-9	AR 1242	682 U
12672-29-6	AR 1248	682 U
11097-69-1	AR 1254	682 U

U Analyte not detected. Reported as minimum detection limit.
J Analyte tentatively detected at less than MDL. Value is an estimate.
B Analyte found in blank as well as sample.

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SITE / SITE ASSESSMENT SASCOR

ANALYSIS DATA SHEET

Laboratory: S-JUBED Sample No: 5438H-06

Contract No: 3221 4-11

Date Extracted: July-12-1990 Date Analyzed: July-18-1990

Dilution Factor: 1 Percent Moisture: 17.3

CAS No.	Analyte	ug/L or ug/Kg
12674-11-2	AR 1016	599 U
11096-82-5	AR 1260	599 U
11104-28-2	AR 1221	599 U
11141-16-5	AR 1232	599 U
53469-21-9	AR 1242	599 U
12672-29-6	AR 1248	599 U
11097-69-1	AR 1254	599 U

U Analyte not detected. Reported as minimum detection limit.
J Analyte tentatively detected at less than MDL. Value is an estimate.
B Analyte found in blank as well as sample.

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REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

Case No.: 14431 TDD No.: F08-9009-02

Site: Denver & Rio Grande Western Railroad; Alamosa, CO

Contractor Laboratory: Clayton-Novi; Novi, MI

Data Reviewer : Michael P. Charney Date of Review: Sept. 21, 1990

Sample Matrix: Soil and Water

Analysis: VOA--4 Soil, 9 Water, 1 Rinsate + 1 Trip Blank
BNA--4 Soil, 9 Water + 1 Rinsate Blank

Sample Nos.:

HL276	HL277	HL278	HL279	HL280	HL282
HL283	HL284	HL286	HL288	HL292	HL293
HL298	HL299	HL302			

( ) Data are acceptable for use.

(X) Data are acceptable for use with qualifications noted.

( ) Data are preliminary - pending verification.

( ) Data are unacceptable.

Action required by DPO?

No XX The following items require action:

Action required by project officer?

No XX

REVIEW SUMMARY:

The following items were observed and verified upon careful review of the submitted data:

1) All VOA sample fractions exceeded CFR title 40, Part 136 holding times. Due to this fact all VOA data for water samples are flagged "J" or "UJ"--estimated. All BNA fraction water samples met the CFR title 40, part 136 holding times.

2) All GC/MS tune criteria were achieved.

3) Initial calibration (ICAL)--5 point parameters were achieved in all VOA and most BNA calibrations; some continuing calibration (CONCAL) parameters were outside the SOW established control limits; discrepancies are noted in review section 3.0.

4) Analyses of laboratory blanks exhibited some common laboratory contaminants in every VOA blank analysis; some contaminants were found in the BNA soil blanks; blank contaminants are documented in review section 4.0.

5) One VOA sample had two surrogate spike recoveries outside SOW control limits; reanalysis confirmed this surrogate problem to be a matrix problem. Three low level BNA water samples had one surrogate spike recovery outside SOW control limits; no reanalysis of any of these BNA samples was required; see review section 5.0 for additional annotation.

6) One VOA sample had internal standard (IS) area outside SOW control limits (low); reanalysis confirmed this IS problem to be caused by the sample matrix; see review section 7.0 for additional annotation. This is the same sample as is referenced in 5) above.

   One soil sample and all the soil matrix spike/matrix spike duplicate samples demonstrated IS performance problems. These problems are a "matrix effect" and do not significantly affect data quality; see review section 7.0 for additional annotation.

The overall quality of the gas chromatography and mass spectroscopy is very good to excellent. All mass spectral anomalies are explained via annotation provided by the laboratory's mass spectra interpretation expert.

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SITE / SITE ASSESSMENT

ORGANICS (VOA, BNA)

1.0 HOLDING TIMES

Holding times are established and monitored to ensure analytical results accurately represent analyte concentrations in a sample at the time of collection. Exceeding the holding time for a sample generally affects a loss of the analyte due to a variety of mechanisms, such as deposition on the sample container walls, co-precipitation with particulates and volatilization through leaks in the container.

REVIEW RESULTS:

All CFR Title 40, Part 136 holding times were exceeded for the VOA sample fraction. Samples were analyzed 11,12, or 13 days after collection. All water matrix analyses are therefor flagged with "J" or "UJ" to indicate estimated quantitation values or detection limits. No holding time problems exist for the BNA sample fraction.

2.0 GC/MS TUNING

Prior to sample analysis, GC/MS tuning is carried out on the analytical instrumentation using Bromofluorobenzene (BFB) for the volatile (VOA) fraction and Decafluorotriphenylphosphine (DFTPP) for the semivolatile (BNA) fraction. For these compounds, certain ions in their mass spectra must be present in specific amounts to ensure the instrumentation is correctly tuned and can produce proper mass resolution, identification and sensitivity. The failure of the lab to meet GC/MS tuning criteria indicates severe deficiencies exist with the GC/MS system being used.

REVIEW RESULTS:

All tuning criteria for BFB and DFTPP were achieved.

3.0 CALIBRATION

Prior to sample analysis the GC/MS system is initially calibrated at five concentrations for each VOA and BNA Target Compound List (TCL) compound to determine the linearity of response. For each compound an Average Relative Response Factor (RRF) is determined which is later used for compound quantification in sample results. A Relative Standard Deviation (RSD) for the average RRF is also calculated and must be less than the established quality control percentage value. Low RRF values and high RSD values are indicative of unsatisfactory instrument calibration and the system may not be capable of acceptable performance for compounds exhibiting such deficiencies. Calibration must be verified each 12 hour period for a GC/MS system; continuing calibration results check satisfactory maintenance and adjustment on a day to day basis. A continuing calibration RRF value is calculated for each TCL compound and this value is compared to the initial calibration average RRF value. Continuing calibration compound results with low RRF values and/or high RRF % difference values indicate the instrument is no longer correctly calibrated for these compounds.

REVIEW RESULTS:

VOA

All initial calibration RRF and RSD criteria and continuing calibration RRF criteria were achieved. The following analytes failed to achieve the continuing calibration percent difference (%D) requirement of 25:

DATE	ANALYTE	%D
7-08-90 @ 1024	Chloromethane	-25.3
	Acetone	-57.0
	1,2-Dichloroethane	29.2
	2-Butanone	-29.4
	1,1,1-Trichloroethane	26.7
	Carbon Tetrachloride	34.3
	1,2-Dichloroethane-d4	33.3
7-09-90 @ 1151	Methylene Chloride	25.4
	Acetone	26.0
	2-Butanone	27.4
7-10-90 @ 1726	1,2-Dichloroethane	26.9
	1,1,1-Trichloroethane	27.4
	Carbon Tetrachloride	32.5
	Bromoform	32.3

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3.0 CALIBRATION...continued

BNA

All initial and continuing calibration RRF criteria were achieved. The following analytes failed to achieve the initial calibration relative percent different difference (%RSD) requirement of 30 or the continuing calibration percent difference (%D) requirement of 25:

ICAL

DATE	ANALYTE	%RSD
7-30-90	3,3'-Dichlorobenzidine	37.4
8-01-90	3,3'-Dichlorobenzidine	32.9
8-03-90	3,3'-Dichlorobenzidine	32.4

CONCAL

DATE	ANALYTE	%D
8-02-90 @ 1519	4-Nitroanaline	47.0
	3,3'-Dichlorobenzidine	26.4
	bis(2-Ethylhexyl)phthalate	-85.7

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4.0 BLANKS

Laboratory method blank samples are evaluated to assess the existence and magnitude of possible contamination problems. Comparison of sample results to compound concentrations found in blanks makes it possible to determine if these compounds were actually present in the sample or perhaps were introduced as a contaminant during some phase of the analysis procedure.

REVIEW RESULTS:

VOA

Common laboratory contaminants were found in all laboratory blanks. The blank sample with corresponding samples and contaminants are as follows:

BLANK	SAMPLES	CONTAMINANT	AMOUNT (µg/L)
VBLKEA	HL282 HL283 HL284 HL288 HL284MS HL284MSD	Methylene Chloride Acetone	8 18
VBLKEB	HL277 HL278 HL279 HL286 HL292 HL298 HL299 HL302 HL278MS HL278MSD	Methylene Chloride Acetone	2 J 15
VBLKEC	HL276 HL280 HL293	Methylene Chloride	2 J
VBLKED	HL283RE	Methylene Chloride Acetone Chloroform	2 J 19 1 J

4.0 BLANKS ... (continued)

BNA

No target compound list (TCL) compounds were found in the low level water or soil matrix blanks. A common plasticiser, bis(2-Ethylhexyl)phthalate was found in the method blank for medium level soil samples. The level of this contaminant was below the contract required quantitation limit (CRQL) and, while considered during data review, is of little consequence.

Many TICs were observed in the low level soil blank. Some of the TIC contaminants were found in all the low level soil samples indicating sample extraction/preparation contamination. All low level soil matrix TIC identifications have been compared to the blank contaminants whic were:

COMPOUND	RETENTION TIME	
Furan, substituted isomer	2.90	
Benzene, methyl-	3.62	
Unknown	4.43	
4-Hydroxy-4-methyl-2-pentanone	4.87	***
Unknown	4.98	
Unknown	5.93	
Unknown	6.48	
Unknown	7.20	
Decanedioic acid, bis(2-ethylhexyl) ester	27.74	

*** - This is an aldol condensation product which further indicates a possible prep problem.

5.0 SURROGATE SPIKE RECOVERY

Laboratory performance of individual samples is established by means of surrogate spiking activities. All samples are spiked with surrogate compounds prior to preparation and analysis. Unusually low or high surrogate recovery values may indicate some deficiency in the analytical system or some matrix effect exists, resulting in similarly low or high sample results for other compounds as well.

REVIEW RESULTS:

VOA

For all water matrix samples, the surrogate spike recoveries were within percent recovery (%R) control limits. For one soil matrix sample, one surrogate spike recovery was outside control limits; reanalysis confirmed this problem to be caused by the matrix. Results are as follows:

SAMPLE	SURROGATE	%R	CONTROL LIMITS
HL283	Tol-d8	120	81-117
HL283	BFB	68	74-121
HL283RE	Tol-d8	125	81-117

Tol-d8 = Toluene-d8
BFB = Bromofluorobenzene

BNA

All sample analyzed achieved the surrogate recovery requirements specified in SOW 2-88. Three (3) water samples demonstrated surrogate recovery problem with the surrogate 2-Fluorophenol. Note that two (2) of these samples were field duplicates indicating a matrix effect not an analysis problem. The problem surrogates are listed:

	SAMPLE	SURROGATE	%R	CONTROL LIMITS
***	HL277	2-FP	15	21-100
***	HL279	2-FP	11	21-100
	HL286	2-FP	18	21-100

2-FP = 2-Fluorophenol
*** = Field Duplicate Samples.

6.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE ANALYSIS (MS/MSD)

The MS/MSD analysis is designed to evaluate what possible affect the inherent sample matrix might have on compound recovery. To assess the possible matrix effect, specific compounds are spiked into a selected sample and a duplicate of that sample. The spike recoveries and relative % difference (RPD) between the sample and the duplicate are then determined. Poor spike recoveries and high RPD values may indicate a significant matrix is present and is adversely affecting sample results for that particular matrix or sample medium.

REVIEW RESULTS:

Both VOA and BNA sample fractions achieved good matrix spike/matrix spike duplicate results for water and soil sample matrices.

VOA

WATER:
RPD: 5 of 5 within control limits.
Spike Recovery: 10 of 10 within control limits.

SOIL:
RPD: 5 of 5 within control limits.
Spike Recovery: 10 of 10 within control limits.

BNA

WATER:
RPD: 11 of 11 within control limits.
Spike Recovery: 20 of 22 within control limits.

SOIL: LOW
RPD: 11 of 11 within control limits.
Spike Recovery: 21 of 22 within control limits.

SOIL: MEDIUM
RPD: 11 of 11 within control limits.
Spike Recovery: 20 of 22 within control limits.

7.0 INTERNAL STANDARDS PERFORMANCE

Target compound list (TCL) components identified in samples are quantified using internal standards which are spiked at specific concentrations into each sample. The retention times and chromatogram peak areas for the internal standards in each sample must fall within established quality control limits to ensure that sample quantitation is correct.

REVIEW RESULTS:

VOA

All internal standards (IS) achieved the SOW established retention time (RT) criteria. One sample, HL283, had (IS) area recovery outside SOW control limits (low); reanalysis, HL283RE, confirmed this IS problem to be caused by the sample matrix. This problem was not so extreme as to prevent the affected data from being used. All associated data was flagged with a "J" estimated qualifier.

BNA

All internal standards (IS) achieved the SOW established retention time (RT) criteria. One sample and the associated matrix spike/matrix spike duplicate aliquots demonstrated low response for three of internal standards. This problem was not so extreme as to prevent the affected data from being used. All associated data was flagged with a "J" estimated qualifier.

8.0 COMPOUND IDENTIFICATION

The presence of all TCL compounds found in samples is verified by comparing the mass spectra for the sample compounds to mass spectra obtained from pure standard compounds when run through the GC/MS systems. Retention times for sample compounds are also checked and should match retention times established by the calibration standards. If a sample compound does not meet these criteria, it should be rejected on the basis of tentative evidence.

REVIEW RESULTS:

VOA

All TCL and TIC compound identifications were appropriate and acceptable. No modifications to any data identifications was required.

BNA

All TCL compound identifications were appropriate and acceptable. Some TIC "hits" were modified to less specific identifications. An mass spectra, sample versus standard, discrepancies were thoroughly explained.

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL276

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 830957

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: E0978

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ Date Analyzed: 07/10/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	UJ
74-83-9	Bromomethane	10	UJ
75-01-4	Vinyl Chloride	10	UJ
75-00-3	Chloroethane	10	UJ
75-09-2	Methylene Chloride	5	UJ
67-64-1	Acetone	10	UJ
75-15-0	Carbon Disulfide	5	UJ
75-35-4	1,1-Dichloroethene	5	UJ
75-35-3	1,1-Dichloroethane	5	UJ
540-59-0	1,2-Dichloroethene (total)	5	UJ
67-66-3	Chloroform	5	UJ
107-06-2	1,2-Dichloroethane	5	UJ
78-93-3	2-Butanone	10	UJ
71-55-6	1,1,1-Trichloroethane	5	UJ
56-23-5	Carbon Tetrachloride	5	UJ
108-05-4	Vinyl Acetate	10	UJ
75-27-4	Bromodichloromethane	5	UJ
78-87-5	1,2-Dichloropropane	5	UJ
10061-01-5	cis-1,3-Dichloropropene	5	UJ
79-01-6	Trichloroethene	5	UJ
124-48-1	Dibromochloromethane	5	UJ
79-00-5	1,1,2-Trichloroethane	5	UJ
71-43-2	Benzene	5	UJ
10061-02-6	Trans-1,3-Dichloropropene	5	UJ
75-25-2	Bromoform	5	UJ
108-10-1	4-Methyl-2-Pentanone	10	UJ
591-78-6	2-Hexanone	10	UJ
127-18-4	Tetrachloroethene	5	UJ
79-34-5	1,1,2,2-Tetrachloroethane	5	UJ
108-88-3	Toluene	5	UJ
108-90-7	Chlorobenzene	5	UJ
100-41-4	Ethylbenzene	5	UJ
100-42-5	Styrene	5	UJ
1330-20-7	Total Xylenes	5	UJ

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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL276

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 930923

Sample wt/vol: 1000 (g/mL) ML Lab File ID: D8141

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/28/90

GPC Cleanup: (Y/N) N pH: 5.9 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

MR 9-24-90

14431-8-210-02

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL276

Lab Name: CLAYTON NOVI Contract: 68-09-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 930923

Sample wt/vol: 1000 (g/mL) ML Lab File ID: D8141

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/28/90

GPC Cleanup: (Y/N) N pH: 5.9 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

9-24-90

being filmed

14431 · 8 = 211-01

EPA SAMPLE NO.

HL275

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 330923

Sample wt/vol: 1000 g/mL) ML Lab File ID: D8141

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/28/90

GPC Cleanup: (Y/N) N pH: 5.8 Dilution Factor: 1.0

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown Phthalate ester	28.32	8.1	J
2.	Unknown Phthalate ester	28.44	8.7	J

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(MR) 9-24-90

14431 • 8-110-02

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL277

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 830960

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: E0970

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ Date Analyzed: 07/09/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	UJ
74-83-9	Bromomethane	10	UJ
75-01-4	Vinyl Chloride	10	UJ
75-00-3	Chloroethane	10	UJ
75-09-2	Methylene Chloride	5	UJ
67-64-1	Acetone	10	UJ
75-15-0	Carbon Disulfide	5	UJ
75-35-4	1,1-Dichloroethene	5	UJ
75-35-3	1,1-Dichloroethane	5	UJ
540-59-0	1,2-Dichloroethene (total)	5	UJ
67-66-3	Chloroform	5	UJ
107-06-2	1,2-Dichloroethane	5	UJ
78-93-3	2-Butanone	10	UJ
71-55-6	1,1,1-Trichloroethane	5	UJ
56-23-5	Carbon Tetrachloride	5	UJ
108-05-4	Vinyl Acetate	10	UJ
75-27-4	Bromodichloromethane	5	UJ
78-87-5	1,2-Dichloropropane	5	UJ
10061-01-5	cis-1,3-Dichloropropene	5	UJ
79-01-6	Trichloroethene	5	UJ
124-48-1	Dibromochloromethane	5	UJ
79-00-5	1,1,2-Trichloroethane	5	UJ
71-43-2	Benzene	5	UJ
10061-02-6	Trans-1,3-Dichloropropene	5	UJ
75-25-2	Bromoform	5	UJ
108-10-1	4-Methyl-2-Pentanone	10	UJ
591-78-6	2-Hexanone	10	UJ
127-18-4	Tetrachloroethene	5	UJ
79-34-5	1,1,2,2-Tetrachloroethane	5	UJ
108-88-3	Toluene	1	J
108-90-7	Chlorobenzene	5	UJ
100-41-4	Ethylbenzene	5	UJ
100-42-5	Styrene	5	UJ
1330-20-7	Total Xylenes	5	UJ

14431-8-210-03

18

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL277

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 930925

Sample wt/vol: 1000 g/mL) ML Lab File ID: D8142

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/28/90

GPC Cleanup: (Y/N) N pH: 5.2 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

MR 9-24-90

14431 • 8 - 210 -04

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL277

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 830925

Sample wt/vol: 1000 g/mL) ML Lab File ID: D8142

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/28/90

GPC Cleanup: (Y/N) N pH: 5.2 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	9	J
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

MR 9-24-90

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14431-8-211-02

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HL277

Lab Name: CLAYTON NOVI Contract: 68-09-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 330925

Sample wt/vol: 1000 (g/mL) ML Lab File ID: D8142

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/28/90

GPC Cleanup: (Y/N) N pH: 6.2 Dilution Factor: 1.0

Number TICs found: 10

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 109524	Pentanoic acid (SCI)	4.87	18	J
2. ~~103022~~ MPC	~~Benzeneacetic acid (SCI)~~ Unknown	11.54	17	J
3. 57103	Hexadecanoic acid (SCI)	20.45	17	J
4.	Unknown	26.04	16	J
5.	Unknown	26.82	20	J
6.	Unknown	27.62	51	J
7.	Unknown	28.49	26	J
8.	Unknown	29.49	25	J
9.	Unknown	30.64	13	J
10.	Unknown	32.02	24	J

OK

MPC
9-24-90

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14431 • 8-110-03

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL278

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 830961

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: E0964

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ Date Analyzed: 07/09/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	UJ
74-83-9	Bromomethane	10	UJ
75-01-4	Vinyl Chloride	10	UJ
75-00-3	Chloroethane	10	UJ
75-09-2	Methylene Chloride	5 ~~3~~ ~~83~~	UJ
67-64-1	Acetone	19 ~~78~~	UJ
75-15-0	Carbon Disulfide	5	UJ
75-35-4	1,1-Dichloroethene	5	UJ
75-35-3	1,1-Dichloroethane	5	UJ
540-59-0	1,2-Dichloroethene (total)	5	UJ
67-66-3	Chloroform	5	UJ
107-06-2	1,2-Dichloroethane	5	UJ
78-93-3	2-Butanone	10	UJ
71-55-6	1,1,1-Trichloroethane	5	UJ
56-23-5	Carbon Tetrachloride	5	UJ
108-05-4	Vinyl Acetate	10	UJ
75-27-4	Bromodichloromethane	5	UJ
78-87-5	1,2-Dichloropropane	5	UJ
10061-01-5	cis-1,3-Dichloropropene	5	UJ
79-01-6	Trichloroethene	5	UJ
124-48-1	Dibromochloromethane	5	UJ
79-00-5	1,1,2-Trichloroethane	5	UJ
71-43-2	Benzene	5	UJ
10061-02-6	Trans-1,3-Dichloropropene	5	UJ
75-25-2	Bromoform	5	UJ
108-10-1	4-Methyl-2-Pentanone	10	UJ
591-78-6	2-Hexanone	10	UJ
127-18-4	Tetrachloroethene	5	UJ
79-34-5	1,1,2,2-Tetrachloroethane	5	UJ
108-88-3	Toluene	5	UJ
108-90-7	Chlorobenzene	5	UJ
100-41-4	Ethylbenzene	5	UJ
100-42-5	Styrene	5	UJ
1330-20-7	Total Xylenes	5	UJ

9/18-90

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL278

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 330927

Sample wt/vol: 1000 g/mL) ML Lab File ID: D8164

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/30/90

GPC Cleanup: (Y/N) N pH: 5.4 Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

(MP) 9-24-90

14431-8-210-06

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL278

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL278

Matrix: (soil/water) WATER Lab Sample ID: 330927

Sample wt/vol: 1000 (g/mL) ML Lab File ID: D8164

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/30/90

GPC Cleanup: (Y/N) N pH: 5.4 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	UJ
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

mp 9-24-90

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HL278

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL275

Matrix: (soil/water) WATER Lab Sample ID: 930927

Sample wt/vol: 1000 (g/mL) ML Lab File ID: D8164

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/30/90

GPC Cleanup: (Y/N) N pH: 5.4 Dilution Factor: 1.0

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown Siloxane	27.01	9.5	J
2.	Unknown Siloxane	28.14	23	J
3.	Unknown Siloxane	29.46	21	J

CMPDS from SLOPPY INSTRUMENT (INJ PORT) MAINTENANCE
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL279

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 830967

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: E0967

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ Date Analyzed: 07/09/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	UJ
74-83-9	Bromomethane	10	UJ
75-01-4	Vinyl Chloride	10	UJ
75-00-3	Chloroethane	10	UJ
75-09-2	Methylene Chloride	5 ~~2~~ ~~BJ~~	UJ
67-64-1	Acetone	10	UJ
75-15-0	Carbon Disulfide	5	UJ
75-35-4	1,1-Dichloroethene	5	UJ
75-35-3	1,1-Dichloroethane	5	UJ
540-59-0	1,2-Dichloroethene (total)	5	UJ
67-66-3	Chloroform	5	UJ
107-06-2	1,2-Dichloroethane	5	UJ
78-93-3	2-Butanone	10	UJ
71-55-6	1,1,1-Trichloroethane	5	UJ
56-23-5	Carbon Tetrachloride	5	UJ
108-05-4	Vinyl Acetate	10	UJ
75-27-4	Bromodichloromethane	5	UJ
78-87-5	1,2-Dichloropropane	5	UJ
10061-01-5	cis-1,3-Dichloropropene	5	UJ
79-01-6	Trichloroethene	5	UJ
124-48-1	Dibromochloromethane	5	UJ
79-00-5	1,1,2-Trichloroethane	5	UJ
71-43-2	Benzene	5	UJ
10061-02-6	Trans-1,3-Dichloropropene	5	UJ
75-25-2	Bromoform	5	UJ
108-10-1	4-Methyl-2-Pentanone	10	UJ
591-78-6	2-Hexanone	10	UJ
127-18-4	Tetrachloroethene	5	UJ
79-34-5	1,1,2,2-Tetrachloroethane	5	UJ
108-88-3	Toluene	5	UJ
108-90-7	Chlorobenzene	5	UJ
100-41-4	Ethylbenzene	5	UJ
100-42-5	Styrene	5	UJ
1330-20-7	Total Xylenes	5	UJ

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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL279

Lab Name: CLAYTON NOVI Contract: 68-09-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 930933

Sample wt/vol: 1000 (g/mL) ML Lab File ID: D8197

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 08/01/90

GPC Cleanup: (Y/N) N pH: 6.2 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

MR 9-24-90

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL279

Lab Name: CLAYTON NOVI Contract: 68-09-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 630933

Sample wt/vol: 1000 g/mL) ML Lab File ID: D8197

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 08/01/90

GPC Cleanup: (Y/N) N pH: 5.2 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	UJ
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

ME 9-24-90

FORM I SV-2 1/87 Rev.

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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HL279

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 830933

Sample wt/vol: 1000 (g/mL) ML Lab File ID: D8197

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 08/01/90

GPC Cleanup: (Y/N) N pH: 6.2 Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	32.62	28	J

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL280

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 830969

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: E0979

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ Date Analyzed: 07/10/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	UJ
74-83-9	Bromomethane	10	UJ
75-01-4	Vinyl Chloride	10	UJ
75-00-3	Chloroethane	10	UJ
75-09-2	Methylene Chloride	12	~~UB~~ J
67-64-1	Acetone	9	J
75-15-0	Carbon Disulfide	5	UJ
75-35-4	1,1-Dichloroethene	5	UJ
75-35-3	1,1-Dichloroethane	5	UJ
540-59-0	1,2-Dichloroethene (total)	5	UJ
67-66-3	Chloroform	5	UJ
107-06-2	1,2-Dichloroethane	5	UJ
78-93-3	2-Butanone	10	UJ
71-55-6	1,1,1-Trichloroethane	5	UJ
56-23-5	Carbon Tetrachloride	5	UJ
108-05-4	Vinyl Acetate	10	UJ
75-27-4	Bromodichloromethane	5	UJ
78-87-5	1,2-Dichloropropane	5	UJ
10061-01-5	cis-1,3-Dichloropropene	5	UJ
79-01-6	Trichloroethene	5	UJ
124-48-1	Dibromochloromethane	5	UJ
79-00-5	1,1,2-Trichloroethane	5	UJ
71-43-2	Benzene	5	UJ
10061-02-6	Trans-1,3-Dichloropropene	5	UJ
75-25-2	Bromoform	5	UJ
108-10-1	4-Methyl-2-Pentanone	10	UJ
591-78-6	2-Hexanone	10	UJ
127-18-4	Tetrachloroethene	5	UJ
79-34-5	1,1,2,2-Tetrachloroethane	5	UJ
108-88-3	Toluene	3	J
108-90-7	Chlorobenzene	5	UJ
100-41-4	Ethylbenzene	5	UJ
100-42-5	Styrene	5	UJ
1330-20-7	Total Xylenes	5	UJ

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL280

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 330935

Sample wt/vol: 1000 (g/mL) ML Lab File ID: D8081

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/26/90

GPC Cleanup: (Y/N) N pH: 6.9 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL280

Lab Name: CLAYTON NOVI Contract: 68-09-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL275

Matrix: (soil/water) WATER Lab Sample ID: 930935

Sample wt/vol: 1000 (g/mL) ML Lab File ID: D8081

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/26/90

GPC Cleanup: (Y/N) N pH: 5.9 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 1/87 Rev.

MR 9-24-90

14431-S-211-05

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HL280

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL275

Matrix: (soil/water) WATER Lab Sample ID: 830935

Sample wt/vol: 1000 (g/mL) ML Lab File ID: D8081

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/26/90

GPC Cleanup: (Y/N) N pH: 5.9 Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 112345	Ethanol, 2-(2-butoxyethoxy)-	11.97	18	J

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1/87 Rev.

ME 9-24-90

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL282

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) SOIL Lab Sample ID: 830983

Sample wt/vol: 5.0 (g/mL) G Lab File ID: E0943

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. 14 Date Analyzed: 07/08/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	12	UJ
74-83-9	Bromomethane	12	UJ
75-01-4	Vinyl Chloride	12	UJ
75-00-3	Chloroethane	12	UJ
75-09-2	Methylene Chloride	10 mrc ~~18~~	UJ
67-64-1	Acetone	12 mrc ~~9~~ ~~18J~~	UJ
75-15-0	Carbon Disulfide	6	UJ
75-35-4	1,1-Dichloroethene	6	UJ
75-35-3	1,1-Dichloroethane	6	UJ
540-59-0	1,2-Dichloroethene (total)	6	UJ
67-66-3	Chloroform	6	UJ
107-06-2	1,2-Dichloroethane	6	UJ
78-93-3	2-Butanone	12	UJ
71-55-6	1,1,1-Trichloroethane	6	UJ
56-23-5	Carbon Tetrachloride	6	UJ
108-05-4	Vinyl Acetate	12	UJ
75-27-4	Bromodichloromethane	6	UJ
78-87-5	1,2-Dichloropropane	6	UJ
10061-01-5	cis-1,3-Dichloropropene	6	UJ
79-01-6	Trichloroethene	6	UJ
124-48-1	Dibromochloromethane	6	UJ
79-00-5	1,1,2-Trichloroethane	6	UJ
71-43-2	Benzene	6	UJ
10061-02-6	Trans-1,3-Dichloropropene	6	UJ
75-25-2	Bromoform	6	UJ
108-10-1	4-Methyl-2-Pentanone	12	UJ
591-78-6	2-Hexanone	12	UJ
127-18-4	Tetrachloroethene	6	UJ
79-34-5	1,1,2,2-Tetrachloroethane	6	UJ
108-88-3	Toluene	6	UJ
108-90-7	Chlorobenzene	6	UJ
100-41-4	Ethylbenzene	6	UJ
100-42-5	Styrene	6	UJ
1330-20-7	Total Xylenes	6	UJ

(MP) 7/18/90

14431 · 8-210-11

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL282

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) SOIL Lab Sample ID: 830948

Sample wt/vol: 30.0 (g/mL) G Lab File ID: D8224

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. 14 dec. 10 Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/90

GPC Cleanup: (Y/N) Y pH: 5.5 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	730	U
111-44-4	bis(2-Chloroethyl)Ether	730	U
95-57-8	2-Chlorophenol	730	U
541-73-1	1,3-Dichlorobenzene	730	U
106-46-7	1,4-Dichlorobenzene	730	U
100-51-6	Benzyl Alcohol	730	U
95-50-1	1,2-Dichlorobenzene	730	U
95-48-7	2-Methylphenol	730	U
39638-32-9	bis(2-Chloroisopropyl)Ether	730	U
106-44-5	4-Methylphenol	730	U
621-64-7	N-Nitroso-Di-n-Propylamine	730	U
67-72-1	Hexachloroethane	730	U
98-95-3	Nitrobenzene	730	U
78-59-1	Isophorone	730	U
88-75-5	2-Nitrophenol	730	U
105-67-9	2,4-Dimethylphenol	730	U
65-85-0	Benzoic Acid	3600	U
111-91-1	bis(2-Chloroethoxy)Methane	730	U
120-83-2	2,4-Dichlorophenol	730	U
120-82-1	1,2,4-Trichlorobenzene	730	U
91-20-3	Naphthalene	730	U
106-47-8	4-Chloroaniline	730	U
87-68-3	Hexachlorobutadiene	730	U
59-50-7	4-Chloro-3-Methylphenol	730	U
91-57-6	2-Methylnaphthalene	730	U
77-47-4	Hexachlorocyclopentadiene	730	U
88-06-2	2,4,6-Trichlorophenol	730	U
95-95-4	2,4,5-Trichlorophenol	3600	U
91-58-7	2-Chloronaphthalene	730	U
88-74-4	2-Nitroaniline	3600	U
131-11-3	Dimethyl Phthalate	730	U
208-96-8	Acenaphthylene	730	U
606-20-2	2,6-Dinitrotoluene	730	U

MC 9-24-90

14431 : 8-210-12

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL282

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) SOIL Lab Sample ID: 930948

Sample wt/vol: 30.0 (g/mL) G Lab File ID: D8224

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. 14 dec. 10 Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/90

GPC Cleanup: (Y/N) Y pH: 5.5 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	3600	U
83-32-9	Acenaphthene	730	U
51-28-5	2,4-Dinitrophenol	3600	U
100-02-7	4-Nitrophenol	3600	U
132-64-9	Dibenzofuran	730	U
121-14-2	2,4-Dinitrotoluene	730	U
84-66-2	Diethylphthalate	730	U
7005-72-3	4-Chlorophenyl-phenylether	730	U
86-73-7	Fluorene	730	U
100-10-6	4-Nitroaniline	3600	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	3600	U
86-30-6	N-Nitrosodiphenylamine (1)	730	U
101-55-3	4-Bromophenyl-phenylether	730	U
118-74-1	Hexachlorobenzene	730	U
87-86-5	Pentachlorophenol	3600	U
85-01-8	Phenanthrene	730	U
120-12-7	Anthracene	730	U
84-74-2	Di-n-Butylphthalate	730	U
206-44-0	Fluoranthene	730	U
129-00-0	Pyrene	730	U
85-68-7	Butylbenzylphthalate	730	U
91-94-1	3,3'-Dichlorobenzidine	1500	UJ
56-55-3	Benzo(a)Anthracene	730	U
218-01-9	Chrysene	730	U
117-81-7	bis(2-Ethylhexyl)Phthalate	730	U
117-84-0	Di-n-Octyl Phthalate	730	U
205-99-2	Benzo(b)Fluoranthene	730	U
207-08-9	Benzo(k)Fluoranthene	730	U
50-32-8	Benzo(a)Pyrene	730	U
193-39-5	Indeno(1,2,3-cd)Pyrene	730	U
53-70-3	Dibenz(a,h)Anthracene	730	U
191-24-2	Benzo(g,h,i)Perylene	730	U

(1) - Cannot be separated from Diphenylamine

9-24-90

14431 · 8-211-06

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HL282

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL275

Matrix: (soil/water) SOIL Lab Sample ID: 930948

Sample wt/vol: 30.0 (g/mL) G Lab File ID: D8224

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. 14 dec. 10 Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/90

GPC Cleanup: (Y/N) Y pH: 5.5 Dilution Factor: 1.0

Number TICs found: 12

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
~~1. 36~~	~~Benzene, methyl-~~	~~3.62~~	~~510~~	~~J~~ MPC
~~2. 108214~~ MPC	~~Acetic acid, 1-methylethyl ester~~ Unknown	4.45	3500	~~MPC BJ~~ UB
3. 123422	4-Hydroxy-4-Methyl-2-Pentano	4.88	30000	MPC ~~ABJ~~ UB
4.	Unknown ~~Ester or Ketone~~ MPC	5.97	660	~~MPC BJ~~ UB
5.	Unknown ~~Ester or Ketone~~ MPC	6.18	1300	J
6. ~~4436753~~ MPC	~~3-Hexene-2,5-dione (8CISCI)~~ UNKNOWN	6.52	3000	~~MPC BJ~~ UB
7.	Unknown ~~Ester or Ketone~~ MPC	7.23	1800	~~MPC BJ~~ UB
8.	Unknown ~~Ester or Ketone~~ MPC	8.27	7100	J
9.	Unknown ~~Ester or Ketone~~ MPC	9.14	410	J
10.	Unknown Hydrocarbon	25.22	450	J
11.	Unknown Hydrocarbon	26.82	870	J
12.	Unknown Hydrocarbon	28.47	2700	J

MPC 9-24-90

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14431 · 8-110-07

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL283

Lab Name: CLAYTON NOVI Contract: 68-09-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) SOIL Lab Sample ID: 830985

Sample wt/vol: 5.0 (g/mL) G Lab File ID: E0944

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. 55 Date Analyzed: 07/08/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	22	UJ
74-83-9	Bromomethane	22	UJ
75-01-4	Vinyl Chloride	22	UJ
75-00-3	Chloroethane	22	UJ
75-09-2	Methylene Chloride	24	~~B~~ UJ
67-64-1	Acetone	85	~~B~~ UJ
75-15-0	Carbon Disulfide	11	UJ
75-35-4	1,1-Dichloroethene	11	UJ
75-35-3	1,1-Dichloroethane	11	UJ
540-59-0	1,2-Dichloroethene (total)	11	UJ
67-66-3	Chloroform	11	UJ
107-06-2	1,2-Dichloroethane	11	UJ
78-93-3	2-Butanone	100	J
71-55-6	1,1,1-Trichloroethane	11	UJ
56-23-5	Carbon Tetrachloride	11	UJ
108-05-4	Vinyl Acetate	22	UJ
75-27-4	Bromodichloromethane	11	UJ
78-87-5	1,2-Dichloropropane	11	UJ
10061-01-5	cis-1,3-Dichloropropene	11	UJ
79-01-6	Trichloroethene	11	UJ
124-48-1	Dibromochloromethane	11	UJ
79-00-5	1,1,2-Trichloroethane	11	UJ
71-43-2	Benzene	11	UJ
10061-02-6	Trans-1,3-Dichloropropene	11	UJ
75-25-2	Bromoform	11	UJ
108-10-1	4-Methyl-2-Pentanone	22	UJ
591-78-6	2-Hexanone	22	UJ
127-18-4	Tetrachloroethene	11	UJ
79-34-5	1,1,2,2-Tetrachloroethane	11	UJ
108-88-3	Toluene	210	J
108-90-7	Chlorobenzene	11	UJ
100-41-4	Ethylbenzene	11	UJ
100-42-5	Styrene	11	UJ
1330-20-7	Total Xylenes	11	UJ

JMR 9-18-90

14431 • 8-111-07

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HL283

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) SOIL Lab Sample ID: 830985

Sample wt/vol: 5.0 (g/mL) G Lab File ID: E0944

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. 55 Date Analyzed: 07/08/90

Column (pack/cap) PACK Dilution Factor: 1.0

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 115071	1-Propene (SCI)	2.08	20	J
~~2.~~	~~Background CO2 (System Artif~~	~~7.13~~	~~21~~	~~J~~ MC

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being filmed
SITE/SITE ASSESSMENT
SAS/SDS

14431 · 8-110-08

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL283RE

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) SOIL Lab Sample ID: 830985

Sample wt/vol: 5.0 (g/mL) G Lab File ID: E0996

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. 55 Date Analyzed: 07/10/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	22	UJ
74-83-9	Bromomethane	22	UJ
75-01-4	Vinyl Chloride	22	UJ
75-00-3	Chloroethane	22	UJ
75-09-2	Methylene Chloride	6	~~BJ~~ UJ
67-64-1	Acetone	160	~~B~~ UJ
75-15-0	Carbon Disulfide	11	UJ
75-35-4	1,1-Dichloroethene	11	UJ
75-35-3	1,1-Dichloroethane	11	UJ
540-59-0	1,2-Dichloroethene (total)	11	UJ
67-66-3	Chloroform	11	UJ
107-06-2	1,2-Dichloroethane	11	UJ
78-93-3	2-Butanone	120	J
71-55-6	1,1,1-Trichloroethane	11	UJ
56-23-5	Carbon Tetrachloride	11	UJ
108-05-4	Vinyl Acetate	22	UJ
75-27-4	Bromodichloromethane	11	UJ
78-87-5	1,2-Dichloropropane	11	UJ
10061-01-5	cis-1,3-Dichloropropene	11	UJ
79-01-6	Trichloroethene	11	UJ
124-48-1	Dibromochloromethane	11	UJ
79-00-5	1,1,2-Trichloroethane	11	UJ
71-43-2	Benzene	11	UJ
10061-02-6	Trans-1,3-Dichloropropene	11	UJ
75-25-2	Bromoform	11	UJ
108-10-1	4-Methyl-2-Pentanone	22	UJ
591-78-6	2-Hexanone	22	UJ
127-18-4	Tetrachloroethene	11	UJ
79-34-5	1,1,2,2-Tetrachloroethane	11	UJ
108-88-3	Toluene	150	J
108-90-7	Chlorobenzene	11	UJ
100-41-4	Ethylbenzene	11	UJ
100-42-5	Styrene	11	UJ
1330-20-7	Total Xylenes	11	UJ

(JR)

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1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HL283RE

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) SOIL Lab Sample ID: 830985

Sample wt/vol: 5.0 (g/mL) G Lab File ID: E0996

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. 55 Date Analyzed: 07/10/90

Column (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 115071	1-Propene (9CI)	2.23	21	J

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14431 • 8 -210 -13

SEMIVOLATILE ORGANICS 1B ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL283

Lab Name: CLAYTON NOVI Contract: 68-09-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) SOIL Lab Sample ID: 330950

Sample wt/vol: 1.0 (g/mL) G Lab File ID: D8230

Level: (low/med) MED Date Received: 06/30/90

% Moisture: not dec. 55 dec. 50 Date Extracted: 07/05/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/90

GPC Cleanup: (Y/N) N pH: 7.4 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	40000	U
111-44-4	bis(2-Chloroethyl)Ether	40000	U
95-57-8	2-Chlorophenol	40000	U
541-73-1	1,3-Dichlorobenzene	40000	U
106-46-7	1,4-Dichlorobenzene	40000	U
100-51-6	Benzyl Alcohol	40000	U
95-50-1	1,2-Dichlorobenzene	40000	U
95-48-7	2-Methylphenol	40000	U
39638-32-9	bis(2-Chloroisopropyl)Ether	40000	U
106-44-5	4-Methylphenol	40000	U
621-64-7	N-Nitroso-Di-n-Propylamine	40000	U
67-72-1	Hexachloroethane	40000	U
98-95-3	Nitrobenzene	40000	U
78-59-1	Isophorone	40000	U
88-75-5	2-Nitrophenol	40000	U
105-67-9	2,4-Dimethylphenol	40000	U
65-85-0	Benzoic Acid	190000	U
111-91-1	bis(2-Chloroethoxy)Methane	40000	U
120-83-2	2,4-Dichlorophenol	40000	U
120-82-1	1,2,4-Trichlorobenzene	40000	U
91-20-3	Naphthalene	40000	U
106-47-8	4-Chloroaniline	40000	U
87-68-3	Hexachlorobutadiene	40000	U
59-50-7	4-Chloro-3-Methylphenol	40000	U
91-57-6	2-Methylnaphthalene	40000	U
77-47-4	Hexachlorocyclopentadiene	40000	U
88-06-2	2,4,6-Trichlorophenol	40000	U
95-95-4	2,4,5-Trichlorophenol	190000	U
91-58-7	2-Chloronaphthalene	40000	U
88-74-4	2-Nitroaniline	190000	U
131-11-3	Dimethyl Phthalate	40000	U
208-96-8	Acenaphthylene	40000	U
606-20-2	2,6-Dinitrotoluene	40000	U

MP 9-24-90

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1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL283

Lab Name: CLAYTON NOVI Contract: 68-09-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL275

Matrix: (soil/water) SOIL Lab Sample ID: 830950

Sample wt/vol: 1.0 (g/mL) G Lab File ID: D8230

Level: (low/med) MED Date Received: 06/30/90

% Moisture: not dec. 55 dec. 50 Date Extracted: 07/05/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/90

GPC Cleanup: (Y/N) N pH: 7.4 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	190000	U
83-32-9	Acenaphthene	40000	U
51-28-5	2,4-Dinitrophenol	190000	U
100-02-7	4-Nitrophenol	190000	U
132-64-9	Dibenzofuran	40000	U
121-14-2	2,4-Dinitrotoluene	40000	U
84-66-2	Diethylphthalate	40000	U
7005-72-3	4-Chlorophenyl-phenylether	40000	U
86-73-7	Fluorene	40000	U
100-10-6	4-Nitroaniline	190000	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	190000	U
86-30-6	N-Nitrosodiphenylamine (1)	40000	U
101-55-3	4-Bromophenyl-phenylether	40000	U
118-74-1	Hexachlorobenzene	40000	U
87-86-5	Pentachlorophenol	190000	U
85-01-8	Phenanthrene	40000	U
120-12-7	Anthracene	40000	U
84-74-2	Di-n-Butylphthalate	40000	U
206-44-0	Fluoranthene	40000	U
129-00-0	Pyrene	82000	
85-68-7	Butylbenzylphthalate	40000	U
91-94-1	3,3'-Dichlorobenzidine	79000	UJ
56-55-3	Benzo(a)Anthracene	40000	U
218-01-9	Chrysene	40000	
117-81-7	bis(2-Ethylhexyl)Phthalate	4600	BJ
117-84-0	Di-n-Octyl Phthalate	40000	U
205-99-2	Benzo(b)Fluoranthene	12000	J
207-08-9	Benzo(k)Fluoranthene	40000	U
50-32-8	Benzo(a)Pyrene	11000	J
193-39-5	Indeno(1,2,3-cd)Pyrene	40000	U
53-70-3	Dibenz(a,h)Anthracene	40000	U
191-24-2	Benzo(g,h,i)Perylene	33000	J

(1) - Cannot be separated from Diphenylamine

MMC 9-24-90

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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HL283

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) SOIL Lab Sample ID: 930950

Sample wt/vol: 1.0 (g/mL) G Lab File ID: D8230

Level: (low/med) MED Date Received: 06/30/90

% Moisture: not dec. 55 dec. 50 Date Extracted: 07/05/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/90

GPC Cleanup: (Y/N) N pH: 7.4 Dilution Factor: 1.0

Number TICs found: 23

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	22.47	130000	J
2. 3574735	Phenanthrene, 2,3,5-trimethy	22.64	87000	J
3.	Unknown Hydrocarbon	22.97	100000	J
4.	Unknown	23.24	200000	J
5. 2381217	Pyrene, 1-methyl- (8CI,9CI)	23.52	110000	J
6. 3442782	Pyrene, 2-methyl- (8CI,9CI)	23.74	190000	J
7. 238846	11H-Benzo[a]fluorene (8CI,9CI	23.82	57000	J
8.	Unknown	25.06	79000	J
9.	Unknown	26.86	77000	J
10.	Unknown	27.62	100000	J
11.	Unknown	27.92	100000	J
12.	Unknown	28.24	72000	J
13. 55028734	1,4-Methanonaphthalene, 1,4-	28.62	130000	J
14.	Unknown	28.74	64000	J
15. 192972	Benzo[e]pyrene (8CI,9CI)	28.92	100000	J
16.	Unknown	29.56	65000	J
17. 111784	1,5-Cyclooctadiene (8CI,9CI)	29.77	59000	J
18.	Unknown	30.24	98000	J
19.	Unknown	30.29	64000	J
20.	Unknown	31.11	62000	J
21.	Unknown	31.19	65000	J
22.	Unknown	32.27	170000	J
23.	Unknown	33.84	59000	J

WPC
9-24-90

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL284

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) SOIL Lab Sample ID: 830987

Sample wt/vol: 5.0 (g/mL) G Lab File ID: E0945

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. 47 Date Analyzed: 07/08/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	19	UJ
74-83-9	Bromomethane	19	UJ
75-01-4	Vinyl Chloride	19	UJ
75-00-3	Chloroethane	19	UJ
75-09-2	Methylene Chloride	18	~~48~~ UJ
67-64-1	Acetone	29	~~48~~ UJ
75-15-0	Carbon Disulfide	9	UJ
75-35-4	1,1-Dichloroethene	9	UJ
75-35-3	1,1-Dichloroethane	9	UJ
540-59-0	1,2-Dichloroethene (total)	9	UJ
67-66-3	Chloroform	9	UJ
107-06-2	1,2-Dichloroethane	9	UJ
78-93-3	2-Butanone	19	UJ
71-55-6	1,1,1-Trichloroethane	9	UJ
56-23-5	Carbon Tetrachloride	9	UJ
108-05-4	Vinyl Acetate	19	UJ
75-27-4	Bromodichloromethane	9	UJ
78-87-5	1,2-Dichloropropane	9	UJ
10061-01-5	cis-1,3-Dichloropropene	9	UJ
79-01-6	Trichloroethene	9	UJ
124-48-1	Dibromochloromethane	9	UJ
79-00-5	1,1,2-Trichloroethane	9	UJ
71-43-2	Benzene	9	UJ
10061-02-6	Trans-1,3-Dichloropropene	9	UJ
75-25-2	Bromoform	9	UJ
108-10-1	4-Methyl-2-Pentanone	19	UJ
591-78-6	2-Hexanone	19	UJ
127-18-4	Tetrachloroethene	9	UJ
79-34-5	1,1,2,2-Tetrachloroethane	9	UJ
108-88-3	Toluene	9	UJ
108-90-7	Chlorobenzene	9	UJ
100-41-4	Ethylbenzene	9	UJ
100-42-5	Styrene	9	UJ
1330-20-7	Total Xylenes	9	UJ

(MP) 9/18

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SEMIVOLATILE ORGANICS 1B ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL284

Lab Name: CLAYTON NOVI Contract: 68-09-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL275

Matrix: (soil/water) SOIL Lab Sample ID: 330952

Sample wt/vol: 30.0 (g/mL) G Lab File ID: D8226

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. 47 dec. 37 Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/90

GPC Cleanup: (Y/N) Y pH: 6.3 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	1000	U
111-44-4	bis(2-Chloroethyl)Ether	1000	U
95-57-8	2-Chlorophenol	1000	U
541-73-1	1,3-Dichlorobenzene	1000	U
106-46-7	1,4-Dichlorobenzene	1000	U
100-51-6	Benzyl Alcohol	1000	U
95-50-1	1,2-Dichlorobenzene	1000	U
95-48-7	2-Methylphenol	1000	U
39638-32-9	bis(2-Chloroisopropyl)Ether	1000	U
106-44-5	4-Methylphenol	1000	U
621-64-7	N-Nitroso-Di-n-Propylamine	1000	U
67-72-1	Hexachloroethane	1000	U
98-95-3	Nitrobenzene	1000	U
78-59-1	Isophorone	1000	U
88-75-5	2-Nitrophenol	1000	U
105-67-9	2,4-Dimethylphenol	120	J
65-85-0	Benzoic Acid	5100	U
111-91-1	bis(2-Chloroethoxy)Methane	1000	U
120-83-2	2,4-Dichlorophenol	1000	U
120-82-1	1,2,4-Trichlorobenzene	1000	U
91-20-3	Naphthalene	660	J
106-47-8	4-Chloroaniline	1000	U
87-68-3	Hexachlorobutadiene	1000	U
59-50-7	4-Chloro-3-Methylphenol	1000	U
91-57-6	2-Methylnaphthalene	2300	
77-47-4	Hexachlorocyclopentadiene	1000	U
88-06-2	2,4,6-Trichlorophenol	1000	U
95-95-4	2,4,5-Trichlorophenol	5100	U
91-58-7	2-Chloronaphthalene	1000	U
88-74-4	2-Nitroaniline	5100	U
131-11-3	Dimethyl Phthalate	1000	U
208-96-8	Acenaphthylene	1000	U
606-20-2	2,6-Dinitrotoluene	1000	U

mp 2-24-90

being filmed

14431 8-210-16

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL284

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL275

Matrix: (soil/water) SOIL Lab Sample ID: 330952

Sample wt/vol: 30.0 (g/mL) G Lab File ID: D8225

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. 47 dec. 37 Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/90

GPC Cleanup: (Y/N) Y pH: 5.3 Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND		Q
99-09-2	3-Nitroaniline	5100	U
83-32-9	Acenaphthene	140	J
51-28-5	2,4-Dinitrophenol	5100	U
100-02-7	4-Nitrophenol	5100	U
132-64-9	Dibenzofuran	1000	U
121-14-2	2,4-Dinitrotoluene	1000	U
84-66-2	Diethylphthalate	1000	U
7005-72-3	4-Chlorophenyl-phenylether	1000	U
86-73-7	Fluorene	290	J
100-10-6	4-Nitroaniline	5100	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	5100	U
86-30-6	N-Nitrosodiphenylamine (1)	1000	U
101-55-3	4-Bromophenyl-phenylether	1000	U
118-74-1	Hexachlorobenzene	1000	U
87-86-5	Pentachlorophenol	5100	U
85-01-8	Phenanthrene	2200	
120-12-7	Anthracene	490	J
84-74-2	Di-n-Butylphthalate	1000	U
206-44-0	Fluoranthene	150	J
129-00-0	Pyrene	3300	
85-68-7	Butylbenzylphthalate	1000	U
91-94-1	3,3'-Dichlorobenzidine	2100	UJ
56-55-3	Benzo(a)Anthracene	1000	U
218-01-9	Chrysene	2200	
117-81-7	bis(2-Ethylhexyl)Phthalate	1000	U
117-84-0	Di-n-Octyl Phthalate	1000	U
205-99-2	Benzo(b)Fluoranthene	1000	U
207-08-9	Benzo(k)Fluoranthene	1000	J
50-32-8	Benzo(a)Pyrene	1300	
193-39-5	Indeno(1,2,3-cd)Pyrene	1000	U
53-70-3	Dibenz(a,h)Anthracene	1000	U
191-24-2	Benzo(g,h,i)Perylene	4700	

(1) - Cannot be separated from Diphenylamine

MP 9-24-90

FORM I SV-2 1/87 Rev.

1F 14431 - 9 -211-08

EPA SAMPLE NO.

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

HL284

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) SOIL Lab Sample ID: 830952

Sample wt/vol: 30.0 (g/mL) G Lab File ID: D8226

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. 47 dec. 37 Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/90

GPC Cleanup: (Y/N) Y pH: 5.3 Dilution Factor: 1.0

Number TICs found: 23

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 108883	Benzene, methyl- (9CI)	3.57	1600	MC ~~BJ~~ UB
~~2. 108214~~ MC	~~Acetic acid, 1-methylethyl e~~ Unknown	4.37	4200	MC ~~BJ~~ UB
3. 123422	4-Hydroxy-4-Methyl-2-Pentano	4.83	37000	MC ~~ABJ~~ UB
4.	Unknown ~~Ester or Ketone~~ MC	5.93	800	MC ~~BJ~~ UB
5.	C9H20 Hydrocarbon	6.17	710	J
~~6. 1436753~~ MC	~~3-Hexene 2,5-dione (9CI)~~ Unknown	6.48	4400	MC ~~BJ~~ UB
7.	Unknown ~~Ester or Ketone~~ MC	7.23	3100	BJ
8.	Unknown ~~Ester or Ketone~~ MC	8.20	3900	J
9. 90120	Naphthalene, 1-methyl- (8CI9	12.47	1100	J
10.	Unknown Hydrocarbon	13.52	700	J
11. 1127760	Naphthalene, 1-ethyl- (8CI9C	13.64	910	J
12.	Dimethyl Naphthalene	13.80	1300	J
13.	Dimethyl Naphthalene	14.02	1200	J
14.	Dimethyl Naphthalene	14.07	960	J
15. 939275	Naphthalene, 2-ethyl- (8CI9C	14.30	690	J
16.	Unknown Hydrocarbon	16.17	1300	J
17.	Dimethyl Undecane	16.77	870	J
18.	Unknown Hydrocarbon	17.37	1700	J
19.	Unknown Hydrocarbon	17.45	2300	J
20.	Unknown Hydrocarbon	18.54	1400	J
21.	Unknown Hydrocarbon	19.64	1200	J
22.	Unknown Hydrocarbon	20.67	900	J
23.	Unknown Hydrocarbon	21.67	1000	J

MR 9-24-90

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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL286

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 830971

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: E0969

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ Date Analyzed: 07/09/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	UJ
74-83-9	Bromomethane	10	UJ
75-01-4	Vinyl Chloride	10	UJ
75-00-3	Chloroethane	10	UJ
75-09-2	Methylene Chloride	5	UJ
67-64-1	Acetone	10	UJ
75-15-0	Carbon Disulfide	5	UJ
75-35-4	1,1-Dichloroethene	5	UJ
75-35-3	1,1-Dichloroethane	5	UJ
540-59-0	1,2-Dichloroethene (total)	5	UJ
67-66-3	Chloroform	5	UJ
107-06-2	1,2-Dichloroethane	5	UJ
78-93-3	2-Butanone	10	UJ
71-55-6	1,1,1-Trichloroethane	5	UJ
56-23-5	Carbon Tetrachloride	5	UJ
108-05-4	Vinyl Acetate	10	UJ
75-27-4	Bromodichloromethane	5	UJ
78-87-5	1,2-Dichloropropane	5	UJ
10061-01-5	cis-1,3-Dichloropropene	5	UJ
79-01-6	Trichloroethene	5	UJ
124-48-1	Dibromochloromethane	5	UJ
79-00-5	1,1,2-Trichloroethane	5	UJ
71-43-2	Benzene	5	UJ
10061-02-6	Trans-1,3-Dichloropropene	5	UJ
75-25-2	Bromoform	5	UJ
108-10-1	4-Methyl-2-Pentanone	10	UJ
591-78-6	2-Hexanone	10	UJ
127-18-4	Tetrachloroethene	5	UJ
79-34-5	1,1,2,2-Tetrachloroethane	5	UJ
108-88-3	Toluene	5	UJ
108-90-7	Chlorobenzene	5	UJ
100-41-4	Ethylbenzene	5	UJ
100-42-5	Styrene	5	UJ
1330-20-7	Total Xylenes	5	UJ

MF 7/18/90

14431-8-210-17

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
HL286

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 830937

Sample wt/vol: 1000 g/mL) ML Lab File ID: D8082

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/25/90

GPC Cleanup: (Y/N) N pH: 5.2 Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	2	J
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

(MR)

being filmed
SITE/SITE ASSESSMENT
SASC 19

14431-8-210-18

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL286

Lab Name: CLAYTON NOVI Contract: 68-09-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 830937

Sample wt/vol: 1000 g/mL) ML Lab File ID: D8082

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/26/90

GPC Cleanup: (Y/N) N pH: 6.2 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

JMR 9-24-90

FORM I SV-2 1/87 Rev.

being filmed
SITE/SITE ASSESSMENT
PASCIS

14431 · 8 - 211-09

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HL286

Lab Name: CLAYTON NOVI Contract: 68-09-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL275

Matrix: (soil/water) WATER Lab Sample ID: 830937

Sample wt/vol: 1000 g/mL) ML Lab File ID: D8082

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/26/90

GPC Cleanup: (Y/N) N pH: 6.2 Dilution Factor: 1.0

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 28634891	Bicyclo[3.1.0]hex-2-ene, 4-m	9.39	45	J

9-24-90

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL288

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) SOIL Lab Sample ID: 830989

Sample wt/vol: 5.0 (g/mL) G Lab File ID: E0946

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. 96 Date Analyzed: 07/08/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	250	UJ
74-83-9	Bromomethane	250	UJ
75-01-4	Vinyl Chloride	250	UJ
75-00-3	Chloroethane	250	UJ
75-09-2	Methylene Chloride	230	~~B~~ UJ
67-64-1	Acetone	700	~~B~~ UJ
75-15-0	Carbon Disulfide	130	UJ
75-35-4	1,1-Dichloroethene	130	UJ
75-35-3	1,1-Dichloroethane	130	UJ
540-59-0	1,2-Dichloroethene (total)	130	UJ
67-66-3	Chloroform	130	UJ
107-06-2	1,2-Dichloroethane	130	UJ
78-93-3	2-Butanone	250	UJ
71-55-6	1,1,1-Trichloroethane	130	UJ
56-23-5	Carbon Tetrachloride	130	UJ
108-05-4	Vinyl Acetate	250	UJ
75-27-4	Bromodichloromethane	130	UJ
78-87-5	1,2-Dichloropropane	130	UJ
10061-01-5	cis-1,3-Dichloropropene	130	UJ
79-01-6	Trichloroethene	130	UJ
124-48-1	Dibromochloromethane	130	UJ
79-00-5	1,1,2-Trichloroethane	130	UJ
71-43-2	Benzene	130	UJ
10061-02-6	Trans-1,3-Dichloropropene	130	UJ
75-25-2	Bromoform	130	UJ
108-10-1	4-Methyl-2-Pentanone	250	UJ
591-78-6	2-Hexanone	250	UJ
127-18-4	Tetrachloroethene	130	UJ
79-34-5	1,1,2,2-Tetrachloroethane	130	UJ
108-88-3	Toluene	24	J
108-90-7	Chlorobenzene	130	UJ
100-41-4	Ethylbenzene	130	UJ
100-42-5	Styrene	130	UJ
1330-20-7	Total Xylenes	130	UJ

FORM 22B 1/87 Rev.

14431 8-210-19

SEMIVOLATILE ORGANICS[18] ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL288

Lab Name: CLAYTON NOVI Contract: 68-09-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) SOIL Lab Sample ID: 930954

Sample wt/vol: 30.0 g/mL) G Lab File ID: D8225

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. 35 dec. 31 Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/90

GPC Cleanup: (Y/N) Y pH: 7.1 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	3100	J
111-44-4	bis(2-Chloroethyl)Ether	7300	U
95-57-8	2-Chlorophenol	7300	U
541-73-1	1,3-Dichlorobenzene	7300	U
106-46-7	1,4-Dichlorobenzene	7300	U
100-51-6	Benzyl Alcohol	7300	U
95-50-1	1,2-Dichlorobenzene	7300	U
95-48-7	2-Methylphenol	7300	U
39638-32-9	bis(2-Chloroisopropyl)Ether	7300	U
106-44-5	4-Methylphenol	34000	
621-64-7	N-Nitroso-Di-n-Propylamine	7300	U
67-72-1	Hexachloroethane	7300	U
98-95-3	Nitrobenzene	7300	U
78-59-1	Isophorone	7300	U
88-75-5	2-Nitrophenol	7300	U
105-67-9	2,4-Dimethylphenol	7300	U
65-85-0	Benzoic Acid	8500	J
111-91-1	bis(2-Chloroethoxy)Methane	7300	U
120-83-2	2,4-Dichlorophenol	7300	U
120-82-1	1,2,4-Trichlorobenzene	7300	U
91-20-3	Naphthalene	7300	U
106-47-8	4-Chloroaniline	7300	U
87-68-3	Hexachlorobutadiene	7300	U
59-50-7	4-Chloro-3-Methylphenol	7300	U
91-57-6	2-Methylnaphthalene	7300	U
77-47-4	Hexachlorocyclopentadiene	7300	U
88-06-2	2,4,6-Trichlorophenol	7300	U
95-95-4	2,4,5-Trichlorophenol	36000	U
91-58-7	2-Chloronaphthalene	7300	U
88-74-4	2-Nitroaniline	36000	U
131-11-3	Dimethyl Phthalate	7300	U
208-96-8	Acenaphthylene	7300	U
606-20-2	2,6-Dinitrotoluene	7300	U

MR 9-24-90

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL288

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL275

Matrix: (soil/water) SOIL Lab Sample ID: 930954

Sample wt/vol: 30.0 (g/mL) G Lab File ID: 08225

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. 96 dec. 31 Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/90

GPC Cleanup: (Y/N) Y pH: 7.1 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	36000	U
83-32-9	Acenaphthene	7300	U
51-28-5	2,4-Dinitrophenol	36000	U
100-02-7	4-Nitrophenol	36000	U
132-64-9	Dibenzofuran	7300	U
121-14-2	2,4-Dinitrotoluene	7300	U
84-66-2	Diethylphthalate	7300	U
7005-72-3	4-Chlorophenyl-phenylether	7300	U
86-73-7	Fluorene	7300	U
100-10-6	4-Nitroaniline	36000	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	36000	U
86-30-6	N-Nitrosodiphenylamine (1)	7300	U
101-55-3	4-Bromophenyl-phenylether	7300	U
118-74-1	Hexachlorobenzene	7300	U
87-86-5	Pentachlorophenol	840	J
85-01-8	Phenanthrene	1300	J
120-12-7	Anthracene	7300	U
84-74-2	Di-n-Butylphthalate	7300	U
206-44-0	Fluoranthene	2100	J
129-00-0	Pyrene	1500	J
85-68-7	Butylbenzylphthalate	7300	U
91-94-1	3,3'-Dichlorobenzidine	15000	UJ
56-55-3	Benzo(a)Anthracene	960	J
218-01-9	Chrysene	1400	J
117-81-7	bis(2-Ethylhexyl)Phthalate	7300	U
117-84-0	Di-n-Octyl Phthalate	7300	U
205-99-2	Benzo(b)Fluoranthene	7300	U
207-08-9	Benzo(k)Fluoranthene	770	J
50-32-8	Benzo(a)Pyrene	7300	U
193-39-5	Indeno(1,2,3-cd)Pyrene	7300	U
53-70-3	Dibenz(a,h)Anthracene	7300	U
191-24-2	Benzo(g,h,i)Perylene	7300	U

(1) - Cannot be separated from Diphenylamine

MR 9-24-90

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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HL288

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) SOIL Lab Sample ID: 530954

Sample wt/vol: 30.0 (g/mL) G Lab File ID: D8225

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. 36 dec. 31 Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 08/02/90

GPC Cleanup: (Y/N) Y pH: 7.1 Dilution Factor: 1.0

Number TICs found: 24

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown ~~Ester~~ MPC	4.47	38000	J
2. 123422	4-Hydroxy-4-Methyl-2-Pentano	4.92	240000	MPC/BJ
3.	C9H20 Hydrocarbon	6.22	28000	J
~~4. 4436753~~ MPC	~~3-Hexene 2,5-drone (8CISCI)~~ Unknown	6.53	26000	BJ
5.	Unknown ~~Ketone or Ester~~ MPC	7.28	35000	BJ
6.	Unknown ~~Ester or Ketone~~ MPC	8.27	26000	J
7. 10544500	Sulfur, mol.	21.65	290000	J
8.	Unknown hydrocarbon	23.52	30000	J
9.	Unknown	24.74	43000	J
~~10. 629970~~ MPC	~~Docosane (8CISCI)~~ Unknown Hydrocarbon	25.24	84000	J
11.	Unknown Hydrocarbon	26.06	45000	J
12.	Unknown Hydrocarbon	26.87	230000	J
13.	Unknown	27.41	23000	J
14.	Unknown Hydrocarbon	27.62	90000	J
~~15. 56554871~~ MPC	~~16-Octadecenal (8CI)~~ unknown aldehyde	27.99	110000	J
16.	Unknown Hydrocarbon	28.52	380000	J
~~17. 629709~~ MPC	~~1-Hexadecanol, acetate (8CIS)~~ Unknown	29.19	35000	J
~~18. 638654~~ MPC	~~Octadecanal (8CI)~~ unknown aldehyde	30.02	23000	J
19.	Unknown	30.29	26000	J
20.	Unknown	31.61	74000	J
21.	Unknown	33.89	22000	J
22.	Unknown	34.99	150000	J
23.	Unknown	35.91	27000	J
24.	Unknown	36.89	49000	J

MP 9-24-90

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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL292

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 830973

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: E0963

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ Date Analyzed: 07/09/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	UJ
74-83-9	Bromomethane	10	UJ
75-01-4	Vinyl Chloride	10	UJ
75-00-3	Chloroethane	10	UJ
75-09-2	Methylene Chloride	5	~~UB~~ UJ
67-64-1	Acetone	52	~~UB~~ UJ
75-15-0	Carbon Disulfide	5	UJ
75-35-4	1,1-Dichloroethene	5	UJ
75-35-3	1,1-Dichloroethane	5	UJ
540-59-0	1,2-Dichloroethene (total)	5	UJ
67-66-3	Chloroform	5	UJ
107-06-2	1,2-Dichloroethane	5	UJ
78-93-3	2-Butanone	10	UJ
71-55-6	1,1,1-Trichloroethane	5	UJ
56-23-5	Carbon Tetrachloride	5	UJ
108-05-4	Vinyl Acetate	10	UJ
75-27-4	Bromodichloromethane	5	UJ
78-87-5	1,2-Dichloropropane	5	UJ
10061-01-5	cis-1,3-Dichloropropene	5	UJ
79-01-6	Trichloroethene	5	UJ
124-48-1	Dibromochloromethane	5	UJ
79-00-5	1,1,2-Trichloroethane	5	UJ
71-43-2	Benzene	5	UJ
10061-02-6	Trans-1,3-Dichloropropene	5	UJ
75-25-2	Bromoform	5	UJ
108-10-1	4-Methyl-2-Pentanone	10	UJ
591-78-6	2-Hexanone	10	UJ
127-18-4	Tetrachloroethene	5	UJ
79-34-5	1,1,2,2-Tetrachloroethane	5	UJ
108-88-3	Toluene	5	UJ
108-90-7	Chlorobenzene	5	UJ
100-41-4	Ethylbenzene	5	UJ
100-42-5	Styrene	5	UJ
1330-20-7	Total Xylenes	5	UJ

14431-8-210-21

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL292

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 930939

Sample wt/vol: 1000 g/mL) ML Lab File ID: D8083

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/26/90

GPC Cleanup: (Y/N) N pH: 5.8 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

MPC 9-24-90

14431-S-210-22

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL292

Lab Name: CLAYTON NOVI Contract: 68-09-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 930939

Sample wt/vol: 1000 (g/mL) ML Lab File ID: D8083

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/26/90

GPC Cleanup: (Y/N) N pH: 5.8 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

FORM I SV-2 1/87 Rev. 9-20-90

14431 • 8-110-13

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL293

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 830976

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: E0980

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ Date Analyzed: 07/10/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	UJ
74-83-9	Bromomethane	10	UJ
75-01-4	Vinyl Chloride	10	UJ
75-00-3	Chloroethane	10	UJ
75-09-2	Methylene Chloride	5 ~~3~~ ~~181~~	UJ
67-64-1	Acetone	10	UJ
75-15-0	Carbon Disulfide	5	UJ
75-35-4	1,1-Dichloroethene	5	UJ
75-35-3	1,1-Dichloroethane	5	UJ
540-59-0	1,2-Dichloroethene (total)	5	UJ
67-66-3	Chloroform	5	UJ
107-06-2	1,2-Dichloroethane	5	UJ
78-93-3	2-Butanone	10	UJ
71-55-6	1,1,1-Trichloroethane	5	UJ
56-23-5	Carbon Tetrachloride	5	UJ
108-05-4	Vinyl Acetate	10	UJ
75-27-4	Bromodichloromethane	5	UJ
78-87-5	1,2-Dichloropropane	5	UJ
10061-01-5	cis-1,3-Dichloropropene	5	UJ
79-01-6	Trichloroethene	5	UJ
124-48-1	Dibromochloromethane	5	UJ
79-00-5	1,1,2-Trichloroethane	5	UJ
71-43-2	Benzene	5	UJ
10061-02-6	Trans-1,3-Dichloropropene	5	UJ
75-25-2	Bromoform	5	UJ
108-10-1	4-Methyl-2-Pentanone	10	UJ
591-78-6	2-Hexanone	10	UJ
127-18-4	Tetrachloroethene	5	UJ
79-34-5	1,1,2,2-Tetrachloroethane	5	UJ
108-88-3	Toluene	5	UJ
108-90-7	Chlorobenzene	5	UJ
100-41-4	Ethylbenzene	5	UJ
100-42-5	Styrene	5	UJ
1330-20-7	Total Xylenes	5	UJ

14431 · 8-210-23

'B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL293

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 830941

Sample wt/vol: 1000 g/mL) ML Lab File ID: D8196

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 08/01/90

GPC Cleanup: (Y/N) N pH: 5.5 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

9-24-90

14431 - 8-210-24

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL293

Lab Name: CLAYTON NOVI Contract: 68-09-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL275

Matrix: (soil/water) WATER Lab Sample ID: 930941

Sample wt/vol: 1000 g/mL) ML Lab File ID: D8196

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 08/01/90

GPC Cleanup: (Y/N) N pH: 5.5 Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	Q	
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	-Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U J
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

9-24-90

14431 - 8-110-14

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL298

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 830977

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: E0972

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ Date Analyzed: 07/09/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3	Chloromethane	10	UJ
74-83-9	Bromomethane	10	UJ
75-01-4	Vinyl Chloride	10	UJ
75-00-3	Chloroethane	10	UJ
75-09-2	Methylene Chloride	5	UJ
67-64-1	Acetone	10	UJ
75-15-0	Carbon Disulfide	5	UJ
75-35-4	1,1-Dichloroethene	5	UJ
75-35-3	1,1-Dichloroethane	5	UJ
540-59-0	1,2-Dichloroethene (total)	5	UJ
67-66-3	Chloroform	5	UJ
107-06-2	1,2-Dichloroethane	5	UJ
78-93-3	2-Butanone	10	UJ
71-55-6	1,1,1-Trichloroethane	5	UJ
56-23-5	Carbon Tetrachloride	5	UJ
108-05-4	Vinyl Acetate	10	UJ
75-27-4	Bromodichloromethane	5	UJ
78-87-5	1,2-Dichloropropane	5	UJ
10061-01-5	cis-1,3-Dichloropropene	5	UJ
79-01-6	Trichloroethene	5	UJ
124-48-1	Dibromochloromethane	5	UJ
79-00-5	1,1,2-Trichloroethane	5	UJ
71-43-2	Benzene	5	UJ
10061-02-6	Trans-1,3-Dichloropropene	5	UJ
75-25-2	Bromoform	5	UJ
108-10-1	4-Methyl-2-Pentanone	10	UJ
591-78-6	2-Hexanone	10	UJ
127-18-4	Tetrachloroethene	5	UJ
79-34-5	1,1,2,2-Tetrachloroethane	5	UJ
108-88-3	Toluene	5	UJ
108-90-7	Chlorobenzene	5	UJ
100-41-4	Ethylbenzene	5	UJ
100-42-5	Styrene	5	UJ
1330-20-7	Total Xylenes	5	UJ

14431 • a-210-25

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL298

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 930943

Sample wt/vol: 1000 (g/mL) ML Lab File ID: D8195

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 08/01/90

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

mm 9-24-90

being filmed

14431 Q-210-26

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL298

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL275

Matrix: (soil/water) WATER Lab Sample ID: 330943

Sample wt/vol: 1000 (g/mL) ML Lab File ID: D8195

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 08/01/90

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	UJ
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

MP 9-24-90

14431 • 8-110-15

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL299

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 830979

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: E0973

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ Date Analyzed: 07/09/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	UJ
74-83-9	Bromomethane	10	UJ
75-01-4	Vinyl Chloride	10	UJ
75-00-3	Chloroethane	10	UJ
75-09-2	Methylene Chloride	5	UJ
67-64-1	Acetone	10	UJ
75-15-0	Carbon Disulfide	5	UJ
75-35-4	1,1-Dichloroethene	5	UJ
75-35-3	1,1-Dichloroethane	5	UJ
540-59-0	1,2-Dichloroethene (total)	5	UJ
67-66-3	Chloroform	5	UJ
107-06-2	1,2-Dichloroethane	5	UJ
78-93-3	2-Butanone	10	UJ
71-55-6	1,1,1-Trichloroethane	5	UJ
56-23-5	Carbon Tetrachloride	5	UJ
108-05-4	Vinyl Acetate	10	UJ
75-27-4	Bromodichloromethane	5	UJ
78-87-5	1,2-Dichloropropane	5	UJ
10061-01-5	cis-1,3-Dichloropropene	5	UJ
79-01-6	Trichloroethene	5	UJ
124-48-1	Dibromochloromethane	5	UJ
79-00-5	1,1,2-Trichloroethane	5	UJ
71-43-2	Benzene	5	UJ
10061-02-6	Trans-1,3-Dichloropropene	5	UJ
75-25-2	Bromoform	10	UJ
108-10-1	4-Methyl-2-Pentanone	10	UJ
591-78-6	2-Hexanone	5	UJ
127-18-4	Tetrachloroethene	5	UJ
79-34-5	1,1,2,2-Tetrachloroethane	5	UJ
108-88-3	Toluene	5	UJ
108-90-7	Chlorobenzene	5	UJ
100-41-4	Ethylbenzene	5	UJ
100-42-5	Styrene	5	UJ
1330-20-7	Total Xylenes	5	UJ

250

FORM I VOA

1/87 Rev.

9/18/90

14431 - 0-210-27

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL299

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL275

Matrix: (soil/water) WATER Lab Sample ID: 930945

Sample wt/vol: 1000 g/mL) ML Lab File ID: D8194

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 08/01/90

GPC Cleanup: (Y/N) N pH: 7.2 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-Chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
606-20-2	2,6-Dinitrotoluene	10	U

MR 9-24-90

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL299

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 330945

Sample wt/vol: 1000 g/mL) ML Lab File ID: D8194

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ dec. ____ Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 08/01/90

GPC Cleanup: (Y/N) N pH: 7.2 Dilution Factor: 1.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-Nitroaniline	50	U
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-10-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	UJ
56-55-3	Benzo(a)Anthracene	10	U
218-01-9	Chrysene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1) - Cannot be separated from Diphenylamine

MP 9-24-90

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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL302

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 830981

Sample wt/vol: 5.0 (g/mL) ML Lab File ID: E0974

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. ____ Date Analyzed: 07/09/90

Column: (pack/cap) PACK Dilution Factor: 1.0

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
74-87-3	Chloromethane	10	UJ
74-83-9	Bromomethane	10	UJ
75-01-4	Vinyl Chloride	10	UJ
75-00-3	Chloroethane	10	UJ
75-09-2	Methylene Chloride	17 ~~MCB~~	UJ
67-64-1	Acetone	10	UJ
75-15-0	Carbon Disulfide	5	UJ
75-35-4	1,1-Dichloroethene	5	UJ
75-35-3	1,1-Dichloroethane	5	UJ
540-59-0	1,2-Dichloroethene (total)	5	UJ
67-66-3	Chloroform	5	UJ
107-06-2	1,2-Dichloroethane	5	UJ
78-93-3	2-Butanone	10	UJ
71-55-6	1,1,1-Trichloroethane	5	UJ
56-23-5	Carbon Tetrachloride	5	UJ
108-05-4	Vinyl Acetate	10	UJ
75-27-4	Bromodichloromethane	5	UJ
78-87-5	1,2-Dichloropropane	5	UJ
10061-01-5	cis-1,3-Dichloropropene	5	UJ
79-01-6	Trichloroethene	5	UJ
124-48-1	Dibromochloromethane	5	UJ
79-00-5	1,1,2-Trichloroethane	5	UJ
71-43-2	Benzene	5	UJ
10061-02-6	Trans-1,3-Dichloropropene	5	UJ
75-25-2	Bromoform	5	UJ
108-10-1	4-Methyl-2-Pentanone	10	UJ
591-78-6	2-Hexanone	10	UJ
127-18-4	Tetrachloroethene	5	UJ
79-34-5	1,1,2,2-Tetrachloroethane	5	UJ
108-88-3	Toluene	5	UJ
108-90-7	Chlorobenzene	5	UJ
100-41-4	Ethylbenzene	5	UJ
100-42-5	Styrene	5	UJ
1330-20-7	Total Xylenes	5	UJ

VDN 7/18/90

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PESTICIDE DATA

1.0 HOLDING TIMES

REVIEW RESULTS:

All holding time requirements were achieved.

2.0 INSTRUMENT PERFORMANCE

Four separate requirements are established to ensure that adequate resolution are achieved by the chromatographic system: 1) DDT retention times are evaluated to check for adequate separation of individual components; 2) retention time windows are calculated and used in compound identification; 3) DDT/Endrin degradation and 4) Retention time shifts for dibutylchlorendate (DBC) are checked to evaluate the condition of the separation column.

REVIEW RESULTS:

All parameters were within acceptable performance limits.

3.0 CALIBRATION

Prior to sample analysis, "calibration factors" and % relative standard deviations (%RSD) are checked in "linearity standards" to ensure satisfactory instrument calibration. Following the successful analysis of these standards a specific 72 hour sample and standard analysis sequence must be followed.

REVIEW RESULTS:

All parameters were within acceptable performance limits.

4.0 BLANKS

REVIEW RESULTS:

No target compounds or interfering compounds were found in any blanks.

5.0 SURROGATE RECOVERY

REVIEW RESULTS:

All surrogate recoveries were within acceptable performance limits.

6.0 MS/MSD

REVIEW RESULTS: Acceptable.

Water

RSD: 6 of 6 within control limits
Spike Recovery: 12 of 12 within control limits

Soil

RSD: 5 of 6 within control limits
Spike Recovery: 11 of 12 within control limits

7.0 COMPOUND IDENTIFICATION

Target pesticide compounds identified in a sample are confirmed by checking retention times. Confirmation is also achieved by running the sample through a second column (dual column confirmation). Positive sample results are tentative unless these criteria are met.

REVIEW RESULTS:

Target compounds were quantitated in two of the soil samples. The presence of the identified pesticides was confirmed by second column analysis.

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL276

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL275

Matrix: (soil/water) WATER Lab Sample ID: 930922

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. __ dec. __ Date Extracted: 07/02/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/22/90

GPC Cleanup: (Y/N) N pH: 5.9 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	Lindane	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL277

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL275

Matrix: (soil/water) WATER Lab Sample ID: 630924

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. __ dec. __ Date Extracted: 07/02/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/22/90

GPC Cleanup: (Y/N) N pH: 5.2 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	Lindane	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.50	U
72-43-5	Methoxychlor	0.10	U
53494-70-5	Endrin ketone	0.50	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

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RM 07/30/90

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL278

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 930928

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. __ dec. __ Date Extracted: 07/02/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/22/90

GPC Cleanup: (Y/N) N pH: 5.4 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	Lindane	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

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RH 07/30/90

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL273

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 930932

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. __ dec. __ Date Extracted: 07/02/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/22/90

GPC Cleanup: (Y/N) N pH: 5.2 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	Lindane	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

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RH 07/30/90

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL290

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL275

Matrix: (soil/water) WATER Lab Sample ID: 330934

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. __ dec. __ Date Extracted: 07/02/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/22/90

GPC Cleanup: (Y/N) N pH: 6.9 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	Lindane	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL292

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL275

Matrix: (soil/water) SOIL Lab Sample ID: 930948

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. 14 dec. 10 Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/22/90

GPC Cleanup: (Y/N) Y pH: 5.5 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	18	U
319-85-7	beta-BHC	18	U
319-86-8	delta-BHC	18	U
58-89-9	Lindane	18	U
76-44-8	Heptachlor	18	U
309-00-2	Aldrin	18	U
1024-57-3	Heptachlor epoxide	18	U
959-98-8	Endosulfan I	18	U
60-57-1	Dieldrin	36	U
72-55-9	4,4'-DDE	36	U
72-20-8	Endrin	36	U
33213-65-9	Endosulfan II	36	U
72-54-8	4,4'-DDD	36	U
1031-07-8	Endosulfan sulfate	36	U
50-29-3	4,4'-DDT	36	U
72-43-5	Methoxychlor	180	U
53494-70-5	Endrin ketone	36	U
5103-71-9	alpha-Chlordane	180	U
5103-74-2	gamma-Chlordane	180	U
8001-35-2	Toxaphene	360	U
12674-11-2	Aroclor-1016	180	U
11104-28-2	Aroclor-1221	180	U
11141-16-5	Aroclor-1232	180	U
53469-21-9	Aroclor-1242	180	U
12672-29-6	Aroclor-1248	180	U
11097-69-1	Aroclor-1254	360	U
11096-82-5	Aroclor-1260	360	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL293

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) SOIL Lab Sample ID: 930950

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. 55 dec. 50 Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/22/90

GPC Cleanup: (Y/N) Y pH: 7.4 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	32	U
319-85-7	beta-BHC	32	U
319-86-8	delta-BHC	32	U
58-89-9	Lindane	32	U
76-44-8	Heptachlor	32	U
309-00-2	Aldrin	32	U
1024-57-3	Heptachlor epoxide	32	U
959-98-8	Endosulfan I	32	U
60-57-1	Dieldrin	64	U
72-55-9	4,4'-DDE	64	U
72-20-8	Endrin	64	U
33213-65-9	Endosulfan II	64	U
72-54-8	4,4'-DDD	570	Y ✓ overrange?
1031-07-8	Endosulfan sulfate	64	U
50-29-3	4,4'-DDT	64	U
72-43-5	Methoxychlor	320	U
53494-70-5	Endrin ketone	64	U
5103-71-9	alpha-Chlordane	320	U
5103-74-2	gamma-Chlordane	320	U
8001-35-2	Toxaphene	640	U
12674-11-2	Aroclor-1016	320	U
11104-28-2	Aroclor-1221	320	U
11141-16-5	Aroclor-1232	320	U
53469-21-9	Aroclor-1242	320	U
12672-29-6	Aroclor-1248	320	U
11097-69-1	Aroclor-1254	640	U
11096-82-5	Aroclor-1260	640	U

(mc) 9-25-90

✓ RH 07/31/90

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL283DL

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) SOIL Lab Sample ID: 330950 DL

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. 55 dec. 50 Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/28/90

GPC Cleanup: (Y/N) Y pH: 7.4 Dilution Factor: 10.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	320	U
319-85-7	beta-BHC	320	U
319-86-8	delta-BHC	320	U
58-89-9	Lindane	320	U
76-44-8	Heptachlor	320	U
309-00-2	Aldrin	320	U
1024-57-3	Heptachlor epoxide	320	U
959-98-8	Endosulfan I	320	U
60-57-1	Dieldrin	640	U
72-55-9	4,4'-DDE	640	U
72-20-8	Endrin	640	U
33213-65-9	Endosulfan II	640	U
72-54-8	4,4'-DDD	650	
1031-07-8	Endosulfan sulfate	640	U
50-29-3	4,4'-DDT	640	U
72-43-5	Methoxychlor	3200	U
53494-70-5	Endrin ketone	640	U
5103-71-9	alpha-Chlordane	3200	U
5103-74-2	gamma-Chlordane	3200	U
8001-35-2	Toxaphene	6400	U
12674-11-2	Aroclor-1016	3200	U
11104-28-2	Aroclor-1221	3200	U
11141-16-5	Aroclor-1232	3200	U
53469-21-9	Aroclor-1242	3200	U
12672-29-6	Aroclor-1248	3200	U
11097-69-1	Aroclor-1254	6400	U
11096-82-5	Aroclor-1260	6400	U

yes

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL294

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) SOIL Lab Sample ID: 330952

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. 47 dec. 37 Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/22/90

GPC Cleanup: (Y/N) Y pH: 5.3 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	25	U
319-85-7	beta-BHC	25	U
319-86-8	delta-BHC	25	U
58-89-9	Lindane	25	U
76-44-8	Heptachlor	25	U
309-00-2	Aldrin	25	U
1024-57-3	Heptachlor epoxide	25	U
959-98-8	Endosulfan I	25	U
60-57-1	Dieldrin	51	U
72-55-9	4,4'-DDE	51	U
72-20-8	Endrin	51	U
33213-65-9	Endosulfan II	51	U
72-54-8	4,4'-DDD	170	
1031-07-8	Endosulfan sulfate	51	U
50-29-3	4,4'-DDT	160	
72-43-5	Methoxychlor	250	U
53494-70-5	Endrin ketone	51	U
5103-71-9	alpha-Chlordane	250	U
5103-74-2	gamma-Chlordane	250	U
8001-35-2	Toxaphene	510	U
12674-11-2	Aroclor-1016	250	U
11104-28-2	Aroclor-1221	250	U
11141-16-5	Aroclor-1232	250	U
53469-21-9	Aroclor-1242	250	U
12672-29-6	Aroclor-1248	250	U
11097-69-1	Aroclor-1254	510	U
11096-82-5	Aroclor-1260	510	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL296

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL275

Matrix: (soil/water) WATER Lab Sample ID: 930936

Sample wt/vol: 1000 g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. __ dec. __ Date Extracted: 07/02/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/22/90

GPC Cleanup: (Y/N) N pH: 5.2 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	Lindane	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL288

Lab Name: CLAYTON NOVI Contract: 68-03-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL275

Matrix: (soil/water) SOIL Lab Sample ID: 930954

Sample wt/vol: 30.0 g/mL) G Lab File ID: _____

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. 96 dec. 91 Date Extracted: 07/03/90

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 07/23/90

GPC Cleanup: (Y/N) Y pH: 7.1 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	180	U
319-85-7	beta-BHC	180	U
319-86-8	delta-BHC	180	U
58-89-9	Lindane	180	U
76-44-8	Heptachlor	180	U
309-00-2	Aldrin	180	U
1024-57-3	Heptachlor epoxide	180	U
959-98-8	Endosulfan I	180	U
60-57-1	Dieldrin	360	U
72-55-9	4,4'-DDE	360	U
72-20-8	Endrin	360	U
33213-65-9	Endosulfan II	360	U
72-54-8	4,4'-DDD	360	U
1031-07-8	Endosulfan sulfate	360	U
50-29-3	4,4'-DDT	360	U
72-43-5	Methoxychlor	1800	U
53494-70-5	Endrin ketone	360	U
5103-71-9	alpha-Chlordane	1800	U
5103-74-2	gamma-Chlordane	1800	U
8001-35-2	Toxaphene	3600	U
12674-11-2	Aroclor-1016	1800	U
11104-28-2	Aroclor-1221	1800	U
11141-16-5	Aroclor-1232	1800	U
53469-21-9	Aroclor-1242	1800	U
12672-29-6	Aroclor-1248	1800	U
11097-69-1	Aroclor-1254	3600	U
11096-82-5	Aroclor-1260	3600	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL292

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 930939

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. __ dec. __ Date Extracted: 07/02/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/22/90

GPC Cleanup: (Y/N) N pH: 5.8 Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND	Q
319-84-6	alpha-BHC	0.050 U
319-85-7	beta-BHC	0.050 U
319-86-8	delta-BHC	0.050 U
58-89-9	Lindane	0.050 U
76-44-8	Heptachlor	0.050 U
309-00-2	Aldrin	0.050 U
1024-57-3	Heptachlor epoxide	0.050 U
959-98-8	Endosulfan I	0.050 U
60-57-1	Dieldrin	0.10 U
72-55-9	4,4'-DDE	0.10 U
72-20-8	Endrin	0.10 U
33213-65-9	Endosulfan II	0.10 U
72-54-8	4,4'-DDD	0.10 U
1031-07-8	Endosulfan sulfate	0.10 U
50-29-3	4,4'-DDT	0.10 U
72-43-5	Methoxychlor	0.50 U
53494-70-5	Endrin ketone	0.10 U
5103-71-9	alpha-Chlordane	0.50 U
5103-74-2	gamma-Chlordane	0.50 U
8001-35-2	Toxaphene	1.0 U
12674-11-2	Aroclor-1016	0.50 U
11104-28-2	Aroclor-1221	0.50 U
11141-16-5	Aroclor-1232	0.50 U
53469-21-9	Aroclor-1242	0.50 U
12672-29-6	Aroclor-1248	0.50 U
11097-69-1	Aroclor-1254	1.0 U
11096-82-5	Aroclor-1260	1.0 U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL293

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL275

Matrix: (soil/water) WATER Lab Sample ID: 930940

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. __ dec. __ Date Extracted: 07/02/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/22/90

GPC Cleanup: (Y/N) N pH: 6.5 Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	Lindane	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL298

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL276

Matrix: (soil/water) WATER Lab Sample ID: 930942

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. __ dec. __ Date Extracted: 07/02/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/22/90

GPC Cleanup: (Y/N) N pH: 7.0 Dilution Factor: 1.00

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	Lindane	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HL299

Lab Name: CLAYTON NOVI Contract: 68-D9-0035

Lab Code: CLAYTN Case No.: 14431 SAS No.: _____ SDG No.: HL275

Matrix: (soil/water) WATER Lab Sample ID: 930944

Sample wt/vol: 1000 (g/mL) ML Lab File ID: _____

Level: (low/med) LOW Date Received: 06/30/90

% Moisture: not dec. __ dec. __ Date Extracted: 07/02/90

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 07/22/90

GPC Cleanup: (Y/N) N pH: 7.2 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
319-84-6	alpha-BHC	0.050	U
319-85-7	beta-BHC	0.050	U
319-86-8	delta-BHC	0.050	U
58-89-9	Lindane	0.050	U
76-44-8	Heptachlor	0.050	U
309-00-2	Aldrin	0.050	U
1024-57-3	Heptachlor epoxide	0.050	U
959-98-8	Endosulfan I	0.050	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin ketone	0.10	U
5103-71-9	alpha-Chlordane	0.50	U
5103-74-2	gamma-Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

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APPENDIX D

SITE INSPECTION FORM

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SITE / SITE ASSESSMENT
SAS019

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
CO	D980959134

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
Denver and Rio Grande Western Railroad	LaDue and Ninth St.

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Alamosa	CO	81101	Alamosa	003	CO-03

09 COORDINATES LATITUDE	LONGITUDE	10 TYPE OF OWNERSHIP (Check one)
38° 28' 7.5"	105° 52' 30.0"	X A. PRIVATE ___B. FEDERAL ___ ___C. STATE ___D.COUNTY ___E. MUNICIPAL ___F. OTHER ___ ___G.UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
06/26/90 MO/DAY/YR	___ACTIVE X INACTIVE	1954 BEGINNING YEAR | 1970 ENDING YEAR ___UNKNOWN

04 AGENCY PERFORMING INSPECTION (Check all that apply)
___A. EPA X B. EPA CONTRACTOR E & E, Inc. (Name of firm) ___C. MUNICIPAL ___D. MUNICIPAL CONTRACTOR ___ (Name of firm)
___E. STATE ___F. STATE CONTRACTOR ___ (Name of firm) ___G. OTHER ___ (Specify)

05 CHIEF INSPECTOR	06 TITLE	07 ORGANIZATION	08 TELEPHONE NO.
Robert Henry	Geologist	Ecology and Environment	(303)757-4984
09 OTHER INSPECTORS	**10 TITLE**	**11 ORGANIZATION**	**12 TELEPHONE NO.**
Steve Yarbrough	Env. Scientist	Ecology and Environment	(303)757-4984
Annette Sackman	Chemist	"	"
Dave Franzen	Toxicologist	"	"

13 SITE REPRESENTATIVES INTERVIEWED	14 TITLE	15 ADDRESS	16 TELEPHONE NO.
Carl Helfin	Land Owner	8811 State Hwy. 285 Alamosa, CO 81101	(719)589-6651
Robert Lewis	Gallagher Consultant	5950 S. Willow Dr. Englewood, CO 80111	(303)741-5050
Robert Sterrett	DRGW Consultant	12596 W. Bayaud Ave. Lakewood, CO 80228	(303)969-8033

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDITIONS
X PERMISSION ___ WARRANT	0800	Clear skies, approximately 80 degrees Fahrenheit, variable wind.

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Pat Smith	Environmental Protection Agency	(303)293-1262

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELEPHONE NO.	08 DATE
Robert Henry	EPA	E & E-FIT	(303)757-4984	09/24/90

EPA FORM 2070-13 (7-81)

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SITE/SITE ASSESSMENT

SAS019

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION	
01 STATE CO	02 SITE NUMBER D980959134

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 PHYSICAL STATES (Check all that apply)

- X A. SOLID
- X B. POWDER, FINES
- X C. SLUDGE
- ___ D. OTHER _____ (Specify)
- ___ E. SLURRY
- ___ F. LIQUID
- ___ G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS Unknown
CUBIC YARDS Unknown
NO. OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

- X A. TOXIC
- ___ B. CORROSIVE
- ___ C. RADIOACTIVE
- X D. PERSISTENT
- ___ E. SOLUBLE
- ___ F. INFECTIOUS
- X G. FLAMMABLE
- ___ H. IGNITABLE
- X I. HIGHLY VOLATILE
- ___ J. EXPLOSIVE
- ___ K. REACTIVE
- ___ L. INCOMPATIBLE
- ___ M. NOT APPLICABLE

III. WASTE TYPE

CATEGORY	SUBSTANCE NAME	01 GROSS AMOUNT	02 UNIT OF MEASURE	03 COMMENTS
SLU	SLUDGE			
OLW	OILY WASTE	500	Square Feet	100 ft^2 - DRGW; 400 ft^2 - Helfin
SOL	SOLVENTS			
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS			
IOC	INORGANIC CHEMICALS	Unknown	Unknown	
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	Unknown	Unknown	

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 CATEGORY	02 SUBSTANCE NAME	03 CAS NUMBER	04 STORAGE/DISPOSAL METHOD	05 CONCENTRATION	06 MEASURE OF CONCENTRATION
OLW	Fluorene		Ground Surface	47000	µg/kg
OLW	Phenanthrene		"	320000	"
OLW	Anthracene		"	58000	"
OLW	Fluoranthene		"	55000	"
OLW	Pyrene		"	410000	"
OLW	Chrysene		"	170000	"
OLW	Benzo(a)pyrene		"	110000	"
OLW	Benzo(a)anthracene		"	170000	"
Other	Asbestos	NA	"	65%	NA
MES	Barium		"	180	mg/kg
MES	Copper		"	194	"
MES	Lead		"	218	"
MES	Manganese		"	1090	"
MES	Vanadium		"	52	"
MES	Zinc		"	226	"

V. FEEDSTOCKS (See Appendix for CAS Numbers)

CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER	CATEGORY	01 FEEDSTOCK NAME	02 CAS NUMBER
FDS			FDS		
FDS			FDS		
FDS			FDS		
FDS			FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Draft Site Inspection Report, Denver & Rio Grande Western Railroad, Prepared by Ecology and Environment, Inc., TDD F08-8905-12, August 8, 1990.

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
CO	D980959134

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 X A. GROUND WATER CONTAMINATION — 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 280 — 04 NARRATIVE DESCRIPTION

Ground water sampled during the inspection indicated no contamination of the deep, confined aquifer, which erves as the main water supply for Alamosa. There are approximately 280 people using water from the shallow unconfined aquifer for domestic consumption. Ground water from the unconfined aquifer was not sampled or analyzed.

01 X B. SURFACE WATER CONTAMINATION — 02 X OBSERVED (DATE: 6/26/90) ___ POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 0 — 04 NARRATIVE DESCRIPTION

Contamination was detected greater than background concentrations in West Side Ditch. The ditch is used for irrigation and stock watering only. Additionally, contaminants were detected in wetlands associated with the Rio Grande River. The wetlands comprise approximately 25 acres.

01 X C. CONTAMINATION OF AIR — 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 11,000 — 04 NARRATIVE DESCRIPTION

During the inspection, onsite dust was seen migrating offsite via the air pathway. Air sampling was not conducted during the inspection.

01 X D. FIRE/EXPLOSIVE CONDITIONS — 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 0 — 04 NARRATIVE DESCRIPTION

No fire/explosive conditions were evident on D&RGW or Gallagher property. However, sludge material was evident on Helfin property and may exhibit ignitable characteristics.

01 X E. DIRECT CONTACT — 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 8,000 — 04 NARRATIVE DESCRIPTION

Direct contact is potentially high. Contamination was observed on all properties at the site. There are currently no barriers limiting access to any of the properties at the site. During the inspection, pedestrians were observed and documented crossing the site.

01 X F. CONTAMINATION OF SOIL — 02 X OBSERVED (DATE: 6/26/90) ___ POTENTIAL ___ ALLEGED

03 AREA POTENTIALLY AFFECTED: Approx. 10 (Acres) — 04 NARRATIVE DESCRIPTION

Soil contamination is present at various locations at the three properties investigated. Contaminants include elevated metals and PAH compounds.

01 X G. DRINKING WATER CONTAMINATION — 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 280 — 04 NARRATIVE DESCRIPTION

Approximately 280 people are served by private use, domestic wells drawing water from the shallow, unconfined aquifer. This aquifer was not sampled during the inspection. Surface water is not used for domestic consumption.

01 X H. WORKER EXPOSURE/INJURY — 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

03 WORKERS POTENTIALLY AFFECTED: 0 — 04 NARRATIVE DESCRIPTION

There are no workers on Helfin or Gallagher properties. The workers on D&RGW property may be subject to exposure. The frequency of D&RGW worker visits to contaminated areas onsite is unknown.

01 X I. POPULATION EXPOSURE/INJURY — 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 8,000 — 04 NARRATIVE DESCRIPTION

The three properties inspected do not have barriers restricting access.

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
CO	D930959134

II. HAZARDOUS CONDITIONS AND INCIDENTS (CONTINUED)

01 X J. DAMAGE TO FLORA — 02 X OBSERVED (DATE: 6/26/90) ___ POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION

In 1985 an oil spill occurred on the east side of West Side Ditch. The subsequent removal of the spilled material resulted in a loss of native grasses within the spill area.

01 X K. DAMAGE TO FAUNA — 02 ___ OBSERVED (DATE: ___) ___ POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION (Include name(s) of species)

No damage to faunal species has been reported and was not observed during the inspection.

01 X L. CONTAMINATION OF FOOD CHAIN — 02 ___ OBSERVED (DATE: ___) X POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION

None reported or observed.

01 X M. UNSTABLE CONTAINMENT OF WASTES — 02 X OBSERVED (DATE: 6/26/90) ___ POTENTIAL ___ ALLEGED

(Spills/runoff/standing liquids/leaking drums)

03 POPULATION POTENTIALLY AFFECTED: 8,000 — 04 NARRATIVE DESCRIPTION

The wastes present at the site are not contained and are accessible to humans and/or animals walking through the area. Some waste observed onsite was solid in nature, thus immovable, semi-liquid waste was observed onsite and was located in depressed areas.

01 X N. DAMAGE TO OFFSITE PROPERTY — 02 ___ OBSERVED (DATE: ___) ___ POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION

None reported or observed.

01 X O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs — 02 ___ OBSERVED (DATE: ___) ___ POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION

None reported or observed.

01 X P. ILLEGAL/UNAUTHORIZED DUMPING — 02 ___ OBSERVED (DATE: ___) ___ POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION

It is unknown if illegal or unauthorized dumping occurred at the site. The presence of oily, semi-liquid waste on Helfin property could not be explained by property owners.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

III. TOTAL POPULATION POTENTIALLY AFFECTED: 8,000

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references. e.g., state files, sample analysis, reports)

Preliminary Assessment, Denver & Rio Grande Western Railroad, Prepared by Colorado Department of Health, 10/18/87.
Draft Site Inspection Report, Denver & Rio Grande Western Railroad, Prepared by Ecology and Environment, Inc., TDD #F08-8905-12, 8/8/90, Denver, Colorado.

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
CO	D980959134

II. PERMIT INFORMATION

01 TYPE OF PERMIT ISSUED (Check all that apply)	02 PERMIT NUMBER	03 DATE ISSUED	04 EXPIRATION DATE	05 COMMENTS
___A. NPDES				
___B. UIC				
___C. AIR				
___D. RCRA				
___E. RCRA INTERIM STATUS				
___F. SPCC PLAN				
___G. STATE (Specify)				
___H. LOCAL (Specify)				
___I. OTHER (Specify)				
X J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
X A. SURFACE IMPOUNDMENT	Unknown	10 acres
___B. PILES		
___C. DRUMS, ABOVE GROUND		
X D. TANK, ABOVE GROUND	Empty	
___E. TANK, BELOW GROUND		
___F. LANDFILL		
___G. LANDFARM		
___H. OPEN DUMP		
___I. OTHER _____ (Specify)		

04 TREATMENT (Check all that apply)

___A. INCINERATION
___B. UNDERGROUND INJECTION
___C. CHEMICAL/PHYSICAL
___D. BIOLOGICAL
___E. WASTE OIL PROCESSING
___F. SOLVENT RECOVERY
___G. OTHER RECYCLING/RECOVERY
___H. OTHER _____ (Specify)

05 Other

2 A. BUILDINGS ON SITE

06 AREA OF SITE

50 (Acres)

07 COMMENTS

The storage/disposal estimate includes the area east of West Side Ditch which received spilled oil in 1985. It also includes estimates of surface contamination observed during the inspection.

IV. CONTAINMENT

01 CONTAINMENT OF WASTES (Check one)

___A. ADEQUATE, SECURE ___B.MODERATE X C.INADEQUATE, POOR ___D. INSECURE, UNSOUND, DANGEROUS

02 DESCRIPTION OF DRUMS, DIKING, LINERS, BARRIERS, ETC.

One drum was observed beneath the fuel house on D&RGW property. The contents of the drum is unknown. Material from the drum appeared to have leaked onto the soil surface.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: X YES ___NO

02 COMMENTS

The three properties at the site do not have barriers completely restricting access to the site.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

Field observations made during the site inspection of the D&RGW site in June, 1990, Ecology and Environment, Inc., TDD F08-8905-12, Field Investigation Team, Denver, Colorado.

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
CO	D980959134

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL
COMMUNITY	A. ___	B. X
NON-COMMUNITY	C. ___	D. X

02 STATUS

ENDANGERED	AFFECTED	MONITORED
A. ___	B. ___	C. X
D. ___	E. ___	F. ___

03 DISTANCE TO SITE

A. ___ (mi)
B. 0.1 (mi)

III. GROUND WATER

01 GROUND WATER USE IN VICINITY (Check one)

___ A. ONLY SOURCE FOR DRINKING
X B. DRINKING (Other sources available)
___ C. COMMERCIAL, INDUSTRIAL IRRIGATION (Limited other sources available)
___ D. NOT USED, UNUSABLE

COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available)

02 POPULATION SERVED BY GROUND WATER 11,000

03 DISTANCE TO NEAREST DRINKING WATER WELL 0.1 (mi)

04 DEPTH TO GROUNDWATER	05 DIRECTION OF GROUNDWATER FLOW	06 DEPTH TO AQUIFER OF CONCERN	07 POTENTIAL YIELD OF AQUIFER	08 SOLE SOURCE AQUIFER
5-10 (ft)	East-Southeast	200 (ft)	Unknown (gpd)	___ YES X NO

09 DESCRIPTION OF WELLS (Including usage, depth, and location relative to population and buildings)

10 RECHARGE AREA

X YES
___ NO

COMMENTS: Shallow ground water is recharged by infiltration of precipitation and from streams.

11 DISCHARGE AREA

X YES
___ NO

COMMENTS: Discharge occurs by purpose of wells.

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

___ A. RESERVOIR, RECREATION DRINKING WATER SOURCE
X B. IRRIGATION, ECONOMICALLY IMPORTANT RESOURCES
___ C. COMMERCIAL, INDUSTRIAL
___ D. NOT CURRENTLY USED

02 AFFECTED/POTENTIALLY AFFECTED BODIES OF WATER

NAME:	AFFECTED	DISTANCE TO SITE
West Side Ditch	___	0.0 (mi)
Rio Grande River	___	0.25 (mi)
	___	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 TOTAL POPULATION WITHIN

ONE (1) MILE OF SITE	TWO (2) MILES OF SITE	THREE (3) MILES OF SITE
A. 6250	B. 1500	C. 250
NO. OF PERSONS	NO. OF PERSONS	NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION 0.05 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE 450

04 DISTANCE TO NEAREST OFF-SITE BUILDING 0.05 (mi)

05 POPULATION WITHIN VICINITY OF SITE (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

The site is located on the east side of Alamosa, Colorado. Therefore, the population center is to the west. There are an estimated 11,000 residents in Alamosa, according to 1980 census data.

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
CO	D980959134

II. ENVIRONMENTAL INFORMATION

01 PERMEABILITY OF UNSATURATED ZONE (Check one)

___A. $10^{-6} - 10^{-8}$ cm/sec ___B. $10^{-4} - 10^{-6}$ cm/sec X C. $10^{-4} - 10^{-3}$ cm/sec ___D. GREATER THAN 10^{-3} cm/sec

02 PERMEABILITY OF BEDROCK (Check one)

___A. IMPERMEABLE (Less than 10^{-6} cm/sec) X B. RELATIVELY IMPERMEABLE ($10^{-4} - 10^{-6}$ cm/sec) ___C. RELATIVELY PERMEABLE ($10^{-2} - 10^{-4}$ cm/sec) ___D. VERY PERMEABLE (Greater than 10^{-2} cm/sec)

03 DEPTH TO BEDROCK	04 DEPTH OF CONTAMINATED SOIL ZONE	05 SOIL pH
920 (ft)	= 2 (ft)	Unknown

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
0.0 (in)	1.25 (in)	0 %		%

09 FLOOD POTENTIAL
SITE IS IN 100 YEAR FLOOD PLAN

10 ___ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)

A. ESTUARINE NA (mi) B. OTHER 0 (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)

> 4 (mi)

ENDANGERED SPECIES: ___

13 LAND USE IN VICINITY

DISTANCE TO:

A. COMMERCIAL/INDUSTRIAL 0.0 (mi) B. RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES 0.1 (mi) C. AGRICULTURAL LANDS PRIME AG LAND > 4 (mi) D. AG LAND 2 (mi)

4 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The site is generally flat wetlands associated with the Rio Grande River, which is located in the northeastern area of the site.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Preliminary Assessment, Denver & Rio Grande Western Railroad, 10/18/87, Ecology and Environment, Inc., TDD F08-8903-07, Field Investigation Team, Denver, Colorado.
Draft Site Inspection Report, Denver & Rio Grande Western Railroad, TDD F08-8905-12, 9/12/90.

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
CO	D980959134

. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUND WATER	2	Clayton Environmental Laboratories Net Gulf Coast, Inc.	9/24/90
SURFACE WATER	3	Clayton Environmental Laboratories Net Gulf Coast, Inc.	9/24/90
WASTE	0		
AIR	0		
RUNOFF	0		
SPILL	0		
SOIL	11	I.T. Analytical Services Weyerhauser, Centec, S-Cubed	9/24/90
VEGETATION	0		
OTHER Asbestos	1	Clayton Environmental Laboratories	9/24/90

II. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
pH	Performed on surface and ground water samples
Conductivity	Performed on surface and ground water samples
Temperature	Performed on surface and ground water samples

IV. PHOTOGRAPHS AND MAPS

01 TYPE X GROUND ___ AERIAL

02 IN CUSTODY OF Ecology and Environment, Inc.
(Name of organization or individual)

03 MAPS
X YES
___ NO

04 LOCATION OF MAPS
Ecology and Environment, Inc.

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

Non-sampling data was collected during the inspection. Data includes nearby residents, photodocumentation of onsite wastes, evaluation of waste stability, drainage characteristics, and presence of sensitive environments.

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Draft Site Inspection Report, Denver & Rio Grande Western Railroad, TDD F08-8905-12, 8/8/90, Ecology & Environment, Inc., Field Investigation Team, Denver, Colorado.

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION	
01 STATE CO	02 SITE NUMBER D980959134

II. CURRENT OWNER(S)			PARENT COMPANY (If applicable)		
01 NAME Denver & Rio Grande Western Railroad		02 D+B NUMBER	08 NAME		09 D+B NUMBER
03 STREET ADDRESS (P.O. BOX, RFD #, ETC.) 603 State Street		04 SIC CODE	10 STREET ADDRESS (P.O. BOX, RFD #, ETC.)		11 SIC CODE
05 CITY Alamosa	06 STATE CO	07 ZIP CODE 81101	12 CITY	13 STATE	14 ZIP CODE
01 NAME Gallagher Oil Company		02 D+B NUMBER	08 NAME		09 D+B NUMBER
03 STREET ADDRESS (P.O. BOX, RFD #, ETC.) 999 18th Street, Suite 355		04 SIC CODE	10 STREET ADDRESS (P.O. BOX, RFD #, ETC.)		11 SIC CODE
05 CITY Denver	06 STATE CO	07 ZIP CODE 80202	12 CITY	13 STATE	14 ZIP CODE
01 NAME Carl Helfin		02 D+B NUMBER	08 NAME		09 D+B NUMBER
03 STREET ADDRESS (P.O. BOX, RFD #, ETC.) 8811 State Highway 285		04 SIC CODE	10 STREET ADDRESS (P.O. BOX, RFD #, ETC.)		11 SIC CODE
05 CITY Alamosa	06 STATE CO	07 ZIP CODE 81101	12 CITY	13 STATE	14 ZIP CODE

III. PREVIOUS OWNER(S) (List most recent first)			IV. REALTY OWNER(S) (If applicable; list most recent first)		
01 NAME		02 D+B NUMBER	01 NAME		02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
01 NAME		02 D+B NUMBER	01 NAME		02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE
01 NAME		02 D+B NUMBER	01 NAME		02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	05 CITY	06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Preliminary Assessment, Denver & Rio Grande Western Railroad, 10/18/87.

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION	
01 STATE CO	02 SITE NUMBER D980959134

II. CURRENT OPERATOR (Provide if different from owner)			OPERATOR'S PARENT COMPANY (If applicable)		
01 NAME		02 D+B NUMBER	10 NAME		11 +B NUMBER
03 STREET ADDRESS (P.O. BOX, RFD #, ETC.)		04 SIC CODE	12 STREET ADDRESS (P.O. BOX, RFD #, ETC.)		13 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER				

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)			PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)		
01 NAME		02 D+B NUMBER	10 NAME		11 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD				
01 NAME		02 D+B NUMBER	10 NAME		11 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD				
01 NAME		02 D+B NUMBER	10 NAME		11 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE	12 STREET ADDRESS (P.O. Box, RFD #, etc.)		13 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	14 CITY	15 STATE	16 ZIP CODE
08 YEARS OF OPERATION	09 NAME OF OWNER DURING THIS PERIOD				

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION	
01 STATE CO	02 SITE NUMBER D980959134

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER	
03 STREET ADDRESS (P.O. BOX, RFD #, ETC.)	04 SIC CODE	
05 CITY	06 STATE	07 ZIP CODE

III. OFF-SITE GENERATOR(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY / 06 STATE	07 ZIP CODE	05 CITY / 06 STATE	07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY / 06 STATE	07 ZIP CODE	05 CITY / 06 STATE	07 ZIP CODE

IV. TRANSPORTER(S)

01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY / 06 STATE	07 ZIP CODE	05 CITY / 06 STATE	07 ZIP CODE
01 NAME	02 D+B NUMBER	01 NAME	02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)	04 SIC CODE
05 CITY / 06 STATE	07 ZIP CODE	05 CITY / 06 STATE	07 ZIP CODE

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
CO	D980959134

II. PAST RESPONSE ACTIVITIES

01 ___ A. WATER SUPPLY CLOSED — 02 DATE _____ — 03 AGENCY _____

04 DESCRIPTION
None reported.

01 ___ B. TEMPORARY WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____

04 DESCRIPTION
None reported.

01 ___ C. PERMANENT WATER SUPPLY PROVIDED — 02 DATE _____ — 03 AGENCY _____

04 DESCRIPTION
None reported.

01 X D. SPILLED MATERIAL REMOVED — 02 DATE 1985 — 03 AGENCY Colo. Dept. of Health

04 DESCRIPTION
Soil in the spill area had been removed. Residual waste is evident at various locations in the spill area.

01 ___ E. CONTAMINATED SOIL REMOVED — 02 DATE _____ — 03 AGENCY _____

04 DESCRIPTION
None reported.

01 ___ F. WASTE REPACKAGED — 02 DATE _____ — 03 AGENCY _____

04 DESCRIPTION
None reported.

01 X G. WASTE DISPOSED ELSEWHERE — 02 DATE 1985 — 03 AGENCY _____

04 DESCRIPTION
It is unknonw where the 1985 spill waste was disposed.

01 ___ H. ON SITE BURIAL — 02 DATE _____ — 03 AGENCY _____

04 DESCRIPTION
None reported or observed.

01 ___ I. IN SITU CHEMICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____

04 DESCRIPTION
None reported.

01 ___ J. IN SITU BIOLOGICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____

04 DESCRIPTION
None reported.

01 ___ K. IN SITU PHYSICAL TREATMENT — 02 DATE _____ — 03 AGENCY _____

04 DESCRIPTION
None reported.

01 ___ L. ENCAPSULATION — 02 DATE _____ — 03 AGENCY _____

04 DESCRIPTION
None reported or observed.

01 ___ M. EMERGENCY WASTE TREATMENT — 02 DATE _____ — 03 AGENCY _____

04 DESCRIPTION
None reported.

01 ___ N. CUTOFF WALLS — 02 DATE _____ — 03 AGENCY _____

04 DESCRIPTION
None reported or observed.

01 ___ O. EMERGENCY DIKING/SURFACE WATER DIVERSION — 02 DATE _____ — 03 AGENCY _____

04 DESCRIPTION
None reported or observed.

01 ___ P. CUTOFF TRENCHES/SUMP — 02 DATE _____ — 03 AGENCY _____

04 DESCRIPTION
None reported or observed.

01 ___ Q. SUBSURFACE CUTOFF WALL — 02 DATE _____ — 03 AGENCY _____

04 DESCRIPTION
None reported or observed.

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EPA	POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 10 - PAST RESPONSE ACTIVITIES	I. IDENTIFICATION 01 STATE CO 02 SITE NUMBER D980959134

II. PAST RESPONSE ACTIVITIES (Continued)

01 ___R. BARRIER WALLS CONSTRUCTED — 02 DATE _____ 03 AGENCY _____

04 DESCRIPTION
None reported or observed.

01 ___S. CAPPING/COVERING — 02 DATE _____ 03 AGENCY _____

04 DESCRIPTION
None reported or observed.

01 ___T. BULK TANKAGE REPAIRED — 02 DATE _____ 03 AGENCY _____

04 DESCRIPTION
None reported or observed.

01 ___U. GROUT CURTAIN CONSTRUCTED — 02 DATE _____ 03 AGENCY _____

04 DESCRIPTION
None reported or observed.

01 ___V. BOTTOM SEALED — 02 DATE _____ 03 AGENCY _____

04 DESCRIPTION
None reported or observed.

01 ___W. GAS CONTROL — 02 DATE _____ 03 AGENCY _____

04 DESCRIPTION
None reported or observed.

01 ___X. FIRE CONTROL — 02 DATE _____ 03 AGENCY _____

04 DESCRIPTION
None reported or observed.

01 ___Y. LEACHATE TREATMENT — 02 DATE _____ 03 AGENCY _____

04 DESCRIPTION
None reported or observed.

01 ___Z. AREA EVACUATED — 02 DATE _____ 03 AGENCY _____

04 DESCRIPTION
None reported or observed.

01 _X_1. ACCESS TO SITE RESTRICTED — 02 DATE _____ 03 AGENCY _____

04 DESCRIPTION
Access to all of the properties onsite are not restricted.

01 ___2. POPULATION RELOCATED — 02 DATE _____ 03 AGENCY _____

04 DESCRIPTION
None reported.

01 ___3. OTHER REMEDIAL ACTIVITIES — 02 DATE _____ 03 AGENCY _____

04 DESCRIPTION

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

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SITE / SITE ASSESSMENT
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EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 STATE CO	02 SITE NUMBER D980959134

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ___YES X NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

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SITE / SITE RESPONSE
CERCLIS