ANALYTICAL RESULTS REPORT
COLUMBIA FALLS ALUMINUM COMPANY
COLUMBIA FALLS, MONTANA
TDD F08-8809-12
CERCLIS MTD057561763

ENVIRONMENTAL PROTECTION AGENCY
FEB 07 1989
MONTANA OFFICE

EPA PROJECT OFFICER: RON BERTRAM

E & E PROJECT OFFICER: ROBERT HENRY

REVIEWED BY: Kam Ford

SUBMITTED TO: LES SPRENGER, FIT-RPO
DAVE SCHALLER, SITE EVALUATION CHIEF
VERA MORITZ, EPA P.O.

DATE SUBMITTED: NOVEMBER 11, 1988

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1.0 INTRODUCTION

This report has been prepared to satisfy the requirements of Technical Directive Document (TDD) F08-8809-12 issued to Ecology and Environment, Inc.'s, Field Investigation Team (E & E/FIT) by the Region VIII Environmental Protection Agency (EPA). This report addresses analytical results from data collected during drilling and sampling activities at the Columbia Falls Aluminum Company (CFAC) in Columbia Falls, Montana from June 7, 1988 through June 18, 1988. FIT members conducting the drilling and sampling included Robert Henry, project officer, Randy Perlis, site safety officer, Lynn Fischer, Diane Coker and Steve Yarbrough, samplers. Site access was coordinated by Karen Zackheim of the Montana Department of Health and Environmental Sciences (MDHES). Sampling procedures utilized during the investigation conform to the requirements established in the Region VIII Standard Operating Procedures for Sampling at Hazardous Waste Sites (SOP III-2). This sampling effort was conducted under the approved sample plan (TDD F08-8801-02).

2.0 OBJECTIVES

The objectives of this investigation were to, in part, characterize hydrogeologic conditions beneath the site. This was accomplished by the installation of two onsite monitoring wells. These wells, in conjunction with existing onsite wells, more accurately define the hydrogeologic conditions at the site. Ground water level data were also collected from existing test and production wells on and near the site. These data were used to assess local ground water flow patterns and determine ground water flow direction. Additionally, surface water,

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sediment, soil and ground water samples were collected onsite and offsite in order to characterize the nature of contaminants and quantify the release of possible contaminants to offsite areas.

The FIT performed in-field analytical screening for fluoride, cyanide and hexavalent chromium during the site investigation. The analysis (EPA approved methods) was performed according to the 1986 Edition of the Hach Company Water Analysis Handbook. The analysis was performed on all surface water and ground water samples collected. Details regarding the screening analytical results can be found in section 7 for ground water and surface water quality.

The overall scope of this investigation involved the collection of nine ground water samples, five soil samples, seven surface water sample and nine sediment samples. Two rinsate blank samples, two trip blank samples and one triple volume sample were also collected for organic quality assurance (QA) purposes. Additionally, one triple volume and two blanks were submitted for inorganic QA purposes.

The organic and inorganic Contract Laboratory Program (CLP) samples collected during this investigation were shipped via Federal Express from Kalispell, Montana.

3.0 BACKGROUND

3.1 LOCATION AND SITE DESCRIPTION

The Columbia Falls Aluminum Company site (Figure 1) is located in Section 3, Range 20W, Township 30N with latitude coordinates 48° 20′ 01" N and longitude coordinates of 114° 07′ 52" W. It is bounded by Teakettle Mountain, Flathead River and Cedar Creek to the east, south and west respectively. The CFAC site covers approximately 120 acres and is located 1.5 miles north east of Columbia Falls (population 3,112 from 1980 census) in Flathead County, Montana. The elevation at the site is 3100 feet AMSL. The topography at the plant is relatively flat with a southern slope at about 3° to 4°. Analysis of aerial photographs show

the topography north of the site is steeper, dipping south at approximately 5°-6°.

3.2 PREVIOUS WORK

The FIT conducted a visual inspection of the CFAC site on December 17, 1987. A Preliminary Assessment (PA) was also completed by the MDHES on March 5, 1984. The PA indicates that "hazardous wastes produced at the facility are spent halogenated solvents and contaminated gasoline. Solid wastes include spent pot liners, basement sweepings and air pollution control dust." The EPA and the MDHES (air quality and water quality division) have conducted numerous visits concerning airborne contaminants and as part of the Montana Ground Water Pollution Control permitting.

3.3 SITE HISTORY

The Columbia Falls Aluminum Company plant began operations in 1955 and is operational today. The facility was owned and operated by Atlantic Richfield Company until 1985 at which time it was sold to CFAC. The plant produces aluminum by means of a cathode anode system. The cathode cell is lined with black carbon that when in contact with aluminum oxide reduces to aluminum. Each cathode has a life of 5-7 years. There are currently 600 cathodes operating simultaneously with 1 or 2 cathodes being taken out of service every week. Forty tons of waste product (carbon) is removed from each cathode. Ken Reich (1987), environmental coordinator for CFAC indicated that cyanide is present at 1% in each cathode cell. Fluoride is also evident at 17% waste product in the form of sodium aluminum fluoride. According to the 1988 RCRA master list, the CFAC site is known to generate halogenated and non-halogenated solvents. CFAC does not have underground injection control nor is it a hazardous waste treatment, storage or disposal facility. The plant applied for and received a Montana Ground Water Pollution Control Permit (MGWPCS005) in 1984.

Significant environmental features onsite include percolation ponds, leachate ponds, closed and operational landfills. Prior to 1978 the carbon cathodes were soaked in water in order to expedite the carbon removal process. Waste effluent from this process was piped to the boiler blowdown pond (Figure 5). The adjacent infiltration pond was used as an overflow receptacle from the boiler blowdown pond. Quarterly ground water monitoring by CFAC indicate a decrease in fluoride and cyanide concentrations after 1978. Information obtained from Ken Reich (1987) indicates that, currently the boiler blowdown pond is used as a receptacle for non-contact cooling water. The south percolation ponds receive cast cooling water and sewage treatment effluent from the plant. In the fall of 1980 the onsite closed landfills were taken out of operation, capped and revegetated. Solvents are known to have been deposited in these once operational landfills. The landfill currently operating is lined with clay. The spent pot liners used in the reduction of aluminum were deposited in the spent pot liner landfill. Two leachate ponds were constructed in 1980 north and south of this landfill. The sanitary landfill is currently in use to receive plant garbage.

4.0 SITE GEOLOGY, HYDROLOGY, HYDROGEOLOGY AND METEOROLOGY

4.1 GEOLOGY

4.1.1 Regional Geology

The site is situated in the northeast section of the Kalispell Valley, a northwest, southeast trending intermontane basin. The Kalispell Valley is 28 miles long by 7 miles wide at the south and approximately 15 miles wide in the central and northern regions. According to Fenneman (1931) the valley is in the Northern Rocky Mountain Physiographic Province. The Kalispell Valley was formed as a result of normal faulting preceded by late Paleocene to Eocene compression induced folding and thrust faulting evident in the Whitefish Range and Glacier Park Basin to the north and south respectively (Konizeski, 1968).

The mountains bordering the Kalispell Valley and the Kalispell Valley Basin bedrock are comprised predominantly of partially metamorphosed Precambrian Rock. These once sedimentary rocks are composed of gray to greenish-gray argillite and light gray quartzite of the Ravalli group, Lower Belt series, (Konizeski, R.L. et.al., 1968). A report prepared by Hydrometrics of Helena, Montana, (1985) suggests that these basement rock are tightly compacted, exhibiting very low permeability and porosity and have a total thickness of tens of thousands of feet.

The Kalispell Valley was further shaped by middle Wisconsin Cordilleran and Alpine glaciation. Konizeski, R.L. et. al., (1968) suggests that the British Columbian derived Cordilleran Ice sheet advanced into the Kalispell Valley from the northwest corner near Whitefish. The Cordilleran Ice lake subsequently coalesced with the Glacier Park derived Flathead Alpine glacier at Bedrock Canyon, and moved south into the Kalispell Valley. Glacial recession in middle Pinedale time led to the formation of Glacial Lake Missoula, inundating the entire Kalispell Valley. Wisconsin age glaciation, including glaciolacustrine and periglacial features were subsequently mantled by clay, silt and sand deposited in glacial Lake Missoula. As Glacial Lake Missoula subsided, the Flathead River and its tributaries entrenched their courses into the unconsolidated glacial drift, depositing residual drift and alluvial materials (Figure 2).

4.1.2 Local Geology

The CFAC site is located approximately 1/2 mile northwest of Badrock Canyon. Teakettle Mountain (Figure 1), the principle geologic feature in the area located 1/4 mile due east of the site, is comprised of primarily Precambriam undifferentiated sedimentary strata of the Ravalli Group superimposed by the Piegan Group dolomites (Hydrometrics, 1985).

The Quaternary stratigraphy near the site is locally complicated due to the heterogeneous nature of glacial and alluvial deposits. Based on

well logs from the CFAC site, bedrock is estimated to be variable from 145 feet to 300 feet.

Alden (1953), suggests the area near Columbia Falls is underlain by primarily glacial till deposited by the Cordilleran Ice Sheet. Konizeski (1968) further suggests that the substratum near Columbia Falls is characterized by "ice-contact, drumlin-forming clay and boulder till; locally overlain by glaciolacustrine deposits" (Figure 2). The glaciolacustrine deposits mentioned by Konizeski (1968) are those derived by Glacial Lake Missoula. Based on local well logs, the glacial drift, glacial till and glaciolacustrine deposits are inferred to be interfingered at and near the CFAC site. Pleistocene glaciofluvial outwash and recent alluvial deposits overlying the glacial stratigraphy are found to exist near the southern border of the CFAC site. Additional alluvial deposits can be found in the Cedar Creek floodplain (Figure 2). Hydrometrics (1985) suggest that "the Flathead River and Cedar Creek flow primarily through Recent alluvium consisting dominantly of silt and sands comprising the modern floodplains."

4.2 HYDROLOGY

The Flathead River and Cedar Creek are the two surface water bodies of concern near the CFAC site. The Flathead River is located approximately 1/4 mile south of the site. The north and middle forks of the Flathead River originate in Glacier National Park and flow south from Glacier National Park where they meet the South Fork at the mouth of Badrock Canyon. The Flathead River flows west through Badrock Canyon to Columbia Falls where it's course is southerly to Flathead Lake. Based on information obtained from Hydrometrics (1985), the Flathead River streamflows are regulated in part by Hungry Horse Reservoir located on the South Fork, Flathead River. A 9,778 ft^3/sec average annual discharge of the Flathead River at Columbia Falls is reported by the USGS Gaging Station No. 12363000. The dominant water quality problem in the Flathead River near the site is due to large temperature fluctuations of cold water releases from Hungry Horse Reservoir (Nunnallee, et.al. 1976). Flathead River water quality is also dictated

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by heavy sediment loads in the middle fork of the Flathead River during spring runoff. Heavy logging activity in the north fork area results in a phosphorous content twice that of the Middle Fork. Hydrometrics (1985) indicate that water quality in the Flathead River, at Columbia Falls is considered moderately hard, calcium bicarbonate water with low concentrations of sodium and trace metals.

Water rights data obtained from the Montana DNRC indicate that within four miles downstream of the site, the Flathead River is diverted for the following: irrigation (653 acres) and stockwatering (120 animal units). The Montana Department of Fish, Wildlife and Parks (DFWP) also has approximately 75 diversions on the Flathead River. The use of the diverted water by the DFWP is classified as "fish and wildlife."

The second surface water body of concern near the CFAC site is Cedar Creek and Cedar Creek Reservoir. Cedar Creek originates well north of the site in Whitefish Mountain Range. Information obtained from the city of Columbia Falls indicate that the Montana Soil and Conservation Service constructed a reservoir on Cedar Creek (Figure 1) approximately 2 miles north of the site as a means of flood control and potable water storage in the early 1960's. Cedar Creek flows southwest from the reservoir to the town of Columbia Falls where it is used as their primary domestic water source. The Cedar Creek municipal water supply pumping station is depicted in Figure 1. Flood control on Cedar Creek and Cedar Creek Reservoir is accomplished by means of a drainage ditch that flows south from the reservoir and passes within 200 yards of the spent pond lined leachate pond complex and less than 1/4 mile east of the site before discharging into the Flathead River.

In addition to Cedar Creek being the main domestic water supply for Columbia Falls, it is also diverted below Cedar Creek reservoir for the irrigation of approximately 15 acres.

Cedar Creek was of paramount concern under this investigation because it is used as the domestic water supply for Columbia Falls and that the site is situated topographically level with the Cedar Creek

drainage. Obvious overland flow of contaminants was not observed during the investigation.

4.3 HYDROGEOLOGY

4.3.1 Ground Water Occurrence and Distribution

As previously mentioned in Section 5.1 of this report, the Flathead Valley has undergone several distinct erosional, depositional and geologic events. Ground water occurrence and distribution in the Flathead Valley is largely dictated by Precambrian bedrock, Pleistocene Glacial Deposits and recent alluvially deposited materials. The nature of glacially and alluvially deposited materials in the Flathead Valley results in a very complex hydrogeologic setting.

The Pleistocene glacial deposits mantle most if not all of the Flathead Valley. The glacially deposited material influence greatly the occurrence and distribution of ground water in the valley. Due to the complex depositional nature of the glacial, peri-glacial, glaciofluvial and glaciolacustrine deposits in the valley, ascertaining exact hydrogeologic relationships of aquifer systems is difficult. Konizeski, et.al. (1968) identified five major aquifer systems within the Flathead Valley. For continuity, the terminology of Konizeski, et.al. (1968) will be retained for describing the regional hydrogeologic setting, however, this scheme may not strictly apply when evaluating the aquifer of concern. The five aquifer systems of Konizeski, listed in descending order are as follows (Figure 2):

1) Recent floodplain aquifer - includes alluvium of the Flathead River and major tributaries (mapping unit Qal).

2) Pleistocene Perched Aquifers - includes the glaciolacustrine and glacial drift deposits of the east valley terrace. This aquifer system consists of at least two and possibly more individual aquifers (Mapping units Qgl and Qgdb)

3) Pleistocene Shallow Artesian Aquifer - A locally important outwash of sand and gravel that underlies glacial drift in areas of the valley.

4) Pleistocene Deep Artesian Aquifer - includes interfingering sand and gravel beds beneath the Pleistocene Shallow Artesian Aquifer or glacial drift.

5) Precambrian Bedrock Aquifer - All belt series sedimentary rocks bordering and underlying the valley (mapping unit Pcb).

Hydrometrics (1985) installed a series of piezometers in order to gain a better understanding of onsite subsurface depositional relationships. The piezometers "show a succession of till and small patches of glaciolacustrine clays, capped by from one foot to greater than twelve feet of imbricated glaciofluvial and alluvial sands, gravels and cobbles. This capping unit appears to be more extensive and thicker north and west of the plant complex than it is to the northeast." The retrieval of cutting samples during drilling confirmed the heterogeneous nature of the substratum. Drillers logs obtained from the MDNRC provide more evidence of the complex heterogeneous depositional modes. The logs indicate that from 70 to more than 300 feet of interbedded glacial, glaciofluvial and glaciolacustrine sediments underlie the CFAC site. Extrapolation of the logs also indicate that these glacially related units are vertically and laterally discontinuous. A buried glacial outwash channel, consisting of cobbles and gravels emanating from bedrock canyon and evident along this southern border of the CFAC site, is host to a highly transmissive water bearing zone at depths greater than 100 feet. The depth to ground water is variable at the site. Water table depths of 15 feet are evident in CFAC monitoring wells located approximately 100 feet north of the Flathead River. Additionally, a ground water level of 100 feet was recorded by Hydrometrics (1985) in a test well located between the spent pot liner landfill and the sludge pond (Figure 1). Both water level measurements were taken in August, 1985. Extrapolation of water level measurements

(Hydrometrics 1985) indicate a southwest ground water flow direction (Figure 3).

As part of the objectives of this investigation, potentiometric data were compiled for the purpose of assessing the local ground water flow direction. The FIT utilized the services of Flathead Land Consultants (registered land surveyors, License #54285) of Kalispell, Montana to establish vertical elevation control at four on-site wells. The wells surveyed include CF-MW-1, CF-MW-2, TW-2 and TW-8. Elevation control was established at these wells because they afford the best hydrogeologic coverage. The elevations at each well were measured at a reference mark on the well using a Leitz Sokkisha C3A Automatic Level. A USGS benchmark relating true elevation in the area was unavailable, thus a marked elevation of 3111.41 feet was taken from the CFAC sewage treatment facility located south of the plant buildings. From this reference point, the above specified wells were surveyed by closed loop traverse for potentiometric contouring purposes. The reference mark elevation of all wells are listed below.

WELL	ELEVATION (FT)	LOCATION
CF-MW-1	3168.36	cement pad at
CF-MW-2	3104.13	base of well
TW-2	3104.08	steel spout from
TW-8	3164.31	dedicated pump line

All water level measurements were taken on 6/17/88.

Based on water level data and the above elevation data, the FIT prepared a potentiometric surface map of the shallow alluvial aquifer at the plant (Figure 4). Due to a lack of data points in certain areas, the potentiometric contour lines in these areas are, for the most part, inferred from site observations and field water quality data. As depicted in Figure 4, the inferred ground water flow is generally toward the southwest. Correlation of this potentiometric contour map is very

consistent to the potentiometric contour map prepared by Hydrometrics (1985).

An aquifer test conducted by Hydrometrics indicate that ground water yields at the CFAC site are highly variable ranging from over 1500 gallons per minute (gpm) to only a few gpm. Wells yielding greater quantities of ground water are those located closer to the Flathead River. This large variability in ground water yield is due to the heterogeneous nature of glacial deposits underlying the site. Commensurate to ground water yield, Hydrometrics also established transmissivities ranging from several thousand gallons per day per foot (gpd/ft) to less than 100 gpd/ft.

Recharge to ground water beneath the site occurs by precipitation infiltration and infiltration of ephemeral streams on the west flank of Teakettle Mountain (Figure 1), and by surface water from Cedar Creek. As is evident in Figure 3, ground water discharge is principally to the Flathead River. Ground water discharge also occurs by withdrawal from wells in the area. Water rights data obtained from the MDNRC show that there are approximately 445 domestic wells utilized by households within four miles downgradient of the site. Of the 445 domestic wells downgradient of the site, 30 wells are used by a small grouping of 33 homes located 1 mile west of the CFAC plant.

The town of Columbia Falls utilizes three municipal ground water wells as a secondary potable water supply. Two of the municipal wells (municipal well 2 and 3) are located due east of the Columbia Falls city limits and approximately 300 yards west of the Flathead River. These wells are located 2 miles downgradient of the site and are completed in shallow alluvial material at depths of 31 and 31.5 feet respectively. The third back up well (municipal well No. 4) is located west of Columbia Falls and approximately 3 1/4 miles southwest of the CFAC site. Municipal well #2 was sampled as part of this investigation and is discussed further in Section 9.2 of this report.

4.3.2 Ground Water Quality

As part of the Montana ground water pollution control permit (MGWPCS 005), limited quarterly ground water monitoring is conducted to determine ground water quality from selected test and monitoring wells. Ground water quality parameters tested include, pH, specific conductance, fluoride, antimony, cyanide and benzo(a)pyrene. The sampling parameters historically tested at the site are no substitute for the Hazard Substance List (HSL) compounds, however, pH, specific conductance, fluoride and cyanide are useful to characterize the effects of plant discharge to the ground water.

Measurable concentrations of cyanide and fluoride are evident in ground water downgradient (TW-1 and TW-2) of the north percolation ponds. As previously mentioned, water used to soak spent pot liners was disposed of in the north percolation pond (east pond). This activity, discontinued in 1977, is the most likely source of the cyanide and fluoride concentrations. A further discussion of the North Percolation Pond is presented in Section 9.3 of this report. Increased concentrations of fluoride in ground water are also shown (Hydrometrics, 1985) to have come from the south percolation ponds (Figure 1). Antimony concentrations detected in ground water at the site is probably of background quality as it is not used in the plant processes.

4.4 METEOROLOGY

All data presented in this section was obtained from the Climatic Atlas of the United States, U.S. Department of Commerce, Environmental Sciences Services Administration, Environmental Data Service, June, 1968. The climate in Columbia Falls and at the CFAC site is characterized by large fluctuations in temperature and precipitation throughout the year. Mean monthly temperatures range from 5 degrees Fahrenheit (°F) in January to 75°F in July and August. During May and June the average temperature is approximately 50°F. Precipitation in the Columbia Falls area varies from a mean monthly amount of 1.22 inches in April to 2.34 inches in June. The annual prevailing wind direction

is variable with winds at approximately 6 mph from the northwest during October through January. During February through September the prevailing wind direction is from the west at 6 mph. Relative humidity in the area fluctuates from 80% in January and February to 50% in July and August. Barometric pressure ranges from 1020 millibars (30.12 inches of mercury) in January to 1012 millibars (29.88 inches of mercury) in June.

5.0 WELL DRILLING AND INSTALLATION

A total of two monitoring wells were drilled as part of this site investigation. On-site supervision of drilling activities was conducted by FIT members Robert Henry and Randy Perlis from June 7 through June 15. Well drilling was performed by B&B Drilling of Libby, Montana under subcontract TDD F08-8804-08. All drilling activities were conducted in level D respiratory and dermal protection under generally favorable summer weather conditions.

For this investigation, two monitoring wells, designated CF-MW-1 and CF-MW-2 were installed in accordance with the approved sample plan issued under TDD F08-8801-02. CF-MW-1 was drilled to assess background conditions and CF-MW-2 was drilled and installed as a downgradient monitoring station. A third monitoring well, CF-MW-3, was deleted from the drilling program due to the favorable location of an existing test well near the leachate pond/spent potliner complex. The well locations closely conformed with the proposed locations identified in the sampling plan. Figures 4 and 5 illustrate the final locations of monitoring wells drilled at the site.

Each monitoring well was installed with a Bucyrus-Eric air rotary/casing drive rig equipped with a Hankison Model 1309 in line oil removal filter. During drilling, each borehole was logged according to lithologic characteristics, depth to water and measured organic vapor concentrations using the OVA. Individual well designs, particularly the screened interval were selected an apparent depth to water estimated

during drilling. Appendix C contains information which summarizes drilling log and well construction details for CF-MW-1 and CF-MW-2.

Monitoring well CF-MW-1 was completed with 2-inch ID PVC casing and 20 feet of 2-inch ID, 0.010 slot flush-threaded PVC screen with bottom cap. The sand pack was poured to a depth of 2.5 feet above the screen in CF-MW-1 using 10-20 mesh Colorado Silica Sand supplied by Colorado Silica Sand, Inc. of Colorado Springs, Colorado. A bentonite seal was established above the sand pack using 4 feet of Volclay 1/4 inch pellets. Monitoring well CF-MW-2 was completed with 2-inch ID PVC casing and 15 feet of 2-inch ID, 0.010 slot flush threaded PVC screen with bottom cap. The sand pack in CF-MW-2 was poured to a depth of 4.3 feet above the screen using 10-20 mesh Colorado Silica Sand. The bentonite seal in CF-MW-2 was placed above the sand pack at a total depth of 2.3 feet using Volclay 1/4 inch pellets. Neat cement grout was poured to the surface using a Type I and II Portland cement/bentonite slurry. Finally, a protective steel casing with weephole and locking cap was installed over the PVC casing (Figure 6).

Decontamination of drilling equipment was accomplished using a steam cleaner followed by a methanol rinse, distilled water rinse and metals free water rinse. For the methanol rinse phase of decontamination, a temporary collection pad was used to prevent soil contamination. Excess solvent was allowed to evaporate in-place eliminating the need for disposal of solvent rinsates.

The upgradient/background monitoring well, designated CF-MW-1, was drilled approximately one-mile north of the CFAC plant. Heavy vegetation between the closed landfill and CF-MW-1 (Figure 5) dictated the access and placement of the well location. Subsurface lithology in the CF-MW-1 boring was primarily sand grading to cobbles from 0 feet to approximately 30 feet in depth. A perched water table was evident at 11.5′ to 12′. Tan plastic clay was evident in the cuttings reaching 75% of the matrix at 65 feet in depth. Water was encountered at 142 feet. The clay encountered during drilling acted as a confining layer as the water level stabilized at depth of 96.74 feet below ground surface. All

drill cuttings were monitored with the OVA; however, no readings above background were measured during drilling and well installation activities.

The downgradient monitoring well, CF-MW-2 was drilled 100 yards southwest of the North Percolation/boiler blowdown pond. Subsurface lithology in CF-MW-2 was characterized by fine to coarse grained sand grading to pebbles and broken cobbles. The initial water level was encountered at approximately 42 feet which later stabilized to a static level of 38.35 feet. Monitoring with the OVA detected no organic vapors greater than background.

A Monotox cyanide detector was also used for health and safety reasons during the drilling and installation of the wells, however, no cyanide was detected in either boring headspace.

Well development was accomplished by overpumping using a portable PVC hand operated pump. This pump operates on a positive displacement principle and has a maximum rated capacity of 5 to 6 gpm at low heads. Monitoring well CF-MW-1 yielded 0.5 gpm during development. At the completion of well development, CF-MW-1 produced light brown, cloudy water with minor suspended silt. Monitoring well CF-MW-2 also yielded 0.5 gpm during development with water appearance of a light brown color, cloudy with minor suspended sand at the end of development. Monitoring with the OVA during development activities at the wells revealed no vapor concentrations above background. As evidenced by turbid water in the samples collected under this investigation, complete well development may not have been fully achieved, however ground water turbidity may be a natural state.

6.0 SAMPLING ACTIVITIES

6.1 SAMPLE COLLECTION

The FIT arrived at CFAC at 0800 on June 6, 1988. FIT members Robert Henry and Randy Perlis met with representatives from CFAC and ARCO to

discuss the drilling and sampling program and conducted an initial site reconnaissance of the facility and surrounding areas. Split samples were collected by Ken Reick of CFAC and Gene Mancini of ARCO, who were present during all drilling and sampling events. Sample collection began on Saturday, June 11, 1988. FIT members conducting the sampling included Robert Henry, Randy Perlis, Diane Coker, Lynn Fischer and Steve Yarbrough. Sample collection was conducted in Level "D" protection as prescribed in SOP III-2 with the exception of the following: soil samples CF-SO-1 and CF-OP-2 were collected in Level "C" respiratory protection from the spent pot liner landfill.

Nine ground water samples, seven surface water, nine sediment and five soil samples were collected from onsite and surrounding area locations.

6.1.1 Ground Water Samples

Prior to ground water sample collection, three casing volumes were evacuated from each well. During this purging process, pH and specific conductance measurements were taken until the respective water quality parameters became consistent. Two monitoring wells were installed (see Section 4.0 of this report) in order to characterize, more accurately, ground water conditions on-site. Monitoring well CF-MW-1 was drilled and completed 1 mile north (hydrogeologically upgradient) of the CFAC plant. This well will serve to characterize background conditions in the plant area. The second well installed under this investigation (CF-MW-2) was drilled and installed 100 yards southwest of the North Percolation/Boiler blowdown pond. The installation of a well at this location, in conjunction with existing wells will serve as an on-site downgradient well. Monitoring wells CF-MW-1 and CF-MW-2 were purged by means of the hand operated PVC pump. Sample collection was accomplished by means of a 3 foot properly decontaminated stainless steel bailer.

Several existing monitoring (test) wells were also sampled under this investigation. These wells include TW-2, TW-3 TW-8, TW-10 and TW-11. Onsite ground water conditions are represented by TW-3, TW-8 and

TW-10. The collection of ground water samples from these wells were useful in determining contamination from the closed landfill and spent pot liner/leachate pond complex. Offsite migration of potential contaminants will be evident in samples collected from TW-2 and TW-11. The wells discussed in this paragraph all have dedicated pumps, thus the utilization of a stainless steel bailer for sample collection was impossible.

Columbia Falls Aluminum Company uses a production well, located 1/4 mile north of the Flathead River for a potable water source and for use in the aluminum manufacturing process. Sample PW-7 was collected at this location and was used to determine possible ground water contaminant migration to the Flathead River drainage.

The last well sampled during the investigation was a municipal well used as a backup potable water supply for the town of Columbia Falls. The well is located 1.5 miles hydrogeologically and hydrologically downgradient of the CFAC Plant. The purpose of collecting this sample (Muni #2) was to ascertain the downgradient migration of possible ground water contaminants to the Columbia Falls water supply.

All ground water samples being analyzed for inorganic parameters were field filtered with a 0.45 micron membrane filter and preserved with nitric acid (HNO_3, for metals analysis) or sodium hydroxide (NaOH, for cyanide analysis) prior to being placed in the appropriate sample bottles.

6.1.2 Soil Samples

The FIT collected three soil samples during the investigation. Two opportunity soil samples were also collected upon reconnaissance of the site. Soil sample CF-SO-4 was collected 150 yards north of the closed landfill and will serve to characterize background soil conditions near the site. Soil sample CF-SO-2 was collected at an augered depth of 2.5 feet in the closed landfill. Soil sample CF-SO-1 was collected in Level C protection from the spent pot liner landfill. According to Mr. Ken

Reick (CFAC representative) the sample collected is fly ash material taken from the facility's dry scrubber system. It was the original intent of the FIT to collect spent cathode material which was accomplished by the collection of sample CF-OP-2. This sample was also collected from the spent pot liner landfill. Another opportunity sample (CF-OP-1) was collected at an augered depth of 1.5 feet in the Sludge Pond. This pond has been covered with a native soil covering of approximately 1 foot in depth. Soil sample CF-SO-3 was deleted from the sampling event due to the very coarse nature of the covering material.

The soil samples were collected as grab samples using a stainless steel scoop or scoopula and placed into the appropriate sample containers.

6.1.3 Surface Water and Sediment Samples

Surface water and sediment sampling locations conformed very closely to those depicted in the sampling plan. Surface water/sediment sample collection began at the upgradient/background location on the Flathead River. These samples CF-SW-9/CF-SE-9 were collected approximately 0.5 miles east of all plant operations. Samples CF-SW-2/CF-SS-2 were collected from Flathead River backwater adjacent to the South Percolation ponds. The third and final surface water/sediment sample obtained from the Flathead River was collected at a downgradient location. These samples, designated CF-SW-3 and CF-SE-3 were originally scheduled to be sampled approximately 0.25 miles downstream from the plant. Due to inaccessibility to the River, these samples (CF-SW-3 and CF-SE-3) were collected 2 miles downstream.

Background surface water and sediment conditions for Cedar Creek and the flood control ditch were characterized by the collection of CF-SW-5 and CF-SE-5. These samples were collected at the base of Cedar Creek Reservoir at the start of Cedar Creek. Sediment samples CF-SE-4 and CF-SE-1 were taken to ascertain contaminant migration via the flood control ditch. As previously mentioned, the flood control ditch is used to divert high water from Cedar Creek. At the time of sample

collection, no surface water was available at the CF-SW-4 and CF-SW-1 locations. Sediment sample CF-SE-4 was collected approximately 100 feet south of the southern leachate pond. The sediment had a reddish color similar to the color of the material in the leachate ponds, however no readings above background were evident with the OVA. Sediment sample CF-SE-1 was scheduled to be taken at the confluence of the flood control ditch and the Flathead River, however upon site reconnaissance, it was discovered that the ditch flows into a culvert 75 yards north of the railroad tracks which then flows to the Flathead River. No sample material was available at the end of the culvert, consequently, CF-SE-1 was collected where the ditch flows into the culvert. Surface water and sediment sample CF-SW-6 and CF-SE-6, collected downgradient of the facility in Cedar Creek served to determine contamination of Cedar Creek. Onsite surface water bodies were also sampled in order to characterize the nature of possible contaminants being deposited. Surface water and sediment sample CF-SW-8 and CF-SE-8 were collected from the westernmost south percolation pond. Contact cooling water and sewage effluent is piped from the plant to this pond. The north percolation/boiler blowdown pond was also sampled. Surface water and sediment samples CF-SW-7 and CF-SE-7 were collected at the point where the non-contact cooling water is piped to the pond.

The surface water samples were collected by completely immersing the sample bottle into the surface water body. Sediment samples were collected with a properly decontaminated stainless steel scoop or scoopula and placed into the appropriate sample container.

6.2 QUALITY CONTROL

The FIT maintained the integrity of each sample by following extensive decontamination procedures prior to the collection of each sample. In addition, the FIT prepared two rinsate blank samples (CF-MW-4 and CF-MW-5), one triple volume sample (CF-SW-8) and two trip blank samples (CF-MW-6 and CF-MW-10). One triple volume sample (CF-MW-8) and two rinsate blank samples (CF-MW-4 and CF-MW-5) were also collected for the inorganic fraction of analysis. These samples were

collected as specified under the approved sample plan. The blank samples were prepared by pouring organics-free and metals-free water over and through properly decontaminated sampling equipment. The water was then collected into the appropriate sample container.

6.2.1 Sample Containers

The sample containers used for this investigation included: 40 milliliter VOA vials, 80 ounce amber bottles, 1 liter plastic poly bottles (metals fraction for water samples) and 8 ounce glass jars. The sample containers were obtained through the Sample Management Office (SMO) Sample Bottle Repository (I-Chem and Eagle Pitcher).

6.2.2 Background Samples

Background samples collected for this investigation will be used as a basis for analyzing the data from samples collected at downgradient locations. The collection of samples CF-MW-1, CF-SO-4, CF-SW-9/CF-SE-9 and CF-SW-5/CF-SE-5 represent the background samples for ground water, soil and surface water/sediment respectively.

6.2.3 Instrument Calibration

The Organic Vapor Analyzer (OVA) used for general site safety work was calibrated in accordance with the FIT/OVA Field Manual for survey mode operations. The pH meter was calibrated using pH 4, pH 7 and and pH 10 standards. The conductivity meter was also calibrated with standards of 37.5, 375 and 3750 micromhos/cm.

6.3 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 Investigation by Contractor Evidence Audit Teams, April, 1984 (EPA-330/9-81-003R). Tables 1 to 6 of

Appendix A summarize sample documentation, including sample numbers, sample tags, traffic reports and chain of custody numbers.

7.0 ANALYTICAL SCREENING

As previously mentioned, the FIT utilized field water quality screening procedures in order to more accurately understand the ground and surface water conditions on-site. The screening procedure was conducted to analyze for fluoride, cyanide and hexavalent chromium. All of the wells sampled exhibited concentrations of fluoride (excluding CF-MW-1 which had no measurable concentration of fluoride) ranging from 0.1 mg/l in the Columbia Falls municipal well (Muni #2) and CF-MW-2 to 5.5 mg/l in the existing test well TW-2. Also notable in the fluoride analysis is a concentration of 4.5 mg/l in the CFAC production well located approximately 1/4 mile north of the Flathead River. A correlation of this data to data collected by CFAC in April, 1988 shows that the fluoride concentrations have increased in all ground water samples collected. Table 15 (Appendix A) of this report depicts the FIT screening results in comparison to data collected by CFAC in April, 1988. Screening results for cyanide indicate its presence in only TW-2 (0.015 mg/l) and PW-7 (0.0025 mg/l). In correlation to CFAC's April, 1988 data, these concentrations have decreased. No concentrations of hexavalent chromium were detected during the screening procedure. The data collected during the screening procedure is not a substitute for CLP data and will only be used for correlative purposes.

The CFAC site also contains surface water bodies that were sampled under this investigation. Five percolation ponds are currently used as a receptacle for cooling and waste water from the plant. A review of the screening data indicates the presence of fluoride in all of the surface water samples collected. Table 16 (Appendix A) of this report depicts the results in comparison to sampling conducted by CFAC in April of 1988. As is shown in Table 16, the fluoride concentrations are variable from 0.1 mg/l in downgradient surface water from Cedar Creek to 5.0 mg/l in surface water collected from the Flathead River adjacent to the south percolation ponds. Screening analysis for cyanide and

hexavalent chromium show no concentrations detected in surface water sampled.

8.0 QUALITY ASSURANCE REVIEW

All samples, excluding CF-OP-1 and CF-OP-2, were deemed low concentration environmental samples. Appendix B of this report contains the data sheets and quality assurance reports that are discussed herein. The data packages were reviewed by a FIT chemist according to the EPA Functional Guidelines for Reviewing Organic and Inorganic Analysis. The findings were as follows.

8.1 ORGANIC DATA

The organic data was found to be acceptable with the following qualifications. The VOA and BNA data package contained calibration outliners as noted in initial and continuing calibrations and were subsequently flagged "j". The initial standard recoveries for samples CF-SO-1 (BNA), CF-SO-4, CF-SE-8 and CF-SE-7 (VOAs) indicated recoveries outside the QC limits. Tentatively identified compounds (TICs) were found in the laboratory blank. These contaminants are laboratory derived. Phthalate contamination was also detected in the blanks with a subsequent "j" flag attached. Surrogate recoveries for samples CF-SO-1 and CF-SW-2 were diluted out thus determination of QC for surrogate recoveries is impossible. Additional samples requiring dilution having positive results were flagged "j".

The holding times for sample CF-SW-10 were missed by one day. No flags were added to the data as no target compound list compounds were found in the sample runs. The two high concentration organic samples (CF-OP-1 and CF-OP-2) were analyzed according to high concentration EPA protocol resulting in elevated detection limits and reporting in ppm. Initial and continuing calibration was met except for 2-butanone, acetone, 4-nitroamiline, 3.3′ dichlorobenzidine, octachlorodiphenyl and 4-nitrophenol. Upon review of organic analytical data for sediment sample CF-SE-5, the FIT has deleted the sample results and are not

included in this report. The FIT feels that organic compound quantity values reported were not consistent with observations made during the investigation. A further discussion is presented in the Conclusions, Section 11.0.

8.2 INORGANIC DATA

The holding times for all samples, initial and continuing calibration criteria were met as per specified guidelines. All ICP Interference Check Sample results and Laboratory Control Sample (LCS) results met contract criteria. The preparation blanks for both soils/sediment and water had several outliners. Soil outliners included iron, manganese and zinc. Aluminum, calcium, iron, and zinc are considered water outliners. All positive hits less than five times the amount found in the blank are flagged "j" as estimated. The ICP serial dilution analysis had one outliner for water (zinc) and one outliner for soils (sodium). All associated positive hits were flagged "j".

9.0 ANALYTICAL RESULTS

Analytical results for sampling activities conducted at CFAC are compiled in tables 2 through 14 of this report. Sample locations corresponding to the data are illustrated in Figure 5. Table 1 describes sample types, locations and rationales for samples collected during the investigation. A review of the analytical data allows the following observations to be made.

9.1 SOIL AND OPPORTUNITY SAMPLES

The collection of wastes deposited at various locations on the CFAC facility served to indicate the nature and extent of contaminants deposited at the site. It was the intent of the FIT to collect soil and opportunity samples at those locations in order to gain an understanding of the waste characteristics correlative to offsite migration.

9.1.1 Organic Results

Three soil samples were collected during the investigation (Table 5 and Figure 5). On-site background soil conditions were exemplified by CF-SO-4. A review of the organic analytical data indicates that several compounds were detected, and will serve as a basis for reviewing compounds at downgradient locations. Soil sample CF-SO-2 was collected at an augered depth of 2.5 feet in the closed landfill. The following compounds listed were identified in CF-SO-2; acenaphthylene, 51 times greater than background; benzo(a)anthracene, 5900; chrysene, 45; benzo(b)fluoranthene, 22; benzo(a)pyrene, 44; benzo(g,h,i)perylene, 43; dibenzofuran, 190; and fluorene, 610. Methylene chloride was also found in CF-SO-2 and is most likely attributable to laboratory contamination as it is used to clean lab glass ware.

In order to partially characterize wastes deposited at the spent pot liner/leachate pond complex a sample of the facility treater dust was collected. This sample, designated CF-OS-1, contains significant concentrations of polynuclear aromatic hydrocarbons (PAH). Most notable compounds exhibiting very high concentrations relative to background concentrations are: phenanthrene, 2235 times greater than background; fluoranthene, 2735; pyrene, 1433; benzo(a)anthracene, 110000; chrysene, 578; benzo(k) fluoranthene, 512; benzo(a)pyrene, 781; indeno (1,2,3-cd) pyrene, 480; dibenzo (a,h) anthracene, 24000 and benzo(g,h,i) perylene, 464. Toluene, 1000 ppb; dibenzofuran, 7500 ppb and bis(2-ethylhexyl)-phthalate, 5000 ppb were also detected in CF-SO-1. Two additional opportunity samples were collected pursuant to observations made during field activities. Sample CF-OP-1 was collected from the covered sludge pond. This sample also contained PAH compounds including fluoranthene, 10,000 ppb; pyrene, 9,000 ppb; benzo(a)anthracene, 2300 ppb and benzo(b)fluoranthene, 3700 ppb. As previously mentioned, spent carbon cathode material used in the aluminum reduction process is deposited at the spent pot liner/leachate pond complex. Opportunity sample CF-OP-2 was collected as representative of this material. This sample also exhibits high concentrations of PAH compounds including acenaphthene, fluorene, phenanthrene, anthracene, fluoranthene, pyrene,

benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k) fluoranthene, benzo(a)pyrene, indeno (1,2,3-cd) pyrene, dibenzo(a,h)anthracene and benzo(g,h,i) perylene at respective concentration (ppm) of 85, 63, 800, 210, 1700, 1400, 1000, 1200, 1200, 760, 1100, 690, 60 and 640.

9.1.2 Inorganic Results

Inorganic analysis of soil samples CF-SO-1 and CF-SO-2 show very consistent reporting of concentrations relative to background concentrations. Only lead (3 times greater than background) at 52 ppb and vanadium (4.6 times greater than background) at 65 ppb are notable in soil sample CF-SO-1.

The inorganic analysis of the opportunity samples show elevated levels of certain elements. Aluminum, 14800 ppm and magnesium 6039 ppm were shown to exist in CF-OP-1. Aluminum, 60,500 ppm; iron, 28700 ppm; manganese, 102 ppm; sodium, 34,100 ppm; and cyanide, 63 ppm were found in CF-OP-2.

9.2 GROUND WATER SAMPLES

Nine ground water samples were collected during the investigation. Additionally, three blank samples were prepared for QA/QC purposes.

9.2.1 Organic Results

Bis(2-ethylhexyl)phthalate and toluene were the only two positively identified organic compounds in all of the well samples. Bis(2-ethylhexyl)phthalate was evident at concentrations of 7 ppb, 8 ppb, 6 ppb, 5 ppb, 7 ppb and 5 ppb in samples CF-MW-1, CF-MW-2, Muni #2, CF-PW-7, CF-PW-8 and CF-TW-10 respectively. Toluene was present in the field prepared blank sample CF-MW-6 at 11 ppb. Toluene may have been introduced to the sample during field preparation. Based on the review of the organic ground water data, release of an on-site contamination to the ground water has not occurred.

9.2.2 Inorganic Results

Inorganic ground water analysis show elevated levels of barium in Muni #2 and CF-TW-8. In comparison to the background sample (CF-MW-1), barium is shown to be 6.4 times higher in Muni #2 and 3.8 times higher in CF-TW-8. Attribution of barium to the CFAC site is doubtful and may have been introduced in completion materials during construction of the wells. Zinc was also 8.3 times higher in CF-TW-8, 2.2 times higher in CF-TW-11, 6.4 times higher in CF-TW-10 and 3.6 times higher in CF-TW-3 in relation to upgradient (CF-MW-1) concentrations. Most notably, cyanide was detected in two of the downgradient wells. Ground water from CF-MW-2, installed during the investigation, contained 666 ppb cyanide. Similarly, the existing well TW-2 contained 53 ppb cyanide. A review of past sampling conducted at the CFAC site from 7/11/80 to present indicates the cyanide concentration is remaining consistent for ground water in TW-2. Additional review of CLP data indicates a decrease in cyanide concentrations in the existing wells PW-7, TW-8, TW-10, TW-3 and TW-11. The high concentration of cyanide in sample CF-MW-2 is most likely due to wastes deposited at the north percolation/boiler blowdown pond. Section 9.5 of this report contains information regarding surface water and sediment characteristics for the above specified pond.

9.3 SURFACE WATER AND SEDIMENT SAMPLES

The collection of surface water and sediment samples was performed in order to delineate background conditions for two sources (Flathead River and Cedar Creek/Flood Control Ditch) and also to characterize the nature and extent of contaminant migration from the site. A total of nine sediment and seven surface water samples were collected.

9.3.1 Organic Results

Background surface water/sediment characteristics in the Flathead River are exemplified by CF-SW-9 and CF-SE-9. No significant organic contamination was found to exist in surface waters at the

upgradient/background location. The sediment sample collected at the upgradient location contained 230 ppb chrysene, 320 ppb benzo(b)fluoranthene and 84 ppb benzo(a)pyrene. Surface water sample CF-SW-8 was collected from the plant effluent at the south percolation ponds. No organic contamination was discovered during CLP analysis. Sediment sample CF-SE-8, collected at the same location as CF-SW-8, exhibited concentrations of PAH compounds as high as 130,000 ppb. Characterization of contaminant migration to the Flathead River is represented by surface water and sediment samples CF-SW-2 and CF-SE-2. No organic surface water contamination was observed at that location. Sediment sample CF-SE-2 contained PAH compounds as high as 580 ppb. Surface water sample, CF-SW-3 exhibited no observable contamination. The downgradient sediment sample CF-SE-3 contained minor amount (41 ppb, benzo(b)fluoranthene) of PAH compound.

Sample CF-SW-5, representing background conditions for the flood control ditch and Cedar Creek contained no detectable contamination. As previously mentioned, sediment sample CF-SE-5 was deleted from the analytical results. A significant release with respect to background conditions of onsite organic contamination in the flood control ditch (CF-SE-4) was not detected. PAH compounds were shown to exist at that location, however the concentrations reported are not significant enough to warrant concern. Additionally an offsite release of organic compounds via the flood control ditch (CF-SE-1) was not observed in comparison to background concentrations. Cedar Creek appears to have received contamination from the CFAC site. PAH compounds are shown to be present in sediment CF-SE-6. The largest concentration detected at this location is 840 ppb, indeno(1,2,3-cd)pyrene. No contamination was detected in surface water in Cedar Creek.

Onsite surface water and sediment from the North Percolation/Boiler Blowdown pond exhibited the highest organic contamination during the investigation (Tables 5 and 7). PAH compounds were detected in CF-SW-7 as high as 500 ppb (acenaphthalene). Additionally, phenol, 42 ppb; 2-methylphenol, 50 ppb; 4-methylphenol, 69 ppb and dibenzofuran, 130 ppb were detected in surface waters at that location. Sediment collected

from the North Percolation/Boiler Blowdown Pond is host to very high concentrations of PAH compounds (Table 5). Compounds exhibiting concentrations greater than 1,000,000 ppb include phenanthrene, fluoranthene, pyrene, benzo(k) fluoranthene and indeno(1,2,3-cd)pyrene.

9.3.2 Inorganic Results

Upgradient surface water (CF-SW-9) analysis serves as a basis for comparison at downgradient locations. Due a transcription error, the laboratory did not analyze for cyanide at that location. Cyanide concentrations in sediment at CF-SE-9 were not detected. Cyanide concentrations of 55 ppb (detection limit for cyanide analysis is 10 ppb) were detected in surface water from the Flathead River adjacent to the site (CF-SW-2). This elevated cyanide concentration is not found in sediment at that location. The cyanide concentrations in the Flathead River may be attributable to the CFAC effluent to the south percolation ponds where cyanide was detected in surface water (CF-SW-8) at 18 ppb. Downgradient inorganic concentrations in surface water and sediment from the Flathead River (CF-SW-3 and CF-SE-3) show very consistent reporting of concentrations in comparison to upgradient concentrations. Additionally, samples CF-SW/SE-2 and CF-SW/SE-8 exhibited similar concentrations of inorganic contaminants, excluding cyanide, as shown in background samples.

Surface water and sediment sample CF-SW/SE-5 was collected as a background for both the flood control ditch and Cedar Creek. Sediment sample CF-SE-4 (no surface water available at time of collection) shows elevated levels of iron, four times higher than background, manganese, three times higher and aluminum at three times background concentrations. Further downstream releases of contaminants were not detected in sediment sample CF-SE-1. Similarly, no inorganic contamination to Cedar Creek was observable. Only aluminum was slightly elevated at 1.5 times greater than background in Cedar Creek sediment (CF-SE-6) and three times greater than background in surface water (CF-SW-6). Contact cooling water from the CFAC plant exhibits increased concentrations of aluminum, barium, iron, vanadium, zinc and cyanide.

The contact cooling water CF-SW-7 is shown to be 42 times higher than CF-SW-5 for aluminum, 24 times higher for lead, 14 times higher for vanadium, 15 times higher for zinc and cyanide was reported at 19 ppb.

10.0 CLP AND SCREENING DATA REVIEW

The following review is presented as a comparison between screening data collected during the field investigation and CLP data. As previously mentioned, the CLP detection limit for cyanide is 10 ppb. The detection limit for the infield screening equipment used during the investigation is 0.12 ppm. Table 15 and 16 contain screening data correlative to CFAC sampling in April, 1988. It is shown that due to a high detection limit for surface water screening samples, no cyanide was detected. CFAC's use of a lower detection limit for their April, 1988 analysis indicates the presence of cyanide concentrations of 0.002 ppm, 0.009 ppm and 0.005 ppm for samples CF-SW-2, CF-SW-7 and CF-SW-8 respectively. Comparative analysis of CFAC data to CLP data indicates cyanide levels at CF-SW-2 have risen from 0.002 ppm to 0.055 ppm. The cyanide level in the north percolation/boiler blowdown pond (CF-SW-7) has also risen from 0.009 ppm to 0.019 ppm. A similar increase in cyanide is notable in surface water from the south percolation pond. Cyanide has increased from 0.005 ppm to 0.018 ppm at that location.

A further review of ground water results show that slight increases in cyanide concentrations have occurred since the CFAC analysis in April, 1988. An increase from 0.022 ppm, CFAC data, (0.015 ppm were detected during FIT screening) to 0.053 ppm is notable in sample CF-TW-2. Additional cyanide concentrations in the other onsite existing wells were not detected in CLP analysis.

11.0 CONCLUSIONS

As is evident from samples collected at the CFAC facility, the aluminum manufacturing process is producing high levels of PAH compounds in excess of 2300 ppm. These high PAH concentrations are primarily found to exist in soils and sediments associated with plant processes.

The analysis of samples collected indicate a release of cyanide to ground water and surface water which is also attributable to plant processes.

In review, onsite surface waters including the north and south percolation ponds, are receptacles for high concentrations of PAH compounds. These compounds were shown to to be slightly elevated in Cedar Creek when comparing to background conditions. A release of organic compounds does not appear to have occurred via the flood control ditch. Additionally, organic compounds have not been released to the Flathead River. Cyanide does appear to have been released onsite and is shown to be migrating from the site to the Flathead River possibly from the South Percolation Ponds. As previously mentioned cyanide was found in surface waters from the Flathead River at concentrations of 55 ppb. This is most likely attributable to the south percolation ponds as cyanide is evident (18 ppb) at that location.

Ground water at the CFAC site has also been contaminated with cyanide. A review of past analytical data suggests that cyanide concentrations are decreasing at some locations, however significant quantities of cyanide are still evident in the ground water. Well CF-MW-2, located 100 yards hydrogeologically downgradient of the north percolation/boiler blowdown pond, exhibited concentrations of 666 ppb cyanide. The existing well TW-2 also contained 53 ppb cyanide. Organic contaminants associated with the site do not appear to have been released to the ground water. Based on CLP data, the Columbia Falls backup municipal supply well does not contain contamination from the CFAC facility.

12.0 REFERENCES

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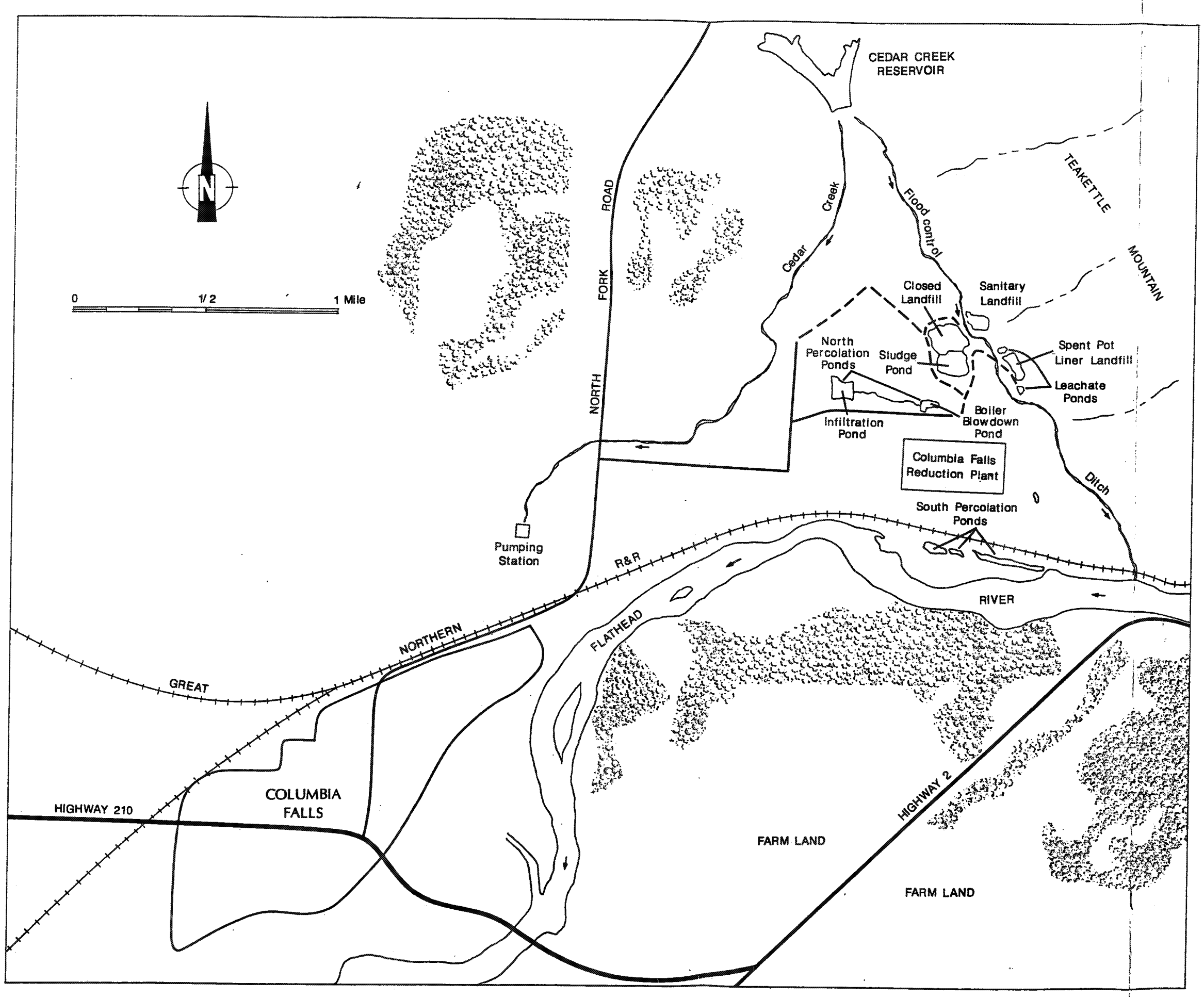
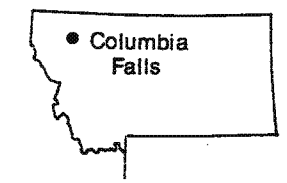
Nunnallee, D., Botz, M.K., and Willems, D.G.. Final Report on the Water Quality Inventory and Management Plan for the Flathead River Drainage Basin, Montana. Montana Department of Health and Environmental Sciences. August, 1976.



LOCATION MAP



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

TITLE:
COLUMBIA FALLS ALUMINUM COMPANY
Columbia Falls, Montana
SITE LOCATION MAP

T.D.D. F08-8809-12

ecology & environment, inc.
DENVER, COLORADO

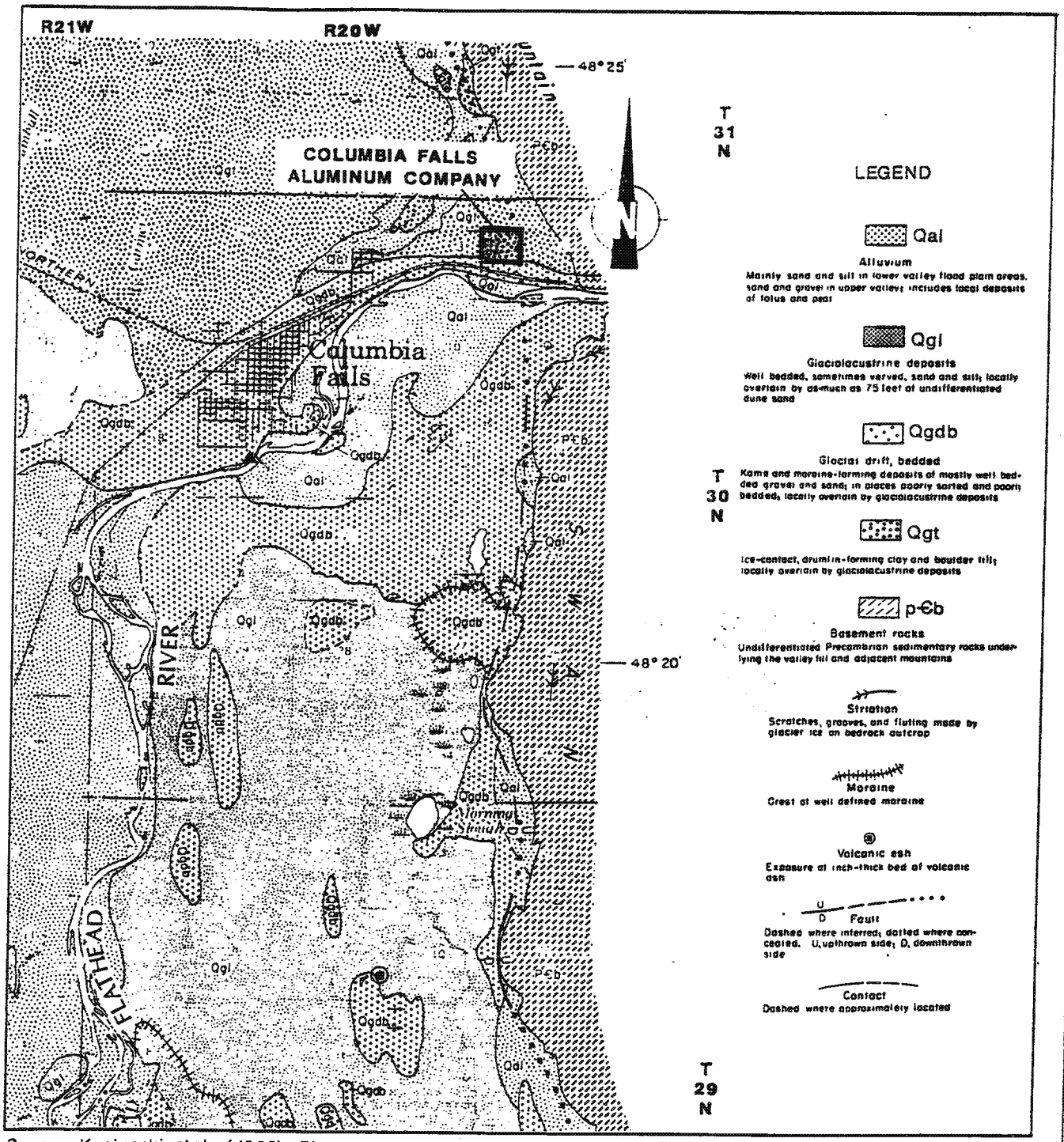
FIG. 1

Date: 03/88 Drawn by: RSM Scale:

ARCF00003110
ED_002345B_00005435-00036

30103
154-

ARCF00003111
ED_002345B_00005435-00037



Source: Konizeski etal., (1968), Plate 1

0 1 2 3 Miles

FIELD INVESTIGATIONS OF UNCONTROLLED HAZARDOUS WASTE SITES TASK REPORT TO THE E.P.A.	
TITLE: COLUMBIA FALLSALLUMINUM COMPANY Columbia Falls, Montana SURFACE GEOLOGIC MAP OF KALISPELL VALLEY T.D.D. F08-8809-12	
ecology & environment, inc. DENVER, COLORADO	FIG. 2
Date: 03/88 Drawn by: RSM Scale:	

154-00104

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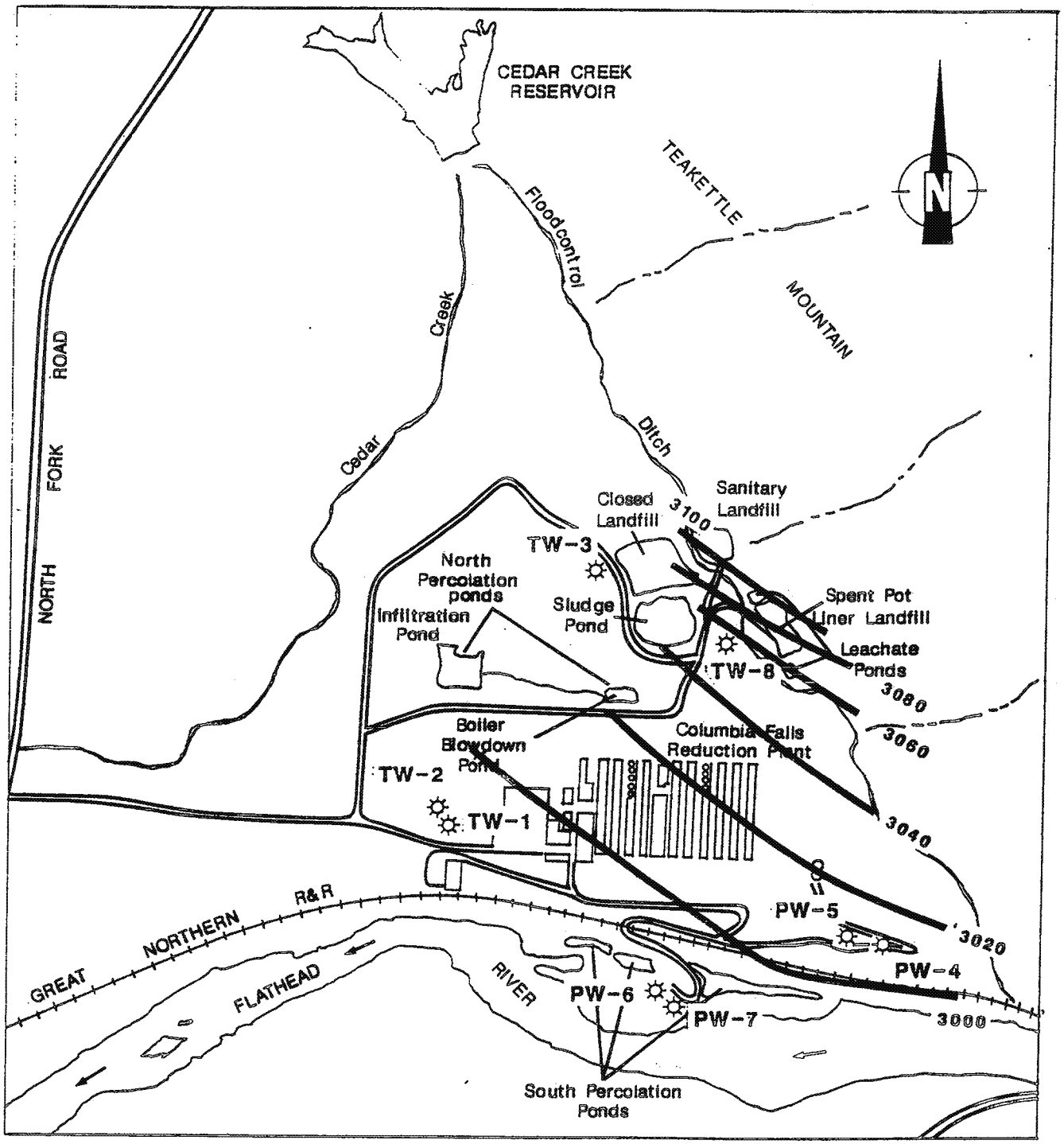
ED_002345B_00005435-00038



LEGEND

☼ Existing monitoring well

Potentiometric water level contours

Source: From Hydrometrics, 1985.
20' contours measured, Jan, 1983

154- 00105

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

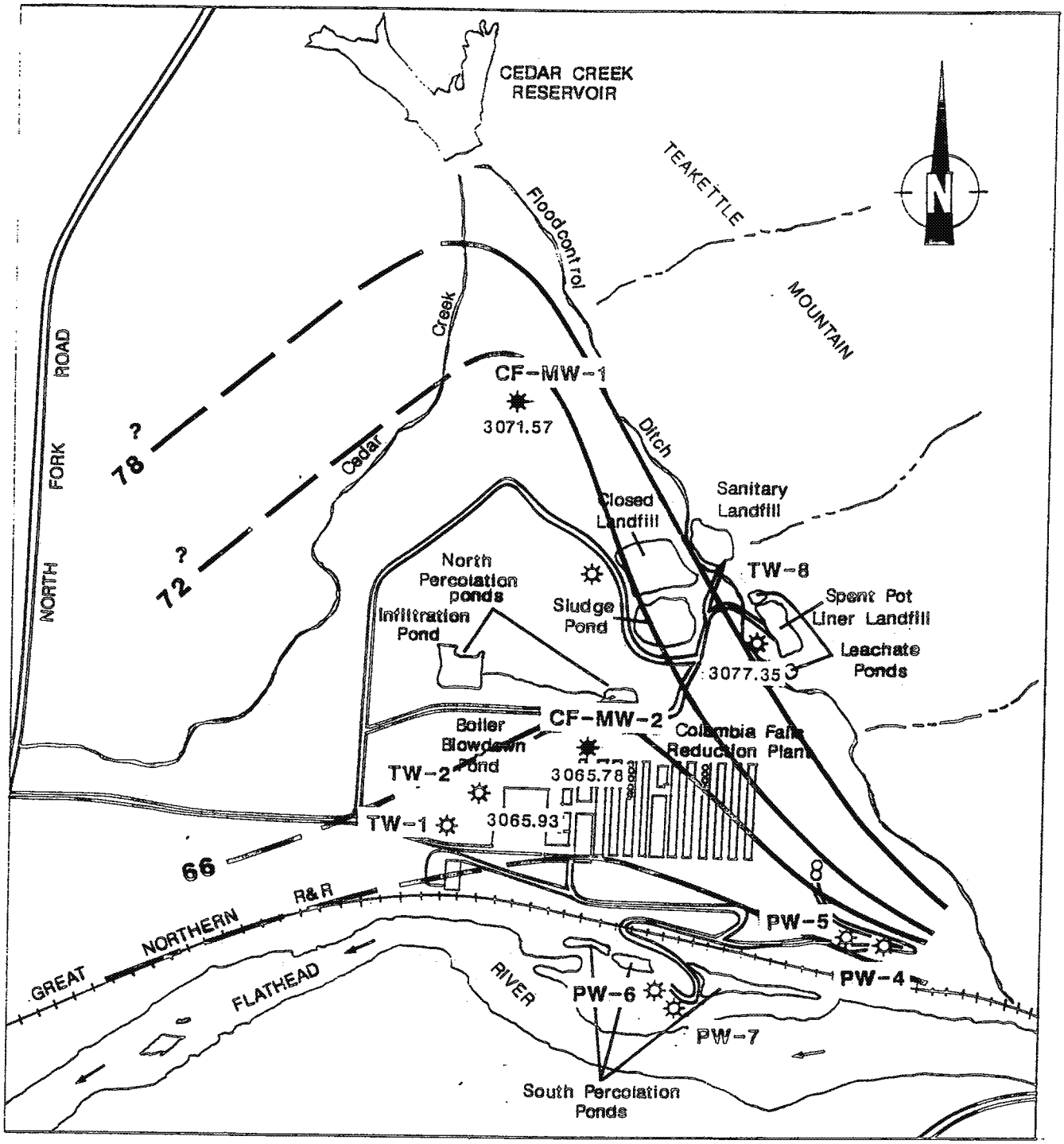
TITLE:
COLUMBIA FALLS ALUMINUM COMPANY
Columbia Falls, Montana
POTENTIOMETRIC CONTOUR MAP

T.D.D. F08-8809-12

ecology & environment, inc.
DENVER, COLORADO

FIG. 3

Date: 03/88 Drawn by: RSM Scale: _____



LEGEND

- Existing monitoring well
- Monitoring well
- Dashed where inferred

Source: Data collected during FIT Site Investigation June, 1988.

154-00106

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

TITLE:

COLUMBIA FALLS ALUMINUM COMPANY
Columbia Falls, Montana

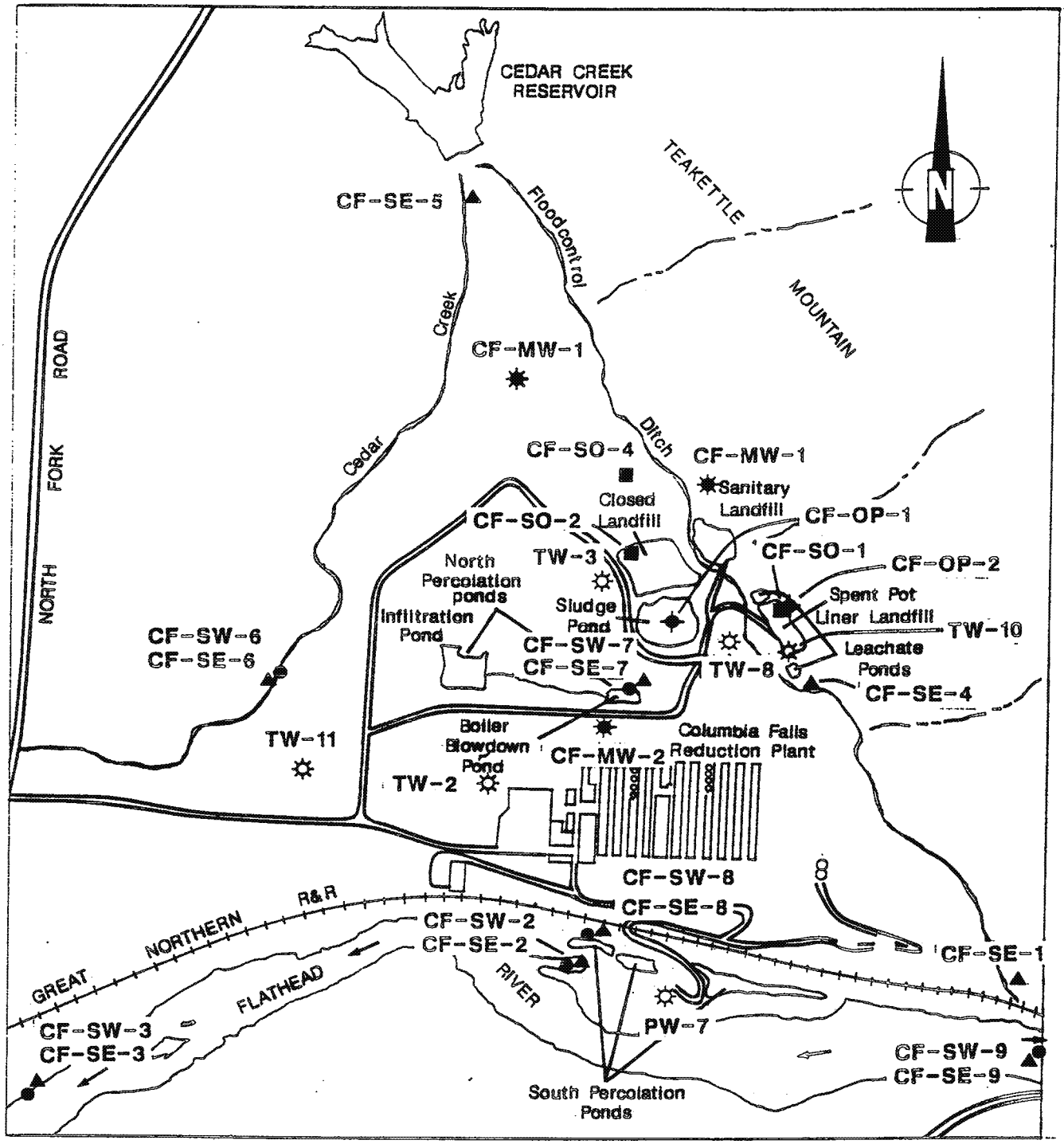
POTENTIOMETRIC CONTOUR MAP

T.D.D. F08-8809-12

ecology & environment, inc.
DENVER, COLORADO

FIG. 4

Date: 07/88 Drawn by: RSM Scale: _____



LEGEND

- Existing monitoring well
- Monitoring well
- Soil sample
- Surface water sample
- Sediment sample
- Opportunity sample

154-00107

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

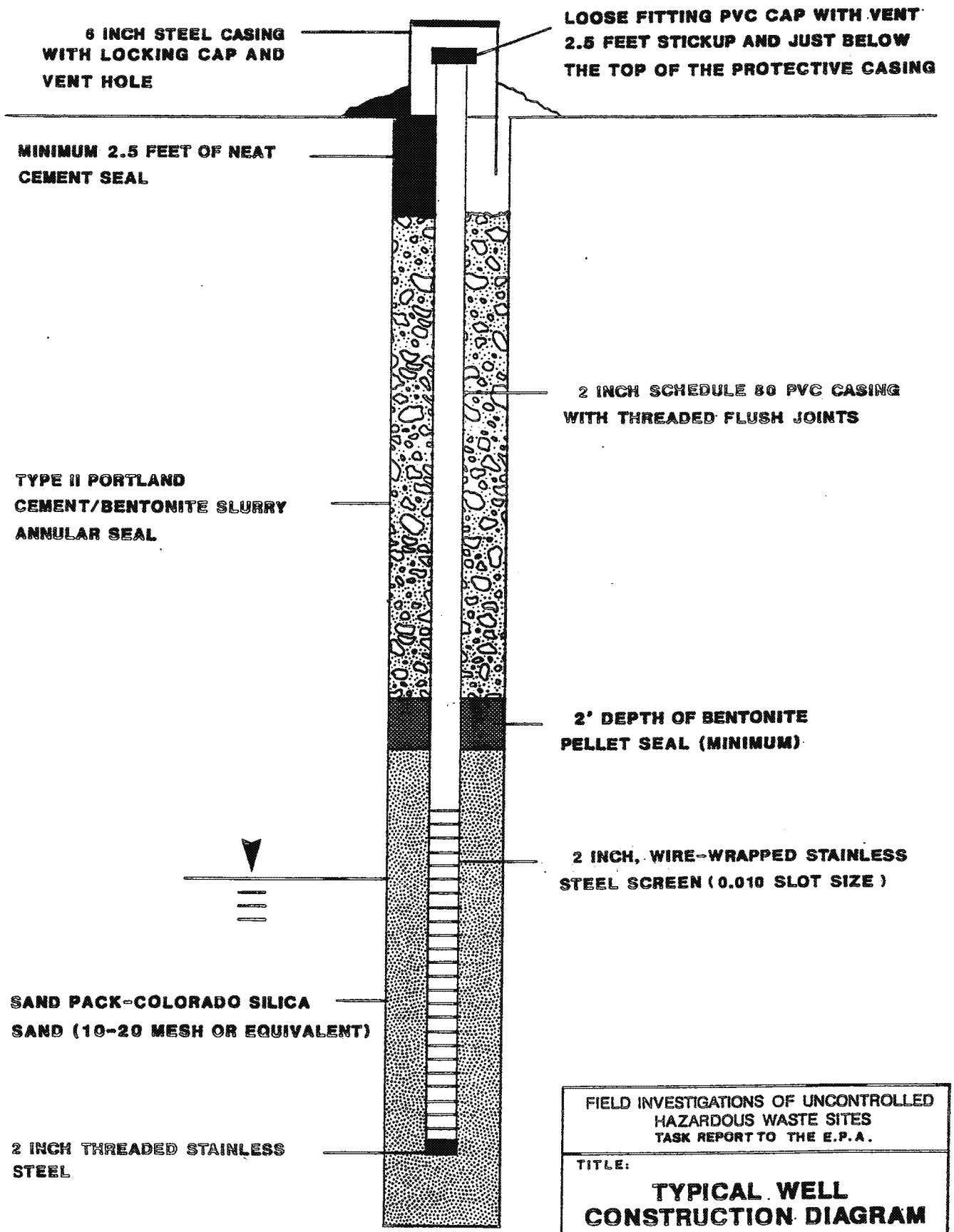
TITLE:
COLUMBIA FALLS ALUMINUM COMPANY
Columbia Falls, Montana:
SAMPLE LOCATION MAP

T.D.D. F08-8809-12

ecology & environment, inc.
DENVER, COLORADO

FIG. 5

Date: 07/88 Drawn by: RSM Scale:



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

TITLE:

TYPICAL WELL CONSTRUCTION DIAGRAM

T.D.D.

ecology & environment, inc.
DENVER, COLORADO

FIG. 6

Date: 06/87 Drawn by: RSM Scale: _____

154- 00108

APPENDIX A

SAMPLE TYPES, LOCATIONS, RATIONALES AND TABLES

154-00109

TABLE 1
SAMPLE TYPES, LOCATIONS AND RATIONALES
COLUMBIA FALLS ALUMINUM COMPANY
COLUMBIA FALLS, MONTANA
TDD F08-8809-12

SAMPLE MATRIX	SAMPLE #	LOCATION	RATIONALE
Surface Water	CF-SW-2	Flathead River by the South Percolation ponds	Determine if south percolation ponds are contaminating the Flathead River
	CF-SW-3	Approximately 1/4 mile downstream of the site on Flathead River.	Determine downgradient migration of possible contaminants.
	CF-SW-5	Base of Cedar Creek Reservoir	Background
	CF-SW-6	Downgradient on Cedar Creek	Determine if contaminant are migrating to Cedar Creek via overland flow.
	CF-SW-7	North Percolation Ponds, Boiler Blowdown Pond.	Characterize the nature of contaminants in onsite ponds
	CF-SW-8	South Percolation Pond	" Triplicate
	CF-SW-9	Approximately 100 yards upstream of flood control ditch/Flathead River confluence	Background
	CF-SW-10		Blank
Sediment	CF-SE-1	Convergence of Flood Control Ditch with Flathead River	Ascertain offsite migration of contaminants via the Flood Control Ditch
	CF-SE-2	Flathead River by the South Percolation Ponds	Determine if contaminants in South Percolation Ponds are migrating to Flathead River.
	CF-SE-3	Approximately 2 miles downstream of the site on Flathead River	Determine downgradient migration of contaminants
	CF-SE-4	Flood control ditch approximately 100 feet downgradient of the spent pot liner/leachate pond complex	Determine if contaminants are migrating from the spent pot liner/leachate pond complex
	CF-SE-5	Base of Cedar Creek Reservoir	Background

154- 00110

TABLE 1 Cont.
SAMPLE TYPES, LOCATIONS AND RATIONALES

SAMPLE MATRIX	SAMPLE #	LOCATION	RATIONALE
	CF-SE-6	Downgradient on Cedar Creek	Determine if are migrating to Cedar Creek via overland flow.
	CF-SE-7	North Percolation Ponds, Boiler Blowdown Pond	Characterize the nature of contaminants in on-site ponds
	CF-SE-8	South Percolation Ponds	"
	CF-SE-9	Approximately 100 yards upstream of Flood Control ditch/Flathead River Convergence	Background
Soil	CF-SO-1	Spent pot liner landfill	Characterize the nature of contaminants onsite
	CF-SO-2	Closed landfill	"
	CF-SO-3	Sanitary landfill	"
	CF-SO-4	North of closed landfill	Background
Ground water	CF-MW-1	Approximately 3/4 mile north of Sanitary Landfill	Background
	CF-MW-2	Approximately 100 feet south (downgradient) of Boiler Blowdown pond	Ascertain the existence of contamination to the ground water - duplicate
	CF-TW-8	Existing well located between the sludge pond and spent pot liner/leachate pond complex	"
	CF-TW-2	Existing well located approximately 500 yards west of plant	"
	CF-PW-7	Existing production well located at south percolation pond	"
	CF-TW-3	Existing well located approximately 100 yards west of closed landfill	"
	Muni #2	Columbia Falls Municipal Well No. 2. Two miles southwest of site	Ascertain the existence of contaminants in Columbia Falls backup water supply
	CF-TW-10	Existing well located 100 yards downgradient of spent pot liner/leachate pond complex	Ascertain the existence of contamination to the ground water from the leachate pond/spent potliner complex
	CF-MW-4	Rinsate Blank	
	CF-MW-5	Rinsate Blank	
	CF-MW-6	Trip blank (VOA only)	
Opportunity	CF-OP-1	Sludge pond	Characterize nature of contaminants deposited onsite
	CF-OP-2	Spent pot liner landfill	"

TABLE 2
ORGANIC ANALYTICAL RESULTS FOR GROUND WATER SAMPLES
FROM COLUMBIA FALLS ALUMINUM COMPANY, COLUMBIA FALLS, MT
CASE #9745
Values are reported in µg/l

SAMPLE #	CF-MW-1	CF-MW-2	MUNI #2	CF-MW-5	CF-MW-4	CF-MW-6
TRAFFIC #	HG-233	HG-231	HG-232	HG-227	HG-211	HG-234
	BKGRD	DNGRDNT	DNGRDNT	BLANK	BLANK	BLANK
Bis(2-ethylhexyl) phthalate	7jb	8j	6jb	--	--	--
Toluene	--	--	--	--	--	11

jb - The value is an estimated amount detected below required limits and also detected in the blank.

j - The associated numerical value is an estimated quantity because the amount detected is below the required limits or because quality control criteria were not met.

-- - None detected

154- 00111

TABLE 3
ORGANIC ANALYTICAL RESULTS FOR GROUND WATER SAMPLES
FROM COLUMBIA FALLS ALUMINUM COMPANY, COLUMBIA FALLS, MT
CASE #9745
Values are reported in µg/l

SAMPLE #	CF-PW-7	CF-TW-8	CF-TW-10	CF-TW-3	CF-TW-11	CF-TW-2
TRAFFIC #	HG-224	HG-225	HG-226	HG-228	HG-229	HG-230
	DNGRDNT	DNGRDNT	DNGRDNT	DNGRDNT	DNGRDNT	DNGRDNT
Bis(2-ethylhexyl) phthalate	5j	7j	5j	--	--	--

j - The associated numerical value is an estimated quantity because the amount detected is below the required limits or because quality control criteria were not met.

-- - None detected

TABLE 4
ORGANIC ANALYTICAL RESULTS FOR SEDIMENT SAMPLES
FROM COLUMBIA FALLS ALUMINUM COMPANY, COLUMBIA FALLS, MT
CASE #9745
Values are reported in µg/kg

SAMPLE #	CF-SE-1	CF-SE-2	CF-SE-3	CF-SE-4	CF-SE-6
TRAFFIC #	HG-206	HG-208	HG-210	HG-212	HG-215
LOCATION	DNGRDNT	FLTHD R.	DNGRDNT FLTHD R.	ONSITE DITCH	DNGRDNT CEDAR CK.
Acenaphthene	20j	--	--	19j	170j
Phenanthrene	150jb	140jb	33jb	120jb	950b
Fluoranthene	310jb	390jb	54jb	200jb	1400b
Chrysene	250j	540j	--	170j	870
Bis(2-ethylhexyl) phthalate	79j	99j	95j	--	180j
Benzo(b)fluor-anthene	250j	580j	41j	340j	990
Benzo(a)pyrene	170j	220j	--	130j	690j
Indeno(1,2,3-cd)-pyrene	210j	320j	--	200j	840j
Benzo(g,h,i)-perylene	190j	270j	--	180j	710j
Toluene	--	21	--	3j	3j
4-methylphenol	--	170j	--	--	--
Benzoic acid	--	670j	--	--	--
Benzo(1)anthracene	--	180j	--	--	--
Pyrene	--	310jb	54jb	230jb	1300jb
Dibenzo(a,h) anthracene	--	74j	--	--	210j
Methylene chloride	--	--	--	2.0j	--
2-methylnaphthalene	--	--	--	--	28j
Dibenzofuran	--	--	--	--	55j
Fluorene	--	--	--	--	110j
Anthracene	--	--	--	--	170j

j - The associated numerical value is an estimated quantity because the amount detected is below the required limits or because quality control criteria were not met.

jb - The value is an estimated amount detected below required limits and also detected in the blank.

b - Compound was detected in the blank. Quantity reported is >5x the amount found in the blank (>10x for methylene chloride, acetone, toluene and phthalates).

-- - None detected

154- 00112

TABLE 5
ORGANIC ANALYTICAL RESULTS FOR SEDIMENT AND SOIL SAMPLES
FROM COLUMBIA FALLS ALUMINUM COMPANY, COLUMBIA FALLS, MT
CASE #9745
Values are reported in µg/kg

SAMPLE #	CF-SO-1	CF-SO-2	CF-SO-4	CF-SE-7	CF-SE-8	CF-SE-9
TRAFFIC #	HG-201	HG-202	HG-204	HG-217	HG-218	HG-220
	ONSITE	ONSITE	BKGRD	ONSITE	DNGRDNT	UPGRDNT
Toluene	1000	7	21	6j	12j	--
Naphthalene	4600j	--	--	160000j	--	--
2-methylnaphthalene	1400j	--	--	86000j	--	--
Acenaphthylene	450j	830j	16j	960j	--	--
Acenaphthene	13000j	--	--	410000j	840j	--
Dibenzofuran	7500j	190j	--	170000j	--	--
Fluorene	16000j	610j	--	270000j	--	--
Anthracene	--	--	--	--	320j	--
Phenanthrene	380000j	12000b	170jb	1500000j	13000	57jb
Fluoranthene	930000jb	18000b	340jb	2300000j	98000	150jb
Pyrene	430000jb	18000jb	300jb	1800000j	71000	200jb
Benzo(a)anthracene	110000j	5900j	--	190000j	51000	--
Chrysene	110000j	8700j	190j	180000j	130000	230j
bis(2-ethylhexyl) phthalate	5000j	--	110j	--	11000j	290j
Benzo(k)fluor-anthene	210000j	--	410j	2900000j	--	--
Benzo(b)fluor-anthene	--	9300j	410j	--	--	320j
Benzo(a)pyrene	86000j	8500j	110j	680000j	45000j	84j
Indeno(1,2,3-cd) pyrene	96000j	8800j	200j	1000000j	62000j	--
Dibenzo(a,h)-anthrancene	24000j	2600j	--	410000j	16000j	--
Benzo(g,h,i) perylene	79000j	7300j	170j	790000j	52000j	--
Methylene Chloride	--	21j	--	--	--	--
Butylbenzyl-phthalate	--	--	--	--	1500j	--

j - The associated numerical value is an estimated quantity because the amount detected is below the required limits or because quality control criteria were not met.

jb - The value is an estimated amount detected below required limits and also detected in the blank.

b - Compound was detected in the blank. Quantity reported is >5x the amount found in the blank (>10x for methylene chloride, acetone, toluene and phthalates).

-- - None detected

TABLE 6
ORGANIC ANALYTICAL RESULTS FOR SURFACE WATER SAMPLES
FROM COLUMBIA FALLS ALUMINUM COMPANY, COLUMBIA FALLS, MT
CASE #9745
Values are reported in µg/l

SAMPLE #	CF-SW-2	CF-SW-3	CF-SW-5	CF-SW-6
TRAFFIC #	HG-207	HG-209	HG-214	HG-216
	FLTHD R.	DNGRDNT FLTHD R.	UPGRDNT DITCH	DNGRDNT CEDAR CK.
Acetone	6jb	5jb	5jb	4jb
Bis(2-ethylhexyl) phthalate	14b	7jb	7jb	16b

jb - The value is an estimated amount detected below required limits and also detected in the blank.

b - Compound was detected in the blank. Quantity reported is >5x the amount found in the blank (>10x for methylene chloride, acetone, toluene and phthalates).

154- 00113

TABLE 7
ORGANIC ANALYTICAL RESULTS FOR SURFACE WATER SAMPLES
FROM COLUMBIA FALLS ALUMINUM COMPANY, COLUMBIA FALLS, MT
CASE #9745
Values are reported in µg/l

SAMPLE #	CF-SW-7	CF-SW-8	CV-SW-9	CF-SW-10
TRAFFIC #	HG-219	HG-221	HG-222	HG-223
	SITE POND	SITE POND	UPGRDNT	BLANK
Acetone	7jb	7jb	--	--
Toluene	2j	--	--	--
Xylene (total)	5j	--	--	--
Phenol	42	--	--	--
2-methylphenol	50	--	--	--
4-methylphenol	69	--	--	--
2,4-dimethylphenol	31	--	--	--
Naphthalene	240	--	--	--
2-Methylnaphthalene	130	--	--	--
Acenaphthalene	500	--	--	--
Dibenzofuran	130	--	--	--
Fluorene	170	--	--	--
Phenanthrene	370	--	--	--
Anthracene	44	--	--	--
Fluoranthene	72	--	--	--
Pyrene	47	--	--	--
Bis(2-ethylhexyl) phthalate	14jb	18b	29b	--

j - The associated numerical value is an estimated quantity because the amount detected is below the required limits or because quality control criteria were not met.

b - Compound was detected in the blank. Quantity reported is >5x the amount found in the blank (>10x for methylene chloride, acetone, toluene and phthalates).

jb - The value is an estimated amount detected below required limits and also detected in the blank.

-- - None detected

TABLE 8
ORGANIC ANALYTICAL DATA FOR OPPORTUNITY SAMPLES FROM
COLUMBIA FALLS ALUMINUM COMPANY, COLUMBIA FALLS, MT
CASE #9745
VALUES REPORTED IN mg/kg

SAMPLE #	CF-OP-1	CF-OP-2
TRAFFIC #	HG-205	HG-235
LOCATION	ONSITE	ONSITE
Methylene Chloride	5.4ub	4.3
Acetone	8.5ub	9.5
2-butanone	14ub	19
Fluoranthene	10j	1700
Pyrene	9j	1400
Benzo(a)anthracene	2.3j	1000
Benzo(b)fluor-anthene	3.7j	1200
Benzo(k)fluor-anthene	--	760
Acenaphthene	--	85
Fluorene	--	63
Phenanthrene	--	800
Anthracene	--	210
Chrysene	--	1200
Benzo(a)pyrene	--	1100
Indeno(1,2,3-cd)-pyrene	--	690
Dibenzo(a,h)-anthracene	--	60
benzo(g,h,i)-perylene	--	640

ub - Estimated sample quantitation limit increased. Amount found in sample reported. Compound detected at <5x the amount in blank (<10x for methylene chloride, acetone, toluene and phthalates).

j - The associated numerical value is an estimated quantity because the amount detected is below the required limits or because quality control criteria were not met.

-- - None detected

154-00114

TABLE 9
INORGANIC ANALYTICAL RESULTS FOR GROUND WATER SAMPLES
FROM COLUMBIA FALLS ALUMINUM COMPANY, COLUMBIA FALLS, MT
CASE #9745
Values are reported in µg/l

SAMPLE #	CF-MW-1	CF-MW-2	MUNI #2	CF-MW-5	CF-MW-4
TRAFFIC #	MHQ-531	MHQ-529	MHQ-530	MHG-525	MHQ-510
LOCATION	BKGRND	DNGRDNT	DNGRDNT	BLANK	BLANK
Aluminum	[140]	19u	19u	19u	19u
Antimony	25u	25u	25u	25u	25u
Arsenic	1.5u	1.5u	1.5u	1.5u	1.5u
Barium	[75]	205	477	[2.9]	1.0u
Beryllium	1.5u	1.5u	1.5u	1.5u	1.5u
Cadmium	4.1u	4.1u	4.1u	4.1u	4.1u
Calcium	56600	74700	70600	[616]	[148]
Chromium	5.0u	5.0u	5.0u	5.0u	5.0u
Cobalt	3.9u	[3.9]	3.9u	[4.4]	[5.4]
Copper	16u	16u	16u	16u	16u
Iron	125	236	[8.0]	3.2u	[3.8]j
Lead	2.3u	2.3u	2.3u	2.3u	2.3u
Magnesium	14300	21700	20100	[498]	[453]
Manganese	154	69	[4.3]	[2.7]	[2.9]
Mercury	0.2u	0.2u	0.2u	0.2u	0.2u
Nickel	26u	26u	26u	26u	26u
Potassium	2300u	2300u	2300u	2300u	2300u
Selenium	22u	22u	22u	2.2u	2.2u
Silver	4.4u	4.4u	4.4u	4.4u	4.4u
Sodium	8180j	22900j	11300j	[3220]j	[4170]j
Thallium	1.8u	1.8u	1.8u	1.8u	1.8u
Vanadium	[3.7]	[4.7]	[4.8]	[5.2]	[5.8]
Zinc	28j	[11]j	[19]j	[8.8]j	[11]j
Cyanide	10u	666	10u	10u	22

[] - Compound is present and was detected. However, the quantity is below the contract required detection limit (inorganic data only).

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

j - The associated numerical value is an estimated quantity because the amount detected is below the required limits or because quality control criteria were not met.

TABLE 10
INORGANIC ANALYTICAL RESULTS FOR GROUND WATER SAMPLES
FROM COLUMBIA FALLS ALUMINUM COMPANY, COLUMBIA FALLS, MT
CASE #9745
Values are reported in µg/l

SAMPLE #	CF-PW-7	CF-TW-8	CF-TW-10	CF-TW-3	CF-TW-11	CF-TW-2
TRAFFIC #	MHQ-522	MHQ-523	MHQ-524	MHQ-526	MHQ-527	MHQ-528
LOCATION	DNGRDNT	DNGRDNT	DNGRDNT	DNGRDNT	DNGRDNT	DNGRDNT
Aluminum	19u	19u	19u	19u	19u	19u
Antimony	25u	25u	25u	25u	25u	25u
Arsenic	1.5u	1.5u	1.5u	1.5u	1.5u	1.5u
Barium	[198]	283	[196]	[141]	[125]	[85]
Beryllium	1.5u	1.5u	1.5u	1.5u	1.5u	1.5u
Cadmium	4.1u	4.1u	4.1u	4.1u	4.1u	4.1u
Calcium	38500	72000	63300	50600	48100	43700
Chromium	5.0u	5.0u	5.0u	5.0u	5.0u	5.0u
Cobalt	[5.5]	[5.2]	[6.7]	[5.6]	[4.2]	3.9u
Copper	16u	16u	16u	16u	16u	16u
Iron	[11]j	[4.4]j	[60]	[8.9]j	209	[20]
Lead	2.3u	2.3u	2.3u	2.3u	2.3u	2.3u
Magnesium	12100	16100	17900	12300	18600	13200
Manganese	[3.0]	[12]	[5.3]	97	41	[5.6]
Mercury	0.2u	0.2u	0.2u	0.2u	0.2u	0.2u
Nickel	26u	26u	26u	26u	26u	26u
Potassium	2300u	2300u	2300u	2300u	2300u	2300u
Selenium	2.2u	2.2u	2.2u	2.2u	2.2u	2.2u
Silver	4.4u	4.4u	4.4u	4.4u	4.4u	4.4u
Sodium	9230j	7710j	7960j	[4620]j	6370j	7580j
Thallium	1.8u	1.8u	1.8u	1.8u	1.8u	1.8u
Vanadium	[6.6]	[7.3]	[8.7]	[7.1]	[5.4]	[4.0]
Zinc	32j	233	182	100	342	56j
Cyanide	10u	10u	10u	10u	10u	53

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

[] - Compound is present and was detected. However, the quantity is below the contract required detection limit (inorganic data only).

j - The associated numerical value is an estimated quantity because the amount detected is below the required limits or because quality control criteria were not met.

154- 00115

TABLE 11
INORGANIC ANALYTICAL RESULTS FOR SEDIMENT SAMPLES
FROM COLUMBIA FALLS ALUMINUM COMPANY, COLUMBIA FALLS, MT
CASE #9745
Values are reported in mg/kg

SAMPLE #	CF-SE-1	CF-SE-2	CF-SE-3	CF-SE-4	CF-SE-5	CF-SE-6
TRAFFIC #	MHQ-505	MHQ-507	MHQ-509	MHQ-511	MHQ-512	MHQ-514
LOCATION	DNGRDNT	FLTHD R.	DNGRDNT FLTHD R.	ONSITE DITCH	UPGRDNT DITCH	DNGRDNT CEDAR CK
Aluminum	18700	9080	5960	16300	5500	8050
Antimony	5.5u	9.4u	7.3u	5.7u	11u	12u
Arsenic	2.7j	[2.3]j	[2.0]j	4.2j	[2.7]j	[1.3]j
Barium	337	151	103	148	129	117
Beryllium	[0.59]	0.56u	0.44u	[0.63]	0.64u	0.70u
Cadmium	.89u	1.5u	1.2u	0.94u	1.7u	1.9u
Calcium	8310	23600	14600	6360	77100	9970
Chromium	12	9.8	5.4	12	[3.9]	5.7
Cobalt	[6.3]	[5.2]	[3.7]	[8.8]	[1.7]	[2.0]
Copper	14	21	12	23	[9.3]	7.4u
Iron	12700j	13500j	10400j	22000j	5050j	6980j
Lead	17j	8.6j	5.1	20j	7.0j	7.6j
Magnesium	8820	11900	8060	9570	4330	4760
Manganese	165j	202j	211j	693j	208j	239j
Mercury	.099u	0.17u	0.12u	0.10u	0.17u	0.21u
Nickel	15	16	12	17	11u	12u
Potassium	[815]	866u	675u	528u	982u	1070u
Selenium	4.8u	0.80u	0.65u	5.1u	9.0u	1.0u
Silver	0.96u	1.7u	1.3u	1.0u	1.9u	2.0u
Sodium	[564]	[542]	382u	[402]	[808]	602u
Thallium	0.40u	0.66u	0.53u	0.41u	0.74u	0.83u
Vanadium	[11]j	[15]j	[11]j	[11]j	[3.9]	[4.5]j
Zinc	51j	44j	34j	68j	33j	35j
Cyanide	0.57u	0.96u	0.77u	0.60u	1.1u	1.2u

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

[] - Compound is present and was detected. However, the quantity is below the contract required detection limit (inorganic data only).

j - The associated numerical value is an estimated quantity because the amount detected is below the required limits or because quality control criteria were not met.

TABLE 12
ORGANIC ANALYTICAL RESULTS FOR SEDIMENT AND SOIL SAMPLES
FROM COLUMBIA FALLS ALUMINUM COMPANY, COLUMBIA FALLS, MT
CASE #9745
Values are reported in mg/kg

SAMPLE #	CF-SO-1	CF-SO-2	CF-SO-4	CF-SE-7	CF-SE-8	CF-SE-9
TRAFFIC #	MHQ-500	MHQ-501	MHQ-503	MHQ-516	MHQ-517	MHQ-519
LOCATION	ONSITE	ONSITE	BKGRND	SITE POND	SITE POND	UPGRDNT
Aluminum	10400	13900	19300	21400	30200	7570
Antimony	4.9u	[6.5]j	6.2u	7.6u	9.2u	8.4u
Arsenic	4.4j	5.9j	3.8j	[2.2]j	[2.1]j	[2.5]j
Barium	[19]	178	312	[43]	159	115
Beryllium	0.29u	[0.93]	[0.66]	0.45u	0.55u	0.5u
Cadmium	1.4	0.97u	1.0u	1.2u	1.5u	1.4u
Calcium	[787]	58200	2860	5550	37900	17000
Chromium	5.9	12	11	34	16	8.9
Cobalt	[2.9]	[7.1]	[9.1]	[2.3]	[2.9]	[5.3]
Copper	13	19	14	8.4	134	14
Iron	4330j	15200j	19600j	2920j	7640j	12100j
Lead	52j	11j	17j	27j	170j	7.1j
Magnesium	[172]	17500	10700	[1370]	2660	9540
Manganese	35j	417j	1460j	24j	138j	253j
Mercury	.097	0.11	0.11u	0.15u	0.56	0.15u
Nickel	37	34	15	31	30	14
Potassium	450u	1570	570u	695u	844u	[1420]
Selenium	4.3u	5.2u	5.7u	6.7u	8.1u	0.72u
Silver	.86u	1.0u	1.1u	1.3u	1.6u	[1.7]
Sodium	1560	1290	[499]	[854]	[1180]	[729]
Thallium	0.35u	0.42u	0.46u	0.54u	0.66u	0.59u
Vanadium	65j	20j	14j	16j	24j	[14]j
Zinc	130j	54j	104j	118j	206j	44j
Cyanide	0.51u	0.60u	0.65u	1.5u	2.3u	0.85u

[] - Compound is present and was detected. However, the quantity is below the contract required detection limit (inorganic data only).

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

j - The associated numerical value is an estimated quantity because the amount detected is below the required limits or because quality control criteria were not met.

154-00116

TABLE 13
INORGANIC ANALYTICAL RESULTS FOR SURFACE WATER SAMPLES
FROM COLUMBIA FALLS ALUMINUM COMPANY, COLUMBIA FALLS, MT
CASE #9745
Values are reported in µg/l

SAMPLE #	CF-SW-2	CF-SW-3	CF-SW-5	CF-SW-6	CF-SW-7	CF-SW-8	CF-SW-9
TRAFFIC #	MHQ-506	MHQ-508	MHQ-513	MHQ-515	MHQ-518	MHQ-520	MHQ-521
LOCATION	FLTHD R.	DNGRDNT FLTHD R.	UPGRDNT DITCH	DNGRDNT CEDAR CK	SITEPOND	SITEPOND	UPGRDNT
Aluminum	[29]j	[84]j	[31]j	[95]j	4070	[156]	[137]
Antimony	25u	25u	25u	25u	25u	25u	[53]
Arsenic	[2.0]	1.5u	1.5u	[2.3]	[4.9]	[1.9]	1.5u
Barium	[149]	[83]	[75]	[81]	266	[193]	[71]
Beryllium	1.5u	1.5u	1.5u	1.5u	1.5u	1.5u	1.5u
Cadmium	4.1u	4.1u	4.1u	4.1u	4.1u	4.1u	4.1u
Calcium	52100	22200	46700	48000	37800	37800	20600
Chromium	5.0u	5.0u	5.0u	5.0u	5.0u	5.0u	5.0u
Cobalt	3.9u	3.9u	3.9u	[6.3]	[9.0]	[6.4]	[4.8]
Copper	16u	16u	16u	16u	27	16u	16u
Iron	184	109	[38]j	[73]	1780	[40]j	168
Lead	2.3u	2.3u	2.3u	2.3u	25	2.3u	2.3u
Magnesium	14000	5720	11400	11800	11700	11600	5670
Manganese	63	[11]	22	20	15	[4.7]	[10]
Mercury	0.2u	0.2u	0.2u	0.2u	0.2u	0.2u	0.2u
Nickel	26u	26u	26u	26u	43	26u	26u
Potassium	2300u	2300u	2300u	2300u	2300u	2300u	2300u
Selenium	2.2u	2.2u	2.2u	2.2u	22u	2.2u	2.2u
Silver	4.4u	4.4u	4.4u	4.4u	4.4u	4.4u	4.4u
Sodium	11900	[1960]j	[2790]j	5490j	8420j	8310j	[4330]j
Thallium	[2.0]	[2.0]	[1.9]	[1.9]	1.8u	1.8u	[2.0]
Vanadium	2.6u	2.6u	[3.6]	[8.1]	118	[8.0]	[6.3]
Zinc	[3.5]j	[3.9]j	[4.3]j	[14]j	217	[8.0]j	21j
Cyanide	55	10u	10u	10u	19	18	--

[] - Compound is present and was detected. However, the quantity is below the contract required detection limit (inorganic data only).

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

j - The associated numerical value is an estimated quantity because the amount detected is below the required limits or because quality control criteria were not met.

TABLE 14
INORGANIC ANALYTICAL RESULTS FOR OPPORTUNITY SAMPLES
FROM COLUMBIA FALLS ALUMINUM COMPANY, COLUMBIA FALLS, MT
CASE #9745
VALUES ARE REPORTED IN mg/kg

SAMPLE #	CF-OP-1	CF-OP-2
TRAFFIC #	MHQ-504	MHQ-532
LOCATION	ONSITE	ONSITE
Aluminum	14800	60500
Antimony	20u	20u
Arsenic	20u	50
Barium	120u	120u
Beryllium	40u	40u
Cadmium	10u	10u
Calcium	162000	4880
Chromium	28u	28u
Cobalt	200u	199u
Copper	40u	75
Iron	2320	28700
Lead	535	111.0
Magnesium	6039	797
Manganese	40u	102
Mercury	0.3u	0.3u
Molybdenum	40u	40u
Nickel	384	467
Selenium	20u	20u
Silicon	11800	7310
Silver	40u	40u
Sodium	4000u	34100
Thallium	400u	398u
Titanium	400u	398u
Vanadium	200u	199u
Zinc	40u	41
Cyanide	--	63

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

154- 00117

TABLE 15
SUMMARY AND COMPARISON OF GROUND WATER QUALITY
COLUMBIA FALLS ALUMINUM COMPANY
TDD F08-8809-12

SAMPLE NO.	SPECIFIC CONDUCTANCE µmhos/cm	pH	FLUORIDE mg/l	CYANIDE mg/l
TW-2	330/290	8.1/7.1	4.0/5.5	0.022/0.015
TW-3	--/290	--/5.3	--/0.5	--/0.0
TW-8	690/190	7.6/6.8	0.24/1.2	0.178/0.0
TW-10	470/390	7.3/7.0	0.21/1.0	0.001/0.0
TW-11	380/280	7.2/7.1	0.17/0.6	0.0/0.0
PW-7	295/220	7.0/6.3	1.27/4.5	0.015/0.0
CF-MW-1	--/250	--/7.4	--/0.0	--/0.00
CF-MW-2	--/550	--/7.15	--/0.1	--/0.0
Muni #2	--/400	--/5.9	--/0.1	--/0.0

330/290 Data collected by CFAC, April, 1988 / Data collected during FIT site investigation June, 1988

-- No data available

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TABLE 16
SUMMARY AND COMPARISON OF SURFACE WATER QUALITY
COLUMBIA FALLS ALUMINUM COMPANY
TDD F08-8809-12

SAMPLE NO.	SPECIFIC CONDUCTANCE µmhos/cm	pH	FLUORIDE mg/l	CYANIDE mg/l	LOCATION
CF-SW-9	150/100	5.6/6.9	0.06/0.15	0.0/0.0	Upgradient on Flathead River
CF-SW-2	155/350	6.2/7.9	0.1/5.0	0.002/0.0	Adjacent to plant on Flathead River
CF-SW-3	152/120	6.4/6.7	0.05/0.6	0.0/0.0	Downgradient on Flathead River
CF-SW-7	240/230	7.7/6.3	0.78/1.0	0.009/0.0	North Percolation Pond
CF-SW-8	250/210	7.2/7.7	0.65/0.7	0.005/0.0	South Percolation Pond

150 Data collected by CFAC, April, 1988
100 Data collected during FIT site investigation, June, 1988

154- 00118

APPENDIX B

QUALITY ASSURANCE REPORTS

154-00119

DATA QUALIFIER DEFINITIONS

Region 8

For the purposes of this data review document the following code letters and associated definitions are provided.

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

J - The associated numerical value is an estimated quantity because the amount detected is below the required limits or because quality control criteria were not met.

UB - Estimated sample quantitation limit increased. Amount found in sample reported. Compound detected at <5 X the amount in blank (<10 X for methylene chloride, acetone, toluene and phthalates).

UJ - Detection limit is estimated because quality control criteria were not met.

JB - The value is an estimated amount detected below required limits and also detected in the blank.

B - Compound was detected in the blank. Quantity reported is >5 X the amount found in the blank (>10 X for methylene chloride, acetone, toluene, and phthalates).

R - Quality Control indicates that data is <u>not</u> usable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

Z - No analytical result.

N - Presumptive evidence of presence of material (tentative identification).

REGION VIII: SUMMARY OF DATA QUALITY ASSURANCE

guideline references are from Contract #787

Case No. 9745 Project No. F08-8807-13

Site Columbia Falls Aluminum Company

Contractor Laboratory Compuchem

Data Reviewer Lynn Fischer Date of Review August 17, 1988

Sample Matrix 18 low waters and 12 low soils

Sample No.

MHQ 500	MHQ 512	MHQ 506	MHQ 521	MHQ 528
MHQ 501	MHQ 514	MHQ 508	MHQ 522	MHQ 529
MHQ 503	MHQ 516	MHQ 510	MHQ 523	MHQ 530
MHQ 505	MHQ 517	MHQ 513	MHQ 524	MHQ 531
MHQ 507	MHQ 519	MHQ 515	MHQ 525	
MHQ 509		MHQ 518	MHQ 526	
MHQ 511		MHQ 520	MHQ 527	

soils waters

( ) Data are acceptable for use

(X) Data are acceptable for use with qualifications noted on the following pages

( ) Data are preliminary-pending action or verification

( ) Data are unacceptable

Action required by DPO?

No X Yes ____ Following items require action ____

Action required by the Project Officer (PO)?

No X Yes ____

154-00121

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Our Findings

Data are acceptable for use with qualifications noted.

All sample holding times were met. All continuing and initial calibration criteria were met.

The preparation blanks for both soils and waters had several outliers. Soil outliers are Iron (8.1 µg/l), Manganese (.51 µg/l) and Zinc (4.0 µg/l). Water outliers were Aluminum (24 µg/l), Calcium (37 µg/l), Iron (9.2 µg/l) and Zinc (12 µg/l). All positive hits less than 5x the amt found in the blank are flagged J, estimated. No soils were flagged.

All ICP Interference Check Sample results and Laboratory Control Sample (LCS) results met contract criteria.

Limits for spiked sample analysis are (75-125%), there is one water outlier Selenium (44) and six soil outliers Antimony (158), Arsenic (22), Selenium (71), Lead (140), Mercury (72) and Vanadium (73). All associated positive hits were flagged J, estimated.

All parameters in the water duplicate met contract criteria. The soil duplicate had 3 outliers Iron (138), Lead (142) and Manganese (67). Hits are qualitatively identified however quantitation is questionable. All positive hits are flagged J, estimated.

The ICP serial dilution analysis had one outlier for waters Zinc (36); and one outlier for soils Sodium (52). All associated positive hits were flagged J.

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Inorganic Data Completeness Checklist

- ✓ Inorganic analysis data (Form I)
- ✓ Initial calibration and continuing calibration verification (Form IIA)
- ✓ CRDL standard for AA and ICP (Form IIB)
- ✓ Blanks (Form III)
- ✓ ICP interference check sample (Form IV)
- ✓ Spike sample recovery (Form VA)
- ___ Post digestion spike sample recovery (Form VB)
- ✓ Duplicates (Form VI)
- ✓ Laboratory control sample (Form VII)
- ✓ Standard addition results (Form VIII)
- ✓ ICP serial dilutions (Form IX)
- ✓ Holding times (Form X)
- ✓ Instrument detection limits-quarterly (Form XI)
- ✓ ICP interelement correction factors-quarterly (Form II)
- ✓ ICP linear ranges-quarterly (Form XIII)
- ✓ Raw data for interference checks
- ✓ Raw data for calibration standards
- ✓ Raw data for blanks
- ___ Raw data for CRI and/or CRA
- ✓ Raw data for samples
- ✓ Raw data for duplicates
- ✓ Raw data for spikes
- ✓ Traffic reports

- 154- 00122

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Contract Compliance

I. Initial and Continuing Calibration Verification (ICV and CCV) (guidelines pg. E-4, Form IIA)

1. Was instrument calibrated daily and each time it was set up?

   yes ✓ no ____

2. Were instruments calibrated using 1 blank and several standards?

   yes ✓ no ____

3. Were calibration verifications within 90-110%?

   yes ✓ no ____

4. Were continuing calibrations run at 10% frequency?

   yes ✓ no ____

5. Were the raw data correctly transcribed onto Form IIA?

   yes ✓ no ____

Comments:

II. CRDL Standards for ICP (CRI) and/or AA (CRA) (guidelines pg. E-6, Form IIB)

1. For ICP analysis, were standards (CRI) @ 2X the CRDL or the IDL (whichever was greater) analyzed at the beginning and the end of each sample run, or at a minimum of twice/8 hour shift, whichever was more frequent?

   yes ✓ no ____

2. For furnace AA analysis, were standards (CRA) analyzed at the beginning and the end of each sample run, or at a minimum of twice/8 hour shift, whichever was more frequent?

   yes ✓ no ____

3. Were the CRI and/or CRA standards analyzed <u>after</u> the ICV?

   yes ✓ no ____

4. Were these data reported on Form IIB?

   yes ✓ no ____

5. Were the raw data correctly transcribed onto Form IIB?

   yes ✓ no ____

Comments:

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III. Blanks (guidelines pg. E-6, Form III)

1. Was the initial calibration blank (ICB) analyzed immediately after the initial calibration verification (ICV)?

yes ✓ no ____

2. Was a continuing calibration blank (CCB) analyzed immediately after each continuing calibration verification (CCV)?

yes ✓ no ____

3. Was a preparation blank (PB) analyzed at a frequency of at least 1 in 20 samples?

yes ✓ no ____ NA ____

4. How many elements were detected above the CRDLs? 3 for soils, 4 for waters, 7 total
(if 0, go to question 5)

4a. How many elements were detected in the blanks at greater than one-half the amount detected in any sample? none

5. Were raw data correctly transcribed onto Form III?

yes ✓ no ____

Comments:

IV. ICP Interference Checks (ICS) (guidelines pg. E-7, Form IV)

1. Was the ICS analyzed twice per 8 hour shift?

yes ✓ no ____

2. Were ICSs analyzed before and after samples?

yes ✓ no ____

3. Was any massive interference detected?

yes ____ no ✓

4. Were the ICSs within ±20% mean value?

yes ✓ no ____

5. Were raw data correctly transcribed onto Form IV?

yes ✓ no ____

Comments:

154- 00123

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V. **Spike Sample Analysis (S)** (guidelines pg. E-8, Form V)

1. Were spikes analyzed at a frequency of 1 in 20 samples?
   yes ✓ no ____

2. Were spike recoveries correctly calculated?
   yes ✓ no ____

$$\% \text{ recovery} = \frac{(SSR - SR)}{SA} \times 100$$

SSR = Spiked Sample Result
SR = Sample Result
SA = Spike Added

3. Were spike recoveries within the range of 75-125%?
   yes ____ no ✓

   3a. For recoveries outside this range, were associated data flagged 'N' by the laboratory on Forms I and V?
   yes ✓ no ____ NA ____

   (an exception is granted where the sample concentration is >4X the spike concentration)

4. Were raw data correctly transcribed onto Form V?
   yes ✓ no ____

* Refer to page E-9 (SOW 787) for information regarding the amount of spike to be added for each analyte and for other information about the Spike Sample Analysis.

Comments: Limits (75-125), one outlier in water spike sample analysis, Selenium (44). Six outliers for the soil spike, Antimony (150), Arsenic (32), Selenium (31), Lead (140), Mercury (72) and Vanadium (73). All associated positive hits were flagged J, estimated.

VI. **Duplicates (D)** (guidelines pg. E-11, Form VI)

1. Were duplicates analyzed at a frequency of 1 in 20 samples?
   yes ✓ no ____

2. Were RPDs correctly calculated?
   yes ✓ no ____

$$RPD = \frac{S - D}{(S + D)/2} \times 100$$

S = Sample
D = Duplicate

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3a. For sample concentrations >5X the CRDL, were RPDs ±20%? (limits of ±35% apply for soil/sediment/tailings samples)

yes____ no ✓ NA____

3b. For sample concentrations <5X the CRDL, did duplicate analysis results fall outside the control window of ± the CRDL?

yes____ no ✓ NA____

3c. Where the RPDs exceeded the control limits, were the data flagged '*' on Forms I and VI by the laboratory?

yes ✓ no____ NA____

4. Were raw data correctly transcribed onto Form VI?

yes ✓ no____

* Other Considerations:
-Field blanks cannot be used for duplicate analyses
-Duplicates must be analyzed for each analytical method

Comments: There were 3 outliers in the soil duplicate analyses Iron (138), Lead (42), and Manganese (67), limits are ± 35% for soils. All positive hits for these parameters in the soil samples were flagged J.

VII. Laboratory Control Sample (LCS) Analysis (guideline pg. e-12, Form VII)

1. Was an LCS analyzed for every sample delivery group or batch of samples, whichever was more frequent?

yes ✓ no____

2. Were recoveries within the 80-120% limit?

yes ✓ no____

-if the recoveries were outside this range the analysis must be terminated, the problem corrected and the previous samples associated with that LCS redigested and reanalyzed.

3. Were the raw data correctly transcribed onto Form VII?

yes ✓ no____

Comments:

154-00124

VIII. Furnace Atomic Absorption (AA) QC Analysis (guidelines pg.E- 14, Form VIII)

1. Does the raw data package contain absorbance values for two injections per sample, the average values and the relative standard deviation (RSD)?

yes ✓ no____

2. For analyte concentrations > the CRDL, did the RSD for the duplicate injections agree within 20%? (if yes, go to question 3)

yes ✓ no____

$$RSD = \frac{SD}{M} \times 100$$

SD = Standard Deviation of Duplicate Injections
M = Mean of Duplicate Injections

2a. Were samples that exceeded the 20% criteria reanalyzed?

yes____ no____

2b. Did any reanalyzed samples exceed the 20% criteria?

yes____ no____

2c. If yes, did the laboratory flag the data on Form I with an 'M'?

yes____ no____

3. Was the recovery of the spike > 40%? (if yes, go to question 4). Except for Arsenic (33) in the soil analysis.

yes ✓ no____

3a. If no, was the sample diluted and rerun with another spike?

yes____ no____

3b. If the spike recovery is still < 40% after rerun, did the lab flag the data "E" on Form I?

yes____ no____

4. Was sample absorbance > 50% of spike absorbance?* (if yes, go to question 5).

yes ✓ no____

*Spike absorbance = absorbance of spiked sample - absorbance of sample.

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4a. For spike recoveries between 85 and 115%, were results reported to the IDL?

yes ✓ no ____

$$RPD = \frac{(SSR - SR)}{SA} \times 100$$

SSR = Spike Sample Recovery
SR = Sample Result
SA = Spike Added

4b. For spike recoveries outside the 85 and 115% range, were results reported to the IDL <u>and</u> flagged with a 'W'?

yes ✓ no ____

5. Was spike recovery between ~~85~~ 75 and ~~115%~~ 125? (if no, go to question 6)

yes ✓ no ____

5a. Were results quantified from calibration curve and reported to IDL?

yes ✓ no ____

6. Was an MSA at 50, 100 and 150% of the sample absorbance analyzed?

yes ✓ no ____

6a. Was each MSA analysis identified in the raw data along with the slope, intercept and correlation coefficient?

yes ✓ no ____

6b. Were these data correctly transcribed onto Form VIII?

yes ✓ no ____

6c. Were correlation coefficients(r) > 0.995?

yes ✓ no ____

6d. If no, were MSAs run once more?

yes ____ no ____

-If the correlation coefficients were still < 0.995, data on Form I must be from the run with the best 'r' and the data on Forms I and VII must be flagged with a '+'.

Were these criteria met?

yes ____ no ____

154- 00125

6e. Were all MSA obtained data marked with an 'S'or an S+ on Form I?

yes ✓ no ____

Comments:

IX. ICP Serial Dilution (L) Analysis (guidelines pg. E-12, Form IX)

1. Was an ICP serial dilution performed on each group of samples of a similar matrix (i.e., soil, water) and concentration (i.e., low, high) or for each sample delivery group, whichever was more frequent?

yes ✓ no ____

2. For elements with concentrations >10X the CRDL, did any exceed the serial dilution results by more than 10%? (if no, skip questions 3 and 4)

yes ✓ no ____

$$\% \text{ difference} = \frac{I - S}{I} \times 100$$

I = Initial Sample Result
S = Serial Dilution Result (instrument reading X5)

3. Which elements had concentrations that exceeded the 10% criteria? Zinc(36) in soils and Sodium(52) in waters

4. Did the laboratory flag these data with an 'E' on Form IX?

yes ✓ no ____

5. Were the raw data correctly transcribed onto Form IX?

yes ✓ no ____

Comments:

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X. Instrument Detection Limits (IDL) (guidelines pg. E-13, Form XI)

1. Were IDLs reported for each analyzed element?
yes ✓ no ____

2. Were IDLs reported for each instrument used?
yes ✓ no ____

3. Did the IDLs meet the contract requirements? (refer to pg. E-13, SOW 787)
yes ✓ no ____

Comments:

XI. Interelement Corrections for ICP (guidelines pg. E-13, Form XII)

1. Were correction factors reported on Form XII?
yes ✓ no ____

Comments:

XII. Linear Range Analysis (LRA) (guidelines pg. E-14, Form XII)

1. Was a linear range verification standard analyzed?
yes ✓ no ____

2. Was the result within ±5% of the true value?
yes ✓ no ____

Comments:

154- 00126

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Holding Times

Limits: Metals - 6 months; Hg - 30 days; Cn - 28 days.

1. Verified date of sample receipt by laboratory See prep date
2. Date of preparation/analyses See below
3. Were holding times met? yes ✓ no ____

~~Analyte~~ Sample	Matrix	Date Sampled	Prep Date	Holding Time (date analyzed) metals	Hg	Holding Time Limit/Met? (y/n) Cn	
			recieved				
MHQ 506	l water	6-13-88	6-15	6-29-88	6-23-88	6-24-88	y
MHQ 508		6-13-88	6-15				y
MHQ 513		6-13-88	6-15				y
MHQ 515		6-14-88	6-15				y
MHQ 518		6-14-88	6-15				y
MHQ 520		6-13-88	6-15				y
MHQ 521		6-13-88	6-15				y
MHQ 510		6-14-88	6-16				y
MHQ 522		6-15-88	6-16				y
MHQ 523		6-14-88	6-16				y
MHQ 524		6-15-88	6-16				y
MHQ 525		6-15-88	6-16				y
MHQ 526		6-15-88	6-16				y
MHQ 527		6-15-88	6-16				y
MHQ 528		6-15-88	6-16				y
MHQ 529		6-16-88	6-18				y
MHQ 530		6-16-88	6-18				y
MHQ 531	↓	6-16-88	6-18				y
MHQ 500	l soils	6-11-88	6-15				y
MHQ 501		6-11-88	6-15				y
MHQ 502		6-11-88	6-15				y
MHQ 503		6-13-88	6-15				y
MHQ 505		6-13-88	6-15				y
MHQ 507		6-13-88	6-15				y
MHQ 509		6-13-88	6-15				y
MHQ 511		6-13-88	6-15				y
MHQ 512		6-13-88	6-15				y
MHQ 514		6-14-88	6-15				y
MHQ 516		6-14-88	6-15				y
MHQ 517		6-13-88	6-15		↓	↓	y
MHQ 519	↓	6-13-88	6-15	↓	↓	↓	y

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Waters

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FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ519

DATE 7/16/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/15/88

LAB SAMPLE ID. NO. 201884

QC REPORT NO E9745S

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM ____

MATRIX: WATER ____ SOIL XXX SLUDGE ____ OTHER ____

ug/l or(mg/kg)DRY WEIGHT (circle one)

1.	Aluminum	7570		P	13.	Magnesium	9540		P
2.	Antimony	8.4U	N	P	14.	Manganese	253	*	P
3.	Arsenic	[2.5]	N	F	15.	Mercury	.15U	N	CV
4.	Barium	115		P	16.	Nickel	14		P
5.	Beryllium	.50U		P	17.	Potassium	[1420]		P
6.	Cadmium	1.4U		P	18.	Selenium	.72U	N	F
7.	Calcium	17000		P	19.	Silver	[1.7]		P
8.	Chromium	8.9		P	20.	Sodium	[729]		P
9.	Cobalt	[5.3]		P	21.	Thallium	.59U		F
10.	Copper	14	*	P	22.	Vanadium	[14]	EN*	P
11.	Iron	12100	*	P	23.	Zinc	44	*	P
12.	Lead	7.1		F					

Cyanide .85U

Percent Solids(%) 59

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: BLACK WET

As, Pb, V ____ spike

C

Fe, Pb, Mn ____ duplicate

Zn ____ ICP serial dil.

LAB MANAGER [signature]

ARCF00003150
ED_002345B_00005435-00076

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ 517

DATE 7/16/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES CASE NO: 9745

SOW NO: 785 Lab Receipt Date 06/15/88

LAB SAMPLE ID. NO. 201883 QC REPORT NO. E9745S

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM _____

MATRIX: WATER _____ SOIL XXX SLUDGE _____ OTHER _____

ug/l or(mg/kg)DRY WEIGHT (circle one)

1.	Aluminum	30200		P	13.	Magnesium	2660		P
2.	Antimony	9.2U	N	P	14.	Manganese	138	*	P J
3.	Arsenic	[2.1]	N	F J	15.	Mercury	.56	N	CV
4.	Barium	159		P	16.	Nickel	30		P
5.	Beryllium	.55U		P	17.	Potassium	844U		P
6.	Cadmium	1.5U		P	18.	Selenium	8.1U	N	F
7.	Calcium	37900		P	19.	Silver	1.6U		P
8.	Chromium	16		P	20.	Sodium	[1180]		P
9.	Cobalt	[2.9]		P	21.	Thallium	.66U		F
10.	Copper	134	*	P	22.	Vanadium	24	EN*	P J
11.	Iron	7640	*	P J	23.	Zinc	206	*	F J
12.	Lead	170	N*	P J					

Cyanide 2.3 Percent Solids(%) 52

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: BLACK WET

As, Pb, V, C ——— spike

Fe, Pb, Mn ——— duplicate

Zn ——— ICP serial dil.

LAB MANAGER [signature]

154- 00128

ARCF00003151
ED_002345B_00005435-00077

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ 516

DATE 7/16/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/15/88

LAB SAMPLE ID. NO. 201881

QC REPORT NO E9745S

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM ____

MATRIX: WATER ____ SOIL XXX SLUDGE ____ OTHER ____

ug/l or(mg/kg)DRY WEIGHT (circle one)

1.	Aluminum	21400		P	13.	Magnesium	[1370]		P
2.	Antimony	7.6U	N	P	14.	Manganese	24	*	P J
3.	Arsenic	[2.2]	N	F J	15.	Mercury	.15U	N	CV
4.	Barium	[43]		P	16.	Nickel	31		P
5.	Beryllium	.45U		P	17.	Potassium	695U		P
6.	Cadmium	1.2U		P	18.	Selenium	6.7U	N	F
7.	Calcium	5550		P	19.	Silver	1.3U		P
8.	Chromium	34		P	20.	Sodium	[854]		P
9.	Cobalt	[2.3]		P	21.	Thallium	.54U		F
10.	Copper	8.4	*	P	22.	Vanadium	16	EN*	P J
11.	Iron	2920	*	P J	23.	Zinc	118	*	F J
12.	Lead	27		F J					

Cyanide 1.5

Percent Solids(%) 64

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: BLACK WET

As, Pb, V ____ spike
C

LAB MANAGER [signature]

Fe, Pb, Mn ____ duplicate

Zn ____ ICP serial dil.

ARCF00003152
ED_002345B_00005435-00078

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ 514

DATE 7/16/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES CASE NO: 9745

SOW NO: 785 Lab Receipt Date 06/15/88

LAB SAMPLE ID. NO. 201880 QC REPORT NO E9745S

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM

MATRIX: WATER SOIL XXX SLUDGE OTHER

ug/l or(mg/kg)DRY WEIGHT (circle one)

1.	Aluminum	8050		P	13.	Magnesium	4760		P
2.	Antimony	12U	N	P	14.	Manganese	239	*	P J Lor
3.	Arsenic	[1.3]	N	F J Lor	15.	Mercury	.21U	N	CV
4.	Barium	117		P	16.	Nickel	12U		P
5.	Beryllium	.70U		P	17.	Potassium	1070U		P
6.	Cadmium	1.9U		P	18.	Selenium	1.0U	N	F
7.	Calcium	9970		P	19.	Silver	2.0U		P
8.	Chromium	5.7		P	20.	Sodium	602U		P
9.	Cobalt	[2.0]		P	21.	Thallium	.83U		F
10.	Copper	7.4U	*	P	22.	Vanadium	[4.5]	EN*	P J Lor
11.	Iron	6980	*	P J Lor	23.	Zinc	35	*	P J Lor
12.	Lead	7.6		F J Lor					

Cyanide 1.2U Percent Solids(%) 42

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: GREY SOFT

As, Pb, V — spike
C

Fe, Pb, Mn — duplicate

Zn — ICP serial dil

LAB MANAGER [signature]

154- 00129

recycled paper
ecology and environment

INORGANICS EPA CASE 174

ARCF00003153
ED_002345B_00005435-00079

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ 512

DATE 7/16/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/15/88

LAB SAMPLE ID. NO. 201878

QC REPORT NO E9745S

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM _____

MATRIX: WATER _____ SOIL XXX SLUDGE _____ OTHER _____

ug/l or(mg/kg)DRY WEIGHT (circle one)

1.	Aluminum	5500		P	13.	Magnesium	4330		P
2.	Antimony	11U	N	P	14.	Manganese	208	*	P
3.	Arsenic	[2.7]	N	F	15.	Mercury	.17U	N	CV
4.	Barium	129		P	16.	Nickel	11U		P
5.	Beryllium	.64U		P	17.	Potassium	982U		P
6.	Cadmium	1.7U		P	18.	Selenium	9.0U	N	F
7.	Calcium	77100		P	19.	Silver	1.9U		P
8.	Chromium	[3.9]		P	20.	Sodium	[808]		P
9.	Cobalt	[1.7]		P	21.	Thallium	.74U		F
10.	Copper	[9.3]	*	P	22.	Vanadium	[3.9]	EN*	P
11.	Iron	5050	*	P	23.	Zinc	33	*	F
12.	Lead	7.0		F					

Cyanide 1.1U

Percent Solids(%) 46

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: GREEN SOFT

As, Pb, V — spike
C

Fe, Pb, Mn — duplicate

Zn — ICP serial dil.

LAB MANAGER

ecology and environment

ARCF00003154
ED_002345B_00005435-00080

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ 511

DATE 7/16/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/15/88

LAB SAMPLE ID. NO. 201877

QC REPORT NO E9745S

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM

MATRIX: WATER SOIL XXX SLUDGE OTHER

ug/l or(mg/kg)DRY WEIGHT (circle one)

1.	Aluminum	16300		P	13.	Magnesium	9570		P
2.	Antimony	5.7U	N	P	14.	Manganese	693	*	P
3.	Arsenic	4.2	N	P	15.	Mercury	.10U	N	CV
4.	Barium	148		P	16.	Nickel	17		P
5.	Beryllium	[.63]		P	17.	Potassium	528U		P
6.	Cadmium	.94U		P	18.	Selenium	5.1U	N	F
7.	Calcium	6360		P	19.	Silver	1.0U		P
8.	Chromium	12		P	20.	Sodium	[402]		P
9.	Cobalt	[8.8]		P	21.	Thallium	.41U		F
10.	Copper	23	*	P	22.	Vanadium	[11]	EN*	P
11.	Iron	22000	*	P	23.	Zinc	68	*	P
12.	Lead	20		F					

Cyanide .60U

Percent Solids(%) 83

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: BROWN COARSE

As, Pb, V — spike

C

Pb, Fe, Mn — duplicate

Zn — ICP serial dil.

LAB MANAGER

154-00130

recycled paper

ecology and environment

INORGANICS EPA CASE 176

ARCF00003155

ED_002345B_00005435-00081

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ 509

DATE 7/16/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/15/88

LAB SAMPLE ID. NO. 201874

QC REPORT NO E9745S

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM ____

MATRIX: WATER ____ SOIL XXX SLUDGE ____ OTHER ____

ug/l or(mg/kg)DRY WEIGHT (circle one)

1.	Aluminum	5960		P	13.	Magnesium	8060		P
2.	Antimony	7.3U	N	P	14.	Manganese	211	*	P
3.	Arsenic	[2.0]	N	F	15.	Mercury	.12U	N	CV
4.	Barium	103		P	16.	Nickel	12		P
5.	Beryllium	.44U		P	17.	Potassium	675U		P
6.	Cadmium	1.2U		P	18.	Selenium	.65U	N	F
7.	Calcium	14600		P	19.	Silver	1.3U		P
8.	Chromium	5.4		P	20.	Sodium	382U		P
9.	Cobalt	[3.7]		P	21.	Thallium	.53U		F
10.	Copper	12	*	P	22.	Vanadium	[11]	EN*	P
11.	Iron	10400	*	P	23.	Zinc	34	*	P
12.	Lead	5.1		F					

Cyanide .77U

Percent Solids(%) 65

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: BROWN WET

As, Pb, V —— spike
C
Fe, Pb, Mn —— duplicate

Zn —— icp serial dil.

LAB MANAGER [signature]

ARCF00003156
ED_002345B_00005435-00082

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ 507

DATE 7/16/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/15/88

LAB SAMPLE ID. NO. 201871

QC REPORT NO E9745S

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM

MATRIX: WATER SOIL XXX SLUDGE OTHER

ug/l or(mg/kg)DRY WEIGHT (circle one)

1.	Aluminum	9080		P	13.	Magnesium	11900		P
2.	Antimony	9.4U	N	P	14.	Manganese	202	*	P
3.	Arsenic	[2.3]	N	F	15.	Mercury	.17U	N	CV
4.	Barium	151		P	16.	Nickel	16		P
5.	Beryllium	.56U		P	17.	Potassium	866U		P
6.	Cadmium	1.5U		P	18.	Selenium	.80U	N	F
7.	Calcium	23600		P	19.	Silver	1.7U		P
8.	Chromium	9.8		P	20.	Sodium	[542]		P
9.	Cobalt	[5.2]		P	21.	Thallium	.66U		F
10.	Copper	21	*	P	22.	Vanadium	[15]	EN*	P
11.	Iron	13500	*	P	23.	Zinc	44	*	P
12.	Lead	8.6		F					

Cyanide .96U

Percent Solids(%) 52

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: WET MOIST

As, Pb, V — spike
C
Fe, Pb, Mn — duplicate
Zn — ICP serial dil

LAB MANAGER

154- 00131

recycled paper
recycled paper

ecology and environment
ecology and environment

INORGANICS EPA CASE 178

ARCF00003157
ED_002345B_00005435-00083

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ 505

DATE 7/16/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/15/88

LAB SAMPLE ID. NO. 201867

QC REPORT NO E9745S

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM ____

MATRIX: WATER ____ SOIL XXX SLUDGE ____ OTHER ____

ug/l or(mg/kg)DRY WEIGHT (circle one)

1.	Aluminum	18700		P	13.	Magnesium	8820		P
2.	Antimony	5.5U	N	P	14.	Manganese	165	*	F
3.	Arsenic	2.7	N	F	15.	Mercury	.099U	N	CV
4.	Barium	337		P	16.	Nickel	15		P
5.	Beryllium	[.59]		P	17.	Potassium	[815]		P
6.	Cadmium	.89U		P	18.	Selenium	4.8U	N	F
7.	Calcium	8310		P	19.	Silver	.96U		P
8.	Chromium	12		P	20.	Sodium	[564]		P
9.	Cobalt	[6.3]		P	21.	Thallium	.40U		F
10.	Copper	14	*	P	22.	Vanadium	[11]	EN*	P
11.	Iron	12700	*	P	23.	Zinc	51	*	F
12.	Lead	17		F					

Cyanide .57U

Percent Solids(%) 87

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: BEIGE DRY

As, Pb, V. — spike

C

Fe, Pb, Mn — duplicate

Zn — ICP avial dil.

LAB MANAGER Anthony Magel

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INORGANICS EPA CASE

179

ARCF00003158

ED_002345B_00005435-00084

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ 503

DATE 7/16/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/15/88

LAB SAMPLE ID. NO. 201850

QC REPORT NO E9745S

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM ____

MATRIX: WATER ____ SOIL XXX SLUDGE ____ OTHER ____

ug/l or (mg/kg) DRY WEIGHT (circle one)

1.	Aluminum	19300		P	13.	Magnesium	10700		P
2.	Antimony	6.2U	N	P	14.	Manganese	1460	*	P
3.	Arsenic	3.8	N	F	15.	Mercury	.11U	N	CV
4.	Barium	312		P	16.	Nickel	15		P
5.	Beryllium	[.66]		P	17.	Potassium	570U		P
6.	Cadmium	1.0U		P	18.	Selenium	5.7U	N	F
7.	Calcium	2330		P	19.	Silver	1.1U		P
8.	Chromium	11		P	20.	Sodium	[499]		P
9.	Cobalt	[9.1]		P	21.	Thallium	.46U		F
10.	Copper	14	*	P	22.	Vanadium	14	EN*	P
11.	Iron	19600	*	P	23.	Zinc	104	*	P
12.	Lead	17	N *	P					

Cyanide .65U

Percent Solids(%) 77

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: BLACK MOIST

As, Pb, V, C ____ spike

Fe, Pb, Mn ____ duplicate

Zn ____ ICP serial dil

LAB MANAGER [signature]

154-00132

recycled paper

ecology and environment

INORGANICS EPA CASE 180

ARCF00003159
ED_002345B_00005435-00085

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ 501

DATE 7/16/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES CASE NO: 9745

SOW NO: 785 Lab Receipt Date 06/15/88

LAB SAMPLE ID. NO. 201846 QC REPORT NO E9745S

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM ____

MATRIX: WATER ____ SOIL XXX SLUDGE ____ OTHER ____

ug/l or(mg/kg)DRY WEIGHT (circle one)

1.	Aluminum	13900		P	13.	Magnesium	17500		P
2.	Antimony	[6.5]	N	P	14.	Manganese	417	*	P
3.	Arsenic	5.9	N	F	15.	Mercury	.11U	N	CV
4.	Barium	178		P	16.	Nickel	34		P
5.	Beryllium	[.93]		P	17.	Potassium	1570		P
6.	Cadmium	.97U		P	18.	Selenium	5.2U	N	F
7.	Calcium	58200		P	19.	Silver	1.0U		P
8.	Chromium	12		P	20.	Sodium	1290		P
9.	Cobalt	[7.1]		P	21.	Thallium	.42U		F
10.	Copper	19	*	P	22.	Vanadium	20	EN*	P
11.	Iron	15200	*	P	23.	Zinc	54	*	F
12.	Lead	11		F					

Cyanide .60U Percent Solids(%) 83

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: BROWN COMPACT

Sb, As, Pb, V ——— spike

C Fe, Pb, Mn ——— duplicate

Zn ——— ICP serial dil.

LAB MANAGER [signature]

ARCF00003160
ED_002345B_00005435-00086

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ 500

DATE 7/16/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES CASE NO: 9745

SOW NO: 785 Lab Receipt Date 06/15/88

LAB SAMPLE ID. NO. 201842 QC REPORT NO E9745S

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM ____

MATRIX: WATER ____ SOIL XXX SLUDGE ____ OTHER ____

ug/l or(mg/kg)DRY WEIGHT (circle one)

1.	Aluminum	10400		P	13.	Magnesium	[172]		P
2.	Antimony	4.9U	N	P	14.	Manganese	35	*	P
3.	Arsenic	4.4	SN	F	15.	Mercury	.097U	N	CV
4.	Barium	[19]		F	16.	Nickel	37		P
5.	Beryllium	.29U		P	17.	Potassium	450U		P
6.	Cadmium	1.4		P	18.	Selenium	4.3U	N	F
7.	Calcium	[787]		P	19.	Silver	.86U		P
8.	Chromium	5.9		P	20.	Sodium	1560		P
9.	Cobalt	[2.9]		P	21.	Thallium	.35U		F
10.	Copper	13	*	P	22.	Vanadium	65	EN*	P
11.	Iron	4330	*	P	23.	Zinc	130	*	P
12.	Lead	52	N*	P					

Cyanide .51U Percent Solids(%) 98

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: BLACK SOFT

As, Pb, J, C — spike

Fe, Pb, Mn — duplicate

Zn — ICP [illegible] dil

LAB MANAGER [signature]

154- 00133

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ecology and environment
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INORGANICS EPA CASE 182

ARCF00003161
ED_002345B_00005435-00087

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ531

DATE 7/ 6/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/16/88

LAB SAMPLE ID. NO. 202639

QC REPORT NO E9745A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM ____

MATRIX: WATER XXX SOIL ____ SLUDGE ____ OTHER ____

(ug/l)or mg/kg DRY WEIGHT (circle one)

1.	Aluminum	[140]	P	13.	Magnesium	14300		P
2.	Antimony	25U	P	14.	Manganese	154		P
3.	Arsenic	1.5U	F	15.	Mercury	.20U		CV
4.	Barium	[75]	P	16.	Nickel	26U		P
5.	Beryllium	1.5U	P	17.	Potassium	2300U		P
6.	Cadmium	4.1U	P	18.	Selenium	22U	N	F
7.	Calcium	56600	P	19.	Silver	4.4U		P
8.	Chromium	5.0U	P	20.	Sodium	8180	E	P
9.	Cobalt	3.9U	P	21.	Thallium	1.8U		F
10.	Copper	16U	P	22.	Vanadium	[3.7]		P
11.	Iron	125	P	23.	Zinc	28		P
12.	Lead	2.3U	F					

Cyanide 10U

Percent Solids(%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: CLEAR, COLORLESS

Zn — blank

C

Na — ICP serial dil.

LAB MANAGER [signature]

recycled paper ecology and environment

ARCF00003162
ED_002345B_00005435-00088

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ530

DATE 7/ 6/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/16/88

LAB SAMPLE ID. NO. 202638

QC REPORT NO E9745A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM ____

MATRIX: WATER XXX SOIL ____ SLUDGE ____ OTHER ____

(ug/l)or mg/kg DRY WEIGHT (circle one)

1.	Aluminum	19U	P	13.	Magnesium	20100		P
2.	Antimony	25U	P	14.	Manganese	[4.3]		P
3.	Arsenic	1.5U	F	15.	Mercury	.20U		CV
4.	Barium	477	P	16.	Nickel	26U		P
5.	Beryllium	1.5U	P	17.	Potassium	2300U		P
6.	Cadmium	4.1U	P	18.	Selenium	22U	N	F
7.	Calcium	70600	P	19.	Silver	4.4U		P
8.	Chromium	5.0U	P	20.	Sodium	11300	E	P
9.	Cobalt	3.9U	P	21.	Thallium	1.8U		F
10.	Copper	16U	P	22.	Vanadium	[4.8]		P
11.	Iron	[8.0]	P	23.	Zinc	[19]		P
12.	Lead	2.3U	F					

Cyanide 10U

Percent Solids(%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: CLEAR, COLORLESS

Fe, Zn — blank

C

Na — ICP serial dil.

LAB MANAGER [signature]

154-00134

ARCF00003163
ED_002345B_00005435-00089

Soils

ARCF00003164
ED_002345B_00005435-00090

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ529

DATE 7/ 6/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/16/88

LAB SAMPLE ID. NO. 202637

QC REPORT NO E9745A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM

MATRIX: WATER XXX SOIL SLUDGE OTHER

(ug/l)or mg/kg DRY WEIGHT (circle one)

1.	Aluminum	19U	P	13.	Magnesium	21700	P
2.	Antimony	25U	P	14.	Manganese	69	P
3.	Arsenic	1.5U	F	15.	Mercury	.20U	CV
4.	Barium	205	P	16.	Nickel	26U	P
5.	Beryllium	1.5U	P	17.	Potassium	2300U	P
6.	Cadmium	4.1U	P	18.	Selenium	22U N	F
7.	Calcium	74700	P	19.	Silver	4.4U	P
8.	Chromium	5.0U	P	20.	Sodium	22900 E	P
9.	Cobalt	[3.9]	P	21.	Thallium	1.8U	F
10.	Copper	16U	P	22.	Vanadium	[4.7]	P
11.	Iron	236	P	23.	Zinc	[11]	P
12.	Lead	2.3U	F				

Cyanide 666

Percent Solids(%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: CLEAR, COLORLESS

Zn — blank
C
Na — ICP serial dil.

LAB MANAGER

154-00135

ARCF00003165
ED_002345B_00005435-00091

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ528

DATE 7/ 6/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/16/88

LAB SAMPLE ID. NO. 202143

QC REPORT NO E9745A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM ____

MATRIX: WATER XXX SOIL ____ SLUDGE ____ OTHER ____

(ug/l)or mg/kg DRY WEIGHT (circle one)

1.	Aluminum	19U	P	13.	Magnesium	13200		P
2.	Antimony	25U	P	14.	Manganese	[5.6]		P
3.	Arsenic	1.5U	F	15.	Mercury	.20U		CV
4.	Barium	[85]	P	16.	Nickel	26U		P
5.	Beryllium	1.5U	P	17.	Potassium	2300U		P
6.	Cadmium	4.1U	P	18.	Selenium	2.2U	N	F
7.	Calcium	43700	P	19.	Silver	4.4U		P
8.	Chromium	5.0U	P	20.	Sodium	7580	E	P
9.	Cobalt	3.9U	P	21.	Thallium	1.8U		F
10.	Copper	16U	P	22.	Vanadium	[4.0]		P
11.	Iron	[20]	P	23.	Zinc	56		P
12.	Lead	2.3U	F					

Cyanide 53

Percent Solids(%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: CLEAR, COLORLESS

Fe, Zn — blank
C
Na — ICP serial dil.

LAB MANAGER BH Rolobach

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ARCF00003166
ED_002345B_00005435-00092

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ527

DATE 7/ 6/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/16/88

LAB SAMPLE ID. NO. 202142

QC REPORT NO E9745A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM

MATRIX: WATER XXX SOIL SLUDGE OTHER

(ug/l)or mg/kg DRY WEIGHT (circle one)

1.	Aluminum	19U		P	13.	Magnesium	18600		P
2.	Antimony	25U		P	14.	Manganese	41		P
3.	Arsenic	1.5U		F	15.	Mercury	.20U		CV
4.	Barium	[125]		P	16.	Nickel	26U		P
5.	Beryllium	1.5U		P	17.	Potassium	2300U		P
6.	Cadmium	4.1U		P	18.	Selenium	2.2U	N	F
7.	Calcium	48100		P	19.	Silver	4.4U		P
8.	Chromium	5.0U		P	20.	Sodium	6370	E	P
9.	Cobalt	[4.2]		P	21.	Thallium	1.8U		F
10.	Copper	16U		P	22.	Vanadium	[5.4]		P
11.	Iron	209		P	23.	Zinc	342		P
12.	Lead	2.3U		F					

Cyanide 10U

Percent Solids(%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: CLEAR, COLORLESS

C Na — ICP serial d.l.

LAB MANAGER

154- 00136

ARCF00003167
ED_002345B_00005435-00093

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ526

DATE 7/ 6/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/16/88

LAB SAMPLE ID. NO. 202141

QC REPORT NO E9745A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM ____

MATRIX: WATER XXX SOIL ____ SLUDGE ____ OTHER ____

(ug/l)or mg/kg DRY WEIGHT (circle one)

1.	Aluminum	19U	P	13.	Magnesium	12300		P
2.	Antimony	25U	P	14.	Manganese	97		P
3.	Arsenic	1.5U	F	15.	Mercury	.20U		CV
4.	Barium	[141]	P	16.	Nickel	26U		P
5.	Beryllium	1.5U	P	17.	Potassium	2300U		P
6.	Cadmium	4.1U	P	18.	Selenium	2.2U	N	F
7.	Calcium	50600	P	19.	Silver	4.4U		P
8.	Chromium	5.0U	P	20.	Sodium	[4620]	E	P
9.	Cobalt	[5.6]	P	21.	Thallium	1.8U		F
10.	Copper	16U	P	22.	Vanadium	[7.1]		P
11.	Iron	[8.9]	P	23.	Zinc	100		P
12.	Lead	2.3U	F					

Cyanide 10U

Percent Solids(%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: CLEAR, COLORLESS

Fe — blank
C
Na — ICP serial dil.

LAB MANAGER [signature]

recycled paper ecology and environment

ARCF00003168
ED_002345B_00005435-00094

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ525

DATE 7/ 6/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/16/88

LAB SAMPLE ID. NO. 202140

QC REPORT NO E9745A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM ____

MATRIX: WATER XXX SOIL ____ SLUDGE ____ OTHER ____

(ug/l)or mg/kg DRY WEIGHT (circle one)

1.	Aluminum	19U	P	13.	Magnesium	[498]	P
2.	Antimony	25U	P	14.	Manganese	[2.7]	P
3.	Arsenic	1.5U	F	15.	Mercury	.20U	CV
4.	Barium	[2.9]	P	16.	Nickel	26U	P
5.	Beryllium	1.5U	P	17.	Potassium	2300U	P
6.	Cadmium	4.1U	P	18.	Selenium	2.2U N	F
7.	Calcium	[616]	P	19.	Silver	4.4U	P
8.	Chromium	5.0U	P	20.	Sodium	[3220] E	P J
9.	Cobalt	[4.4]	P	21.	Thallium	1.8U	F
10.	Copper	16U	P	22.	Vanadium	[5.2]	P
11.	Iron	3.2U	P	23.	Zinc	[8.8]	P J
12.	Lead	2.3U	F				

Cyanide 10U

Percent Solids(%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: CLEAR, COLORLESS

Zn — blank

Na — ICP serial dil.

LAB MANAGER [signature]

154- 00137

ARCF00003169
ED_002345B_00005435-00095

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ524

DATE 7/ 6/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/16/88

LAB SAMPLE ID. NO. 202139

QC REPORT NO E9745A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM ____

MATRIX: WATER XXX SOIL ____ SLUDGE ____ OTHER ____

(ug/l)or mg/kg DRY WEIGHT (circle one)

1.	Aluminum	19U	P	13.	Magnesium	17900		P
2.	Antimony	25U	P	14.	Manganese	[5.3]		P
3.	Arsenic	1.5U	F	15.	Mercury	.20U		CV
4.	Barium	[196]	P	16.	Nickel	26U		P
5.	Beryllium	1.5U	P	17.	Potassium	2300U		P
6.	Cadmium	4.1U	P	18.	Selenium	2.2U	N	F
7.	Calcium	63300	P	19.	Silver	4.4U		P
8.	Chromium	5.0U	P	20.	Sodium	7960	E	P
9.	Cobalt	[6.7]	P	21.	Thallium	1.8U		F
10.	Copper	16U	P	22.	Vanadium	[8.7]		P
11.	Iron	[60]	P	23.	Zinc	182		P
12.	Lead	2.3U	F					

Cyanide 10U

Percent Solids(%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: CLEAR, COLORLESS

Na - ICP serial dil.
C

LAB MANAGER [signature]

recycled paper ecology and environment

ARCF00003170
ED_002345B_00005435-00096

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ523

DATE 7/ 6/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/16/88

LAB SAMPLE ID. NO. 202138

QC REPORT NO E9745A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM

MATRIX: WATER XXX SOIL SLUDGE OTHER

(ug/l)or mg/kg DRY WEIGHT (circle one)

1.	Aluminum	19U	P	13.	Magnesium	16100	P
2.	Antimony	25U	P	14.	Manganese	[12]	P
3.	Arsenic	1.5U	F	15.	Mercury	.20U	CV
4.	Barium	283	P	16.	Nickel	26U	P
5.	Beryllium	1.5U	P	17.	Potassium	2300U	P
6.	Cadmium	4.1U	P	18.	Selenium	2.2U N	F
7.	Calcium	72000	P	19.	Silver	4.4U	P
8.	Chromium	5.0U	P	20.	Sodium	7710 E	P
9.	Cobalt	[5.2]	P	21.	Thallium	1.8U	F
10.	Copper	16U	P	22.	Vanadium	[7.3]	P
11.	Iron	[4.4]	P	23.	Zinc	233	P
12.	Lead	2.3U	F				

Cyanide 10U

Percent Solids(%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: CLEAR, COLORLESS

Fe — blank

Na — ICP serial dil.

LAB MANAGER

154- 00138

recycled paper

ARCF00003171
ED_002345B_00005435-00097

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ522

DATE 7/ 6/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/16/88

LAB SAMPLE ID. NO. 202137

QC REPORT NO E9745A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM ____

MATRIX: WATER XXX SOIL ____ SLUDGE ____ OTHER ____

(ug/l)or mg/kg DRY WEIGHT (circle one)

1.	Aluminum	19U	P	13.	Magnesium	12100	P
2.	Antimony	25U	P	14.	Manganese	[3.0]	P
3.	Arsenic	1.5U	F	15.	Mercury	.20U	CV
4.	Barium	[198]	P	16.	Nickel	26U	P
5.	Beryllium	1.5U	P	17.	Potassium	2300U	P
6.	Cadmium	4.1U	P	18.	Selenium	2.2U N	F
7.	Calcium	38500	P	19.	Silver	4.4U	P
8.	Chromium	5.0U	P	20.	Sodium	9230 E	P J
9.	Cobalt	[5.5]	P	21.	Thallium	1.8U	F
10.	Copper	16U	P	22.	Vanadium	[6.6]	P
11.	Iron	[11]	P J	23.	Zinc	32	P J
12.	Lead	2.3U	F				

Cyanide 10U

Percent Solids(%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: CLEAR, COLORLESS

Fe, Zn —— blank
C
Na —— ICP serial dil.

LAB MANAGER [signature]

recycled paper
ecology and environment

ARCF00003172
ED_002345B_00005435-00098

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ510

DATE 7/ 6/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/15/88

LAB SAMPLE ID. NO. 202136

QC REPORT NO E9745A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM ____

MATRIX: WATER XXX SOIL ____ SLUDGE ____ OTHER ____

(ug/l)or mg/kg DRY WEIGHT (circle one)

1.	Aluminum	19U	P	13.	Magnesium	[453]		P
2.	Antimony	25U	P	14.	Manganese	[2.9]		P
3.	Arsenic	1.5U	F	15.	Mercury	.20U		CV
4.	Barium	1.0U	P	16.	Nickel	26U		P
5.	Beryllium	1.5U	P	17.	Potassium	2300U		P
6.	Cadmium	4.1U	P	18.	Selenium	2.2U	N	F
7.	Calcium	[148]	P	19.	Silver	4.4U		P
8.	Chromium	5.0U	P	20.	Sodium	[4170]	E	P
9.	Cobalt	[5.4]	P	21.	Thallium	1.8U		F
10.	Copper	16U	P	22.	Vanadium	[5.8]		P
11.	Iron	[3.8]	P	23.	Zinc	[11]		P
12.	Lead	2.3U	F					

Cyanide 22

Percent Solids(%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: CLEAR, COLORLESS

Fe, Zn — blank
C
Na — ICP serial dil.

LAB MANAGER [signature]

154- 00139

ARCF00003173
ED_002345B_00005435-00099

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ521

DATE 7/ 6/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/15/88

LAB SAMPLE ID. NO. 202050

QC REPORT NO E9745A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM ____

MATRIX: WATER XXX SOIL ____ SLUDGE ____ OTHER ____

(ug/l)or mg/kg DRY WEIGHT (circle one)

1.	Aluminum	[137]	P	13.	Magnesium	5670		P
2.	Antimony	[53]	P	14.	Manganese	[10]		P
3.	Arsenic	1.5U	F	15.	Mercury	.20U		CV
4.	Barium	[71]	P	16.	Nickel	26U		P
5.	Beryllium	1.5U	P	17.	Potassium	2300U		P
6.	Cadmium	4.1U	P	18.	Selenium	2.2U	N	F
7.	Calcium	20600	P	19.	Silver	4.4U		P
8.	Chromium	5.0U	P	20.	Sodium	[4330]	E	P
9.	Cobalt	[4.8]	P	21.	Thallium	[2.0]		F
10.	Copper	16U	P	22.	Vanadium	[6.3]		P
11.	Iron	168	P	23.	Zinc	21		P
12.	Lead	2.3U	F					

Cyanide NR

Percent Solids(%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: CLEAR, COLORLESS

Zn — blank

C Na — ICP serial dil.

LAB MANAGER [signature]

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ARCF00003174
ED_002345B_00005435-00100

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ520

DATE 7/ 6/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/15/88

LAB SAMPLE ID. NO. 201896

QC REPORT NO E9745A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM ____

MATRIX: WATER XXX SOIL ____ SLUDGE ____ OTHER ____

(ug/l)or mg/kg DRY WEIGHT (circle one)

1.	Aluminum	[156]	P	13.	Magnesium	11600		P
2.	Antimony	25U	P	14.	Manganese	[4.7]		P
3.	Arsenic	[1.9]	F	15.	Mercury	.20U		CV
4.	Barium	[193]	P	16.	Nickel	26U		P
5.	Beryllium	1.5U	P	17.	Potassium	2300U		P
6.	Cadmium	4.1U	P	18.	Selenium	2.2U	N	F
7.	Calcium	37800	P	19.	Silver	4.4U		P
8.	Chromium	5.0U	P	20.	Sodium	8310	E	P
9.	Cobalt	[6.4]	P	21.	Thallium	1.8U		F
10.	Copper	16U	P	22.	Vanadium	[8.0]		P
11.	Iron	[40]	P	23.	Zinc	[8.0]		P
12.	Lead	2.3U	F					

Cyanide 18

Percent Solids(%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: CLEAR, COLORLESS

Fe, Zn — blank

C Na — ICP serial dil.

LAB MANAGER [signature]

154- 00140

ARCF00003175
ED_002345B_00005435-00101

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ518

DATE 7/ 6/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/15/88

LAB SAMPLE ID. NO. 201895

QC REPORT NO E9745A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM ____

MATRIX: WATER XXX SOIL ____ SLUDGE ____ OTHER ____

(ug/l)or mg/kg DRY WEIGHT (circle one)

1.	Aluminum	4070		P	13.	Magnesium	11700	P
2.	Antimony	25U		P	14.	Manganese	15	P
3.	Arsenic	[4.9]		F	15.	Mercury	.20U	CV
4.	Barium	266		P	16.	Nickel	43	P
5.	Beryllium	1.5U		P	17.	Potassium	2300U	P
6.	Cadmium	4.1U		P	18.	Selenium	22U N	F
7.	Calcium	37800		P	19.	Silver	4.4U	P
8.	Chromium	5.0U		P	20.	Sodium	8420 E	P Jan
9.	Cobalt	[9.0]		P	21.	Thallium	1.8U	F
10.	Copper	27		P	22.	Vanadium	118	P
11.	Iron	1780		P	23.	Zinc	217	P
12.	Lead	25	S	F				

Cyanide 19

Percent Solids(%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: CLEAR, COLORLESS

No. — ICP serial dil.

C

LAB MANAGER B A Rahrbach

recycled paper ecology and environment

ARCF00003176
ED_002345B_00005435-00102

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ515

DATE 7/ 6/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/15/88

LAB SAMPLE ID. NO. 201894

QC REPORT NO E9745A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM ____

MATRIX: WATER XXX SOIL ____ SLUDGE ____ OTHER ____

(ug/l)or mg/kg DRY WEIGHT (circle one)

1.	Aluminum	[95]	P Jet	13.	Magnesium	11800		P
2.	Antimony	25U	P	14.	Manganese	20		P
3.	Arsenic	[2.3]	F	15.	Mercury	.20U		CV
4.	Barium	[81]	P	16.	Nickel	26U		P
5.	Beryllium	1.5U	P	17.	Potassium	2300U		P
6.	Cadmium	4.1U	P	18.	Selenium	2.2U	N	F
7.	Calcium	48000	P	19.	Silver	4.4U		P
8.	Chromium	5.0U	P	20.	Sodium	5490	E	P Jet
9.	Cobalt	[6.3]	P	21.	Thallium	[1.9]		F
10.	Copper	16U	P	22.	Vanadium	[8.1]		P
11.	Iron	[73]	P	23.	Zinc	[14]		P Jet
12.	Lead	2.3U	F					

Cyanide 10U

Percent Solids(%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: CLEAR, COLORLESS

Al, Zn — blank

C

Na — ICP serial dil.

LAB MANAGER B H Palobach

154- 00141

ARCF00003177
ED_002345B_00005435-00103

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ513

DATE 7/ 6/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/15/88

LAB SAMPLE ID. NO. 201893

QC REPORT NO E9745A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM ____

MATRIX: WATER XXX SOIL ____ SLUDGE ____ OTHER ____

(ug/l)or mg/kg DRY WEIGHT (circle one)

1.	Aluminum	[31]	P Jan	13.	Magnesium	11400	P
2.	Antimony	25U	P	14.	Manganese	22	P
3.	Arsenic	1.5U	F	15.	Mercury	.20U	CV
4.	Barium	[75]	P	16.	Nickel	26U	P
5.	Beryllium	1.5U	P	17.	Potassium	2300U	P
6.	Cadmium	4.1U	P	18.	Selenium	2.2U N	F
7.	Calcium	46700	F	19.	Silver	4.4U	P
8.	Chromium	5.0U	P	20.	Sodium	[2790] E	P Jan
9.	Cobalt	3.9U	P	21.	Thallium	[1.9]	F
10.	Copper	16U	P	22.	Vanadium	[3.6]	P
11.	Iron	[38]	P Jan	23.	Zinc	[4.3]	P Jan
12.	Lead	2.3U	F				

Cyanide 10U

Percent Solids(%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: CLEAR, COLORLESS

Al, Fe, Zn — blank

C

Na — ICP serial dil

LAB MANAGER B A Rohrbach

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ARCF00003178
ED_002345B_00005435-00104

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ508

DATE 7/ 6/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/15/88

LAB SAMPLE ID. NO. 201892

QC REPORT NO E9745A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM ____

MATRIX: WATER XXX SOIL ____ SLUDGE ____ OTHER ____

(ug/l)or mg/kg DRY WEIGHT (circle one)

1.	Aluminum	[84]	P	13.	Magnesium	5720	P
2.	Antimony	25U	P	14.	Manganese	[11]	P
3.	Arsenic	1.5U	F	15.	Mercury	.20U	CV
4.	Barium	[83]	P	16.	Nickel	26U	P
5.	Beryllium	1.5U	P	17.	Potassium	2300U	P
6.	Cadmium	4.1U	P	18.	Selenium	2.2U N	F
7.	Calcium	22200	P	19.	Silver	4.4U	P
8.	Chromium	5.0U	P	20.	Sodium	[1960] E	P
9.	Cobalt	3.9U	P	21.	Thallium	[2.0]	F
10.	Copper	16U	P	22.	Vanadium	2.6U	P
11.	Iron	109	P	23.	Zinc	[3.9]	P
12.	Lead	2.3U	F				

Cyanide 10U

Percent Solids(%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: CLEAR, COLORLESS

Al, Zn — blank

C Na — ICP serial dil.

LAB MANAGER [signature]

154-00142

ARCF00003179
ED_002345B_00005435-00105

FORM I

U.S. EPA CONTRACT LABORATORY PROGRAM
SAMPLE MANAGEMENT OFFICE
P.O. BOX 818 - ALEXANDRIA, VA 22313
703/557-2490 FTS: 8-557-2490

EPA SAMPLE NO.
MHQ506

DATE 7/ 6/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME: COMPUCHEM LABORATORIES

CASE NO: 9745

SOW NO: 785

Lab Receipt Date 06/15/88

LAB SAMPLE ID. NO. 201885

QC REPORT NO E9745A

ELEMENTS IDENTIFIED AND MEASURED

CONCENTRATION: LOW XXX MEDIUM

MATRIX: WATER XXX SOIL SLUDGE OTHER

(ug/l)or mg/kg DRY WEIGHT (circle one)

1.	Aluminum	[29]	P J	13.	Magnesium	14000	P
2.	Antimony	25U	P	14.	Manganese	63	P
3.	Arsenic	[2.0]	F	15.	Mercury	.20U	CV
4.	Barium	[149]	P	16.	Nickel	26U	P
5.	Beryllium	1.5U	P	17.	Potassium	2300U	P
6.	Cadmium	4.1U	P	18.	Selenium	2.2U N	F
7.	Calcium	52100	P	19.	Silver	4.4U	P
8.	Chromium	5.0U	P	20.	Sodium	11900 E	P
9.	Cobalt	3.9U	P	21.	Thallium	[2.0]	F
10.	Copper	16U	P	22.	Vanadium	2.6U	P
11.	Iron	184	P	23.	Zinc	[3.5]	P J
12.	Lead	2.3U	F				

Cyanide 55

Percent Solids(%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definitions of such flags must be explicit and contained on Cover Page, however.

Comments: CLEAR, COLORLESS

Al, Zn — blank

C

LAB MANAGER Bill Rotobach

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ARCF00003180
ED_002345B_00005435-00106

ANALYTICAL RESULTS

Contract No. SAS 3249I set 47

Region VIII

000001

154-00143

ARCF00003181
ED_002345B_00005435-00107

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

Date 08/15/88

COVER PAGE
INORGANIC ANALYSES DATA PACKAGE

Lab Name JTC Environmental Consultants, Inc Case No. SAS 3249 I set 47
SOW No. 285 Q.C. Report No. 176

Sample Numbers

EPA No.	Lab ID No.	EPA No.	Lab ID No.
MHQ 504-11	03-2513-11		
MHQ 532-11	-2514-11		

Comments: ICP Final dil = 500 mL. EXCEPT Pb which is 100mL.
Pb MRL = 150 ug/L or 60 mg/KG

-11 denotes solid phase

ICP Interelement and background corrections applied? Yes ✓ No ____.
If yes, corrections applied before ✓ or after ____ generation of raw data.

Footnotes:

NR - not required by contract at this time
Form I:
Value - If the result is greater than the CRDL report the value as described in Section C-3, Exhibit B.
U - Indicates element was analyzed for but not detected. Report with the detection limit value (e.g., 10U).
E - Indicates a value estimated or not reported due to the presence of interference. Explanatory note included on cover page.
S - Indicates value determined by Method of Standard Addition.
M - Indicates spike sample recovery is not within control limits.
* - Indicates duplicate analysis is not within control limits.
+ - Indicates the correlation coefficient for method of standard addition is less than 0.995

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ARCF00003182
ED_002345B_00005435-00108

REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

Case No.: 3155I Set 50 TDD No.: F08-8807-13

Site: Columbia Falls Aluminum Co., Columbia Falls, MT.

Contractor Laboratory: S-Cubed

Data Reviewer : Randy Perlis Date of Review: August 29, 1988

Sample Matrix: 2 High Concentration Solids

Analysis: SAS High Concentration Organics - VOA, BNA, Pest/PCB

Sample Nos.:

HG-205

HG-235

(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 ____

154- 00144

ARCF00003183
ED_002345B_00005435-00109

The following are our findings:

This data package is acceptable for use. These samples were analyzed with the high concentration EPA protocol, therefore results are reported in parts per million and detection limits are elevated.

No QA/QC requirements were noted that would affect the data other than with the flags that are already added.

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ARCF00003184
ED_002345B_00005435-00110

DFTPP and BFB Performance Results

The DFTPP performance results were all included and found to be within the specified criteria.

Yes _XX_ No ____

Comments:

The BFB performance results were all included and found to be within the specified criteria.

Yes _XX_ No ____

Comments:

The DFTPP/BFB performance result(s) was/were reviewed and the following abundances were found to fall outside the specified criteria:

DATE	COMPOUND	M/Z	REQ. ABUNDANCE	ACT. ABUNDANCE
NA	NA	NA	NA	NA

All samples were extracted and analyzed within contracted holding times:

Yes _XX_ No ____

Comments:

Initial calibration data was reviewed. Initial calibration data was included in the package and met all contract requirements.

Yes ____ No _XX_

The following compounds were outside the contract requirements:

2-Butanone <0.05 RF

Continuing calibration data was reviewed and the data met all contract requirements.

Yes ____ No _XX_

The following compounds were outside the contract requirements:

Acetone
2-Butanone
4-nitroaniline
3,3'-Dichlorobenzidine
Octachlorobiphenyl
4-Nitrophenol

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ARCF00003186
ED_002345B_00005435-00112

Surrogate recoveries were reviewed. The recoveries were all within the contractual limits.

Yes _XX_ No ____

Comments:

0 of 42 surrogate recoveries were outside QC limits.

The matrix spike and matrix spike duplicate data was reviewed. The matrix spikes were performed and all data met contractual requirements.

Yes ____ No _XX_

Comments:

1 of 5 RPDs for high VOA MS/MSD were outside QC limits.
0 of 11 RPDs for high BNA MS/MSD were outside QC limits.
0 of 2 RPDs for high PEST MS/MSD were outside QC limits.

BLANK ANALYSIS RESULTS

The blank analysis were reviewed. The contaminants in the blank are listed below. (* indicates amounts above the CRDL).

SAMPLE	DATE	COMPOUND	PPM CONC.	SAMPLES WITH THIS BLANK
V2715021 Water VOA	7/15/88	Methylene Chloride	0.005	HG-205
		Acetone	0.020*	
176V2021 Water VOA	7/16/88	Methylene Chloride	0.004	HG-235
		Acetone	0.023*	
V2715071 Solid VOA	7/15/88	Methylene Chloride	10*	HG-205
		Acetone	7.8*	HG-235
		2-Butanone	16*	
J28051 Solid BNA	6/28/88	Benzaldehyde	26	HG-205
		UNKNOWN	14	HG-235

Comments:

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ARCF00003188
ED_002345B_00005435-00114

COMPOUNDS IDENTIFIED

Sample No.: HG-205

Target Compound List Detections:

COMPOUND NAME	AMOUNT (mg/kg)	QUALIFIER	COMMENTS
Methylene Chloride	5.4	UB	found in blank
Acetone	8.5	UB	found in blank
2-Butanone	14	UB	found in blank
Fluoranthene	10	J	below CRDL
Pyrene	9	J	below CRDL
Benzo(a)Anthracene	2.3	J	below CRDL
Benzo(b)Fluoranthene	3.7	J	below CRDL

Tentatively Identified Compounds Detected:

Unknown Phthalate (1166)	8	JN
Unknown (1790)	10	JN
Unknown (1796)	14	JN
Unknown (1803)	8	JN

No VOA TICs found.

Spectra Matching Quality

Good _XX_ Poor ____

Remarks:

Please note concentrations are in parts per million (ppm).

COMPOUNDS IDENTIFIED

Sample No.: HG-235

Target Compound List Detections:

COMPOUND NAME	AMOUNT (mg/kg)	QUALIFIER	COMMENTS
Methylene Chloride	4.3	UB	found in blank
Acetone	9.5	UB	found in blank
2-Butanone	19	UB	found in blank
Acenaphthene	85	J	below CRDL
Fluorene	63	J	below CRDL
Phenanthrene	800		
Anthracene	210	J	below CRDL
Fluoranthene	1700		
Pyrene	1400		
Benzo(a)Anthracene	1000		
Chrysene	1200		
Benzo(b)Fluoranthene	1200		
Benzo(k)Fluoranthene	760		
Benzo(a)Pyrene	1100		
Indeno(1,2,3-cd)Pyrene	690		
Dibenz(a,h)Anthracene	60	J	below CRDL
Benzo(g,h,i)Perylene	640		

Tentatively Identified Compounds Detected:

No VOA TICs found.

Twenty (20) UNKNOWN BNAs found

Spectra Matching Quality

Good _XX_ Poor ____

Remarks:

Please note concentrations are in parts per million (ppm).
Case #3155I Set 50

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ARCF00003190
ED_002345B_00005435-00116

Form I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No. MHQ504 op.1

Date 08/15/88

INORGANIC ANALYSIS DATA SHEET

LAB NAME JTC Environmental Consultants, Inc CASE NO. SAS 3249 I

SOW NO. 285

LAB SAMPLE ID. NO. 3-2514 QC REPORT NO. 176

Elements Identified and Measured

Matrix: Water ____ % Solid 100 % Non-water ____ %
Miscible Miscible

mg/kg wet weight

1.	Aluminum	14800	13.	Magnesium	6039
2.	Antimony	20 U S N H	14.	Manganese	40 U
3.	Arsenic	20 U S	15.	Mercury	0.3 U
4.	Barium	120 U	16.	Molybdenum	40 U
5.	Beryllium	40 U	17.	Nickel	384
6.	Cadmium	10 U	18.	Selenium	20 U S
7.	Calcium	162000	19.	Silicon	11800
8.	Chromium	28 U	20.	Silver	40 U
9.	Cobalt	200 U	21.	Sodium	4000 U
10.	Copper	40 U	22.	Thallium	400 U
11.	Iron	1320	23.	Titanium	400 U
12.	Lead	535 N	24.	Vanadium	200 U
Cyanide	— SPET	Sulfide NR	25.	Zinc	40 U
Oxidants	NR	pH NR	Conductivity	NR	(uhmos/cm)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager

000003

154- 00148

ARCF00003191
ED_002345B_00005435-00117

FORM I

U.S. EPA Contract Laboratory Program
Sample Management Office
P.O. Box 818 - Alexandria, VA 22313
703/557-2490 FTS: 8-557-2490

EPA Sample No.
MHQ532 OP-2

Date 08/15/88

INORGANIC ANALYSIS DATA SHEET

Lab Name: JTC ENVIRONMENTAL CNSLTS. Case No. SAS 3249
SOW No. 2/85
Lab Sample ID. No. 3-2513 QC Report No.

Elements Identified and Measured

Matrix: Water_____% Solid_____% Non-Water_____%

Miscible Miscible

Units: mg/Kg

1	Aluminum	60500.0	P	14	Manganese	102.0	P
2	Antimony	20 U S N	H	15	Mercury	0.3 U	
3	Arsenic	50 S	H	16	Molybdenum	40.0 U	P
4	Barium	120.0 U	P	17	Nickel	467.0	P
5	Beryllium	40.0 U	P	18	Selenium	20 US	H
6	Cadmium	10.0 U	P	19	Silicon	7310.0	P
7	Calcium	4880.0	P	20	Silver	40.0 U	P
8	Chromium	28.0 U	P	21	Sodium	34100	
9	Cobalt	199.0 U	P	22	Thallium	398.0 U	P
10	Copper	75.0	P	23	Titanium	398.0 U	P
11	Iron	28700.0	P	24	Vanadium	199.0 U	P
12	Lead	111.0 N	P	25	Zinc	41.0	P
13	Magnesium	797.0 U	P	26			

Sulfide NR Oxidants NR

pH NR Conductivity NR (uhmos/cm)

Cyanide 63 N AA Sample Weight .2510 (g)

Footnotes:
For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaning results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments:

Lab Manager _____

000004

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ARCF00003192
ED_002345B_00005435-00118

REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

Case No.: 9745 TDD No.: F08-8807-13

Site: Columbia Falls Aluminum Company

Contractor Laboratory: ANAMETRIX, Inc.

Data Reviewer : Randy Perlis Date of Review: August 19, 1988

Sample Matrix: Soil and Water

Analysis: Volatile ORGANIC ANALYSIS

SAMPLE NOS.:				
	HG-207	HG-209	HG-211	HG-214
	HG-216	HG-219	HG-221	HG-222
	HG-223	HG-224	HG-225	HG-226
	HG-227	HG-228	HG-229	HG-230
	HG-231	HG-232	HG-233	HG-234

(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 X The following items require action:

Action required by project officer?

No X

154- 00149

The following are our findings:

This data package is acceptable for use. No qualifiers were added to the reported data. The QA/QC criteria not met in this package did not affect the results, but are noted in this report.

The holding times for sample HG-223 and HG-223RE were missed by one day. No TCL compounds were found in these sample runs therefore no flags were added to the data.

Many calibration outliers were noted but none affected the data results so no data qualifying flags were added.

DFTPP and BFB Performance Results

The DFTPP performance results were all included and found to be within the specified criteria.

Yes X

Comments:

The BFB performance results were all included and found to be within the specified criteria.

Yes X

Comments:

The DFTPP/BFB performance result(s) was/were reviewed and the following abundances were found to fall outside the specified criteria:

DATE	COMPOUND	M/Z	REQ. ABUNDANCE	ACT. ABUNDANCE
NA				

All samples were extracted and analyzed within contracted holding times:

No X

Comments:

Holding times for samples HG-223 and HG-223RE were missed by one day.

154-00150

Initial calibration data was reviewed. Initial calibration data was included in the package and met all contract requirements.

No X

The following compounds were outside the contract requirements:

2-Butanone <0.05 RF

Continuing calibration data was reviewed and the data met all contract requirements.

No X

The following compounds were outside the contract requirements:

2-Butanone
4-methyl-2-pentanone
2-hexanone
1,1,2,2-tetrachloroethane
stryene
xylenes
chloromethane
bromomethane
chloroethane
acetone

Internal Standard Recoveries:

Area Counts - Acceptable

RT - Acceptable

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Surrogate recoveries were reviewed. The recoveries were all within the contractual limits.

No X

Comments: 8 of 84 surrogate recoveries were outside QC limits.

Surrogates were out for HG-223 and HG-228, these samples were re-analyzed and surrogates remained outside control limits.

The matrix spike and matrix spike duplicate data was reviewed. The matrix spikes were performed and all data met contractual requirements.

Yes X

Comments:

0 of 5 RPDs for low MS/MSD were within QC limits.

0 of 10 % recoveries for low MS/MSD were within QC limits.

154- 00151

BLANK ANALYSIS RESULTS

The blank analysis were reviewed. The contaminants in the blank are listed below. (* indicates amounts above the CRDL).

SAMPLE	DATE	COMPOUND	CONC.
V-BLK	6/20/88	Acetone	*12 ug/l
V-BLK	6/21/88	Acetone	7 ug/l
V-BLK	6/22/88	Methylene Chloride	3 ug/l
V-BLK	6/23/88	None Detected	

Comments:

All laboratory contamination blanks were properly noted on FORM 1.

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG207

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG207

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V01

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. Date Analyzed: 6/20/88

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	5.	U
67-64-1	ACETONE	6.	BJ
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

1E.

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG207

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG207

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V01

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. Date Analyzed: 6/20/88

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 2

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	124-38-9	CARBON DIOXIDE (ACN)	1.97	60.	BJ
2.	- -	UNKNOWN	2.43	7.	BJ
3.					
4.					
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EPA SAMPLE NO.

HG209

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG209

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V02

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. Date Analyzed: 6/20/88

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	5.	U
67-64-1	ACETONE	5.	BJ
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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG209

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG209

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V02

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. Date Analyzed: 6/20/88

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 2

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	124-38-9	CARBON DIOXIDE (ACN)	1.97	20.	BJ
2.	- -	UNKNOWN	2.33	2.	BJ
3.					
4.					
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EPA SAMPLE NO.

HG211

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG211

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V09

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. Date Analyzed: 6/21/88

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	5.	U
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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG211

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG211

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V09

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. Date Analyzed: 6/21/88

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 4

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN CARBON DIOXIDE	1.95	3.	BJ
2.	- -	UNKNOWN	2.35	3.	BJ
3.	110-54-3	HEXANE (DOT)	3.42	70.	J
4.	96-37-7	CYCLOPENTANE, METHYL-	4.23	20.	J
5.					
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG214

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG214

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V03

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. Date Analyzed: 6/20/88

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	5.	U
67-64-1	ACETONE	5.	BJ
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

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG214

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG214

Sample wt/vol: .5 (g/mL) ML Lab File ID: 1EU06080V03

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. Date Analyzed: 6/20/88

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 1

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN CARBON DIOXIDE	1.97	200.	BJ
2.					
3.					
4.					
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG216

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG216

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V04

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. Date Analyzed: 6/20/88

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	5.	U
67-64-1	ACETONE	4.	BJ
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

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG216

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG216

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V04

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. Date Analyzed: 6/20/88

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 2

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	124-38-9	CARBON DIOXIDE (ACN)	1.98	40.	BJ
2.	- -	UNKNOWN	2.30	2.	BJ
3.					
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG219

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG219

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V05

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. Date Analyzed: 6/21/88

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	5.	U
67-64-1	ACETONE	7.	BJ
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	2.	J
108-90-7	CHLOROBENZENE	5.	U
100-41-4	ETHYLBENZENE	5.	U
100-42-5	STYRENE	5.	U
1330-20-7	XYLENE (TOTAL)	5.	J

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG219

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG219

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V05

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. Date Analyzed: 6/21/88

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 2

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	124-38-9	CARBON DIOXIDE (ACN)	1.97	50.	BJ
2.	- -	UNKNOWN	2.30	4.	BJ
3.					
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EPA SAMPLE NO.

HG221

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG221

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V06

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. Date Analyzed: 6/21/88

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	5.	U
67-64-1	ACETONE	7.	BJ
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

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG221

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG221

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V06

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. Date Analyzed: 6/21/88

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 3

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	124-38-9	CARBON DIOXIDE (ACN)	1.95	40.	BJ
2.	- -	UNKNOWN	2.40	3.	BJ
3.	- -	UNKNOWN	15.63	0.6	J
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EPA SAMPLE NO.

HG222

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG222

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V07

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. Date Analyzed: 6/21/88

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	5.	U
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

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG222

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG222

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V07

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. Date Analyzed: 6/21/88

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 2

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	124-38-9	CARBON DIOXIDE (ACN)	1.95	20.	BJ
2.	- -	UNKNOWN	2.37	3.	BJ
3.					
4.					
5.					
6.					
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EPA SAMPLE NO.

HG223

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG223

Sample wt/vol: 5. (g/mL) ML Lab File ID: IEU06080V08

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. Date Analyzed: 6/23/88

Column: (pack/cap) CAP Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	G
74-87-3	CHLOROMETHANE	20.	U
74-83-9	BROMOMETHANE	20.	U
75-01-4	VINYL CHLORIDE	20.	U
75-00-3	CHLOROETHANE	20.	U
75-09-2	METHYLENE CHLORIDE	10.	U
67-64-1	ACETONE	20.	U
75-15-0	CARBON DISULFIDE	10.	U
75-35-4	1,1-DICHLOROETHENE	10.	U
75-34-3	1,1-DICHLOROETHANE	10.	U
540-59-0	1,2-DICHLOROETHENE (TOTAL)	10.	U
67-66-3	CHLOROFORM	10.	U
107-06-2	1,2-DICHLOROETHANE	10.	U
78-93-3	2-BUTANONE	20.	U
71-55-6	1,1,1-TRICHLOROETHANE	10.	U
56-23-5	CARBON TETRACHLORIDE	10.	U
108-05-4	VINYL ACETATE	20.	U
75-27-4	BROMODICHLOROMETHANE	10.	U
78-87-5	1,2-DICHLOROPROPANE	10.	U
10061-01-5	CIS-1,3-DICHLOROPROPENE	10.	U
79-01-6	TRICHLOROETHENE	10.	U
124-48-1	DIBROMOCHLOROMETHANE	10.	U
79-00-5	1,1,2,-TRICHLOROETHANE	10.	U
71-43-2	BENZENE	10.	U
10061-02-6	TRANS-1,3-DICHLOROPROPENE	10.	U
75-25-2	BROMOFORM	10.	U
108-10-1	4-METHYL-2-PENTANONE	20.	U
591-78-6	2-HEXANONE	20.	U
127-18-4	TETRACHLOROETHENE	10.	U
79-34-5	1,1,2,2-TETRACHLOROETHANE	10.	U
108-88-3	TOLUENE	10.	U
108-90-7	CHLOROBENZENE	10.	U
100-41-4	ETHYLBENZENE	10.	U
100-42-5	STYRENE	10.	U
1330-20-7	XYLENE (TOTAL)	10.	U

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG223

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG223

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V08

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. Date Analyzed: 6/23/88

Column: (pack/cap) CAP Dilution Factor: 2.00

Number TICs found: 6

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN CARBON DIOXIDE	1.95	20.	BJ
2.	3769-23-1	1-HEXENE, 4-METHYL-	3.23	40.	J
3.	96-14-0	PENTANE, 3-METHYL-	3.42	1000.	J
4.	96-37-7	CYCLOPENTANE, METHYL-	4.23	400.	J
5.	- -	UNKNOWN	10.05	10.	BJ
6.	- -	UNKNOWN	17.02	4.	J
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EPA SAMPLE NO.

HG224

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG224

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V10

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. Date Analyzed: 6/21/88

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	5.	U
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

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG224

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG224

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V10

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. Date Analyzed: 6/21/88

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 2

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	124-38-9	CARBON DIOXIDE (ACN)	1.95	40.	BJ
2.	- -	UNKNOWN	2.37	7.	BJ
3.					
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EPA SAMPLE NO.

HG225

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG225

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V11

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. Date Analyzed: 6/21/88

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	5.	U
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

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG225

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG225

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V11

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. Date Analyzed: 6/21/88

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 2

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	124-38-9	CARBON DIOXIDE (ACN)	1.97	90.	BJ
2.	- -	UNKNOWN	2.37	7.	BJ
3.					
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EPA SAMPLE NO.

HG226

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG226

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V12

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. Date Analyzed: 6/21/88

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	5.	U
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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG226

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG226

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V12

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. Date Analyzed: 6/21/88

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 1

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. - -	UNKNOWN	1.97	80.	BJ
2.				
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EPA SAMPLE NO.

HG227

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG227

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V13

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. Date Analyzed: 6/21/88

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	5.	U
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

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG227

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG227

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V13

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. Date Analyzed: 6/21/88

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 4

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN CARBON DIOXIDE	1.97	4.	BJ
2.	- -	UNKNOWN	2.40	3.	BJ
3.	110-54-3	HEXANE (DOT)	3.43	7.	J
4.	- -	UNKNOWN HYDROCARBON	4.27	3.	J
5.					
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG228

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG228

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V14

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. Date Analyzed: 6/21/88

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	5.	U
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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG228

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG228

Sample wt/vol: 5. (g/mL) mL Lab File ID: 1EU06080V14

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. Date Analyzed: 6/21/88

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 2

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	124-38-9	CARBON DIOXIDE (ACN)	1.97	50.	BJ
2.	- -	UNKNOWN	2.35	8.	BJ
3.					
4.					
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EPA SAMPLE NO.

HG229

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG229

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V15

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. Date Analyzed: 6/21/88

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	5.	U
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

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG229

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG229

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V15

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. Date Analyzed: 6/21/88

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 1

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	124-38-9	CARBON DIOXIDE (ACN)	1.97	70.	BJ
2.					
3.					
4.					
5.					
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EPA SAMPLE NO.

HG230

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG230

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V16

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. Date Analyzed: 6/23/88

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	5.	U
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

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
HG230

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG230

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V16

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. Date Analyzed: 6/23/88

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 4

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	124-38-9	CARBON DIOXIDE (ACN)	1.95	70.	BJ
2.	- -	UNKNOWN	2.35	10.	BJ
3.	- -	UNKNOWN	10.08	8.	BJ
4.	- -	UNKNOWN	17.00	8.	J
5.					
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG231

Lab Name: ANAMET Contract: 68-W8-C041

Lab Code: ANAMET Case No.: 9745 SAS No.. SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG231

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V17

Level: (low/med) LOW Date Received: 6/20/88

% Moisture: not dec. 100. Date Analyzed: 6/23/88

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	5.	U
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

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VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG231

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG231

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V17

Level: (low/med) LOW Date Received: 6/20/88

% Moisture: not dec. 100. Date Analyzed: 6/23/88

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 3

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	124-38-9	CARBON DIOXIDE (ACN)	1.95	200.	BJ
2.	- -	UNKNOWN	5.22	10.	J
3.	- -	UNKNOWN	10.05	7.	BJ
4.					
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG232

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 7745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG232

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V18

Level: (low/med) LOW Date Received: 6/20/88

% Moisture: not dec. 100. Date Analyzed: 6/23/88

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	5.	U
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
56-22-5	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

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154-00169

ARCF00003233

ED_002345B_00005435-00159

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG232

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG232

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V18

Level: (low/med) LOW Date Received: 6/20/88

% Moisture: not dec. 100. Date Analyzed: 6/23/88

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 4

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	124-38-9	CARBON DIOXIDE (ACN)	1.93	100.	BJ
2.	- -	UNKNOWN	2.35	8.	BJ
3.	- -	UNKNOWN	10.05	8.	BJ
4.	- -	UNKNOWN	17.02	3.	J
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG233

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 4745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG233

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V19

Level: (low/med) LOW Date Received: 6/20/88

% Moisture: not dec. 100. Date Analyzed: 6/23/88

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	G
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	5.	U
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

FORM I VOA

1/87 Rev.

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG233

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG233

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V19

Level: (low/med) LOW Date Received: 6/20/88

% Moisture: not dec. 100. Date Analyzed: 6/23/88

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 4

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN	10.17	5.	BJ
2.	124-38-9	CARBON DIOXIDE (ACN)	1.95	90.	BJ
3.	- -	UNKNOWN	2.43	8.	BJ
4.	- -	UNKNOWN	3.30	8.	J
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1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG234

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG234

Sample wt/vol: 5. (g/mL) ML Lab File ID: 1EU06080V20

Level: (low/med) LOW Date Received: 6/20/88

% Moisture: not dec. 100. Date Analyzed: 6/23/88

Column: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	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	5.	U
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	11.	
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

FORM I VOA

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1/87 Rev.

154-00171

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ED_002345B_00005435-00163

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG234

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAC No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG234

Sample wt/vol: 5. (g/mL) ML Lab File ID: IEU06080V20

Level: (low/med) LOW Date Received: 6/20/88

% Moisture: not dec. 100. Date Analyzed: 6/23/88

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 5

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN CARBON DIOXIDE	1.93	10.	BJ
2.	96-14-0	PENTANE, 3-METHYL-	3.38	100.	J
3.	96-37-7	CYCLOPENTANE, METHYL-	4.22	30.	J
4.	- -	UNKNOWN	10.03	5.	BJ
5.	- -	UNKNOWN	3.23	7.	J
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REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

Case No.: 9745 TDD No.: F08-8807-13

Site: Columbia Falls Aluminum Company

Contractor Laboratory: ANAMETRIX, Inc.

Data Reviewer : Randy Perlis Date of Review: August 25, 1988

Sample Matrix: Soil and Water

Analysis: Organic Analysis - BNA

Sample Nos.:				
	HG-207	HG-209	HG-211	iHG-214
	HG-216	HG-219	HG-221	HG-222
	HG-223	HG-224	HG-225	HG-226
	HG-227	HG-228	HG-229	HG-230
	HG-231	HG-232	HG-233	

(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

Action required by project officer?

No

154-00172

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The following are our findings:

This data package is acceptable for use. No data flags other than the ones already presented by the lab were added.

1) Only one outlier in the initial calibration was noted. No flags were needed since this compound was not detected in any analysis.

2) Only one surrogate recovery was outside the QC limits. No reanalysis was required and no flags were added.

3) Common phthalate contamination was detected in the blanks. These compounds were correctly flagged with a "B" on Form I of the analysis.

4) Samples requiring dilution had positive sample results flagged "D" indicating that dilution was required to obtain results. This "D" flag should be regarded as a "J" flag. Also sample results flagged "E" should be regarded as a "J" flag. These flags apply to sample HG-219 and HG-219DL.

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DFTPP and BFB Performance Results

The DFTPP performance results were all included and found to be within the specified criteria.

Yes

Comments:

The BFB performance results were all included and found to be within the specified criteria.

Not Required

Comments:

The DFTPP/BFB performance result(s) was/were reviewed and the following abundances were found to fall outside the specified criteria:

DATE	COMPOUND	M/Z	REQ. ABUNDANCE	ACT. ABUNDANCE

All samples were extracted and analyzed within contracted holding times:

Yes

Comments:

Initial calibration data was reviewed. Initial calibration data was included in the package and met all contract requirements.

No

The following compounds were outside the contract requirements:

2,4-Dinitrophenol >30% RSD

Continuing calibration data was reviewed and the data met all contract requirements.

Yes

The following compounds were outside the contract requirements:

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Surrogate recoveries were reviewed. The recoveries were all within the contractual limits.

No

Comments: 0 of 144 surrogate recoveries were outside QC limits.

No re-analysis was required.

The matrix spike and matrix spike duplicate data was reviewed. The matrix spikes were performed and all data met contractual requirements.

No

Comments:

1 of 11 RPDs for low MS/MSD were outside QC limits.

0 of 22 % recoveries for low MS/MSD were within QC limits.

Internal Standards and Retention Times:

All within QC limits.

BLANK ANALYSIS RESULTS

The blank analysis were reviewed. The contaminants in the blank are listed below. (* indicates amounts above the CRDL).

SAMPLE	DATE	COMPOUND	CONC.	SAMPLES WITH THIS BLANK
Blank	6/19	bis(2-ethylhexyl)phthalate	19*	HG-221,207,209
		methylcyclohexane	10	HG-219,222,214
		unknown phthalate	20	HG-216,219DL
		unknown	8	
		unknown	80	
Blank	6/20	methylcyclohexane	20	HG-211,225,226
		unknown	8	HG-227,228,229
				HG-230,224
Blank	6/22	bis(2-ethylhexyl)phthalate	10	HG-231,232,233
		methylcyclohexane	8	
		unknown	8	

Comments:

Spectra Matching Quality

Good

Case #9745

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ED_002345B_00005435-00170

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG207

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG207

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C01

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/19/88

GPC Cleanup: (Y/N) N pH: 7.6 Dilution Factor: 2.00

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
108-60-1	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	DIMETHYLPHTHALATE	10.	U
208-96-8	ACENAPHTHYLENE	10.	U
606-20-2	2,6-DINITROTOLUENE	10.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG207

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG207

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C01

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/19/88

GPC Cleanup: (Y/N) N pH: 7.6 Dilution Factor: 2.00

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
100-01-6	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	14.	B
117-84-0	DI-N-OCTYLPHTHALATE	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

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG209

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG209

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2ER06080C02

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/19/88

GPC Cleanup: (Y/N) N pH: 7.9 Dilution Factor: 2.00

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
108-60-1	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	DIMETHYLPHTHALATE	10.	U
208-96-8	ACENAPHTHYLENE	10.	U
606-20-2	2,6-DINITROTOLUENE	10.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG209

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG209

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2ER06080C02

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/19/88

GPC Cleanup: (Y/N) N pH: 7.9 Dilution Factor: 2.00

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
100-01-6	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	7.	BJ
117-84-0	DI-N-OCTYLPHTHALATE	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

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG211

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG211

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C09

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/20/88

GPC Cleanup: (Y/N) N pH: 6.7 Dilution Factor: 2.00

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
108-60-1	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	DIMETHYLPHTHALATE	10.	U
208-96-8	ACENAPHTHYLENE	10.	U
606-20-2	2,6-DINITROTOLUENE	10.	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG211

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG211

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C09

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/20/88

GPC Cleanup: (Y/N) N pH: 6.7 Dilution Factor: 2.00

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
100-01-6	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-OCTYLPHTHALATE	10.	U
205-99-2	BENZO(B)FLUOROANTHENE	10.	U
207-08-9	BENZO(K)FLUOROANTHENE	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

ARCF00003250
ED_002345B_00005435-00176

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG214

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG214

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2ER06080C03

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/20/88

GPC Cleanup: (Y/N) N pH: 8.2 Dilution Factor: 2.00

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
108-60-1	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	DIMETHYLPHTHALATE	10.	U
208-96-8	ACENAPHTHYLENE	10.	U
606-20-2	2,6-DINITROTOLUENE	10.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG214

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG214

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2ER06080C03

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/20/88

GPC Cleanup: (Y/N) N pH: 8.2 Dilution Factor: 2.00

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
100-01-6	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	7.	BJ
117-84-0	DI-N-OCTYLPHTHALATE	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

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG216

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG216

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2ET06080C04

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/21/88

GPC Cleanup: (Y/N) N pH: 8.1 Dilution Factor: 2.00

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
108-60-1	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	DIMETHYLPHTHALATE	10.	U
208-96-8	ACENAPHTHYLENE	10.	U
606-20-2	2,6-DINITROTOLUENE	10.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG216

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG216

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2ET06080C04

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/21/88

GPC Cleanup: (Y/N) N pH: 8.1 Dilution Factor: 2.00

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
100-01-6	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	16.	B
117-84-0	DI-N-OCTYLPHTHALATE	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	DIBENZIA,HIANTHRACENE	10.	U
191-24-2	BENZO(G,H,I)PERYLENE	10.	U

(1) - Cannot be separated from diphenylamine

recycled paper
ecology and environment

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG219

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG219

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C05

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/20/88

GPC Cleanup: (Y/N) N pH: 7.8 Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	PHENOL	47.	
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	57.	
108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	10.	U
106-44-5	4-METHYLPHENOL	76.	
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	36.	
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	250.	
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	140.	
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	DIMETHYLPHTHALATE	10.	U
208-96-8	ACENAPHTHYLENE	10.	U
606-20-2	2,6-DINITROTOLUENE	10.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG219

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG219

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C05

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/20/88

GPC Cleanup: (Y/N) N pH: 7.8 Dilution Factor: 2.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
99-09-2	3-NITROANILINE	50.	U
83-32-9	ACENAPHTHENE	350.	E
51-28-5	2,4-DINITROPHENOL	50.	U
100-02-7	4-NITROPHENOL	50.	U
132-64-9	DIBENZOFURAN	140.	
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	180.	
100-01-6	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	410.	E
120-12-7	ANTHRACENE	45.	
84-74-2	DI-N-BUTYLPHTHALATE	10.	U
206-44-0	FLUORANTHENE	77.	
129-00-0	PYRENE	56.	
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.	BJ
117-84-0	DI-N-OCTYLPHTHALATE	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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG219

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG219

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C05

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/20/88

GPC Cleanup: (Y/N) N pH: 7.8 Dilution Factor: 2.00

Number TICs found: 20

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	611-15-4	BENZENE, 1-ETHENYL-2-METHYL-	10.95	40.	J
2.	108-44-1	BENZENAMINE, 3-METHYL-	11.53	20.	J
3.	90-00-6	PHENOL, 2-ETHYL-	12.53	8.	J
4.	824-22-6	1H-INDENE, 2,3-DIHYDRO-4-MET	12.93	8.	J
5.	526-75-0	PHENOL, 2,3-DIMETHYL-	13.02	20.	J
6.	119-64-2	NAPHTHALENE, 1,2,3,4-TETRAHY	13.15	10.	J
7.	95-15-6	BENZO[B]THIOPHENE	13.67	10.	J
8.	119-65-3	ISOQUINOLINE	14.35	30.	J
9.	120-72-9	1H-INDOLE	15.10	20.	J
10.	91-63-4	QUINOLINE, 2-METHYL-	15.40	10.	J
11.	90-12-0	NAPHTHALENE, 1-METHYL-	15.52	100.	J
12.	7661-55-4	QUINOLINE, 5-METHYL-	16.07	8.	J
13.	939-27-5	NAPHTHALENE, 2-ETHYL-	16.68	30.	J
14.	571-61-9	NAPHTHALENE, 1,5-DIMETHYL-	16.83	20.	J
15.	569-41-5	NAPHTHALENE, 1,8-DIMETHYL-	17.05	20.	J
16.	- -	UNKNOWN POLYNUCLEAR AROMATIC	20.42	40.	J
17.	132-65-0	DIBENZOTHIOPHENE	21.38	30.	J
18.	260-94-6	ACRIDINE	21.92	50.	J
19.	2788-23-0	9H-CARBAZOLE, 9-NITROSO-	22.22	200.	J
20.	- -	UNKNOWN UNKNOWN POLYNUCLEAR	23.25	40.	J
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG219 DL

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG219

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2ER06080C05

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. dec. 0 Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/22/88

GPC Cleanup: (Y/N) N pH: 7.8 Dilution Factor: 5.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
108-95-2	PHENOL	42.	D
111-44-4	BIS(2-CHLOROETHYL)ETHER	25.	U
95-57-8	2-CHLOROPHENOL	25	U
541-73-1	1,3-DICHLOROBENZENE	25.	U
106-46-7	1,4-DICHLOROBENZENE	25.	U
100-51-6	BENZYL ALCOHOL	25.	U
95-50-1	1,2-DICHLOROBENZENE	25.	U
95-48-7	2-METHYLPHENOL	50.	D
108-60-1	BIS(2-CHLOROISOPROPYL)ETHER	25.	U
106-44-5	4-METHYLPHENOL	69.	D
621-64-7	N-NITROSO-DI-N-PROPYLAMINE	25.	U
67-72-1	HEXACHLOROETHANE	25.	U
98-95-3	NITROBENZENE	25.	U
78-59-1	ISOPHORONE	25.	U
88-75-5	2-NITROPHENOL	25.	U
105-67-9	2,4-DIMETHYLPHENOL	31.	D
65-85-0	BENZOIC ACID	130.	U
111-91-1	BIS(2-CHLOROETHOXY)METHANE	25.	U
120-83-2	2,4-DICHLOROPHENOL	25.	U
120-82-1	1,2,4-TRICHLOROBENZENE	25.	U
91-20-3	NAPHTHALENE	240.	D
106-47-8	4-CHLOROANILINE	25.	U
87-68-3	HEXACHLOROBUTADIENE	25.	U
59-50-7	4-CHLORO-3-METHYLPHENOL	25.	U
91-57-6	2-METHYLNAPHTHALENE	130.	D
77-47-4	HEXACHLOROCYCLOPENTADIENE	25.	U
88-06-2	2,4,6-TRICHLOROPHENOL	25.	U
95-95-4	2,4,5-TRICHLOROPHENOL	130.	U
91-58-7	2-CHLORONAPHTHALENE	25.	U
88-74-4	2-NITROANILINE	130.	U
131-11-3	DIMETHYLPHTHALATE	25.	U
208-96-8	ACENAPHTHYLENE	25.	U
606-20-2	2,6-DINITROTOLUENE	25.	U

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG219	DL

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG219

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2ER06080C05

Level: (low/med) LOW Date Received: 6/10/88

% Moisture: not dec. 100. dec 0 Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/22/88

GPC Cleanup: (Y/N) N pH: 7.8 Dilution Factor: 5.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q	
99-09-2	3-NITROANILINE	130.	U	
83-32-9	ACENAPHTHENE	500.		D
51-28-5	2,4-DINITROPHENOL	130.	U	
100-02-7	4-NITROPHENOL	130.	U	
132-64-9	DIBENZOFURAN	130.		D
121-14-2	2,4-DINITROTOLUENE	25.	U	
84-66-2	DIETHYLPHTHALATE	25.	U	
7005-72-3	4-CHLOROPHENYL-PHENYLETHER	25.	U	
86-73-7	FLUORENE	170.		D
100-01-6	4-NITROANILINE	130.	U	
534-52-1	4,6-DINITRO-2-METHYLPHENOL	130.	U	
86-30-6	N-NITROSODIPHENYLAMINE (1)	25.	U	
101-55-3	4-BROMOPHENYL-PHENYLETHER	25.	U	
118-74-1	HEXACHLOROBENZENE	25.	U	
87-86-5	PENTACHLOROPHENOL	130.	U	
85-01-8	PHENANTHRENE	370.		D
120-12-7	ANTHRACENE	44.		D
84-74-2	DI-N-BUTYLPHTHALATE	25.	U	
206-44-0	FLUORANTHENE	72.		D
129-00-0	PYRENE	47.		D
85-68-7	BUTYLBENZYLPHTHALATE	25.	U	
91-94-1	3,3'-DICHLOROBENZIDINE	50.	U	
56-55-3	BENZO(A)ANTHRACENE	25.	U	
218-01-9	CHRYSENE	25.	U	
117-81-7	BIS(2-ETHYLHEXYL)PHTHALATE	14.	BJ	D
117-84-0	DI-N-OCTYLPHTHALATE	25.	U	
205-99-2	BENZO(B)FLUORANTHENE	25.	U	
207-08-9	BENZO(K)FLUORANTHENE	25.	U	
50-32-8	BENZO(A)PYRENE	25.	U	
193-39-5	INDENO(1,2,3-CD)PYRENE	25.	U	
53-70-3	DIBENZ[A,H]ANTHRACENE	25.	U	
191-24-2	BENZO(G,H,I)PERYLENE	25.	U	

(1) - Cannot be separated from diphenylamine

FORM I SV-2 1/87 Rev.

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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG219 DL

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG219

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2ER06080C05

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/22/88

GPC Cleanup: (Y/N) N pH: 7.6 Dilution Factor: 5.00

Number TICs found: 20

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	108-44-1	BENZENAMINE, 3-METHYL-	11.25	20.	J
2.	90-00-6	PHENOL, 2-ETHYL-	12.23	3.	J
3.	824-22-6	1H-INDENE, 2,3-DIHYDRO-4-MET	12.65	10.	J
4.	526-75-0	PHENOL, 2,3-DIMETHYL-	12.73	20.	J
5.	119-64-2	NAPHTHALENE, 1,2,3,4-TETRAHY	12.85	10.	J
6.	95-15-8	BENZO[B]THIOPHENE	13.37	10.	J
7.	119-65-3	ISOQUINOLINE	14.05	30.	J
8.	120-72-9	1H-INDOLE	14.80	20.	J
9.	91-63-4	QUINOLINE, 2-METHYL-	15.12	10.	J
10.	90-12-0	NAPHTHALENE, 1-METHYL-	15.22	100.	J
11.	7661-55-4	QUINOLINE, 5-METHYL-	15.77	5.	J
12.	939-27-5	NAPHTHALENE, 2-ETHYL-	16.38	30.	J
13.	571-61-9	NAPHTHALENE, 1,5-DIMETHYL-	16.53	20.	J
14.	569-41-5	NAPHTHALENE, 1,8-DIMETHYL-	16.75	20.	J
15.	- -	UNKNOWN POLYNUCLEAR AROMATIC	20.12	30.	J
16.	132-65-0	DIBENZOTHIOPHENE	21.08	30.	J
17.	260-94-6	ACRIDINE	21.62	40.	J
18.	2788-23-0	9H-CARBAZOLE, 9-NITROSO-	21.92	100.	J
19.	- -	UNKNOWN POLYNUCLEAR AROMATIC	22.93	30.	J
20.	611-15-4	BENZENE, 1-ETHENYL-2-METHYL-	10.67	40.	J
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22.					
23.					
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG221

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG221

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C06

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/19/88

GPC Cleanup: (Y/N) N pH: 7.8 Dilution Factor: 2.00

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
108-60-1	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	DIMETHYLPHTHALATE	10.	U
208-96-8	ACENAPHTHYLENE	10.	U
606-20-2	2,6-DINITROTOLUENE	10.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG221

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG221

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C06

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/19/88

GPC Cleanup: (Y/N) N pH: 7.8 Dilution Factor: 2.00

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
100-01-6	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	18.	B
117-84-0	DI-N-OCTYLPHTHALATE	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

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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG222

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG222

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C07

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/20/88

GPC Cleanup: (Y/N) N pH: 8.3 Dilution Factor: 2.00

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
108-60-1	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	DIMETHYLPHTHALATE	10.	U
208-96-8	ACENAPHTHYLENE	10.	U
606-20-2	2,6-DINITROTOLUENE	10.	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG222

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG222

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C07

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/20/88

GPC Cleanup: (Y/N) N pH: 8.3 Dilution Factor: 2.00

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
100-01-6	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	29.	B
117-84-0	DI-N-OCTYLPHTHALATE	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

recycled paper
ecology and environment

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG224

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG224

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2ER06080C10

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/22/88

GPC Cleanup: (Y/N) N pH: 7.6 Dilution Factor: 2.00

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
108-60-1	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	DIMETHYLPHTHALATE	10.	U
208-96-8	ACENAPHTHYLENE	10.	U
606-20-2	2,6-DINITROTOLUENE	10.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG224

Lab Name: ANAMET Contract: 68-WB-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG224

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2ER06080C10

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/22/88

GPC Cleanup: (Y/N) N pH: 7.6 Dilution Factor: 2.00

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
100-01-6	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	5.	J
117-84-0	DI-N-OCTYLPHTHALATE	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

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG225

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG225

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU0608OC11

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/21/88

GPC Cleanup: (Y/N) N pH: 7.3 Dilution Factor: 2.00

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
108-60-1	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	DIMETHYLPHTHALATE	10.	U
208-96-8	ACENAPHTHYLENE	10.	U
606-20-2	2,6-DINITROTOLUENE	10.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG225

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG225

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C11

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/21/88

GPC Cleanup: (Y/N) N pH: 7.3 Dilution Factor: 2.00

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
100-01-6	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	7.	J
117-84-0	DI-N-OCTYLPHTHALATE	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

recycled paper
ecology and environment

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG226

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG226

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C12

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/21/88

GPC Cleanup: (Y/N) N pH: 7.4 Dilution Factor: 2.00

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
108-60-1	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	DIMETHYLPHTHALATE	10.	U
208-96-8	ACENAPHTHYLENE	10.	U
606-20-2	2,6-DINITROTOLUENE	10.	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG226

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG226

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C12

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/21/88

GPC Cleanup: (Y/N) N pH: 7.4 Dilution Factor: 2.00

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
100-01-6	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	5.	J
117-84-0	DI-N-OCTYLPHTHALATE	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.

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG227

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG227

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C13

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/21/88

GPC Cleanup: (Y/N) N pH: 6.7 Dilution Factor: 2.00

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
108-60-1	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	DIMETHYLPHTHALATE	10.	U
208-96-8	ACENAPHTHYLENE	10.	U
606-20-2	2,6-DINITROTOLUENE	10.	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG227

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG227

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C13

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/21/88

GPC Cleanup: (Y/N) N pH: 6.7 Dilution Factor: 2.00

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
100-01-6	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-OCTYLPHTHALATE	10.	U
205-99-2	BENZO(B)FLUOROANTHENE	10.	U
207-08-9	BENZO(K)FLUOROANTHENE	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

recycled paper
ecology and environment

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG228

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG228

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C14

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/21/88

GPC Cleanup: (Y/N) N pH: 7.4 Dilution Factor: 2.00

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
108-60-1	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	DIMETHYLPHTHALATE	10.	U
208-96-8	ACENAPHTHYLENE	10.	U
606-20-2	2,6-DINITROTOLUENE	10.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG228

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG228

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C14

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/21/88

GPC Cleanup: (Y/N) N pH: 7.4 Dilution Factor: 2.00

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
100-01-6	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-OCTYLPHTHALATE	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

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG229

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG229

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C15

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/21/88

GPC Cleanup: (Y/N) N pH: 7.6 Dilution Factor: 2.00

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
108-60-1	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	DIMETHYLPHTHALATE	10.	U
208-96-8	ACENAPHTHYLENE	10.	U
606-20-2	2,6-DINITROTOLUENE	10.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG229

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG229

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C15

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/21/88

GPC Cleanup: (Y/N) N pH: 7.6 Dilution Factor: 2.00

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
100-01-6	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-OCTYLPHTHALATE	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

recycled paper
recycled paper
recycled paper
000718
ecology and environment
ecology and environment
ecology and environment

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG230

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG230

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C16

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/21/88

GPC Cleanup: (Y/N) N pH: 7.6 Dilution Factor: 2.00

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
108-60-1	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	DIMETHYLPHTHALATE	10.	U
208-96-8	ACENAPHTHYLENE	10.	U
606-20-2	2,6-DINITROTOLUENE	10.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG230

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG230

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C16

Level: (low/med) LOW Date Received: 6/16/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/16/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/21/88

GPC Cleanup: (Y/N) N pH: 7.6 Dilution Factor: 2.00

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
100-01-6	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-OCTYLPHTHALATE	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

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG231

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG231

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C17

Level: (low/med) LOW Date Received: 6/20/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/22/88

GPC Cleanup: (Y/N) N pH: 7.5 Dilution Factor: 2.00

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
108-60-1	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	DIMETHYLPHTHALATE	10.	U
208-96-8	ACENAPHTHYLENE	10.	U
606-20-2	2,6-DINITROTOLUENE	10.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG231

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG231

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C17

Level: (low/med) LOW Date Received: 6/20/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/22/88

GPC Cleanup: (Y/N) N pH: 7.5 Dilution Factor: 2.00

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
100-01-6	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	8.	BJ
117-84-0	DI-N-OCTYLPHTHALATE	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

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG232

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG232

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C18

Level: (low/med) LOW Date Received: 6/20/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/22/88

GPC Cleanup: (Y/N) N pH: 7.4 Dilution Factor: 2.00

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
108-60-1	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	DIMETHYLPHTHALATE	10.	U
208-96-8	ACENAPHTHYLENE	10.	U
606-20-2	2,6-DINITROTOLUENE	10.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG232

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG232

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C18

Level: (low/med) LOW Date Received: 6/20/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/22/88

GPC Cleanup: (Y/N) N pH: 7.4 Dilution Factor: 2.00

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
100-01-6	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	6.	BJ
117-84-0	DI-N-OCTYLPHTHALATE	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

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG233

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG233

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C19

Level: (low/med) LOW Date Received: 6/20/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/22/88

GPC Cleanup: (Y/N) N pH: 7.8 Dilution Factor: 2.00

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
108-60-1	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	DIMETHYLPHTHALATE	10.	U
208-96-8	ACENAPHTHYLENE	10.	U
606-20-2	2,6-DINITROTOLUENE	10.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG233

Lab Name: ANAMET Contract: 68-W8-0041

Lab Code: ANAMET Case No.: 9745 SAS No.: SDG No.: HG207

Matrix: (soil/water) WATER Lab Sample ID: HG233

Sample wt/vol: 1000. (g/mL) ML Lab File ID: 2EU06080C19

Level: (low/med) LOW Date Received: 6/20/88

% Moisture: not dec. 100. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SEPF Date Analyzed: 6/22/88

GPC Cleanup: (Y/N) N pH: 7.8 Dilution Factor: 2.00

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
100-01-6	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	7.	BJ
117-84-0	DI-N-OCTYLPHTHALATE	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

REGION VIII SUMMARY OF DATA QUALITY ASSURANCE REVIEW

Case No.: 9745 TDD No.: F08-8807-13

Site: Columbia Falls Aluminum Co.

Contractor Laboratory: ESECO

Data Reviewer : Randy Perlis Date of Review: August 22, 1988

Sample Matrix: Soils

Analysis: Organics, VOA & BNA Analysis

Sample Nos.:		
	HG-201	HG-212
	HG-202	HG-213
	HG-204	HG-215
	HG-206	HG-217
	HG-208	HG-218
	HG-210	HG-220

( ) 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

Case #9754

154- 00196

ARCF00003285
ED_002345B_00005435-00211

The following are our findings:

This organic data package is acceptable for use with qualifications noted in this report.

1) Many calibration outliers were noted in the the initial and continuing calibrations. J flags need to be added to all affected compounds.

2) In the internal standard recoveries for samples HG-201DL (BNA), HG-204, HG-218, HG-217, and HG-204RE (VOAs) indicated recoveries outside the QC limits.

3) The BNA blank showed many lab derived contaminates especially TICs.

4) Surrogate recoveries for samples HG-201DL and HG-207DL were diluted out therefore no QC can be determined from these samples for surrogate recoveries.

DFTPP and BFB Performance Results

The DFTPP performance results were all included and found to be within the specified criteria.

Yes XX

Comments:

DFTPP Tuning Results Acceptable

The BFB performance results were all included and found to be within the specified criteria.

Yes XX

Comments:

BFB Tuning Results Acceptable

The DFTPP/BFB performance result(s) was/were reviewed and the following abundances were found to fall outside the specified criteria:

DATE	COMPOUND	M/Z	REQ. ABUNDANCE	ACT. ABUNDANCE

All samples were extracted and analyzed within contracted holding times:

Yes XX

Comments:

Holding Times Acceptable

Initial calibration data was reviewed. Initial calibration data was included in the package and met all contract requirements.

No XX

The following compounds were outside the contract requirements:

Acetone
Carbon Disulfide
1,2-Dichloroethane
Methylene Chloride
Vinyl Acetate
cis-1,3-Dichloropropene
Benzoic Acid
2,4-Dinitrophenol

Continuing calibration data was reviewed and the data met all contract requirements.

No XX

The following compounds were outside the contract requirements:

Carbon Disulfide
1,2-Dichloroethane
2-Butanone
1,1,1-Trichloroethane
Trichloroethene
4-methyl-2-Pentanone
Xylenes
1,2-Dichloroethene
trans-1,3-Dichloropropene
Chloromethane
Acetone
Vinyl Acetate
Benzoic Acid
Benzo(k)fluoranthene
Indeno(1,2,3-cd)pyrene
Dibenzo(a,h)anthracene
Benzo(g,h,i)perylene
2-Methyl Naphthalene
Benzyl Alcohol
2,4 Dinitrophenol
4-Nitrophenol
Benzo(b)fluoranthene
4-Nitroaniline

ARCF00003288
ED_002345B_00005435-00214

Surrogate recoveries were reviewed. The recoveries were all within the contractual limits.

No XX

Comments:

10 of 69 VOA surrogate recoveries were outside QC limits.
Samples HG-204, HG-218, and HG-217 were re-analyzed.

12 of 102 BNA surrogate recoveries were outside QC limits.
Samples HG-201DL and HG-207DL had surrogates diluted out of the samples and these samples are responsible for the 12 surrogates being outside the QC limits.

The matrix spike and matrix spike duplicate data was reviewed. The matrix spikes were performed and all data met contractual requirements.

Yes XX

Comments: No MS/MSD data was outside QC limits.

0 of 5 RPDs for medium VOAs MS/MSD were outside QC limits.
0 of 5 RPDs for low VOAs MS/MSD were outside QC limits.
0 of 11 RPDs for low BNAs MS/MSD were outside QC limits

0 of 10 % recoveries for medium VOAs MS/MSD were outside QC limits.
0 of 10 % recoveries for low VOAs MS/MSD were outside QC limits.
0 of 22 % recoveries for low BNAs MS/MSD were outside QC limits.

BLANK ANALYSIS RESULTS

The blank analysis were reviewed. The contaminants in the blank are listed below. (* indicates amounts above the CRDL).

SAMPLE	DATE	COMPOUND	CONC.	SAMPLES WITH THIS BLANK
VOA Blank	6/21 6/22	None Detected		All VOAs
BNA Blank	6/23	Phenanthrene	52 ug/l	All BNAs
		Fluoranthene	80 ug/l	
		Pyrene	76 ug/l	
		Many TICs (See next page)		

Comments:

Spectra Matching Quality:

Acceptable

ARCF00003290

ED_002345B_00005435-00216

Inorganic Flags

Basic Flags

J - The associated numerical value is an estimated quantity. Presence of the material is reliable.

U - The material was analyzed for, but was not detected. The associated numerical value is the contract required detection limit (CRDL).

B - The material was detected in the blanks.

R - Quality control criteria indicates that the data is not usable. Material's presence or quantitation is unknown.

Combination Flags

UB - The value is an estimated detection amount. Material was detected but below the CRDL and was detected in blanks. Materials presence in sample is unknown.

UJ - QC problems indicate a false negative result may exist.

JB - The material was present in blanks in amounts that indicate an estimated sample quantitation. A false positive result may exist.

JE - Indicates an estimated quantitation value due to presence of interferences.

JR - Indicates spike recovery not within QC limits. The reported value is an estimation.

J* - Indicates duplicate analysis results not within QC limits. The reported value is an estimation.

J+ - Indicates the correlation coefficient for method of standard additions is less than 0.995. The reported value is an estimation.

JS - Indicates the reported value was determined by method of standard additions and is estimated.

[] - Brackets around results indicate the material was detected but below the CRDL but above the instrument detection limit (IDL). The reported value is an estimation.

NOTE: Use only J, U, B, R, UB, UJ, and JB flags for tabulation of results. Other combinations indicate reason for the flag.

154- 00199

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG201

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 4. (g/mL) G Lab File ID: 54284

Level: (low/med) MED Date Received: 6/14/88

% Moisture: not dec. 4. Date Analyzed: 6/22/88

Column: (pack/cap) CAP Dilution Factor: 1.00

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	650.	U
67-64-1	Acetone	1300.	U
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	1300.	U
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
10061-01-5	cis-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
10061-02-6	trans-1,3-Dichloropropene	650.	U
75-25-2	Bromoform	650.	U
108-10-1	4-Methyl-2-Pentanone	1300.	U
591-78-6	2-Hexanone	1300.	U
127-18-4	Tetrachloroethene	650.	U
79-34-5	1,1,2,2-Tetrachloroethane	650.	U
108-88-3	Toluene	1000.	
108-90-7	Chlorobenzene	650.	U
100-41-4	Ethylbenzene	650.	U
100-42-5	Styrene	650.	U
1330-20-7	Xylene (total)	650.	U

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

SBLK

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73353

Level: (low/med) LOW Date Received: 0/ 0/ 0

% Moisture: not dec. 0. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/23/88

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

Number TICs found: 9

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN	7.80	300.	J
2.	- -	UNKNOWN	8.67	20000.	J
3.	110-12-3	2-Hexanone, 5-methyl- (8CI9C	9.04	3000.	J
4.	1072-05-5	Heptane, 2,6-dimethyl- (8CI9	9.24	400.	J
5.	2216-33-3	Octane, 3-methyl- (8CI9CI)	9.44	600.	J
6.	629-50-5	Tridecane (8CI9CI)	25.78	500.	J
7.	544-76-3	Hexadecane (8CI9CI)	27.83	300.	J
8.	17831-71-9	2-Propenoic acid, oxybis(2,1	34.88	2000.	J
9.	123-79-5	Hexanedioic acid, dioctyl es	40.86	500.	J
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG201DL

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73368

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 4. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/24/88

GPC Cleanup: (Y/N) Y pH: 5.6 Dilution Factor: .04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	8700.	U
111-44-4	bis(2-Chloroethyl)ether	8700.	U
95-57-8	2-Chlorophenol	8700.	U
541-73-1	1,3-Dichlorobenzene	8700.	U
106-46-7	1,4-Dichlorobenzene	8700.	U
100-51-6	Benzyl alcohol	8700.	U
95-50-1	1,2-Dichlorobenzene	8700.	U
95-48-7	2-Methylphenol	8700.	U
108-60-1	bis(2-Chloroisopropyl)ether	8700.	U
106-44-5	4-Methylphenol	8700.	U
621-64-7	N-Nitroso-di-n-propylamine	8700.	U
67-72-1	Hexachloroethane	8700.	U
98-95-3	Nitrobenzene	8700.	U
78-59-1	Isophorone	8700.	U
88-75-5	2-Nitrophenol	8700.	U
105-67-9	2,4-Dimethylphenol	8700.	U
65-85-0	Benzoic acid	43000.	U
111-91-1	bis(2-Chloroethoxy)methane	8700.	U
120-83-2	2,4-Dichlorophenol	8700.	U
120-82-1	1,2.4-Trichlorobenzene	8700.	U
91-20-3	Naphthalene	4600.	J
106-47-8	4-Chloroaniline	8700.	U
87-68-3	Hexachlorobutadiene	8700.	U
59-50-7	4-Chloro-3-methylphenol	8700.	U
91-57-6	2-Methylnaphthalene	1400.	J
77-47-4	Hexachlorocyclopentadiene	8700.	U
88-06-2	2,4,6-Trichlorophenol	8700.	U
95-95-4	2,4,5-Trichlorophenol	43000.	U
91-58-7	2-Chloronaphthalene	8700.	U
88-74-4	2-Nitroaniline	43000.	U
131-11-3	Dimethylphthalate	8700.	U
208-96-8	Acenaphthylene	450.	J
606-20-2	2,6-Dinitrotoluene	8700.	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG201DL

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73368

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 4. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/24/88

GPC Cleanup: (Y/N) Y pH: 5.6 Dilution Factor: .04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	Rep
99-09-2	3-Nitroaniline	43000.	U	
83-32-9	Acenaphthene	13000.	~~D~~	J
51-28-5	2,4-Dinitrophenol	43000.	U	
100-02-7	4-Nitrophenol	43000.	U	
132-64-9	Dibenzofuran	7500.	J	
121-14-2	2,4-Dinitrotoluene	8700.	U	
84-66-2	Diethylphthalate	8700.	U	
7005-72-3	4-Chlorophenyl-phenylether	8700.	U	
86-73-7	Fluorene	16000.	~~D~~	J
100-01-6	4-Nitroaniline	43000.	U	
534-52-1	4,6-Dinitro-2-methylphenol	8700.	U	
86-30-6	N-Nitrosodiphenylamine	43000.	U	
101-55-3	4-Bromophenyl-phenylether	8700.	U	
118-74-1	Hexachlorobenzene	8700.	U	
87-86-5	Pentachlorophenol	43000.	U	
85-01-8	Phenanthrene	380000.	B ~~E~~	J
120-12-7	Anthracene	8700.	U	
84-74-2	Di-n-butylphthalate	8700.	U	
206-44-0	Fluoranthene	930000.	B ~~E~~	J
129-00-0	Pyrene	430000.	B ~~E~~	J
85-68-7	Butylbenzylphthalate	8700.	U	
91-94-1	3,3'-Dichlorobenzidine	17000.	U	
56-55-3	Benzo(a)anthracene	110000.	~~D~~	J
218-01-9	Chrysene	110000.	~~D~~	J
117-81-7	bis(2-Ethylhexyl)phthalate	5000.	J	
117-84-0	Di-n-octylphthalate	8700.	U	
205-99-2	Benzo(b)fluoranthene	8700.	U	
207-08-9	Benzo(k)fluoranthene	210000.	~~D~~	J
50-32-8	Benzo(a)pyrene	86000.	~~D~~	J
193-39-5	Indeno(1,2,3-cd)pyrene	96000.	~~D~~	J
53-70-3	Dibenz(a,h)anthracene	24000.	~~D~~	J
191-24-2	Benzo(g,h,i)perylene	79000.	~~D~~	J

(1) - Cannot be separated from diphenylamine

recycled paper
ecology and environment

ARCF00003295
ED_002345B_00005435-00221

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG201DL

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73368

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 4. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/24/88

GPC Cleanup: (Y/N) Y pH: 5.6 Dilution Factor: .04

Number TICs found: 20

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	4425-82-5	9H-Fluorene, 9-methylene- (9	31.52	70000.	J
2.	260-94-6	Acridine (8CI9CI)	31.70	90000.	J
3.	85-02-9	Benzo[f]quinoline (8CI9CI)	32.13	90000.	J
4.	74410-42-7	D-Galactitol, 2-(acetylmethy	32.39	200000.	J
5.	2531-84-2	Phenanthrene, 2-methyl- (8CI	33.35	60000.	J
6.	613-12-7	Anthracene, 2-methyl- (8CI9C	33.47	50000.	J
7.	203-64-5	4H-Cyclopenta[def]phenanthre	33.74	70000.	J
8.	84-65-1	9,10-Anthracenedione (9CI)	34.78	300000.	J
9.	243-42-5	Benzo[b]naphtho[2,3-d]furan	37.58	20000.	J
10.	238-84-6	11H-Benzo[a]fluorene (8CI9CI	38.46	60000.	J
11.	243-17-4	11H-Benzo[b]fluorene (8CI9CI	38.71	30000.	J
12.	- -	UNKNOWN	38.93	20000.	J
13.	- -	UNKNOWN	40.49	40000.	J
14.	205-43-6	Benzo[b]naphtho[1,2-d]thioph	40.86	20000.	J
15.	- -	UNKNOWN	41.02	20000.	J
16.	239-35-0	Benzo[b]naphtho[2,1-d]thioph	41.21	20000.	J
17.	82-05-3	7H-Benz[de]anthracen-7-one (	41.33	20000.	J
18.	1090-13-7	5,12-Naphthacenedione (8CI9C	43.71	20000.	J
19.	- -	UNKNOWN	46.05	100000.	J
20.	205-82-3	Benzo[j]fluoranthene (8CI9CI	46.87	100000.	J
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG202

ab Name: ESECO Contract: 68-W8-0054

ab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

ample wt/vol: 5. (g/mL) G Lab File ID: 54255

evel: (low/med) LOW Date Received: 6/14/88

Moisture: not dec. 15. Date Analyzed: 6/21/88

olumn: (pack/cap) CAP Dilution Factor: 1.00

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	21.	J
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	7.	
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

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG202DL

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73367

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 15. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/24/88

GPC Cleanup: (Y/N) Y pH: 8.0 Dilution Factor: .10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	3900.	U
111-44-4	bis(2-Chloroethyl)ether	3900.	U
95-57-8	2-Chlorophenol	3900.	U
541-73-1	1,3-Dichlorobenzene	3900.	U
106-46-7	1,4-Dichlorobenzene	3900.	U
100-51-6	Benzyl alcohol	3900.	U
95-50-1	1,2-Dichlorobenzene	3900.	U
95-48-7	2-Methylphenol	3900.	U
108-60-1	bis(2-Chloroisopropyl)ether	3900.	U
106-44-5	4-Methylphenol	3900.	U
621-64-7	N-Nitroso-di-n-propylamine	3900.	U
67-72-1	Hexachloroethane	3900.	U
98-95-3	Nitrobenzene	3900.	U
78-59-1	Isophorone	3900.	U
88-75-5	2-Nitrophenol	3900.	U
105-67-9	2,4-Dimethylphenol	3900.	U
65-85-0	Benzoic acid	20000.	U
111-91-1	bis(2-Chloroethoxy)methane	3900.	U
120-83-2	2,4-Dichlorophenol	3900.	U
120-82-1	1,2,4-Trichlorobenzene	3900.	U
91-20-3	Naphthalene	3900.	U
106-47-8	4-Chloroaniline	3900.	U
87-68-3	Hexachlorobutadiene	3900.	U
59-50-7	4-Chloro-3-methylphenol	3900.	U
91-57-6	2-Methylnaphthalene	3900.	U
77-47-4	Hexachlorocyclopentadiene	3900.	U
88-06-2	2,4,6-Trichlorophenol	3900.	U
95-95-4	2,4,5-Trichlorophenol	20000.	U
91-58-7	2-Chloronaphthalene	3900.	U
88-74-4	2-Nitroaniline	20000.	U
131-11-3	Dimethylphthalate	3900.	U
208-96-8	Acenaphthylene	3900.	U
606-20-2	2,6-Dinitrotoluene	3900.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG202DL

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73367

Level: (Low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 15. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/24/88

GPC Cleanup: (Y/N) Y pH: 8.0 Dilution Factor: .10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	20000.	U
83-32-9	Acenaphthene	830.	J
51-28-5	2,4-Dinitrophenol	20000.	U
100-02-7	4-Nitrophenol	20000.	U
132-64-9	Dibenzofuran	190.	J
121-14-2	2,4-Dinitrotoluene	3900.	U
84-66-2	Diethylphthalate	3900.	U
7005-72-3	4-Chlorophenyl-phenylether	3900.	U
86-73-7	Fluorene	610.	J
100-01-6	4-Nitroaniline	20000.	U
534-52-1	4,6-Dinitro-2-methylphenol	3900.	U
86-30-6	N-Nitrosodiphenylamine	20000.	U
101-55-3	4-Bromophenyl-phenylether	3900.	U
118-74-1	Hexachlorobenzene	3900.	U
87-86-5	Pentachlorophenol	20000.	U
85-01-8	Phenanthrene	12000.	B
120-12-7	Anthracene	3900.	U
84-74-2	Di-n-butylphthalate	3900.	U
206-44-0	Fluoranthene	18000.	B
129-00-0	Pyrene	18000.	BJ
85-68-7	Butylbenzylphthalate	3900.	U
91-94-1	3,3'-Dichlorobenzidine	7900.	U
56-55-3	Benzo(a)anthracene	5900.	~~U~~ J
218-01-9	Chrysene	8700.	~~U~~ J
117-81-7	bis(2-Ethylhexyl)phthalate	3900.	U
117-84-0	Di-n-octylphthalate	3900.	U
205-99-2	Benzo(b)fluoranthene	9300.	~~U~~ J
207-08-9	Benzo(k)fluoranthene	3900.	U
50-32-8	Benzo(a)pyrene	8500.	~~U~~ J
193-39-5	Indeno(1,2,3-cd)pyrene	8800.	~~U~~ J
53-70-3	Dibenz(a,h)anthracene	2600.	J
191-24-2	Benzo(g,h,i)perylene	7300.	~~U~~ J

(1) - Cannot be separated from diphenylamine

FORM I SV-2 1/87 Rev.

recycled paper

ecology and environment

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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG202DL

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73367

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 15. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/24/88

GPC Cleanup: (Y/N) Y pH: 8.0 Dilution Factor: .10

Number TICs found: 7

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN	8.46	30000.	J
2.	110-12-3	2-Hexanone, 5-methyl- (8CI9C	8.97	4000.	BJ
3.	243-17-4	11H-Benzo[b]fluorene (8CI9CI	38.40	4000.	J
4.	- -	UNKNOWN	40.68	4000.	J
5.	- -	UNKNOWN	42.24	5000.	J
6.	50-32-8	Benzo[a]pyrene (8CI9CI)	45.95	10000.	J
7.	205-82-3	Benzo[j]fluoranthene (8CI9CI	46.79	4000.	J
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FORM I SV-TIC 1/87 Rev.

154-00204 400111

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG204RE

ab Name: ESECO Contract: 68-W8-0054

ab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

ample wt/vol: 5. (g/mL) G Lab File ID: 54275

evel: (low/med) LOW Date Received: 6/14/88

Moisture: not dec. 22. Date Analyzed: 6/22/88

olumn: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	13.	U
74-83-9	Bromomethane	13.	U
75-01-4	Vinyl Chloride	13.	U
75-00-3	Chloroethane	13.	U
75-09-2	Methylene Chloride	6.	U
67-64-1	Acetone	13.	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	13.	U
71-55-6	1,1,1-Trichloroethane	6.	U
56-23-5	Carbon Tetrachloride	6.	U
108-05-4	Vinyl Acetate	13.	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	13.	U
591-78-6	2-Hexanone	13.	U
127-18-4	Tetrachloroethene	6.	U
79-34-5	1,1,2,2-Tetrachloroethane	6.	U
108-88-3	Toluene	21.	
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

recycled paper
ecology and environment

ARCF00003301
ED_002345B_00005435-00227

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG204

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: ~~HG210~~ HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73356

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 22. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/23/88

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	410.	U
111-44-4	bis(2-Chloroethyl)ether	410.	U
95-57-8	2-Chlorophenol	410.	U
541-73-1	1,3-Dichlorobenzene	410.	U
106-46-7	1,4-Dichlorobenzene	410.	U
100-51-6	Benzyl alcohol	410.	U
95-50-1	1,2-Dichlorobenzene	410.	U
95-48-7	2-Methylphenol	410.	U
108-60-1	bis(2-Chloroisopropyl)ether	410.	U
106-44-5	4-Methylphenol	410.	U
621-64-7	N-Nitroso-di-n-propylamine	410.	U
67-72-1	Hexachloroethane	410.	U
98-95-3	Nitrobenzene	410.	U
78-59-1	Isophorone	410.	U
88-75-5	2-Nitrophenol	410.	U
105-67-9	2,4-Dimethylphenol	410.	U
65-85-0	Benzoic acid	2100.	U
111-91-1	bis(2-Chloroethoxy)methane	410.	U
120-83-2	2,4-Dichlorophenol	410.	U
120-82-1	1,2,4-Trichlorobenzene	410.	U
91-20-3	Naphthalene	410.	U
106-47-8	4-Chloroaniline	410.	U
87-68-3	Hexachlorobutadiene	410.	U
59-50-7	4-Chloro-3-methylphenol	410.	U
91-57-6	2-Methylnaphthalene	410.	U
77-47-4	Hexachlorocyclopentadiene	410.	U
88-06-2	2,4,6-Trichlorophenol	410.	U
95-95-4	2,4,5-Trichlorophenol	2100.	U
91-58-7	2-Chloronaphthalene	410.	U
88-74-4	2-Nitroaniline	2100.	U
131-11-3	Dimethylphthalate	410.	U
208-96-8	Acenaphthylene	410.	U
606-20-2	2,6-Dinitrotoluene	410.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG204

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: ~~HG210~~ HG201 7/8/88

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73356

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 22. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/23/88

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	2100.	U
83-32-9	Acenaphthene	16.	J
51-28-5	2,4-Dinitrophenol	2100.	U
100-02-7	4-Nitrophenol	2100.	U
132-64-9	Dibenzofuran	410.	U
121-14-2	2,4-Dinitrotoluene	410.	U
84-66-2	Diethylphthalate	410.	U
7005-72-3	4-Chlorophenyl-phenylether	410.	U
86-73-7	Fluorene	410.	U
100-01-6	4-Nitroaniline	2100.	U
534-52-1	4,6-Dinitro-2-methylphenol	410.	U
86-30-6	N-Nitrosodiphenylamine	2100.	U
101-55-3	4-Bromophenyl-phenylether	410.	U
118-74-1	Hexachlorobenzene	410.	U
87-86-5	Pentachlorophenol	2100.	U
85-01-8	Phenanthrene	170.	BJ
120-12-7	Anthracene	410.	U
84-74-2	Di-n-butylphthalate	410.	U
206-44-0	Fluoranthene	340.	BJ
129-00-0	Pyrene	300.	BJ
85-68-7	Butylbenzylphthalate	410.	U
91-94-1	3,3'-Dichlorobenzidine	830.	U
56-55-3	Benzo(a)anthracene	410.	U
218-01-9	Chrysene	190.	J
117-81-7	bis(2-Ethylhexyl)phthalate	110.	J
117-84-0	Di-n-octylphthalate	410.	U
205-99-2	Benzo(b)fluoranthene	410.	J
207-08-9	Benzo(k)fluoranthene	410.	U
50-32-8	Benzo(a)pyrene	110.	J
193-39-5	Indeno(1,2,3-cd)pyrene	200.	J
53-70-3	Dibenz(a,h)anthracene	410.	U
191-24-2	Benzo(g,h,i)perylene	170.	J

(1) - Cannot be separated from diphenylamine

recycled paper
ecology and environment

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG204

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: ~~HG210~~ HG201 TLW 7/8

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73356

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 22. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/23/88

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 1.00

Number TICs found: 5

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN	7.53	500.	J
2.	- -	UNKNOWN	8.73	20000.	J
3.	110-12-3	2-Hexanone, 5-methyl- (8CI9C	9.07	4000.	BJ
4.	17831-71-9	2-Propenoic acid, oxybis(2,1	34.88	2000.	BJ
5.	123-79-5	Hexanedioic acid, dioctyl es	40.89	400.	BJ
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG206

ab Name: ESECO Contract: 68-W8-0054

ab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

ample wt/vol: 5. (g/mL) G Lab File ID: 54256

evel: (low/med) LOW Date Received: 6/15/88

Moisture: not dec. 13. Date Analyzed: 6/21/88

olumn: (pack/cap) CAP Dilution Factor: 1.00

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

CAS NO.	COMPOUND		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

FORM I VOA

recycled paper
recycled paper
recycled paper

ecology and environment
ecology and environment
ecology and environment

ARCF00003305
ED_002345B_00005435-00231

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG206

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73357

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 13. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/23/88

GPC Cleanup: (Y/N) Y pH: 8.4 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	380.	U
111-44-4	bis(2-Chloroethyl)ether	380.	U
95-57-8	2-Chlorophenol	380.	U
541-73-1	1,3-Dichlorobenzene	380.	U
106-46-7	1,4-Dichlorobenzene	380.	U
100-51-6	Benzyl alcohol	380.	U
95-50-1	1,2-Dichlorobenzene	380.	U
95-48-7	2-Methylphenol	380.	U
108-60-1	bis(2-Chloroisopropyl)ether	380.	U
106-44-5	4-Methylphenol	380.	U
621-64-7	N-Nitroso-di-n-propylamine	380.	U
67-72-1	Hexachloroethane	380.	U
98-95-3	Nitrobenzene	380.	U
78-59-1	Isophorone	380.	U
88-75-5	2-Nitrophenol	380.	U
105-67-9	2,4-Dimethylphenol	380.	U
65-85-0	Benzoic acid	1900.	U
111-91-1	bis(2-Chloroethoxy)methane	380.	U
120-83-2	2,4-Dichlorophenol	380.	U
120-82-1	1,2,4-Trichlorobenzene	380.	U
91-20-3	Naphthalene	380.	U
106-47-8	4-Chloroaniline	380.	U
87-68-3	Hexachlorobutadiene	380.	U
59-50-7	4-Chloro-3-methylphenol	380.	U
91-57-6	2-Methylnaphthalene	380.	U
77-47-4	Hexachlorocyclopentadiene	380.	U
88-06-2	2,4,6-Trichlorophenol	380.	U
95-95-4	2,4,5-Trichlorophenol	1900.	U
91-58-7	2-Chloronaphthalene	380.	U
88-74-4	2-Nitroaniline	1900.	U
131-11-3	Dimethylphthalate	380.	U
208-96-8	Acenaphthylene	380.	U
606-20-2	2,6-Dinitrotoluene	380.	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG206

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73357

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 13. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/23/88

GPC Cleanup: (Y/N) Y pH: 8.4 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1900.	U
83-32-9	Acenaphthene	20.	J
51-28-5	2,4-Dinitrophenol	1900.	U
100-02-7	4-Nitrophenol	1900.	U
132-64-9	Dibenzofuran	380.	U
121-14-2	2,4-Dinitrotoluene	380.	U
84-66-2	Diethylphthalate	380.	U
7005-72-3	4-Chlorophenyl-phenylether	380.	U
86-73-7	Fluorene	380.	U
100-01-6	4-Nitroaniline	1900.	U
534-52-1	4,6-Dinitro-2-methylphenol	380.	U
86-30-6	N-Nitrosodiphenylamine	1900.	U
101-55-3	4-Bromophenyl-phenylether	380.	U
118-74-1	Hexachlorobenzene	380.	U
87-86-5	Pentachlorophenol	1900.	U
85-01-8	Phenanthrene	150.	BJ
120-12-7	Anthracene	380.	U
84-74-2	Di-n-butylphthalate	380.	U
206-44-0	Fluoranthene	310.	BJ
129-00-0	Pyrene	310.	BJ
85-68-7	Butylbenzylphthalate	380.	U
91-94-1	3,3'-Dichlorobenzidine	750.	U
56-55-3	Benzo(a)anthracene	380.	U
218-01-9	Chrysene	250.	J
117-81-7	bis(2-Ethylhexyl)phthalate	79.	J
117-84-0	Di-n-octylphthalate	380.	U
205-99-2	Benzo(b)fluoranthene	250.	J
207-08-9	Benzo(k)fluoranthene	380.	U
50-32-8	Benzo(a)pyrene	170.	J
193-39-5	Indeno(1,2,3-cd)pyrene	210.	J
53-70-3	Dibenz(a,h)anthracene	380.	U
191-24-2	Benzo(g,h,i)perylene	190.	J

(1) - Cannot be separated from diphenylamine

recycled paper
ecology and environment
400139
ARCF00003307
ED_002345B_00005435-00233

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG206

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73357

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 13. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/23/88

GPC Cleanup: (Y/N) Y pH: 8.4 Dilution Factor: 1.00

Number TICs found: 6

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN	7.48	500.	J
2.	- -	UNKNOWN	8.68	20000.	J
3.	110-12-3	2-Hexanone, 5-methyl- (8CI9C	9.04	3000.	BJ
4.	17831-71-9	2-Propenoic acid, oxybis(2,1	34.91	3000.	BJ
5.	2435-85-0	Pyrene, hexadecahydro- (8CI9	54.87	500.	J
6.	- -	UNKNOWN	57.29	500.	J
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FORM I SV-TIC 1/87 Rev.

154-00208 400193

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG208

ab Name: ESECO Contract: 68-W8-0054

ab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

mple wt/vol: 5. (g/mL) G Lab File ID: 54264

vel: (low/med) LOW Date Received: 6/15/88

Moisture: not dec. 41. Date Analyzed: 6/21/88

lumn: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	17.	U
74-83-9	Bromomethane	17.	U
75-01-4	Vinyl Chloride	17.	U
75-00-3	Chloroethane	17.	U
75-09-2	Methylene Chloride	9.	U
67-64-1	Acetone	17.	U
75-15-0	Carbon Disulfide	9.	U
75-35-4	1,1-Dichloroethene	9.	U
75-34-3	1,1-Dichloroethane	9.	U
540-59-0	1,2-Dichloroethene (total)	9.	U
67-66-3	Chloroform	9.	U
107-06-2	1,2-Dichloroethane	9.	U
78-93-3	2-Butanone	17.	U
71-55-6	1,1,1-Trichloroethane	9.	U
56-23-5	Carbon Tetrachloride	9.	U
108-05-4	Vinyl Acetate	17.	U
75-27-4	Bromodichloromethane	9.	U
78-87-5	1,2-Dichloropropane	9.	U
10061-01-5	cis-1,3-Dichloropropene	9.	U
79-01-6	Trichloroethene	9.	U
124-48-1	Dibromochloromethane	9.	U
79-00-5	1,1,2-Trichloroethane	9.	U
71-43-2	Benzene	9.	U
10061-02-6	trans-1,3-Dichloropropene	9.	U
75-25-2	Bromoform	9.	U
108-10-1	4-Methyl-2-Pentanone	17.	U
591-78-6	2-Hexanone	17.	U
127-18-4	Tetrachloroethene	9.	U
79-34-5	1,1,2,2-Tetrachloroethane	9.	U
108-88-3	Toluene	21.	
108-90-7	Chlorobenzene	9.	U
100-41-4	Ethylbenzene	9.	U
100-42-5	Styrene	9.	U
1330-20-7	Xylene (total)	9.	U

FORM I VOA

recycled paper
ecology and environment
1/87 Rev.
300066
ARCF00003309
ED_002345B_00005435-00235

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG208

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73358

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 41. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/23/88

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	550.	U
111-44-4	bis(2-Chloroethyl)ether	550.	U
95-57-8	2-Chlorophenol	550.	U
541-73-1	1,3-Dichlorobenzene	550.	U
106-46-7	1,4-Dichlorobenzene	550.	U
100-51-6	Benzyl alcohol	550.	U
95-50-1	1,2-Dichlorobenzene	550.	U
95-48-7	2-Methylphenol	550.	U
108-60-1	bis(2-Chloroisopropyl)ether	550.	U
106-44-5	4-Methylphenol	170.	J
621-64-7	N-Nitroso-di-n-propylamine	550.	U
67-72-1	Hexachloroethane	550.	U
98-95-3	Nitrobenzene	550.	U
78-59-1	Isophorone	550.	U
88-75-5	2-Nitrophenol	550.	U
105-67-9	2,4-Dimethylphenol	550.	U
65-85-0	Benzoic acid	670.	J
111-91-1	bis(2-Chloroethoxy)methane	550.	U
120-83-2	2,4-Dichlorophenol	550.	U
120-82-1	1,2,4-Trichlorobenzene	550.	U
91-20-3	Naphthalene	550.	U
106-47-8	4-Chloroaniline	550.	U
87-68-3	Hexachlorobutadiene	550.	U
59-50-7	4-Chloro-3-methylphenol	550.	U
91-57-6	2-Methylnaphthalene	550.	U
77-47-4	Hexachlorocyclopentadiene	550.	U
88-06-2	2,4,6-Trichlorophenol	550.	U
95-95-4	2,4,5-Trichlorophenol	2700.	U
91-58-7	2-Chloronaphthalene	550.	U
88-74-4	2-Nitroaniline	2700.	U
131-11-3	Dimethylphthalate	550.	U
208-96-8	Acenaphthylene	550.	U
606-20-2	2,6-Dinitrotoluene	550.	U

FORM I SV-1

1/87 Rev.

154-00209 400223

ARCF00003310

ED_002345B_00005435-00236

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG208

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73358

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 41. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/23/88

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	2700.	U
83-32-9	Acenaphthene	550.	U
51-28-5	2,4-Dinitrophenol	2700.	U
100-02-7	4-Nitrophenol	2700.	U
132-64-9	Dibenzofuran	550.	U
121-14-2	2,4-Dinitrotoluene	550.	U
84-66-2	Diethylphthalate	550.	U
7005-72-3	4-Chlorophenyl-phenylether	550.	U
86-73-7	Fluorene	550.	U
100-01-6	4-Nitroaniline	2700.	U
534-52-1	4,6-Dinitro-2-methylphenol	550.	U
86-30-6	N-Nitrosodiphenylamine	2700.	U
101-55-3	4-Bromophenyl-phenylether	550.	U
118-74-1	Hexachlorobenzene	550.	U
87-86-5	Pentachlorophenol	2700.	U
85-01-8	Phenanthrene	140.	BJ
120-12-7	Anthracene	550.	U
84-74-2	Di-n-butylphthalate	550.	U
206-44-0	Fluoranthene	390.	BJ
129-00-0	Pyrene	310.	BJ
85-68-7	Butylbenzylphthalate	550.	U
91-94-1	3,3'-Dichlorobenzidine	1100.	U
56-55-3	Benzo(a)anthracene	180.	J
218-01-9	Chrysene	540.	J
117-81-7	bis(2-Ethylhexyl)phthalate	99.	J
117-84-0	Di-n-octylphthalate	550.	U
205-99-2	Benzo(b)fluoranthene	580.	J
207-08-9	Benzo(k)fluoranthene	550.	U
50-32-8	Benzo(a)pyrene	220.	J
193-39-5	Indeno(1,2,3-cd)pyrene	320.	J
53-70-3	Dibenz(a,h)anthracene	74.	J
191-24-2	Benzo(g,h,i)perylene	270.	J

(1) - Cannot be separated from diphenylamine

FORM I SV-2 1/87 Rev.

recycled paper
ecology and environment

400224

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG208

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73358

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 41. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/23/88

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 1.00

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN	8.69	40000.	J
2.	110-12-3	2-Hexanone, 5-methyl- (8CI9C	9.06	5000.	BJ
3.	74753-00-7	1,4-Hexadiene, 3,3,5-trimeth	23.75	2000.	J
4.	- -	UNKNOWN	25.95	2000.	J
5.	- -	UNKNOWN	26.19	6000.	J
6.	- -	UNKNOWN	26.88	2000.	J
7.	142-50-7	1,6,10-Dodecatrien-3-ol, 3,7	27.17	5000.	J
8.	- -	UNKNOWN	27.37	1000.	J
9.	120-51-4	Benzoic acid, phenylmethyl e	31.03	5000.	J
10.	57-10-3	Hexadecanoic acid (9CI)	34.35	2000.	J
11.	17831-71-9	2-Propenoic acid, oxybis(2,1	34.92	8000.	BJ
12.	10544-50-0	Sulfur, mol. (S8) (8CI9CI)	35.67	2000.	J
13.	74764-11-7	Iron, tricarbonyl[N-(phenyl-	39.51	3000.	J
14.	18956-15-5	2-Propen-1-one, 1-(2,6-dihyd	41.02	5000.	J
15.	- -	UNKNOWN	41.14	2000.	J
16.	7225-64-1	Heptadecane, 9-octyl- (8CI9C	42.24	5000.	J
17.	66929-90-6	Tricyclo[3.2.1.02,4]oct-6-en	44.27	3000.	J
18.	630-07-9	Pentatriacontane (8CI9CI)	44.78	3000.	J
19.	- -	UNKNOWN	54.94	2000.	J
20.	- -	UNKNOWN	56.75	1000.	J
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG210

ab Name: ESECO Contract: 68-W8-0054

ab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

ample wt/vol: 5. (g/mL) G Lab File ID: 54265

evel: (low/med) LOW Date Received: 6/15/88

Moisture: not dec. 28. Date Analyzed: 6/21/88

olumn: (pack/cap) CAP Dilution Factor: 1.00

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

recycled paper
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ecology and environment
ecology and environment
1/87 Rev.
300074
ARCF00003313
ED_002345B_00005435-00239

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG210

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73359

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 28. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/23/88

GPC Cleanup: (Y/N) Y pH: 7.2 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	450.	U
111-44-4	bis(2-Chloroethyl)ether	450.	U
95-57-8	2-Chlorophenol	450.	U
541-73-1	1,3-Dichlorobenzene	450.	U
106-46-7	1,4-Dichlorobenzene	450.	U
100-51-6	Benzyl alcohol	450.	U
95-50-1	1,2-Dichlorobenzene	450.	U
95-48-7	2-Methylphenol	450.	U
108-60-1	bis(2-Chloroisopropyl)ether	450.	U
106-44-5	4-Methylphenol	450.	U
621-64-7	N-Nitroso-di-n-propylamine	450.	U
67-72-1	Hexachloroethane	450.	U
98-95-3	Nitrobenzene	450.	U
78-59-1	Isophorone	450.	U
88-75-5	2-Nitrophenol	450.	U
105-67-9	2,4-Dimethylphenol	450.	U
65-85-0	Benzoic acid	2300.	U
111-91-1	bis(2-Chloroethoxy)methane	450.	U
120-83-2	2,4-Dichlorophenol	450.	U
120-82-1	1,2,4-Trichlorobenzene	450.	U
91-20-3	Naphthalene	450.	U
106-47-8	4-Chloroaniline	450.	U
87-68-3	Hexachlorobutadiene	450.	U
59-50-7	4-Chloro-3-methylphenol	450.	U
91-57-6	2-Methylnaphthalene	450.	U
77-47-4	Hexachlorocyclopentadiene	450.	U
88-06-2	2,4,6-Trichlorophenol	450.	U
95-95-4	2,4,5-Trichlorophenol	2300.	U
91-58-7	2-Chloronaphthalene	450.	U
88-74-4	2-Nitroaniline	2300.	U
131-11-3	Dimethylphthalate	450.	U
208-96-8	Acenaphthylene	450.	U
606-20-2	2,6-Dinitrotoluene	450.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG210

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73359

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 28. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/23/88

GPC Cleanup: (Y/N) Y pH: 7.2 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	2300.	U
83-32-9	Acenaphthene	450.	U
51-28-5	2,4-Dinitrophenol	2300.	U
100-02-7	4-Nitrophenol	2300.	U
132-64-9	Dibenzofuran	450.	U
121-14-2	2,4-Dinitrotoluene	450.	U
84-66-2	Diethylphthalate	450.	U
7005-72-3	4-Chlorophenyl-phenylether	450.	U
86-73-7	Fluorene	450.	U
100-01-6	4-Nitroaniline	2300.	U
534-52-1	4,6-Dinitro-2-methylphenol	450.	U
86-30-6	N-Nitrosodiphenylamine	2300.	U
101-55-3	4-Bromophenyl-phenylether	450.	U
118-74-1	Hexachlorobenzene	450.	U
87-86-5	Pentachlorophenol	2300.	U
85-01-8	Phenanthrene	33.	BJ
120-12-7	Anthracene	450.	U
84-74-2	Di-n-butylphthalate	450.	U
206-44-0	Fluoranthene	54.	BJ
129-00-0	Pyrene	41.	BJ
85-68-7	Butylbenzylphthalate	450.	U
91-94-1	3,3'-Dichlorobenzidine	900.	U
56-55-3	Benzo(a)anthracene	450.	U
218-01-9	Chrysene	450.	U
117-81-7	bis(2-Ethylhexyl)phthalate	95.	J
117-84-0	Di-n-octylphthalate	450.	U
205-99-2	Benzo(b)fluoranthene	41.	J
207-08-9	Benzo(k)fluoranthene	450.	U
50-32-8	Benzo(a)pyrene	450.	U
193-39-5	Indeno(1,2,3-cd)pyrene	450.	U
53-70-3	Dibenz(a,h)anthracene	450.	U
191-24-2	Benzo(g,h,i)perylene	450.	U

(1) - Cannot be separated from diphenylamine

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ecology and environment
400274
ARCF00003315
ED_002345B_00005435-00241

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG210

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73359

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 28. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/23/88

GPC Cleanup: (Y/N) Y pH: 7.2 Dilution Factor: 1.00

Number TICs found: 8

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. - -	UNKNOWN	7.51	1000.	J
2. - -	UNKNOWN	7.87	300.	J
3. - -	UNKNOWN	8.71	30000.	J
4. 110-12-3	2-Hexanone, 5-methyl- (8CI9C	9.07	4000.	BJ
5. 17831-71-9	2-Propenoic acid, oxybis(2,1	34.92	3000.	BJ
6. - -	UNKNOWN	39.25	2000.	J
7. 74764-11-7	Iron, tricarbonyl[N-(phenyl-	44.77	600.	J
8. - -	UNKNOWN	54.92	2000.	J
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FORM I SV-TIC 1/87 Rev.

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VOLATILE OR

DATA SHEET

EPA SAMPLE NO.

HG212

:SECO

tract: 68-W8-0054

:SECO Case .5

G No.: SDG No.: HG201

il/water) SOIL

Lab Sample ID:

ol: 5.

Lab File ID: 54267

ow/med) LOW

Date Received: 6/15/88

not dec. 10.

Date Analyzed: 6/21/88

ck/cap CAP

Dilution Factor: 1.00

ONCENTRATION UNITS:
ug/L or ug/Kg) UG/KG

NO.	CO				Q
87-3-------Ch				11.	U
-83-9-------Br				11.	U
-01-4-------Vir				11.	U
-00-3-------Ch				11.	U
-09-2-------Met				2.	J
-64-1-------Ace				11.	U
-15-0-------Car				6.	U
-35-4-------1,				6.	U
-34-3-------1,				6.	U
-59-0-------1,2			(total)	6.	U
-66-3-------Chl				6.	U
-06-2-------1,2				6.	U
-93-3-------2-B				11.	U
-55-6-------1,			ane	6.	U
-23-5-------Car			de	6.	U
-05-4-------Vin				11.	U
-27-4-------Bro			ne	6.	U
-87-5-------1,2			e	6.	U
-01-5-------cis			opene	6.	U
-01-6-------Tri				6.	U
-48-1-------Dib			ne	6.	U
-00-5-------1,			ane	6.	U
-43-2-------Ben				6.	U
-02-6-------tra			propene	6.	U
-25-2-------Bro				6.	U
10-1-------4-M			ne	11.	U
78-6-------2-H				11.	U
18-4-------Tet				6.	U
-34-5-------1,1			ethane	6.	U
-88-3-------Tol				6.	U
-90-7-------Chl				6.	U
41-4-------Eth				6.	U
-42-5-------Sty				6.	U
-20-7-------Xyl				6.	U

recycled paper

ecology and environment

1/87 Rev.

300081

ARCF00003317

ED_002345B_00005435-00243

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG212

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73360

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 10. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/24/88

GPC Cleanup: (Y/N) Y pH: 8.2 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	360.	U
111-44-4	bis(2-Chloroethyl)ether	360.	U
95-57-8	2-Chlorophenol	360.	U
541-73-1	1,3-Dichlorobenzene	360.	U
106-46-7	1,4-Dichlorobenzene	360.	U
100-51-6	Benzyl alcohol	360.	U
95-50-1	1,2-Dichlorobenzene	360.	U
95-48-7	2-Methylphenol	360.	U
108-60-1	bis(2-Chloroisopropyl)ether	360.	U
106-44-5	4-Methylphenol	360.	U
621-64-7	N-Nitroso-di-n-propylamine	360.	U
67-72-1	Hexachloroethane	360.	U
98-95-3	Nitrobenzene	360.	U
78-59-1	Isophorone	360.	U
88-75-5	2-Nitrophenol	360.	U
105-67-9	2,4-Dimethylphenol	360.	U
65-85-0	Benzoic acid	1800.	U
111-91-1	bis(2-Chloroethoxy)methane	360.	U
120-83-2	2,4-Dichlorophenol	360.	U
120-82-1	1,2,4-Trichlorobenzene	360.	U
91-20-3	Naphthalene	360.	U
106-47-8	4-Chloroaniline	360.	U
87-68-3	Hexachlorobutadiene	360.	U
59-50-7	4-Chloro-3-methylphenol	360.	U
91-57-6	2-Methylnaphthalene	360.	U
77-47-4	Hexachlorocyclopentadiene	360.	U
88-06-2	2,4,6-Trichlorophenol	360.	U
95-95-4	2,4,5-Trichlorophenol	1800.	U
91-58-7	2-Chloronaphthalene	360.	U
88-74-4	2-Nitroaniline	1800.	U
131-11-3	Dimethylphthalate	360.	U
208-96-8	Acenaphthylene	360.	U
606-20-2	2,6-Dinitrotoluene	360.	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG212

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73360

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 10. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/24/88

GPC Cleanup: (Y/N) Y pH: 8.2 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	1800.	U
83-32-9	Acenaphthene	19.	J
51-28-5	2,4-Dinitrophenol	1800.	U
100-02-7	4-Nitrophenol	1800.	U
132-64-9	Dibenzofuran	360.	U
121-14-2	2,4-Dinitrotoluene	360.	U
84-66-2	Diethylphthalate	360.	U
7005-72-3	4-Chlorophenyl-phenylether	360.	U
86-73-7	Fluorene	360.	U
100-01-6	4-Nitroaniline	1800.	U
534-52-1	4,6-Dinitro-2-methylphenol	360.	U
86-30-6	N-Nitrosodiphenylamine	1800.	U
101-55-3	4-Bromophenyl-phenylether	360.	U
118-74-1	Hexachlorobenzene	360.	U
87-86-5	Pentachlorophenol	1800.	U
85-01-8	Phenanthrene	120.	BJ
120-12-7	Anthracene	360.	U
84-74-2	Di-n-butylphthalate	360.	U
206-44-0	Fluoranthene	200.	BJ
129-00-0	Pyrene	230.	BJ
85-68-7	Butylbenzylphthalate	360.	U
91-94-1	3,3'-Dichlorobenzidine	720.	U
56-55-3	Benzo(a)anthracene	360.	U
218-01-9	Chrysene	170.	J
117-81-7	bis(2-Ethylhexyl)phthalate	360.	U
117-84-0	Di-n-octylphthalate	360.	U
205-99-2	Benzo(b)fluoranthene	340.	J
207-08-9	Benzo(k)fluoranthene	360.	U
50-32-8	Benzo(a)pyrene	130.	J
193-39-5	Indeno(1,2,3-cd)pyrene	200.	J
53-70-3	Dibenz(a,h)anthracene	360.	U
191-24-2	Benzo(g,h,i)perylene	180.	J

(1) - Cannot be separated from diphenylamine

recycled paper
ecology and environment
400302
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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG212

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73360

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 10. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/24/88

GPC Cleanup: (Y/N) Y pH: 8.2 Dilution Factor: 1.00

Number TICs found: 4

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN	7.49	500.	J
2.	- -	UNKNOWN	8.71	20000.	J
3.	110-12-3	2-Hexanone, 5-methyl- (8CI9C	9.09	3000.	BJ
4.	17831-71-9	2-Propenoic acid, oxybis(2,1	34.90	2000.	BJ
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VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG213

ıb Name: ESECO Contract: 68-W8-0054

ıb Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

ıtrix: (soil/water) SOIL Lab Sample ID: _____

.mple wt/vol: 5. (g/mL) G Lab File ID: 54266

ıvel: (low/med) LOW Date Received: 6/15/88

Moisture: not dec. 61. Date Analyzed: 6/21/88

lumn: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	26.	U
74-83-9	Bromomethane	26.	U
75-01-4	Vinyl Chloride	26.	U
75-00-3	Chloroethane	26.	U
75-09-2	Methylene Chloride	9.	J
67-64-1	Acetone	26.	U
75-15-0	Carbon Disulfide	13.	U
75-35-4	1,1-Dichloroethene	13.	U
75-34-3	1,1-Dichloroethane	13.	U
540-59-0	1,2-Dichloroethene (total)	13.	U
67-66-3	Chloroform	13.	U
107-06-2	1,2-Dichloroethane	13.	U
78-93-3	2-Butanone	26.	U
71-55-6	1,1,1-Trichloroethane	13.	U
56-23-5	Carbon Tetrachloride	13.	U
108-05-4	Vinyl Acetate	26.	U
75-27-4	Bromodichloromethane	13.	U
78-87-5	1,2-Dichloropropane	13.	U
10061-01-5	cis-1,3-Dichloropropene	13.	U
79-01-6	Trichloroethene	13.	U
124-48-1	Dibromochloromethane	13.	U
79-00-5	1,1,2-Trichloroethane	13.	U
71-43-2	Benzene	13.	U
10061-02-6	trans-1,3-Dichloropropene	13.	U
75-25-2	Bromoform	13.	U
108-10-1	4-Methyl-2-Pentanone	26.	U
591-78-6	2-Hexanone	26.	U
127-18-4	Tetrachloroethene	13.	U
79-34-5	1,1,2,2-Tetrachloroethane	13.	U
108-88-3	Toluene	3.	J
108-90-7	Chlorobenzene	13.	U
100-41-4	Ethylbenzene	13.	U
100-42-5	Styrene	13.	U
1330-20-7	Xylene (total)	13.	U

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ecology and environment

300089

ARCF00003321
ED_002345B_00005435-00247

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG213DL

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73365

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 61. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/24/88

GPC Cleanup: (Y/N) Y pH: 7.4 Dilution Factor: .10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	8600.	U
111-44-4	bis(2-Chloroethyl)ether	8600.	U
95-57-8	2-Chlorophenol	8600.	U
541-73-1	1,3-Dichlorobenzene	8600.	U
106-46-7	1,4-Dichlorobenzene	8600.	U
100-51-6	Benzyl alcohol	8600.	U
95-50-1	1,2-Dichlorobenzene	8600.	U
95-48-7	2-Methylphenol	8600.	U
108-60-1	bis(2-Chloroisopropyl)ether	8600.	U
106-44-5	4-Methylphenol	8600.	U
621-64-7	N-Nitroso-di-n-propylamine	8600.	U
67-72-1	Hexachloroethane	8600.	U
98-95-3	Nitrobenzene	8600.	U
78-59-1	Isophorone	8600.	U
88-75-5	2-Nitrophenol	8600.	U
105-67-9	2,4-Dimethylphenol	8600.	U
65-85-0	Benzoic acid	43000.	U
111-91-1	bis(2-Chloroethoxy)methane	8600.	U
120-83-2	2,4-Dichlorophenol	8600.	U
120-82-1	1,2,4-Trichlorobenzene	8600.	U
91-20-3	Naphthalene	8600.	U
106-47-8	4-Chloroaniline	8600.	U
87-68-3	Hexachlorobutadiene	8600.	U
59-50-7	4-Chloro-3-methylphenol	8600.	U
91-57-6	2-Methylnaphthalene	330.	J
77-47-4	Hexachlorocyclopentadiene	8600.	U
88-06-2	2,4,6-Trichlorophenol	8600.	U
95-95-4	2,4,5-Trichlorophenol	43000.	U
91-58-7	2-Chloronaphthalene	8600.	U
88-74-4	2-Nitroaniline	43000.	U
131-11-3	Dimethylphthalate	8600.	U
208-96-8	Acenaphthylene	8600.	U
606-20-2	2,6-Dinitrotoluene	8600.	U

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG213DL

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73365

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 61. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/24/88

GPC Cleanup: (Y/N) Y pH: 7.4 Dilution Factor: .10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	43000.	U
83-32-9	Acenaphthene	4300.	J
51-28-5	2,4-Dinitrophenol	43000.	U
100-02-7	4-Nitrophenol	43000.	U
132-64-9	Dibenzofuran	1100.	J
121-14-2	2,4-Dinitrotoluene	8600.	U
84-66-2	Diethylphthalate	8600.	U
7005-72-3	4-Chlorophenyl-phenylether	8600.	U
86-73-7	Fluorene	2300.	J
100-01-6	4-Nitroaniline	43000.	U
534-52-1	4,6-Dinitro-2-methylphenol	8600.	U
86-30-6	N-Nitrosodiphenylamine	43000.	U
101-55-3	4-Bromophenyl-phenylether	8600.	U
118-74-1	Hexachlorobenzene	8600.	U
87-86-5	Pentachlorophenol	43000.	U
85-01-8	Phenanthrene	19000.	B
120-12-7	Anthracene	4300.	J
84-74-2	Di-n-butylphthalate	8600.	U
206-44-0	Fluoranthene	21000.	B
129-00-0	Pyrene	23000.	BJ
85-68-7	Butylbenzylphthalate	8600.	U
91-94-1	3,3'-Dichlorobenzidine	17000.	U
56-55-3	Benzo(a)anthracene	11000.	~~B~~ J
218-01-9	Chrysene	14000.	~~B~~ J
117-81-7	bis(2-Ethylhexyl)phthalate	8600.	U
117-84-0	Di-n-octylphthalate	8600.	U
205-99-2	Benzo(b)fluoranthene	8600.	U
207-08-9	Benzo(k)fluoranthene	32000.	~~B~~ J
50-32-8	Benzo(a)pyrene	18000.	~~B~~ J
193-39-5	Indeno(1,2,3-cd)pyrene	13000.	~~B~~ J
53-70-3	Dibenz(a,h)anthracene	4000.	J
191-24-2	Benzo(g,h,i)perylene	10000.	~~B~~ J

(1) - Cannot be separated from diphenylamine

FORM I SV-2 1/87 Rev.

recycled paper
ecology and environment

ARCF00003323
ED_002345B_00005435-00249

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG213DL

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73365

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 61. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/24/88

GPC Cleanup: (Y/N) Y pH: 7.4 Dilution Factor: .10

Number TICs found: 3

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN	8.48	60000.	J
2.	110-12-3	2-Hexanone, 5-methyl- (8CI9C	9.01	9000.	BJ
3.	205-82-3	Benzo[j]fluoranthene (8CI9CI	46.87	10000.	J
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FORM I SV-TIC 1/87 Rev.

154-00216 4003

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG215

ıb Name: ESECO Contract: 68-W8-0054

.b Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

mple wt/vol: 5. (g/mL) G Lab File ID: 54269

vel: (low/med) LOW Date Received: 6/15/88

Moisture: not dec. 58. Date Analyzed: 6/22/88

lumn: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	24.	U
74-83-9	Bromomethane	24.	U
75-01-4	Vinyl Chloride	24.	U
75-00-3	Chloroethane	24.	U
75-09-2	Methylene Chloride	12.	U
67-64-1	Acetone	24.	U
75-15-0	Carbon Disulfide	12.	U
75-35-4	1,1-Dichloroethene	12.	U
75-34-3	1,1-Dichloroethane	12.	U
540-59-0	1,2-Dichloroethene (total)	12.	U
67-66-3	Chloroform	12.	U
107-06-2	1,2-Dichloroethane	12.	U
78-93-3	2-Butanone	24.	U
71-55-6	1,1,1-Trichloroethane	12.	U
56-23-5	Carbon Tetrachloride	12.	U
108-05-4	Vinyl Acetate	24.	U
75-27-4	Bromodichloromethane	12.	U
78-87-5	1,2-Dichloropropane	12.	U
10061-01-5	cis-1,3-Dichloropropene	12.	U
79-01-6	Trichloroethene	12.	U
124-48-1	Dibromochloromethane	12.	U
79-00-5	1,1,2-Trichloroethane	12.	U
71-43-2	Benzene	12.	U
10061-02-6	trans-1,3-Dichloropropene	12.	U
75-25-2	Bromoform	12.	U
108-10-1	4-Methyl-2-Pentanone	24.	U
591-78-6	2-Hexanone	24.	U
127-18-4	Tetrachloroethene	12.	U
79-34-5	1,1,2,2-Tetrachloroethane	12.	U
108-88-3	Toluene	3.	J
108-90-7	Chlorobenzene	12.	U
100-41-4	Ethylbenzene	12.	U
100-42-5	Styrene	12.	U
1330-20-7	Xylene (total)	12.	U

recycled paper
ecology and environment

300098

ARCF00003325
ED_002345B_00005435-00251

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG215

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73361

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 58. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/24/88

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	780.	U
111-44-4	bis(2-Chloroethyl)ether	780.	U
95-57-8	2-Chlorophenol	780.	U
541-73-1	1,3-Dichlorobenzene	780.	U
106-46-7	1,4-Dichlorobenzene	780.	U
100-51-6	Benzyl alcohol	780.	U
95-50-1	1,2-Dichlorobenzene	780.	U
95-48-7	2-Methylphenol	780.	U
108-60-1	bis(2-Chloroisopropyl)ether	780.	U
106-44-5	4-Methylphenol	780.	U
621-64-7	N-Nitroso-di-n-propylamine	780.	U
67-72-1	Hexachloroethane	780.	U
98-95-3	Nitrobenzene	780.	U
78-59-1	Isophorone	780.	U
88-75-5	2-Nitrophenol	780.	U
105-67-9	2,4-Dimethylphenol	780.	U
65-85-0	Benzoic acid	3900.	U
111-91-1	bis(2-Chloroethoxy)methane	780.	U
120-83-2	2,4-Dichlorophenol	780.	U
120-82-1	1,2,4-Trichlorobenzene	780.	U
91-20-3	Naphthalene	780.	U
106-47-8	4-Chloroaniline	780.	U
87-68-3	Hexachlorobutadiene	780.	U
59-50-7	4-Chloro-3-methylphenol	780.	U
91-57-6	2-Methylnaphthalene	28.	J
77-47-4	Hexachlorocyclopentadiene	780.	U
88-06-2	2,4,6-Trichlorophenol	780.	U
95-95-4	2,4,5-Trichlorophenol	3900.	U
91-58-7	2-Chloronaphthalene	780.	U
88-74-4	2-Nitroaniline	3900.	U
131-11-3	Dimethylphthalate	780.	U
208-96-8	Acenaphthylene	780.	U
606-20-2	2,6-Dinitrotoluene	780.	U

FORM I SV-1 1/87 Rev.

154-00217 400362

1C
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG215

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73361

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 58. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/24/88

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	3900.	U
83-32-9	Acenaphthene	170.	J
51-28-5	2,4-Dinitrophenol	3900.	U
100-02-7	4-Nitrophenol	3900.	U
132-64-9	Dibenzofuran	55.	J
121-14-2	2,4-Dinitrotoluene	780.	U
84-66-2	Diethylphthalate	780.	U
7005-72-3	4-Chlorophenyl-phenylether	780.	U
86-73-7	Fluorene	110.	J
100-01-6	4-Nitroaniline	3900.	U
534-52-1	4,6-Dinitro-2-methylphenol	780.	U
86-30-6	N-Nitrosodiphenylamine	3900.	U
101-55-3	4-Bromophenyl-phenylether	780.	U
118-74-1	Hexachlorobenzene	780.	U
87-86-5	Pentachlorophenol	3900.	U
85-01-8	Phenanthrene	950.	B
120-12-7	Anthracene	170.	J
84-74-2	Di-n-butylphthalate	780.	U
206-44-0	Fluoranthene	1400.	B
129-00-0	Pyrene	1300.	BJ
85-68-7	Butylbenzylphthalate	780.	U
91-94-1	3,3'-Dichlorobenzidine	1600.	U
56-55-3	Benzo(a)anthracene	780.	U
218-01-9	Chrysene	870.	
117-81-7	bis(2-Ethylhexyl)phthalate	180.	J
117-84-0	Di-n-octylphthalate	780.	U
205-99-2	Benzo(b)fluoranthene	990.	
207-08-9	Benzo(k)fluoranthene	780.	U
50-32-8	Benzo(a)pyrene	690.	J
193-39-5	Indeno(1,2,3-cd)pyrene	840.	J
53-70-3	Dibenz(a,h)anthracene	210.	J
191-24-2	Benzo(g,h,i)perylene	710.	J

(1) - Cannot be separated from diphenylamine

FORM I SV-2 1/87 Rev.

recycled paper
ecology and environment

400363

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG215

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73361

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 58. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/24/88

GPC Cleanup: (Y/N) Y pH: 6.9 Dilution Factor: 1.00

Number TICs found: 20

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN	7.45	5000.	J
2.	- -	UNKNOWN	8.59	20000.	J
3.	- -	UNKNOWN	8.71	30000.	J
4.	110-12-3	2-Hexanone, 5-methyl- (8CI9C	9.08	8000.	BJ
5.	2091-29-4	9-Hexadecenoic acid (8CI9CI)	34.01	2000.	J
6.	57-10-3	Hexadecanoic acid (9CI)	34.34	3000.	J
7.	17831-71-9	2-Propenoic acid, oxybis(2,1	34.91	5000.	BJ
8.	17351-34-7	14-Pentadecenoic acid (8CI9C	37.21	2000.	J
9.	544-76-3	Hexadecane (8CI9CI)	42.25	2000.	BJ
10.	19047-85-9	Phosphonic acid, dioctadecyl	43.18	3000.	J
11.	7098-22-8	Tetratetracontane (8CI9CI)	44.79	4000.	J
12.	19047-85-9	Phosphonic acid, dioctadecyl	45.78	1000.	J
13.	56554-93-9	15-Octadecenal (9CI)	46.46	900.	J
14.	26762-44-7	Octadecanol (8CI9CI)	48.21	1000.	J
15.	7098-22-8	Tetratetracontane (8CI9CI)	49.59	800.	J
16.	- -	UNKNOWN	53.86	4000.	J
17.	- -	UNKNOWN	53.98	3000.	J
18.	- -	UNKNOWN	54.13	2000.	J
19.	- -	UNKNOWN	55.09	40000.	J
20.	- -	UNKNOWN	56.57	4000.	J
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG217RE

ab Name: ESECO Contract: 68-W8-0054

ab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

ample wt/vol: 5. (g/mL) G Lab File ID: 54277

evel: (low/med) LOW Date Received: 6/15/88

Moisture: not dec. 31. Date Analyzed: 6/22/88

olumn: (pack/cap) CAP Dilution Factor: 1.00

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

recycled paper
ecology and environment
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ARCF00003329
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1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG217DL

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73369

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 31. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/24/88

GPC Cleanup: (Y/N) Y pH: 7.6 Dilution Factor: .04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	12000.	U
111-44-4	bis(2-Chloroethyl)ether	12000.	U
95-57-8	2-Chlorophenol	12000.	U
541-73-1	1,3-Dichlorobenzene	12000.	U
106-46-7	1,4-Dichlorobenzene	12000.	U
100-51-6	Benzyl alcohol	12000.	U
95-50-1	1,2-Dichlorobenzene	12000.	U
95-48-7	2-Methylphenol	12000.	U
108-60-1	bis(2-Chloroisopropyl)ether	12000.	U
106-44-5	4-Methylphenol	12000.	U
621-64-7	N-Nitroso-di-n-propylamine	12000.	U
67-72-1	Hexachloroethane	12000.	U
98-95-3	Nitrobenzene	12000.	U
78-59-1	Isophorone	12000.	U
88-75-5	2-Nitrophenol	12000.	U
105-67-9	2,4-Dimethylphenol	12000.	U
65-85-0	Benzoic acid	60000.	U
111-91-1	bis(2-Chloroethoxy)methane	12000.	U
120-83-2	2,4-Dichlorophenol	12000.	U
120-82-1	1,2,4-Trichlorobenzene	12000.	U
91-20-3	Naphthalene	160000.	ØJ
106-47-8	4-Chloroaniline	12000.	U
87-68-3	Hexachlorobutadiene	12000.	U
59-50-7	4-Chloro-3-methylphenol	12000.	U
91-57-6	2-Methylnaphthalene	86000.	ØJ
77-47-4	Hexachlorocyclopentadiene	12000.	U
88-06-2	2,4,6-Trichlorophenol	12000.	U
95-95-4	2,4,5-Trichlorophenol	60000.	U
91-58-7	2-Chloronaphthalene	12000.	U
88-74-4	2-Nitroaniline	60000.	U
131-11-3	Dimethylphthalate	12000.	U
208-96-8	Acenaphthylene	960.	J
606-20-2	2,6-Dinitrotoluene	12000.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG217DL

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73369

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 31. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/24/88

GPC Cleanup: (Y/N) Y pH: 7.6 Dilution Factor: .04

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	60000.	U
83-32-9	Acenaphthene	410000.	~~E~~ J
51-28-5	2,4-Dinitrophenol	60000.	U
100-02-7	4-Nitrophenol	60000.	U
132-64-9	Dibenzofuran	170000.	~~B~~ J
121-14-2	2,4-Dinitrotoluene	12000.	U
84-66-2	Diethylphthalate	12000.	U
7005-72-3	4-Chlorophenyl-phenylether	12000.	U
86-73-7	Fluorene	270000.	~~B~~ J
100-01-6	4-Nitroaniline	60000.	U
534-52-1	4,6-Dinitro-2-methylphenol	12000.	U
86-30-6	N-Nitrosodiphenylamine	60000.	U
101-55-3	4-Bromophenyl-phenylether	12000.	U
118-74-1	Hexachlorobenzene	12000.	U
87-86-5	Pentachlorophenol	60000.	U
85-01-8	Phenanthrene	1500000.	B ~~E~~ J
120-12-7	Anthracene	12000.	U
84-74-2	Di-n-butylphthalate	12000.	U
206-44-0	Fluoranthene	2300000.	B ~~E~~ J
129-00-0	Pyrene	1800000.	B ~~E~~ J
85-68-7	Butylbenzylphthalate	12000.	U
91-94-1	3,3'-Dichlorobenzidine	24000.	U
56-55-3	Benzo(a)anthracene	190000.	~~B~~ J
218-01-9	Chrysene	180000.	~~B~~ J
117-81-7	bis(2-Ethylhexyl)phthalate	12000.	U
117-84-0	Di-n-octylphthalate	12000.	U
205-99-2	Benzo(b)fluoranthene	12000.	U
207-08-9	Benzo(k)fluoranthene	2900000.	~~E~~ J
50-32-8	Benzo(a)pyrene	680000.	~~E~~ J
193-39-5	Indeno(1,2,3-cd)pyrene	1000000.	~~E~~ J
53-70-3	Dibenz(a,h)anthracene	410000.	~~E~~ J
191-24-2	Benzo(g,h,i)perylene	790000.	~~E~~ J

(1) - Cannot be separated from diphenylamine

FORM I SV-2 400418 1/87 Rev.

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ecology and environment

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG217DL

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73369

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 31. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/24/88

GPC Cleanup: (Y/N) Y pH: 7.6 Dilution Factor: .04

Number TICs found: 20

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	1013-08-7	Phenanthrene, 1,2,3,4-tetrah	30.80	20000.	J
2.	501-65-5	Benzene, 1,1'-(1,2-ethynediy	31.64	30000.	J
3.	74410-42-7	D-Galactitol, 2-(acetylmethy	32.42	20000.	J
4.	203-64-5	4H-Cyclopenta[def]phenanthre	33.80	30000.	J
5.	238-84-6	11H-Benzo[a]fluorene (8CI9CI	38.61	60000.	J
6.	238-84-6	11H-Benzo[a]fluorene (8CI9CI	38.87	50000.	J
7.	613-59-2	Naphthalene, 2-(phenylmethyl	39.06	20000.	J
8.	84-15-1	1,1':2',1''-Terphenyl (9CI)	40.25	20000.	J
9.	205-43-6	Benzo[b]naphtho[1,2-d]thioph	40.98	20000.	J
10.	203-12-3	Benzo[ghi]fluoranthene (8CI9	41.15	30000.	J
11.	- -	UNKNOWN	41.29	20000.	J
12.	217-59-4	Triphenylene (8CI9CI)	41.91	20000.	J
13.	- -	UNKNOWN	42.93	30000.	J
14.	2693-46-1	3-Fluoranthenamine (8CI9CI)	43.12	20000.	J
15.	2498-77-3	Benz[a]anthracene, 1-methyl-	43.73	30000.	J
16.	- -	UNKNOWN	44.10	30000.	J
17.	192-97-2	Benzo[e]pyrene (8CI9CI)	46.67	100000.	J
18.	191-24-2	Benzo[ghi]perylene (8CI9CI)	51.15	100000.	J
19.	- -	UNKNOWN	52.36	100000.	J
20.	- -	UNKNOWN	53.45	100000.	J
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG218RE

b Name: ESECO Contract: 68-W8-0054

b Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

mple wt/vol: 5. (g/mL) G Lab File ID: 54276

vel: (low/med) LOW Date Received: 6/15/88

Moisture: not dec. 72. Date Analyzed: 6/22/88

lumn: (pack/cap) CAP Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
74-87-3	Chloromethane	36.	U
74-83-9	Bromomethane	36.	U
75-01-4	Vinyl Chloride	36.	U
75-00-3	Chloroethane	36.	U
75-09-2	Methylene Chloride	18.	U
67-64-1	Acetone	36.	U
75-15-0	Carbon Disulfide	18.	U
75-35-4	1,1-Dichloroethene	18.	U
75-34-3	1,1-Dichloroethane	18.	U
540-59-0	1,2-Dichloroethene (total)	18.	U
67-66-3	Chloroform	18.	U
107-06-2	1,2-Dichloroethane	18.	U
78-93-3	2-Butanone	36.	U
71-55-6	1,1,1-Trichloroethane	18.	U
56-23-5	Carbon Tetrachloride	18.	U
108-05-4	Vinyl Acetate	36.	U
75-27-4	Bromodichloromethane	18.	U
78-87-5	1,2-Dichloropropane	18.	U
10061-01-5	cis-1,3-Dichloropropene	18.	U
79-01-6	Trichloroethene	18.	U
124-48-1	Dibromochloromethane	18.	U
79-00-5	1,1,2-Trichloroethane	18.	U
71-43-2	Benzene	18.	U
10061-02-6	trans-1,3-Dichloropropene	18.	U
75-25-2	Bromoform	18.	U
108-10-1	4-Methyl-2-Pentanone	36.	U
591-78-6	2-Hexanone	36.	U
127-18-4	Tetrachloroethene	18.	U
79-34-5	1,1,2,2-Tetrachloroethane	18.	U
108-88-3	Toluene	12.	J
108-90-7	Chlorobenzene	18.	U
100-41-4	Ethylbenzene	18.	U
100-42-5	Styrene	18.	U
1330-20-7	Xylene (total)	18.	U

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ED_002345B_00005435-00259

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG218DL

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73366

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 72. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/24/88

GPC Cleanup: (Y/N) N pH: 7.5 Dilution Factor: .10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
108-95-2	Phenol	12000.	U
111-44-4	bis(2-Chloroethyl)ether	12000.	U
95-57-8	2-Chlorophenol	12000.	U
541-73-1	1,3-Dichlorobenzene	12000.	U
106-46-7	1,4-Dichlorobenzene	12000.	U
100-51-6	Benzyl alcohol	12000.	U
95-50-1	1,2-Dichlorobenzene	12000.	U
95-48-7	2-Methylphenol	12000.	U
108-60-1	bis(2-Chloroisopropyl)ether	12000.	U
106-44-5	4-Methylphenol	12000.	U
621-64-7	N-Nitroso-di-n-propylamine	12000.	U
67-72-1	Hexachloroethane	12000.	U
98-95-3	Nitrobenzene	12000.	U
78-59-1	Isophorone	12000.	U
88-75-5	2-Nitrophenol	12000.	U
105-67-9	2,4-Dimethylphenol	12000.	U
65-85-0	Benzoic acid	60000.	U
111-91-1	bis(2-Chloroethoxy)methane	12000.	U
120-83-2	2,4-Dichlorophenol	12000.	U
120-82-1	1,2,4-Trichlorobenzene	12000.	U
91-20-3	Naphthalene	12000.	U
106-47-8	4-Chloroaniline	12000.	U
87-68-3	Hexachlorobutadiene	12000.	U
59-50-7	4-Chloro-3-methylphenol	12000.	U
91-57-6	2-Methylnaphthalene	12000.	U
77-47-4	Hexachlorocyclopentadiene	12000.	U
88-06-2	2,4,6-Trichlorophenol	12000.	U
95-95-4	2,4,5-Trichlorophenol	60000.	U
91-58-7	2-Chloronaphthalene	12000.	U
88-74-4	2-Nitroaniline	60000.	U
131-11-3	Dimethylphthalate	12000.	U
208-96-8	Acenaphthylene	12000.	U
606-20-2	2,6-Dinitrotoluene	12000.	U

FORM I SV-1 1/87 Rev.

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ED_002345B_00005435-00260

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG218DL

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73366

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 72. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/24/88

GPC Cleanup: (Y/N) N pH: 7.5 Dilution Factor: .10

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
99-09-2	3-Nitroaniline	60000.	U
83-32-9	Acenaphthene	840.	J
51-28-5	2,4-Dinitrophenol	60000.	U
100-02-7	4-Nitrophenol	60000.	U
132-64-9	Dibenzofuran	12000.	U
121-14-2	2,4-Dinitrotoluene	12000.	U
84-66-2	Diethylphthalate	12000.	U
7005-72-3	4-Chlorophenyl-phenylether	12000.	U
86-73-7	Fluorene	12000.	U
100-01-6	4-Nitroaniline	60000.	U
534-52-1	4,6-Dinitro-2-methylphenol	12000.	U
86-30-6	N-Nitrosodiphenylamine	60000.	U
101-55-3	4-Bromophenyl-phenylether	12000.	U
118-74-1	Hexachlorobenzene	12000.	U
87-86-5	Pentachlorophenol	60000.	U
85-01-8	Phenanthrene	13000.	
120-12-7	Anthracene	3200.	J
84-74-2	Di-n-butylphthalate	12000.	U
206-44-0	Fluoranthene	98000.	
129-00-0	Pyrene	71000.	
85-68-7	Butylbenzylphthalate	1500.	J
91-94-1	3,3'-Dichlorobenzidine	24000.	U
56-55-3	Benzo(a)anthracene	51000.	
218-01-9	Chrysene	130000.	
117-81-7	bis(2-Ethylhexyl)phthalate	11000.	J
117-84-0	Di-n-octylphthalate	12000.	U
205-99-2	Benzo(b)fluoranthene	12000.	U
207-08-9	Benzo(k)fluoranthene	12000.	U
50-32-8	Benzo(a)pyrene	45000.	J
193-39-5	Indeno(1,2,3-cd)pyrene	62000.	J
53-70-3	Dibenz(a,h)anthracene	16000.	J
191-24-2	Benzo(g,h,i)perylene	52000.	J

(1) - Cannot be separated from diphenylamine

FORM I SV-2 1/87 Rev.

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400522
ecology and environment
ecology and environment
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1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG218DL

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73366

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 72. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/24/88

GPC Cleanup: (Y/N) N pH: 7.5 Dilution Factor: .10

Number TICs found: 12 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN	8.44	80000.	J
2.	110-12-3	2-Hexanone, 5-methyl- (8CI9C	8.95	10000.	J
3.	57-10-3	Hexadecanoic acid (9CI)	34.40	300000.	J
4.	17831-71-9	2-Propenoic acid, oxybis(2,1	34.87	20000.	J
5.	243-42-5	Benzo[b]naphtho[2,3-d]furan	36.97	30000.	J
6.	112-80-1	9-Octadecenoic acid (Z)- (9C	37.14	60000.	J
7.	57-11-4	Octadecanoic acid (9CI)	37.50	90000.	J
8.	243-17-4	11H-Benzo[b]fluorene (8CI9CI	38.34	20000.	J
9.	203-12-3	Benzo[ghi]fluoranthene (8CI9	40.97	10000.	J
10.	192-97-2	Benzo[e]pyrene (8CI9CI)	46.01	70000.	J
11.	205-82-3	Benzo[j]fluoranthene (8CI9CI	46.85	60000.	J
12.	- -	UNKNOWN	50.68	30000.	J
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1A
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG220

.b Name: ESECO Contract: 68-W8-0054

b Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

mple wt/vol: 5. (g/mL) G Lab File ID: 54270

vel: (low/med) LOW Date Received: 6/15/88

Moisture: not dec. 31. Date Analyzed: 6/22/88

lumn: (pack/cap) CAP Dilution Factor: 1.00

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

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300143
ARCF00003337
ED_002345B_00005435-00263

1B
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG220

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73364

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 31. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/24/88

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
108-95-2	Phenol	470.	U
111-44-4	bis(2-Chloroethyl)ether	470.	U
95-57-8	2-Chlorophenol	470.	U
541-73-1	1,3-Dichlorobenzene	470.	U
106-46-7	1,4-Dichlorobenzene	470.	U
100-51-6	Benzyl alcohol	470.	U
95-50-1	1,2-Dichlorobenzene	470.	U
95-48-7	2-Methylphenol	470.	U
108-60-1	bis(2-Chloroisopropyl)ether	470.	U
106-44-5	4-Methylphenol	470.	U
621-64-7	N-Nitroso-di-n-propylamine	470.	U
67-72-1	Hexachloroethane	470.	U
98-95-3	Nitrobenzene	470.	U
78-59-1	Isophorone	470.	U
88-75-5	2-Nitrophenol	470.	U
105-67-9	2,4-Dimethylphenol	470.	U
65-85-0	Benzoic acid	2300.	U
111-91-1	bis(2-Chloroethoxy)methane	470.	U
120-83-2	2,4-Dichlorophenol	470.	U
120-82-1	1,2,4-Trichlorobenzene	470.	U
91-20-3	Naphthalene	470.	U
106-47-8	4-Chloroaniline	470.	U
87-68-3	Hexachlorobutadiene	470.	U
59-50-7	4-Chloro-3-methylphenol	470.	U
91-57-6	2-Methylnaphthalene	470.	U
77-47-4	Hexachlorocyclopentadiene	470.	U
88-06-2	2,4,6-Trichlorophenol	470.	U
95-95-4	2,4,5-Trichlorophenol	2300.	U
91-58-7	2-Chloronaphthalene	470.	U
88-74-4	2-Nitroaniline	2300.	U
131-11-3	Dimethylphthalate	470.	U
208-96-8	Acenaphthylene	470.	U
606-20-2	2,6-Dinitrotoluene	470.	U

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

HG220

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73364

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 31. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/24/88

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
99-09-2	3-Nitroaniline	2300.	U
83-32-9	Acenaphthene	470.	U
51-28-5	2,4-Dinitrophenol	2300.	U
100-02-7	4-Nitrophenol	2300.	U
132-64-9	Dibenzofuran	470.	U
121-14-2	2,4-Dinitrotoluene	470.	U
84-66-2	Diethylphthalate	470.	U
7005-72-3	4-Chlorophenyl-phenylether	470.	U
86-73-7	Fluorene	470.	U
100-01-6	4-Nitroaniline	2300.	U
534-52-1	4,6-Dinitro-2-methylphenol	470.	U
86-30-6	N-Nitrosodiphenylamine	2300.	U
101-55-3	4-Bromophenyl-phenylether	470.	U
118-74-1	Hexachlorobenzene	470.	U
87-86-5	Pentachlorophenol	2300.	U
85-01-8	Phenanthrene	57.	BJ
120-12-7	Anthracene	470.	U
84-74-2	Di-n-butylphthalate	470.	U
206-44-0	Fluoranthene	150.	BJ
129-00-0	Pyrene	200.	BJ
85-68-7	Butylbenzylphthalate	470.	U
91-94-1	3,3'-Dichlorobenzidine	940.	U
56-55-3	Benzo(a)anthracene	470.	U
218-01-9	Chrysene	230.	J
117-81-7	bis(2-Ethylhexyl)phthalate	290.	J
117-84-0	Di-n-octylphthalate	470.	U
205-99-2	Benzo(b)fluoranthene	320.	J
207-08-9	Benzo(k)fluoranthene	470.	U
50-32-8	Benzo(a)pyrene	84.	J
193-39-5	Indeno(1,2,3-cd)pyrene	470.	U
53-70-3	Dibenz(a,h)anthracene	470.	U
191-24-2	Benzo(g,h,i)perylene	470.	U

(1) - Cannot be separated from diphenylamine

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ecology and environment

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

HG220

Lab Name: ESECO Contract: 68-W8-0054

Lab Code: ESECO Case No.: 9745 SAS No.: SDG No.: HG201

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

Sample wt/vol: 30. (g/mL) G Lab File ID: 73364

Level: (low/med) LOW Date Received: 6/15/88

% Moisture: not dec. 31. dec. 0. Date Extracted: 6/20/88

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 6/24/88

GPC Cleanup: (Y/N) Y pH: 7.4 Dilution Factor: 1.00

Number TICs found: 5

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

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	- -	UNKNOWN	7.44	2000.	J
2.	- -	UNKNOWN	8.66	30000.	J
3.	110-12-3	2-Hexanone, 5-methyl- (8CI9C	9.02	5000.	BJ
4.	17831-71-9	2-Propenoic acid, oxybis(2,1	34.87	3000.	BJ
5.	593-49-7	Heptacosane (8CI9CI)	44.77	800.	J
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					

FORM I SV-TIC 400564 1/87 Rev

154-00224

APPENDIX C

WELL LOGS

154- 00225

WELL/PIEZOMETER COMPLETION DIAGRAM

Project Columbia Falls Aluminum Company

TDD No. F08-8804-08

Location Upgradient/Background

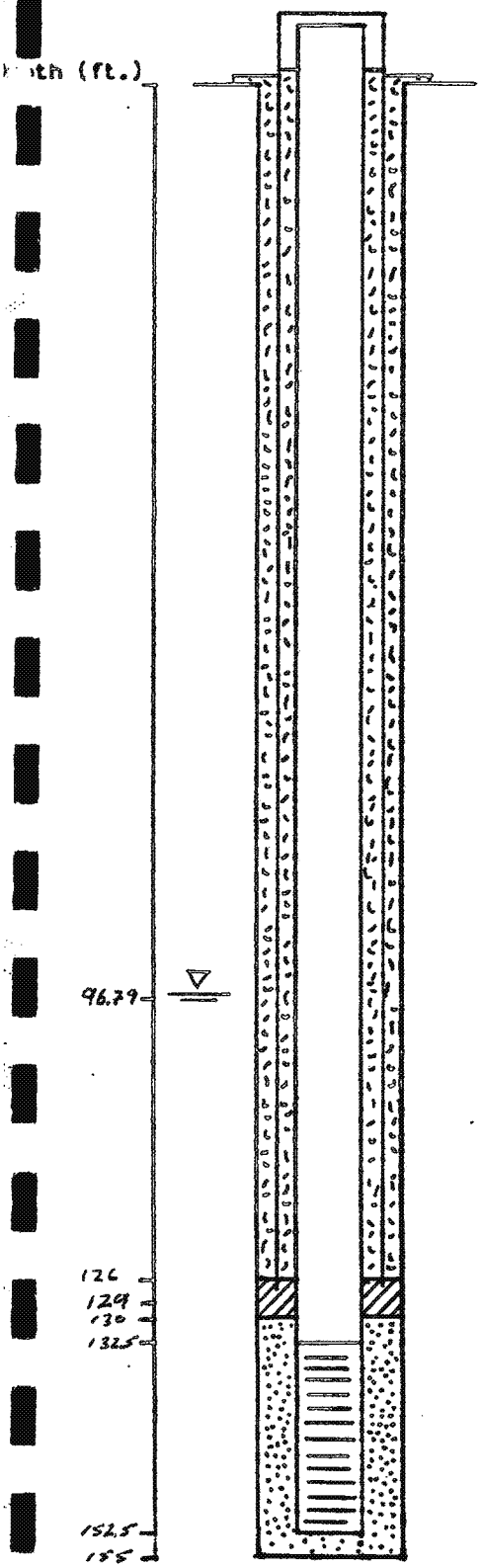
Well Number CF-MW-1

Geologist Robert Henry

Date(s) of Installation 6-8-88 thru 6-12-88

Depth to Water 96.79 feet (G.L.)

Elevation from Measuring Point 3168.36



DRILLING SUMMARY:

Driller B & B Drilling Libby, Montana

Rig Type Bucyrus-Erie

Drilling Method Air rotary with casing hammer

Bit(s) Tri-cone

Drilling Fluid —

Surface Casing —

Hollow Stem/Drive Casing I.D. (in.) 6 1/8"

Total Depth of Boring (ft.) 155

Borehole Diameter (in.) 6 5/8 inches

WELL DESIGN:

	Above		Below
Completion	Grade	X	Grade
Basis: Geological Log	X	Geophysical Log	
		Type	

Total Depth of Well (ft.) 152.5

Casing String(s): C=casing S=screen

152.5	- 132.5	S		-	
132.5	- 0	C		-	

Casing: PW Pipe sch 80 400 PSI @ 73°F PVC 1120 ASTM D1785

Screen: PW Pipe sch 80 400 PSI @ 73°F PVC 1120 ASTM D1785 0.010 slot

Centralizers —

Gravel/Sand Pack 155 to 130 feet

Colorado Silica Sand 10-20 mesh

Bentonite Seal(s) 130 to 126 feet

— to — feet

Bentonite (type) Volclay 1/4" Pellets

Backfill (cuttings) — to — feet

Cement Seal(s) 126 to 0 feet

— to — feet

Cement Composition 90% Portland Type II with 10% bentonite powder

Protective Casing -129 to +1.74 feet

Protective Casing Type 6 5/8 OD. 1/4" steel with locking cap

Other

WELL DEVELOPMENT:

Method Brainard Killman Pump

Duration hrs hrs Estimated production 0.5 gpm

Water Appearance Cleaned up after developing approximately 60 gallons

Remarks: Ground elevation: 3168.36

Steel Stickup: 1.74'

PVC Stickup: 1.69'

154-00226

DRILL LOG

PROJECT Columbia Falls Aluminum Company JOB NO. FUS-8804-08 DATE 6-14-88

WELL/BORING CF-MW-1 LOCATION Background/upgradient LOGGER R. Haney

DRILL METHOD Air Rotary PAGE 1 OF 2

WATER LEVEL FIRST ENCOUNTERED 142 FINAL 96.79 ELEV. 3168.36

DEPTH IN FEET	LITH COL	SAMPLE TYPE IDENT.	MOISTURE CONTENT WATER LEVEL	LITHOLOGIC DESCRIPTION	NOTES
10			Perched Water Table	Tan, maroon and green, medium to coarse grained, subangular to angular argillite pebbles and cobbles 2'-14'	Continuous cutting samples collected during drilling Perched water table 11.5'-12'
20				Tan, maroon and green med to coarse grained, subangular sand to med grained argillite pebbles with approximately 40% clay 14'-30' Green argillite boulder 30'-31'	
30				Tan, green and maroon fine to medium grained sub angular argillite sand with 30% clay 31'-50'.	
40					
50				Clay content increases to 50% 50'-65'	
60				Clay content increases to 75% 65'-70'	
70				Clay content decreases to 50% 70-142	
80					
90			Static Water level		Initial water level encountered at 142'. Static water level (due to hydraulic pressure) at 96.79'

IS4- 00227

ARCF00003343

ED_002345B_00005435-00269

DRILL LOG

PROJECT Columbia Falls Aluminum Company JOB NO. F08-8804-08 DATE 6-14-88

WELL/BORING CF-MW-1 LOCATION Background/upgradient LOGGER R. Henry

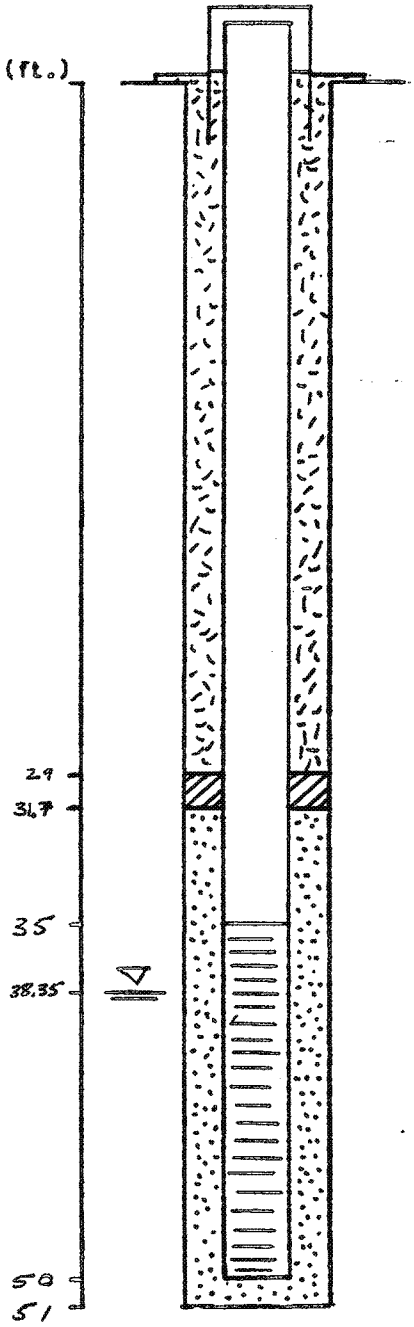
DRILL METHOD Air Rotary PAGE 2 OF 2

WATER LEVEL FIRST ENCOUNTERED 142 FINAL 97.07 ELEV. 3168.36

DEPTH IN FEET	LITH COL	SAMPLE TYPE IDENT.	MOISTURE CONTENT WATER LEVEL	LITHOLOGIC DESCRIPTION	NOTES
110				Clay content decreases to 30-40% 110'-125'	
120					
130					
140			Initial Water level	medium to coarse grained, subangular to angular argillite sand to med grained argillitic pebbles. Clay content is approximately 15-20% 142-155	
150					
160					

WELL/PIEZOMETER COMPLETION DIAGRAM

Project: Columbia Falls Aluminum Company
TDD No.: F08-8804-08
Location: On site; South of Boiler Blowdown Pond
Well Number: CF-MW-2
Geologist: Robert Henry
Date(s) of Installation: 6-10-88 thru 6-12-88
Depth to Water: 38.35 feet (G.L.)
Elevation from Measuring Point: 3104.13



DRILLING SUMMARY:

Driller: B & B Drilling Libby Montana
Rig Type: Bucyrus - Erie
Drilling Method: Air Rotary with casing Hammer
Bit(s): Tri-Cone
Drilling Fluid: —
Surface Casing: —
Hollow Stem/Drive Casing I.D. (in.): 6 5/8"
Total Depth of Boring (ft.): 51
Borehole Diameter (in.): 6 5/8"

WELL DESIGN:

Completion Basis: Above Grade X / Below Grade ___
Geological Log X / Geophysical Log ___ Type ___
Total Depth of Well (ft.): 50
Casing String(s): C=casing S=screen

50	-	35	S	-	
35	-	0	C	-	

Casing: PW Pipe sch 80 400 PSI @ 73°F PVC 1120 ASTM D 1785
Screen: PW Pipe sch 80 400 PSI @ 73°F PVC 1120 ASTM D 1785
Centralizers: —
Gravel/Sand Pack: 51 to 31.7 feet
Colorado Silica Sand 10-20 mesh
Bentonite Seal(s): 31.7 to 29 feet
— to — feet
Bentonite (type): Volclay 1/4" pellets
Backfill (cuttings): — to — feet
Cement Seal(s): 29 to 0 feet
— to — feet
Cement Composition: 90% Portland Type II and 10% bentonite powder
Protective Casing: 3.45 to -1.55 feet
Protective Casing Type: 4" steel
Other: ___

WELL DEVELOPMENT:

Method: Brainard Killman Pump
Duration: 2 hrs hrs Estimated production: 0.5 gpm
Water Appearance: Clear with minor suspended fines

Remarks: Ground Elevation: 3104.13
Steel Stickup: 1.63'
PVC Stickup: 1.55'

154-00228

DRILL LOG

PROJECT Columbia Falls Aluminum Company JOB NO. F08-8804-08 DATE 6-13-88

WELL/BORING CF-MW-2 LOCATION Onsite/downgradient LOGGER R. Henry

DRILL METHOD Air Rotary of Boiler Blowdown Pond PAGE 1 OF 2

WATER LEVEL FIRST ENCOUNTERED 42' FINAL 38.35 ELEV. 3104.13

DEPTH IN FEET	LITH COL	SAMPLE TYPE IDENT.	MOISTURE CONTENT WATER LEVEL	LITHOLOGIC DESCRIPTION	NOTES
				Tan, maroon and Green, medium to coarse grained, subangular argillitic sand with 10-20% angular to sub rounded argillite pebbles and cobbles. 0'-15'	Continuous cutting samples collected during drilling
10					
				lithology consistent with that from above with increased (20-30%) pebble and cobble content. 15'-27'	
20					
27			moist no free water	Tan, maroon and green medium to coarse grained, subangular to angular argillitic sand interfingered with maroon and green argillite cobbles 27'-36'	
30					
			Final water level	Very Fine argillitic sand 36-37'	
40			Initial water level	Tan, maroon and green subangular to rounded very coarse argillitic sand to medium grained pebbles 37'-51'	

DRILL LOG

PROJECT Columbia Falls Aluminum Company JOB NO. F08-8804-08 DATE 6-13-88

WELL/BORING CF-MW-2 LOCATION onsite/downgradient of LOGGER R. Henry

DRILL METHOD Air Rotary Boiler Blowdown pond PAGE 2 OF 2

WATER LEVEL FIRST ENCOUNTERED 42' FINAL 38.25 ELEV. 3104.13

DEPTH IN FEET	LITH COL	SAMPLE TYPE IDENT.	MOISTURE CONTENT WATER LEVEL	LITHOLOGIC DESCRIPTION	NOTES
				Description on page 1 of 2	
55					

154-00229

Test Well #2

Form No. 603 (Rev. 7/76)

STATE OF MONTANA

File No. _____

Department of Natural Resources and Conservation

WELL LOG REPORT

White-Department
Yellow-Department
Pink-Well Owner
Gold-Driller

State law requires that this form be filed by the water well driller within 60 days after completion of the well, and Form 602, Notice of Completion of Groundwater Development, be filed by the well owner within 60 days after the water has been put to beneficial use.

1. WELL OWNER
Name _____

2. CURRENT MAILING ADDRESS
_____

3. PROPOSED USE _____ domestic (includes lawn and garden); _____ stock; _____ municipal; _____ industrial; _____ irrigation; _____ other (specify) 2

4. WELL LOCATION

NW NE SW SE

Starting at [illegible] corner of section 3 and proceed [illegible] 2. 355 ft. [illegible] along [illegible] 2.1/2 [illegible] two [illegible]

_____ ¼ SW ¼ SW ¼ NE ¼ Section 3
T. 20N R. 20W
N or S E or W

OR, Lot _____ Block _____
Subdivision _____
City _____ County _____
Elevation _____ Accuracy: ___ ±10'; ___ ±50'; ___ ±100';

5. DRILLING METHOD _____ cable, _____ bored, _____ forward rotary, _____ reverse rotary, _____ jetted, _____ other (specify) _____

6. WELL CONSTRUCTION AND COMPLETION

Size of drilled hole	Size and weight of casing	From (feet)	To (feet)	Perforations / Screen	Kind Size	From (feet)	To (feet)
5"	[illegible] 17 lbs. per ft.	2 above ground	33				

Was casing left open end? _____ Yes, _____ No
Was a packer or seal used? _____ Yes, _____ No
If so, what material _____
Was the well gravel packed? _____ Yes, _____ No
Was the well grouted? _____ Yes, _____ No
To what depth? _____
Material used in grouting _____
Well head completion: Pitless adapter _____
12 in. above grade _____, other _____
(if other, specify) _____
Pump horsepower _____, pump type _____
Pump intake level _____ feet below land surface
Power (electric, diesel, etc.) _____

7. WATER LEVEL
Static water level _____ feet below land surface
If flowing, closed-in pressure _____ psi
_____ gpm flow through _____ inch pipe
Controlled by: _____ valve, _____ reducers, _____ other
(if other, specify) _____

8. WELL TEST DATA _____ pump _____ bailer _____ other
(if other, specify) _____
Pumping level below land surface:
_____ ft. after _____ hrs. pumping _____ gpm
_____ ft. after _____ hrs. pumping _____ gpm

9. WAS WELL PLUGGED OR ABANDONED? ___ Yes ___ No
If yes, how? _____

10. DATE STARTED [illegible]
DATE COMPLETED [illegible]

11. WELL LOG

Depth (ft.) From	To	Formation
[illegible]	[illegible]	[illegible] - coarse gravel
[illegible]	[illegible]	[illegible] gravel, [illegible]

(use separate sheet if necessary)

12. DRILLER'S CERTIFICATION
This well was drilled under my jurisdiction and this report is true to the best of my knowledge.

[illegible]
Date

[illegible] Drilling Co.
Firm Name

P. O. Box 927
Columbia Falls, Montana 59912
Address

[illegible]
Signature

131
License No.

recycled paper
ecology and environment

ARCF00003348
ED_002345B_00005435-00274

Form No. 603 (Rev. 7/76)

STATE OF MONTANA

File No. _____

Department of Natural Resources and Conservation

White-Department
Yellow-Department
Pink-Well Owner
Gold-Driller

WELL LOG REPORT

State law requires that this form be filed by the water well driller within 60 days after completion of the well, and Form 602, Notice of Completion of Groundwater Development, be filed by the well owner within 60 days after the water has been put to beneficial use.

1. WELL OWNER
Name [illegible]
[illegible] Division

2. CURRENT MAILING ADDRESS
[illegible]
[illegible] Montana [illegible]

3. PROPOSED USE ____ domestic (includes lawn and garden); ____ stock; ____ municipal; ____ industrial; ____ irrigation; ____ other (specify) 3

4. WELL LOCATION

NW NE SW SE

Starting at the southeast corner of Sec. 34 and proceeding [illegible] 910 ft. turn [illegible] this line 210 ft. [illegible] ____ ¼ SW ¼ [illegible] ¼ [illegible] ¼ Section [illegible]
T. [illegible] SE SE R. [illegible]
N or S E or W
OR, Lot ____ Block ____
Subdivision ____
City ____ County ____
Elevation ____ Accuracy: ____ ±10'; ____ ±50'; ____ ±100';

5. DRILLING METHOD ____ cable, ____ bored, ____ forward rotary, ____ reverse rotary, ____ jetted, ____ other (specify) ____

6. WELL CONSTRUCTION AND COMPLETION

Size of drilled hole	Size and weight of casing	From (feet)	To (feet)	Perforations ____ and/or Screen ____ Kind Size	From (feet)	To (feet)
5¼"	[illegible] 17 lbs. per ft.	1 above ground	160	Slots 4 per interval 3/8" x 3"	91	102

Was casing left open end? ____ Yes, ____ No
Was a packer or seal used? ____ Yes, ____ No
If so, what material ____
Was the well gravel packed? ____ Yes, ____ No
Was the well grouted? ____ Yes, ____ No
To what depth? ____
Material used in grouting ____
Well head completion: Pitless adapter ____
12 in. above grade ____, other ____
(if other, specify) ____
Pump horsepower ____, pump type ____
Pump intake level ____ feet below land surface
Power (electric, diesel, etc.) ____

7. WATER LEVEL
Static water level ____ feet below land surface
If flowing, closed-in pressure ____ psi
____ gpm flow through ____ inch pipe
Controlled by: ____ valve, ____ reducers, ____ other
(if other, specify) ____

8. WELL TEST DATA ____ pump ____ bailer ____ other
(if other, specify) ____
Pumping level below land surface:
____ ft. after ____ hrs. pumping ____ gpm
____ ft. after ____ hrs. pumping ____ gpm

9. WAS WELL PLUGGED OR ABANDONED? ____ Yes ____ No
If yes, how? ____

10. DATE STARTED [illegible]
DATE COMPLETED [illegible]

11. WELL LOG

Depth (ft.) From	To	Formation
[illegible]	[illegible]	[illegible] clay
[illegible]	[illegible]	[illegible] silt
[illegible]	[illegible]	[illegible] clay & [illegible]
[illegible]	[illegible]	[illegible] & water, [illegible]
[illegible]	[illegible]	[illegible] & gravel
[illegible]	[illegible]	[illegible] gravel, water [illegible]
[illegible]	[illegible]	[illegible] clay & [illegible] gravel
[illegible]	[illegible]	[illegible] clay

(use separate sheet if necessary)

12. DRILLER'S CERTIFICATION
This well was drilled under my jurisdiction and this report is true to the best of my knowledge.

[illegible]/[illegible]/77
Date

[illegible] Drilling Co.
Firm Name

[illegible] 929
[illegible] Falls, Montana [illegible]
Address

[illegible] 181
Signature Licensed No.

154- 00230

ARCF00003349
ED_002345B_00005435-00275

orm No: 603 10/81

File No. 1 ... 8

TEST WELL No. 8

WELL LOG REPORT

State law requires that this form be filed by the water well driller within 60 days after completion of the well.

1. WELL OWNER
Name The Anaconda Co., Aluminum Division

2. CURRENT MAILING ADDRESS
P. O. Box 10
Columbia Falls, Montana 59912

3. WELL LOCATION
County Flathead
Township 30 N/S Range 20 E/W
NW ¼ NW ¼ NW ¼ Section X 2
Lot ____ Block ____
Subdivision ____

4. PROPOSED USE Domestic ☐ Stock ☐ Irrigation ☐
Other X specify Test well-Hazardous Waste Disposal Site #1

5. DRILLING METHOD X cable, ____ bored, ____ forward rotary, ____ reverse rotary, ____ jetted, ____ other (specify) ____

6. WELL CONSTRUCTION AND COMPLETION

Size of drilled hole	Size and weight of casing	From (feet)	To (feet)	Perforations X and/or Screen		
6¼"	6¼" I.D. 17 lbs. per ft.	1'8" ~~XXX~~ above grade	143' 4"	Kind Size	From (feet) 137'6" from top of casing	To (feet) 144'6"

obvious error

Was casing left open end? X Yes ____ No
Was a packer or seal used? ____ Yes X No
If so, what material ____
Was the well gravel packed? ____ Yes X No
Was the well grouted? X Yes ____ No
To what depth? 6 feet
Material used in grouting bentonite
Well head completion: Pitless adapter ____ Yes X No
Top of casing 12 in. or greater above grade X Yes ____ No

WHAT IS THE TEMPERATURE OF THE WATER?
____ Degrees Fahrenheit
☐ Measured ☒ Estimated

8. WATER LEVEL
Static water level 119 feet below land surface
If flowing; closed-in pressure ____ psi
____ gpm
Controlled by: ____ valve, ____ reducers, ____ other, (specify) ____

9. WELL TEST DATA ____ pump X bailer ____ other, (specify) ____
Pumping level below land surface:
133 ft. after 1 hrs. pumping 10 gpm
____ ft. after ____ hrs. pumping ____ gpm

10. WAS WELL PLUGGED OR ABANDONED? ____ Yes X No
If yes, how? ____

11. DATE COMPLETED August 7, 1981

12. WELL LOG

Depth (ft.) From	To	Formation
0	7	Clay & gravel
7	9	Rock
9	63	Clay & gravel
63	65	Sand & gravel
65	140	Clay & gravel
140	144	Gravel, water
144	147	Red brick-like shale

(use separate sheet if necessary)

13. DRILLER'S CERTIFICATION
This well was drilled under my jurisdiction and this report is true to the best of my knowledge.

Sept. 8, 1981
Date

Weber Drilling Co.
Firm Name

P.O.Box 929, Columbia Falls, MT. 59912
Address

Jerome H. Weber
Signature

181
License No.

MONTANA DEPARTMENT OF NATURAL RESOURCES & CONSERVATION
32 SOUTH EWING HELENA, MONTANA 59620 449-3962
DNRC

DEPARTMENT COPY
DRILLER Please give this copy to the well owner to complete reverse side.

recycled paper ecology and environment

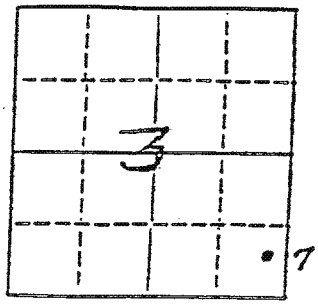
ARCF00003350
ED_002345B_00005435-00276

T 30 N R 20 W

County Flathead

MONTANA BUREAU OF MINES AND GEOLOGY
Butte, Montana

WATER WELL LOG



Owner Anaconda Aluminum Company Address Columbia Falls, Mo

Driller Olsen & Justin Address Columbia Falls, Mo

Date Started Jan. 20, 1957 Date Completed Jan. 30, 1957

Location: Sec. 3 T 30N R 20 W ¼ sec. SE1 SE1

Type of well Drilled (Dug, driven, bored, or drilled) Equipment used Churn (Churn drill, rotary, other)

Water use: Domestic [ ] Municipal [ ] Stock [ ] Irrigation [ ]

Industrial [X] Drainage [ ] Other:

Casing: 3021.6 ft. to 2968.0 ft. Type Steel Size 18"

Casing: ft. to ft. Type Size

Casing: ft. to ft. Type Size

Perforated or Screened: Ft 2968.0 to ft 2960.0 Ft to ft

Type of screen or perforations Johnston 16" #100 Screen

Static Water level, for non-flowing well: 3010.6 feet.

Shut-in pressure, for flowing well: lb./sq. in. on: (date)

Pumping water level 3008.7 feet at 1000 gal. per min

How tested: By Continuous Pumping

Length of test 4 Days

Remarks: (Gravel packing, cementing, packers, type of shut-off, depth of shut-off)

Permanent Well #7

Ultimate Capacity of This Well is 5000 Gallons Per Minute.

154- 00231

PW # 7

Log of Well

Depth, feet From	Depth, feet To	Description of Material Drilled
3020.0	3018.0	Top Soil
3018.0	3005.0	Tight Packed Dirty Gravel
3005.0	2981.0	Loose Clean Gravel With Water
2981.0	2979.0	Dirty Sand No Water
2979.0	2960.0	Loose Clean Gravel With Water
2960.0	2955.0	Tight Gravel With Clay Very Little Water
2955.0	2947.0	Loose Clean Gravel With Water
2947.0	———	Hard Packed Sand

Date Completed
Filed on the 11 day of Sept.
A.D. 1957 at 4:45 P.M.
A. J. Shaw
By Blanche Lanstrum
Deputy

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APPENDIX D

INSPECTION REPORT

154-00232

Site Inspection Report

154- 00233

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MT	MTD057561763

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)	02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER
COLUMBIA FALLS ALUMINUM COMPANY	One mile north of Columbia Falls on Aluminum Drive

03 CITY	04 STATE	05 ZIP CODE	06 COUNTY	07 COUNTY CODE	08 CONG DIST
Columbia Falls	MT	59912	Flathead	029	MT-01

09 COORDINATES		10 TYPE OF OWNERSHIP (Check one)
LATTITUDE	LONGITUDE	X A. PRIVATE ___B. FEDERAL _____ ___C. STATE ___D.COUNTY ___E. MUNICIPAL
48° 20" 01' N	114° 07" 52' W	_____F. OTHER _____ G.UNKNOWN

III. INSPECTION INFORMATION

01 DATE OF INSPECTION	02 SITE STATUS	03 YEARS OF OPERATION
06/07/88	X ACTIVE	1955 | present ___UNKNOWN
MO/DAY/YR	___INACTIVE	BEGINNING YEAR ENDING YEAR

04 AGENCY PERFORMING INSPECTION (Check all that apply)

___A. EPA X B. EPA CONTRACTOR E & E (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 & Environment Inc.	(303)757-4984
09 OTHER INSPECTORS	**10 TITLE**	**11 ORGANIZATION**	**12 TELEPHONE NO.**
Randy Perlis	Chemist	"	"
Lynn Fischer	Chemist	"	"
Diane Coker	Hydrogeologist	"	"
Steve Yarbrough	Env. Scientist	"	"
13 SITE REPRESENTATIVES INTERVIEWED	**14 TITLE**	**15 ADDRESS**	**16 TELEPHONE NO.**
Ken Reick	Env. Supervisor	Columbia Falls Aluminum Company	(406)892-3261

17 ACCESS GAINED BY (Check one)	18 TIME OF INSPECTION	19 WEATHER CONDIIONS
X PERMISSION ___ WARRANT	0800	Generally favorable summer weather conditions

IV. INFORMATION AVAILABLE FROM

01 CONTACT	02 OF (Agency/Organization)	03 TELEPHONE NO.
Ron Bertram	Environmental Protection Agency	(406)449-5414

04 PERSON RESPONSIBLE FOR SITE INSPECTION FORM	05 AGENCY	06 ORGANIZATION	07 TELPHONE NO.	08 DATE
Robert Henry	EPA	E & E	(303)757-4984	11/11/88

EPA FORM 2070-13 (7-81)

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ecology and environment

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION	
01 STATE MT	02 SITE NUMBER MTD057561763

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
X F. LIQUID
___ G. GAS

02 WASTE QUANTITY AT SITE (Measures of waste quantities must be independent)

TONS Unknown
CUBIC YARDS _____
NO. OF DRUMS _____

03 WASTE CHARACTERISTICS (Check all that apply)

X A. TOXIC
___ B. CORROSIVE
___ C. RADIOACTIVE
___ D. PERSISTENT
___ E. SOLUBLE
___ F. INFECTIOUS
___ 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	Unknown		Contained in covered pond
OLW	OILY WASTE			
SOL	SOLVENTS	Unknown		Waste solvent disposed of on-site
PSD	PESTICIDES			
OCC	OTHER ORGANIC CHEMICALS	Unknown		PAH compounds
IOC	INORGANIC CHEMICALS	Unknown		Cyanide found in surface & ground wtr.
ACD	ACIDS			
BAS	BASES			
MES	HEAVY METALS	unknown		Aluminum

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
OCC	Naphthalene	91-20-93	Effluent Pond	160000	ppb
OCC	Acenaphthene	83-32-9	"	410000	ppb
OCC	Fluorene	86-73-7	"	270000	ppb
OCC	Phenanthrene	85-01-8	"	1500000	ppb
OCC	Fluoranthene	206-44-8	"	2300000	ppb
OCC	Pyrene	129-00-0	"	1800000	ppb
OCC	Chrysene	218-01-9	"	180000	ppb
OCC	Benzo(k)fluoranthene	207-08-9	"	2900000	ppb
OCC	Benzo(a)pyrene	50-32-8	"	680000	ppb
OCC	Indeno(123-cd)pyrene	193-39-5	"	1000000	ppb
OCC	Benzo(ghi)perylene	191-24-2	"	790000	ppb
OCC	Dibenzo(ah)anthracene	53-70-3	"	410000	ppb
IOC	Cyanide		Onsite Groundwater	666	ppb

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)

Analytical Data From Samples Collected During The Investigation.
Visual Observations Made During The Sampling Event.

EPA form 2070-13 (7-81)

154-00234

EPA

POTENTIAL HAZARDOUS WASTE SITE

SITE INSPECTION REPORT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE: MT | 02 SITE NUMBER: MTD057561763

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 X A. GROUNDWATER CONTAMINATION — 02 ___ OBSERVED (DATE: 06/07/88) X POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 3,112 — 04 NARRATIVE DESCRIPTION

Cyanide is shown to exist in onsite groundwater at downgradient locations. Concentrations of 666 ppb and 53 ppb were discovered in onsite wells as per analytical data. Cyanide was not shown to exist at the Columbia Falls municiple well located approximately 2.5 miles downgradient of the site. Organic contaminants evident in on-site soils, waste and surface waters has not migrated to the ground water.

01 X B. SURFACE WATER CONTAMINATION — 02 X OBSERVED (DATE: 06/07/88) X POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 3,112 — 04 NARRATIVE DESCRIPTION

Cyanide is shown to exist in surface waters of the Flathead River adjacent to the site. Concentration of 55ppb were detected. Organic PAH compounds exist in on-site surface waters, specifically the north and south percolation ponds, however off-site migration of these compounds is negligable.

01 ___ C. CONTAMINATION OF AIR — 02 ___ OBSERVED (DATE: ___) ___ POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: ___ — 04 NARRATIVE DESCRIPTION

Air emmissions from the CFAC facility are currently under the scrutiny of the EPA and the Montana Department of Health and Environmental Sciences. Contamination of Air was not addressed during this investigation.

01 ___ D. FIRE/EXPLOSIVE CONDITIONS — 02 ___ OBSERVED (DATE: ___) ___ POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: ___ — 04 NARRATIVE DESCRIPTION

Fire/Explosive conditions are inherent with the aluminum reduction process, however wastes produced during this process and the mode of waste depositon at the site pose minimal Fire/Explosive Conditions.

01 X E. DIRECT CONTACT — 02 X OBSERVED (DATE: 06/07/88) X POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 600 — 04 NARRATIVE DESCRIPTION

Direct Contact is restricted to only those employed at the CFAC facility. Access to all plant operation and waste disposal areas is restricted to other persons by means of a full time security guard and ten foot chain-link fencing.

01 X F. CONTAMINATION OF SOIL — 02 X OBSERVED (DATE: 06/15/88) X POTENTIAL ___ ALLEGED

03 AREA POTENTIALLY AFFECTED: 3 (Acres) — 04 NARRATIVE DESCRIPTION

A release of organic (PAH) compounds and inorganic compounds was documented as per sampling and CLP analysis. The soil and waste samples collected during the investigation exhibited concentrations greater than 3x background conditions.

01 ___ G. DRINKING WATER CONTAMINATION — 02 ___ OBSERVED (DATE: ___) ___ POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 3,112 — 04 NARRATIVE DESCRIPTION

No contaminants from the CFAC site were detected in ground water collected from the Columbia Falls backup municiple supply well. Limited organic compounds (PAH) were found in Cedar Creek which is the main domestic water supply source for the town of Columbia Falls. Migration of contaminants to individual households was not established during the investigation.

01 ___ H. WORKER EXPOSURE/INJURY — 02 ___ OBSERVED (DATE: ___) ___ POTENTIAL ___ ALLEGED

03 WORKERS POTENTIALLY AFFECTED: 600 — 04 NARRATIVE DESCRIPTION

Worker Exposure/Injury is inherent in the aluminum reduction process, however no reports of exposure or injury due to contaminants at the site are available. Individuals working long hours in the presence of site generated fly ash material may be exposed to large concentrations of PAH compounds.

01 ___ I. POPULATION EXPOSURE/INJURY — 02 ___ OBSERVED (DATE: ___) ___ POTENTIAL ___ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: ___ — 04 NARRATIVE DESCRIPTION

Access to the CFAC site is restricted by means of a 24-hour onsite guard and ten foot high fencing around the site. Population exposure/injury is minimal.

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POTENTIAL HAZARDOUS WASTE SITE

SITE INSPECTION REPORT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE MT | 02 SITE NUMBER MTD057561763

II. HAZARDOUS CONDITIONS AND INCIDENTS (CONTINUED)

01 ___ J. DAMAGE TO FLORA 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION

No obvious damage to Flora was observed during the site investigation. Roads, waste piles and miscellaneous plant related debris pose the only damage to onsite Flora. According to information obtained from the Montana Natural Heritage Program, Silene spaldingii, an endangered herbarium species in Montana, may still exist in the Columbia Falls area.

01 ___ K. DAMAGE TO FAUNA 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

0None 4 NARRATIVE DESCRIPTION (Include name(s) of pecies)

None reported or observes during the site investigation, however Moose, Elk and coyote were observed on the CFAC prperty at the time of the investigation. CFAC personnel also indicated that black bear have been known to visit the plant property. Although access to the plant itself is restricted, the gate leading to the leachate pond/ spent pot liner landfill was left open. Wildlife frequenting the CFAC prpoerty may be exposed to contaminants if they should wander into the spent pot liner landfill area.

01 X L. CONTAMINATION OF FOOD CHAIN 02 ___ OBSERVED (DATE: _____) X POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION

Cyanide at concentrations of 55ppb were observed in surface waters of the Flathead River. Contamination of native sport fish is potential. Limited organic (PAH) contamination to Cedar Creek was also observed. Native Trout are known to exist in Cedar Creek. Youths were observed fishing in Cedar Creek, approximately 1.5 miles downstream from the site, during the investigation.

01 ___ M. UNSTABLE CONTAINMENT OF WASTES 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

(Spills/runoff/standing liquids/leaking drums)

03 POPULATION POTENTIALLY AFFECTED: _____ 04 NARRATIVE DESCRIPTION

Wastes deposited at the spent pot liner landfill have adequate containment. The leachate ponds adjacent to the spent pot liner landfill are lined and appear to be functioning properly. Plant effluent is piped to unlined ponds (north and south percolation ponds) where migration of wastes to the groundwater has been documented.

01 ___ N. DAMAGE TO OFFSITE PROPERTY 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION

None Reported or Observed.

01 ___ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION

None reported or observed during the investigation. CFAC has on on-site sewage treatment plant used exclusively for and by the plant. Effluent from the treatment plant is mixed with contact cooling water from olant opperations and piped to the south percolation pond. PAH compounds and cyanide (18ppb) were found to exist in the south percolation pond.

01 ___ P. ILLEGAL/UNAUTHORIZED DUMPING 02 ___ OBSERVED (DATE: _____) ___ POTENTIAL ___ ALLEGED

04 NARRATIVE DESCRIPTION

None reported or observed. The CFAC Facility does not an NPDES permit and consequently may be in violation for pumping contact cooling water to the south percolation pond.

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

None reported or observed

III. TOTAL POPULATION POTENTIALLY AFFECTED: 3,112

IV. COMMENTS

A review of past groundwater sampling data collected by CFAC personnel and data generated under this investigation, show that cyanide concentrations are decreasing at some locations, however a release of cyanide has been documented as per CLP data. Cyanide is also evident in surface waters from the Flathead River. Attribution of this contamination may be due to the south percolation pond.

V. SOURCES OF INFORMATION (Cite specific references. e.g., state files, sample analysis, reports)

Organic and Inorganic CLP analysis of samples collected during the investigation. Case # 9745
Observatuions made during the investigation. (Recorded in the sampling activities logbook, TDD-F08-8804-08)

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MT	MTD057561763

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				
_X_G. STATE (Specify)	MGWPCS005	1984	Reviewed Yearly	Montana Groundwater Pollution Control Permit
___H. LOCAL (Specity)				
___I. OTHER (Specify)				
___J. NONE				

III. SITE DESCRIPTION

01 STORAGE/DISPOSAL (Check all that apply)	02 AMOUNT	03 UNIT OF MEASURE
___A. SURFACE IMPOUNDMENT		
_X_B. PILES	Unknown	
___C. DRUMS, ABOVE GROUND		
___D. TANK, ABOVE GROUND		
___E. TANK, BELOW GROUND		
_X_F. LANDFILL	Unknown	
___G. LANDFARM		
___H. OPEN DUMP		
___I. OTHER _____ (Specify)		

04 TREATMENT (Check all that apply)

___A. INCENERATION
___B. UNDERGROUND INJECTION
___C. CHEMICAL/PHYSICAL
___D. BIOLOGICAL
___E. WASTE OIL PROCESSING
___F. SOLVENT RECOVERY
___G. OTHER RECYCLING/RECOVERY
___H. OTHER _____ (Specify)

05 Other

_X_A. BUILDINGS ON SITE 7

06 AREA OF SITE

120 (Acres)

07 COMMENTS

Treater dust and spent pot material is deposited in the spent pot liner landfill. Two lined leachate ponds are located adjacent to the landfill. The amount is unknown.

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.

Leachate ponds are lined. No overland flow of contaminants was observed, during the investigation, from the spent pot liner landfill. A release to onsite groundwater indicates that cyanide migratiom from wastes deposited onsite is currently happening.

V. ACCESSIBILITY

01 WASTE EASILY ACCESSIBLE: ___YES _X_NO

02 COMMENTS

Wastes are not accessible to persons other than CFAC personnel. Wildlife observed onsite do have accessibility to wastes deposited there.

VI. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

Observations made during the site investigation. (Recorded in the sampling activities logbook, TDD-f08-8804-08). Sample Plan for Columbia Falls Aluminum Company (TTD-F08-8801-02)

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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
MT	MTD057561763

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
>145 (ft)	1.5 (ft)	Unknown

06 NET PRECIPITATION	07 ONE YEAR 24 HOUR RAINFALL	08 SLOPE SITE SLOPE	DIRECTION OF SITE SLOPE	TERRAIN AVERAGE SLOPE
32 (in)	1.25 (in)	3-4 %	South/Southwest	3-4 %

09 FLOOD POTENTIAL
SITE IS IN 50 YEAR FLOODPLAIN

10 ___ SITE IS ON BARRIER ISLAND, COASTAL HIGH HAZARD AREA, RIVERINE FLOODWAY

11 DISTANCE TO WETLANDS (5 acre minimum)
ESTUARINE: A. 5 mi. (mi)
OTHER: B. _____ (mi)

12 DISTANCE TO CRITICAL HABITAT (of endangered species)
25 (mi)
ENDANGERED SPECIES: bald eagle

13 LAND USE IN VICINITY
DISTANCE TO:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESRVES	AGRICULTURAL LANDS PRIME AG LAND	AGRICULTURAL LANDS AG LAND
A. 0 (mi)	B. 2.5 (mi)	C. _____ (mi)	D. 3 (mi)

14 DESCRIPTION OF SITE IN RELATION TO SURROUNDING TOPOGRAPHY

The CFAC site is located at the base of Teakettle Mountain. The Flathead River flows west past the site and is located approximately 0.25 miles soth of the site. Cedar Creek also flows by the CFAC site in a southwest direction and is located approximately 0.5 miles from the site.

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, saple analysis, reports)

Climatic Atlas of the United States, U.S. Department of Commerce, Environmental Sciences Services Administation, Environmental Data Service, June, 1968.
Hydrometrics; Hydrogeologic Evaluation, Columbia Falls Aluminum Company, Columbia Falls, Montana, September 16,1985
Konizeski, R.L., et.al.. Geology and Ground Water Resources of the Kalispell Valley, Northwestern Montana, Bulletin No. 68. Montana Bureau of Mines and Geology. July, 1968.

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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
MT	MTD057561763

II. DRINKING WATER SUPPLY

01 TYPE OF DRINKING SUPPLY (Check as applicable)

	SURFACE	WELL
COMMUNITY	A. X	B. ___
NON-COMMUNITY	C. ___	D. X

02 STATUS

	ENDANGERED	AFFECTED	MONITORED
COMMUNITY	A. ___	B. X	C. X
NON-COMMUNITY	D. ___	E. ___	F. X

03 DISTANCE TO SITE

A. 1/4 (mi)
B. 0 (mi)

III. GROUNDWATER

01 GROUNDWATER 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, UNUSEABLE

COMMERCIAL, INDUSTRIAL, IRRIGATION (No other water sources available)

02 POPULATION SERVED BY GROUND WATER 600

03 DISTANCE TO NEAREST DRINKING WATER WELL 1/2 (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
50 (ft)	South/Southwest	50 (ft)	125 (gpd)	___ YES X NO

09 DESCRIPTION OF WELLS (Including usage, depth, and location relative to population and buildings)

Private domestic use wells located 1/2 mile from the site. Backup municiple well located 2.5 miles downstream.

10 RECHARGE AREA

X YES
___ NO

COMMENTS: Ephemeral drainage from Teakettle Montain recharge the area

11 DISCHARGE AREA

X YES
___ NO

COMMENTS: Discharge from the site is to the Flathead River

IV. SURFACE WATER

01 SURFACE WATER USE (Check one)

X 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
Flathead River	X	1/4 (mi)
Cedar Creek	X	1/2 (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. 321	B. 2,567	C. 3112
NO. OF PERSONS	NO. OF PERSONS	NO. OF PERSONS

02 DISTANCE TO NEAREST POPULATION 2.5 (mi)

03 NUMBER OF BUILDINGS WITHIN TWO (2) MILES OF SITE 250

04 DISTANCE TO NEAREST OFF-SITE BUILDING 1/2 (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)

Population in vicinity of site is considered rural, agricultural. The town of Columbia Falls (Pop. 3112 from 1980 cencus) is located approximately 2 miles southwest of the facility.

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MT	MTD057561763

II. SAMPLES TAKEN

SAMPLE TYPE	01 NUMBER OF SAMPLES TAKEN	02 SAMPLES SENT TO	03 ESTIMATED DATE RESULTS AVAILABLE
GROUNDWATER	nine	Compuchem/Anametrics/Eseco	09/01/88
SURFACE WATER	seven	"	"
WASTE	two	S-Cubed	"
AIR			
RUNOFF			
SPILL			
SOIL	three	Compuchem/Anametrics/Eseco	09/01/88
VEGATATION			
OTHER			

III. FIELD MEASUREMENTS TAKEN

01 TYPE	02 COMMENTS
pH	Collected on all ground and surface water samples. All values within normal ranges
Conductivity	"
Water Level	Used to accurately establish ground water flow directions.

IV. PHOTOGRAPHS AND MAPS

01 TYPE X GROUND X 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 Environmont Inc. (TDD-F08-8801-02)

V. OTHER FIELD DATA COLLECTED (Provide narrative description)

A Hachs Water Analysis Kit was used as a site screening tool in order to define the existence of cyanide, florido and hexavalent chromium. The analysis was performed on all ground and surface waters for correlative purposes. Four onsite wells were surveyed by Flathead Land Consultants in order tio more accurately define groundwater flow directions underneath the site. A Monotox Cyanide Detector was utilized during drilling in order to detect cyanide release to ambient air. None was detected.

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

In-field results of Hach Water Analysis, Tdd-F08-8804-08.
Sampling Activities Report, Columbia Falls Aluminum Company. TDD-F08-8804-08.

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154- 00237

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 – OWNER INFORMATION

I. IDENTIFICATION	
01 STATE	02 SITE NUMBER
MT	MTD057561763

II. CURRENT OWNER(S)			PARENT COMPANY (If applicable)		
01 NAME Columbia Falls Aluminum Company		02 D+B NUMBER	08 NAME SAME		09 D+B NUMBER
03 STREET ADDRESS (P.O. BOX, RFD #, ETC.) P.O. Box 10		04 SIC CODE	10 STREET ADDRESS (P.O. BOX, RFD #, ETC.)		11 SIC CODE
05 CITY Columbia Falls	06 STATE MT	07 ZIP CODE 59912	12 CITY	13 STATE	14 ZIP CODE
01 NAME		02 D+B NUMBER	08 NAME		09 D+B NUMBER
03 STREET ADDRESS (P.O. BOX, RFD #, ETC.)		04 SIC CODE	10 STREET ADDRESS (P.O. BOX, RFD #, ETC.)		11 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	12 CITY	13 STATE	14 ZIP CODE
01 NAME		02 D+B NUMBER	08 NAME		09 D+B NUMBER
03 STREET ADDRESS (P.O. BOX, RFD #, ETC.)		04 SIC CODE	10 STREET ADDRESS (P.O. BOX, RFD #, ETC.)		11 SIC CODE
05 CITY	06 STATE	07 ZIP CODE	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 ARCO Metals Company		02 D+B NUMBER	01 NAME		02 D+B NUMBER
03 STREET ADDRESS (P.O. Box, RFD #, etc.) First National Tower, P.O. Box 32860		04 SIC CODE	03 STREET ADDRESS (P.O. Box, RFD #, etc.)		04 SIC CODE
05 CITY Louisville	06 STATE KY	07 ZIP CODE 41232	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)

Sample Plan, Columbia Falls Aluminum Company. TDD-F08-8801-02

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION	
01 STATE MT	02 SITE NUMBER MTD057561763

II. CURRENT OPERATOR (Provide if different from owner)				OPERATOR'S PARENT COMPANY (If applicable)			
01 NAME Columbia Falls Aluminum Company		02 D+B NUMBER		10 NAME		11 D+B NUMBER	
03 STREET ADDRESS (P.O. BOX, RFD #, ETC.) P.O. Box 10		04 SIC CODE		12 STREET ADDRESS (P.O. BOX, RFD #, ETC.)		13 SIC CODE	
05 CITY Columbia Falls	06 STATE MT	07 ZIP CODE 59912		14 CITY	15 STATE	16 ZIP CODE	
08 YEARS OF OPERATION 1985-present	09 NAME OF OWNER same as above						

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)				PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)			
01 NAME ARCO Metals Company		02 D+B NUMBER		10 NAME Atlantic Richfield Company		11 D+B NUMBER	
03 STREET ADDRESS (P.O. Box, RFD #, etc.) P.O. Box 32860		04 SIC CODE		12 STREET ADDRESS (P.O. Box, RFD #, etc.) Same		13 SIC CODE	
05 CITY Louisville	06 STATE KY	07 ZIP CODE 40232		14 CITY Same	15 STATE	16 ZIP CODE	
08 YEARS OF OPERATION 1955-1985	09 NAME OF OWNER DURING THIS PERIOD ARCO						
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)

Sampling Plan, Columbia Falls Aluminum Company. TDD-F08-8801-02.

EPA FORM 2070-13 (7-81)

154- 00238

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION	
01 STATE MT	02 SITE NUMBER MTD057561763

II. ON-SITE GENERATOR

01 NAME	02 D+B NUMBER
Columbia Falls Aluminum Company	

03 STREET ADDRESS (P.O. BOX, RFD #, ETC.)	04 SIC CODE
P.O. Box 10	

05 CITY	06 STATE	07 ZIP CODE
Columbia Falls	MT	59912

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)

Sample Plan Columbia Falls Aluminum Company. TDD-F08-8801-02.

EPA FORM 2070-13 (7-81)

recycled paper
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ecology and environment

EPA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MT	MTD057561763

II. PAST RESPONSE ACTIVITIES (Continued)

01 ___R. BARRIER WALLS CONSTRUCTED 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None Reported or Observed

01 _X_S. CAPPING/COVERING 02 DATE Unknown 03 AGENCY CFAC
04 DESCRIPTION
Native soil covering was placed over the slude pond.

01 ___T. BULK TANKAGE REPAIRED 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None Reported

01 ___U. GROUT CURTAIN CONSTRUCTED 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None Reported

01 ___V. BOTTOM SEALED 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None Reported

01 ___W. GAS CONTROL 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None Reported

01 ___X. FIRE CONTROL 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None Reported

01 ___Y. LEACHATE TREATMENT 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None Reported

01 ___Z. AREA EVACUATED 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None Reported

01 ___1. ACCESS TO SITE RESTRICTED 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None Reported

01 ___2. POPULATION RELOCATED 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None Reported

01 ___3. OTHER REMEDIAL ACTIVITIES 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None Reported

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Sampling Plan, Columbia Falls Aluminum Company. TDD-F08-8801-02.

EPA FORM 2070-13 (7-81)

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POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION

01 STATE	02 SITE NUMBER
MT	MTD057561763

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 ___ D. SPILLED MATERIAL REMOVED 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None Reported

01 ___ E. CONTAMINATED SOIL REMOVED 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None Reported or Observed

01 ___ F. WASTE REPACKAGED 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None Reported

01 ___ G. WASTE DISPOSED ELSEWHERE 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None Reported

01 ___ H. ON SITE BURIAL 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None Reported

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

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

01 ___ O. EMERGENCY DIKING/SURFACE WATER DIVERSION 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None Reported

01 ___ P. CUTOFF TRENCHES/SUMP 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None Reported

01 ___ Q. SUBSURFACE CUTOFF WALL 02 DATE _____ 03 AGENCY _____
04 DESCRIPTION
None Reported

EPA FORM 2070-13 (7-81)

EPA	POTENTIAL HAZARDOUS WASTE SITE SITE INSPECTION REPORT PART 11 - ENFORCEMENT INFORMATION	I. IDENTIFICATION 01 STATE MT 02 SITE NUMBER MTD057561763

II. ENFORCEMENT INFORMATION

01 PAST REGULATORY/ENFORCEMENT ACTION ___YES _X_NO

02 DESCRIPTION OF FEDERAL, STATE, LOCAL REGULATORY/ENFORCEMENT ACTION

Ground water and air quality is monitorted by state agencies. The CFAC facility also undergoes periodic monitoring as part of the Montana Groundwater Pollution Control Permit.

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Sampling Plan Columbia Falls Aluminum Company. TDD-F08-8801-02.

EPA FORM 2070-13 (7-81)

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