INDEPENDENT REMEDIAL ACTION REPORT
BUILDING N (ASPENWOOD) AND BUILDING O (MAGNOLIA) SITES
BELLEFIELD OFFICE PARK,
BELLEVUE, WA

Prepared for Spieker Properties, Inc.
Bellevue, Washington

Dalton, Olmsted & Fuglevand, Inc. *Environmental Consultants*

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INTRODUCTION

This report presents a compilation and analysis of site history, hydrogeologic conditions and environmental quality data for properties designated as "Building N" and "Building O" sites within the current Bellefield Office Park located in Bellevue, Washington (Figure 1). These sites are currently owned by Spieker Properties, Inc. (herein termed Spieker).

In March 1995, Spieker purchased the Bellefield Office Park (Figure 2). The initial purchase did not include the Building N (Aspenwood) and O (Magnolia) sites. In June 1995, Dalton, Olmsted & Fuglevand Inc. (DOF), on behalf of Spieker, submitted an Independent Remedial Action Report (IRAP) (DOF 1995) to the Washington State Department of Ecology (Ecology). Based on the IRAP, Spieker requested a No Further Action (NFA) letter for the initially purchased property. After review of the IRAP, Ecology requested that additional ground-water sampling and analysis be completed. The results of the requested work are documented in a report prepared by DOF (1996). Based on the IRAP and the results of the additional Ecology requested work, Ecology issued an NFA letter for the initially purchased property on November 1, 1996. The IRAP and follow-up ground-water sampling report and the NFA letter for the initial property purchase are included in Appendices A, B and C to this report.

The Building N and O sites are located immediately adjacent to the initially purchased portion of the Bellefield Office Park (Figure 2). Spieker purchased the Building N site in December 1996 and the Building O site in January 1998. As part of these purchases, DOF completed additional soil and ground-water sampling on each of the properties. The primary purpose of the work was to generally evaluate whether the environmental conditions on the subject properties are similar to those on the initially purchased Bellefield Office Park property and to assist with construction of Building N. The results of these additional samplings are documented in reports prepared by DOF (1997a,b,c;1998). These reports are included in Appendices D and E to this report.

In addition to the work completed by DOF, Clayton Environmental Consultants (Clayton) completed a Phase 1 environmental site assessment for the former Koll Center Bellefield site (Building O site). This work was completed for Transamerica Realty Services, Inc. (former owner) and the report is included in Appendix F to this report.

The following report sections summarize pertinent information for the Building N and O sites and contrast this information with information collected on the initially purchased property (i.e. Bellefield Office Park). The reports presented in the Appendices should be consulted for additional detail including boring/well logs, sampling procedures, laboratory data sheets, etc.

SITE DESCRIPTIONS

Site Names and Addresses:

Building N (Aspenwood Building) - Former Anderson Property
1800 114th Ave. S.E.
Bellevue, WA 98004

Building O (Magnolia Building) - Former Koll Center Bellefield
1756 114th Ave. S.E.,
Bellevue, WA 98004

Location: The subject properties are now included within the Bellefield Office Park located west of Interstate 405, south of S.E. 8th Street and east of 112th Avenue S.E. in Bellevue, Washington (Figures 1 and 2). The sites are in King County and appear in the King/Pierce/Snohomish counties Thomas Guide (1997) on page 566 Sector E7 and page 596 Sector E1. The site can also be located on the United States Geologic Survey (USGS) Bellevue South Quadrangle, 7.5 Minute Series Topographic Map within Section 5, Township 24 North, Range 5 East (or approximately 122° 11' 40" west longitude, 47° 35' 45" north latitude).

Project Owner and Contact: The company contact, mailing address and phone number are as follows:

Company Representative: Anne Jannetti - Project Director

Phone Number: (425) 451-3149

Mailing Address: Spieker Properties, Inc.
1150 114th Aveunue S.E.
Bellevue, Washington 98004-6914

Property Uses: The properties are used for general office purposes. A two story office building over covered parking with associated parking lots, roadways, and landscaped areas are present on each property (Figure 2).

HISTORY AND LANDUSE

Development of the adjacent Bellefield Office Park and subject properties occurred over a former peat bog (DOF 1995). Building N was constructed by Spieker in 1997 while Building O was present when Spieker purchased the property.

Prior to 1916, the area in the vicinity of the subject properties was under water and formed part of Lake Washington. Following construction of the Hiram Chittendon Locks, the lake level was lowered and the site emerged as a peat bog. Site development in the general area began in 1970 by importing and placing fill on top of peat; dredging existing and new channels to improve drainage; and constructing buildings, bridges and pavements. The imported fill was reportedly demolition wood debris from wood-frame residences that were demolished as a result of the construction of Interstate 405 located approximately one-quarter mile east of the site.

Buildings and bridges constructed over the peat bog are supported by pile foundations bearing below the peat. Consolidation of the peat deposits caused by filling to develop the area has caused ground settlements.

TOPOGRAPHY/HYDROGEOLOGY

Topography

Land surface elevations generally range between 14 and 18 feet based on the USGS topographic map "Bellevue South Quadrangle" (Figure 3). The Mercer Slough surrounds the site.

Hydrogeology

The general area of the Bellefield Office Park, including the subject properties is situated along the western edge of a valley that drains from north to south into Lake Washington (Figure 3). Historically, this area was part of a much deeper valley created by glaciation. The valley, carved by glaciers, was then partially filled by alluvial (river) deposits consisting of silts, sands and gravels. The partially filled valley was inundated with water when downstream drainage was blocked. Lake deposits consisting of silt and peat subsequently filled the valley.

Subsurface Explorations: Geotechnical investigations began in the late 1960's to determine design parameters for development of the general area. A series of peat probes were completed in 1969 (Twelker 1969) that defined the general subsurface conditions. These explorations were supplemented with borings completed on the subject properties in 1996 and 1997. The locations of peat probes, and selected soil borings and monitor wells are shown on Figure 4.

Prior to development of the building N and O sites, approximately 25 to 45 feet of soft, brown Peat was found to overlie a loose to dense Sand and Gravel. The subsurface

conditions were modified during development by placement of fill as shown on geologic sections A-A' and B-B' (Figure 5). Geologic data from recently drilled borings and wells indicate that 15 to 30 feet of fill has been placed on the subject sites. This fill generally consists of a variable surficial layer of clean to silty Sand w/ gravel, cobbles and brick fragments that overlie a layer consisting of wood fragments and logs/timbers with sand, brick and other fragments.

Hydrology. As shown on Figure 3, the sites are located in a north-south trending valley. Land surface elevations on the north, east, and west sides of the valley are greater than 50 feet, while elevations in the valley are less than 20 feet.

The low lying Mercer Slough receives precipitation runoff from paved areas (e.g. parking lots and roadways) located within and surrounding the slough, including runoff from I-405. The slough is dissected by several surface water channels, two of which surround the office park (Figure 2). The topographic relationships of the area also indicate that the slough likely receives ground-water recharge from surrounding higher areas. In the Puget Sound region, topographically higher areas are typically ground-water recharge areas, while lower elevation areas are ground-water discharge areas.

The depth to water in well MW-K1 measured on December 19, 1997 was approximately 1.5 feet below ground surface. Water levels have been periodically measured in monitor wells DW-1 to DW-6 (well locations are shown on Figure 4) between March 1996 and April 1998. Depths to water below ground-surface measured in these wells ranged between approximately 0.2 feet to 3.7 feet.

Water levels in Lake Washington are controlled by the Hiram Chittendon Locks at elevations between approximately 13 feet and 15 feet above mean sea level. Surface water runoff at the site is handled by drains located on the adjacent streets, parking areas and sloughs. During periods of high precipitation, ground-water levels and water levels in the adjacent slough rise and flood some parking lots in the office park below an elevation of approximately 16 feet.

RELEASE INFORMATION/SITE CHARACTERIZATION

Building N Site (Aspenwood Building)

The Building N site is approximately 4 acres in size. When Spieker purchased this site, the site was undeveloped, except for fill that had been placed over the former peat bog. Spieker constructed the existing building and parking areas in 1997. As part of the assessments associated with purchasing and developing the property, DOF completed the following work (DOF 1997a,b,c).

- Two soil borings were drilled and soil samples were collected and analyzed for petroleum hydrocarbons and PCBs;

- One of the borings (BA-MW1) was converted into a monitor well and a ground water sample was obtained and analyzed for petroleum hydrocarbons, PCBs and total metals (arsenic, lead and zinc);

- Near-surface soil samples well collected and analyzed for petroleum hydrocarbons.

Results of Soil Analyses. The results of soil analyses completed on the Building N site are summarized in Table 1. In November 1996, soil samples from borings BA-B1 and BA-MW-1 were collected from depths between approximately 2.5 feet and 22.5 feet. Samples were analyzed for petroleum hydrocarbons (WTPH-D, extended) and PCBs. Diesel range hydrocarbons ranged between less than 10 mg/kg to 228 mg/kg, and heavy-oil range hydrocarbons ranged between approximately 52 mg/kg and 1,340 mg/kg. The highest petroleum hydrocarbon concentration (1,568 mg/kg) was found in a sample collected at a depth of 17.5 feet at BA-MW-1. No PCBs were detected in any of the samples at a reporting limit of 0.05 mg/kg.

Near-surface soil samples were obtained during construction of Building N. The first sampling occurred in March 1997 (DOF 1997b) to assess the presence of petroleum hydrocarbons in soil piles created by footing excavations. The approximate locations of the soil piles and samples are shown on Figure 6 and the analytical data is summarized in Table 1. Diesel range hydrocarbon concentrations ranged between less than 10 mg/kg to 134 mg/kg while heavy-oil range hydrocarbons ranged between 102 mg/kg and 1,180 mg/kg. The highest concentration detected was 1,314 mg/kg.

In May 1997 a second round of near surface soil sampling occurred (DOF 1997c). The purpose of the testing was to provide data to assess the concentrations of petroleum hydrocarbons in soils excavated to install near-surface utilities. The locations of the samples are shown on Figure 7 and the analytical data is summarized in Table 1. Diesel range hydrocarbon concentrations ranged between less than 10 mg/kg to approximately 69 mg/kg while heavy-oil range hydrocarbons ranged between less than 25 mg/kg and 1,200 mg/kg. The highest concentration detected was 1,341 mg/kg.

As part of construction of Building N, approximately 275 tons of soil was removed from the site and disposed in the Rabanco Regional Disposal Company's landfill located near Roosevelt, WA. The material consisted of soil from piles N-4, N-6 and N-7 (Figure 6) and soil in the vicinity of location W-7 shown on Figure 7.

Results of Ground-Water Quality Analyses. A ground-water sample was obtained from well BA-MW1 on November 25, 1996. The position of the screen with respect to the

subsurface conditions is shown on Figure 5. Low flow/low turbidity sampling procedures were used to collect the sample. The sample was analyzed by North Creek Analytical, Inc. for petroleum hydrocarbons, PCBs and total arsenic, lead and zinc. The results are summarized in Table 2.

As summarized in Table 2, petroleum hydrocarbons, PCBs, total arsenic and total zinc were not detected above laboratory reporting limits in the ground-water sample from BA-MW1. Total lead was detected at a concentration of 0.007 mg/l.

Building O Site (Magnolia Building)

The Building O site is approximately 7 acres in size. When Spieker purchased this site, the existing building and facilities had been constructed. As part of the assessments associated with purchasing the property DOF completed the following work (DOF 1998):

- Two soil borings were drilled and soil samples were collected and analyzed for petroleum hydrocarbons, PCBs, and polycyclic aromatic hydrocarbons (PAHs);

- One of the borings (MW-K1) was converted into a monitor well and a ground water sample was obtained and analyzed for petroleum hydrocarbons, PCBs, PAHs and total metals (arsenic, lead and zinc);

In addition, Transamerica Realty Services, Inc. (previous owner) contracted Clayton Environmental Consultants (Clayton) to complete a Phase 1 Environmental Site Assessment. Clayton's report is included in Appendix F. Clayton's Phase 1 assessment did not identify any specific soil or ground-water contamination on the Building O property, however they noted that contamination had been detected on the adjacent Bellefield Office Park site (covered by Ecology's November 1996 NFA letter - Appendix C) and considered *"it likely that similar contamination exists at the Koll Center Bellefield property"*.

Results of Soil Analyses. The results of soil analyses completed on the Building O site are summarized in Table 3. In December 1997, soil samples from borings B-K1 and MW-K1 were collected from depths between approximately 3 feet and 20 feet. Samples were analyzed for petroleum hydrocarbons (WTPH-D, extended), PCBs, and PAHs. Diesel range hydrocarbons ranged between 273 mg/kg and 394 mg/kg, and heavy-oil range hydrocarbons ranged between approximately 1,680 mg/kg and 2,890 mg/kg. The highest petroleum hydrocarbon concentration (3,284 mg/kg) was found in a sample collected at a depth of 3 to 4 feet at MW-K1.

PCBs were detected in samples from each boring. Aroclors 1242, 1254, and 1260 were detected at a total PCB concentration ranging between 0.36 mg/kg to 1.5 mg/kg.

PAHs were also detected in soil samples from both soil borings as summarized in Table 3. Concentrations of individual PAHs ranged from less than 0.05 mg/kg to 5.9 mg/kg (fluoranthene). The sum of carcinogenic PAHs ranged from 3 mg/kg to 11.9 mg/kg. The highest concentration was reported for a sample collected from a depth of 3 to 9.5 feet at B-K1.

Results of Ground-Water Quality Analyses. A ground-water sample was obtained from well BA-MW1 on December 18, 1997. The position of the screen with respect to the subsurface conditions is shown on Figure 5. Low flow/low turbidity sampling procedures were used to collect the sample. The sample was analyzed by North Creek Analytical, Inc. for petroleum hydrocarbons, PCBs, PAHs and total arsenic, lead and zinc. The results are summarized in Table 2.

As summarized in Table 2, petroleum hydrocarbons, PCBs, total arsenic and total zinc were not detected above laboratory reporting limits in the ground-water sample from MW-K1. Acenaphthene (1.3 ug/l), fluoranthene (0.28 ug/l), fluorene (1.5 ug/l), naphthalene (6.8 ug/l), phenanthene (1.5 ug/l) and total lead (8.9 ug/l) were detected in the ground-water sample.

COMPARISON OF SITE CONDITIONS AND SAMPLE RESULTS

Geologic Conditions: The geologic materials encountered beneath the Building N and O sites are similar to those encountered elsewhere in the Bellefield Office Park area. Development of the area occurred over a peat bog. Buildings are supported on piles while parking lots, roadways and landscaped areas were constructed over various thicknesses of fill consisting of sand, gravel, logs and demolition debris (wood, brick fragments etc.). The source of the demolition debris is reportely wood-frame residences removed during construction of Interstate 405 (DOF 1995), and demolition of super-structures of buildings in Seattle including the site of the Seattle Federal Office Building (Earth Consultants, 1988).

Petroleum Hydrocarbons. On the Building N and O sites, total petroleum hydrocarbon (TPH) concentrations ranged between not detected to 3,284 mg/kg. The majority (greater than approximately 85%) of petroleum hydrocarbons are heavy-oil hydrocarbons (C24-C40). As shown on Table 3, the range of petroleum hydrocarbons detected on the Building N and O sites is consistent with TPH concentrations detected elsewhere in the Bellefield Office Park area.

The results of soil analyses were compared to TPH cleanup levels derived using Ecology's interim Total Petroleum Hydrocarbon (TPH) cleanup guidance (Ecology 1997). Data is not available to rigorously apply this guidance, however, if it is assumed that all the hydrocarbons are aromatic, a residential landuse cleanup level of 2,400 mg/kg and a commercial landuse cleanup level of 9,600 mg/kg are derived using the pyrene surrogate (Clarc II - Ecology 1996). The concentrations in three of the thirty-eight samples analyzed

were above the 2,400 mg/kg residential soil ingestion cleanup level. None of the samples exceeded the commercial landuse cleanup level of 9,600 mg/kg.

Many of the detected concentrations of petroleum hydrocarbons are above the Model Toxics Control Act (MTCA) Method A cleanup level of 200 mg/kg, based on protection of ground-water quality. However, analysis of ground-water samples from wells BA-MW1 and MW-K1 using Washington State Method WTPH-DX with silica gel cleanup (Table 2) did not detect the presence of petroleum hydrocarbons. Petroleum hydrocarbons were not detected at reporting levels of 0.25 mg/l for diesel range hydrocarbons (C12 to C24) and 0.75 mg/l for heavy-oil range hydrocarbons (C24 to C40). This is consistent with the low-solubility of the predominant hydrocarbons detected in soil samples (i.e. heavy-oil hydrocarbons).

PCBs. PCBs were not detected in soil samples on the Building N site (Table 1). On the Building O site, PCBs were detected in three of the four soil samples analyzed. Total PCB concentrations ranged from less than 0.05 mg/kg to 1.5 mg/kg (Table 3). The PCB concentration of 1.5 mg/kg (B-K1 - 3' to 8') slightly exceeds the MTCA residential Method A cleanup level of 1 mg/kg but is below the Method C cleanup level for commercial sites of 5.2 mg/kg (CLARC II - Ecology 1996). The PCB concentrations on the Building O site are similar to those detected in borings B-1 to B-3 located on the Bellefield Office Park site (Figure 4), where concentrations measured in soil samples ranged from less than 0.05 mg/kg to 0.75 mg/kg.

PCBs were not detected in ground-water samples collected from monitor wells BA-MW1 and MW-K1 (Table 2). The reporting limit was 0.1 ug/l.

Polynuclear Aromatic Hydrocarbons (PAHs). On the Building O site, PAHs were detected in the four soil samples (Table 3). For discussion purposes, the PAHs are divided into non-carcinogenic PAHs (NPAHs) and carcinogenic PAHs (CPAHs). The lowest NPAH cleanup level (based on soil contact) is for pyrene and is 2,400 mg/kg. Concentrations of the NPAHs detected in soil are well below the pyrene cleanup level.

Possible CPAH cleanup levels for typical landuses are tabulated below:

Landuse:	CPAH Cleanup Level	Source
Residential	1 mg/kg	Method A (WAC 173-340-740)
Commercial	5.5 mg/kg	Method C (CLARC II)
Industrial	20 mg/kg	Method A (WAC 173-340-745)

CPAH concentrations in soil samples collected from boring B-K1 ranged between 7.5 mg/kg and 11.9 mg/kg while those in MW-K1 ranged between 3.0 mg/kg and 3.3 mg/kg. A

comparison of the CPAH concentrations in soil with the possible cleanup levels indicates that the residential cleanup level is exceeded at both locations and that the commercial cleanup level is exceeded at B-K1. None of the samples exceeded the industrial cleanup level.

PAHs were not analyzed in soil elsewhere on the Bellefield Office Park site. However, the PAHs appear to be associated with petroleum hydrocarbons. Based on the similar concentrations of petroleum hydrocarbons detected in the Bellefield Office Park area, in our opinion, the PAH concentrations should be similar.

As summarized in Table 2, several non-carcinogenic PAHs were detected in the ground-water sample from MW-K1 installed on the Building O site. Table 4 compares the detected concentrations of individual compounds to possible cleanup levels. As shown on Table 4, the detected concentrations are well below the indicated MTCA cleanup levels.

Metals. Ground-water samples collected from monitor wells BA-MW1 and MW-K1 were analyzed for total arsenic, total lead and total zinc. Arsenic and zinc were not detected at reporting limits of 0.001 mg/l and 0.02 mg/l, respectively. Total lead was measured at concentrations of 0.007 and 0.0089 mg/l which slightly exceeds the MTCA Method A cleanup level of 0.005 mg/l.

As summarized in Table 2, the total lead concentration measured in the sample from wells BA-MW1 and MW-K1 are similar to the concentrations measured elsewhere on the Bellefield Office Park site. Samples from wells DW-1 to DW-6 (Figure 2), ranged between less than 0.002 mg/l and 0.014 mg/l.

REQUEST FOR NO FURTHER ACTION LETTER

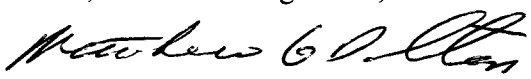
Based on the information presented in this report, the site owner is requesting a No Further Action (NFA) letter for the Building N (Aspenwood) and Building O (Magnolia) Sites. The conditions beneath these sites are similar to those encountered elsewhere on the Bellefield Office Park site that formed the basis for Ecology to issue the NFA letter for the initially purchased portion of the office park (see Appendix C).

CLOSING

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, expressed or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

Dalton, Olmsted & Fuglevand, Inc.



Matthew G. Dalton
Sr. Consulting Hydrogeologist

REFERENCES

Clayton Environmental Consultants, 1997, Phase 1 Environmental Site Assessment, Koll Center Bellefield, 1756 114th Ave. S.E., Bellevue, Washington, Project Number 75-98180.00, December 30, 1997.

DOF (Dalton, Olmsted & Fuglevand Inc.), 1995, Independent Remedial Action Report, Bellefield Office Park, Bellevue, Washington, Prepared for Spieker Properties, Inc., June 1995.

DOF, 1996, Request for No Further Action Letter, Bellefield Office Park, Bellevue, Washington, Prepared for Spieker Properties, Inc., April 30, 1996.

DOF, 1997a, Soil and Ground-Water Sampling, Anderson Property [Building N Site] Adjacent to Bellefield Office Park, Bellevue, Washington, Prepared for Spieker Properties, Inc., January 2, 1997.

DOF, 1997b, Results of Soil Sampling, Building N Site, Bellefield Office Park, Bellevue, Washington, Prepared for Spieker Properties, Inc., March 18, 1997.

DOF, 1997c, Soil Sampling and Analysis, Building N Construction Site, Bellefield Office Park, Bellevue, Washington, Prepared for Spieker Properties, Inc., June 6, 1997.

DOF, 1998, Soil and Ground-Water Sampling, Former Koll Center Bellefield [Building O Site], 1756 114th Ave. S.E., Bellevue, Washington, January 5, 1998.

Earth Consultants, 1988, Preliminary Environmental Audit, Lot 6, Bellefield Office Park, Bellevue, Washington, prepared for The Koll Company, June 27, 1988.

Ecology (Department of Ecology, 1996, Model Toxics Control Act, Cleanup Levels and Risk Calculations (CLARC II) Update, Publication #94-145 (Updated 1/96).

Ecology, 1996, Letter from Elaine Atkinson (Ecology) to Donald Jefferson (Spieker Properties, Inc.) concerning Bellefield Office Park, 11201 SE Eighth Street, Bellevue, Washington, November 1, 1996.

Ecology, 1997, Interim Interpretive and Policy Statemant, Cleanup of Total Petroleum Hydrocarbons (TPH), Publication No. ECY97-600, January 1997.

Twelker (Neil H. Twelker & Associates), 1969, Soils and Foundation Investigation, Progress Report, Bellefield Park, Proposed Residential, Recreational and Office Development, Prepared for Volotin Development Co., May 9, 1969.

TABLE 1 - Summary of Soil Quality Data - Building N Site

Building N Site
Bellefield Office Park

Results of Soil Samples From Soil Borings (Nov. 1996)

Sample No.	Depth (feet)	Petroleum Hydrocarbons (mg/kg)		PCBs (mg/kg)	Material Description
		Diesel Range	Heavy-Oil Range		
BA-B1	2.5	<10	51.9	<0.05	Very silty Sand w/ gravel & brick
BA-B1	12.5	142	721	<0.05	Wood fragments w/ some silty sand and brick frags.
BA-B1	22.5	209	451	<0.05	Wood fragments w/ some silty sand and brick frags; sheen on wood
BA-MW1	7.5	19.4	115	<0.05	Mixed Wood w/ silty sand and sandy silt
BA-MW1	17.5	228	1340	<0.05	Wood fragments in silty sand matrix

Results of Soil Stockpile Analyses From Footing Excavations (March 1997)

Sample No.	Depth (feet)	Petroleum Hydrocarbons (mg/kg)			Material Description
		Diesel Range	Heavy-Oil Range	Total	
N-1	stockpile	19.3	102	121	Silty Sand w/ gravel, wood debris, grass
N-2	stockpile	19.1	139	158	Silty Sand w/ gravel, cobbles, wood debris
N-3	stockpile	20.1	169	189	Silty Sand w/ gravel, wood and metal debris
N-4	stockpile	39.8	272	312	Silty Sand w/ gravel, wood debris, metal, brick frags.
N-5	stockpile	<10	31.1	41.1	Silty Sand w/ gravel, wood & metal debris, brick/concrete
N-6	stockpile	134	1180	1314	Similar to N5
N-7	stockpile	73.4	566	639	Silty Sand w/ gravel, wood & metal debris

Results of Soil Samples From Utility Trench Excavations (May 1997)

Sample No.	Depth (feet)	Petroleum Hydrocarbons (mg/kg)			Material Description
		Diesel Range	Heavy-Oil Range	Total	
S-1	0-3.5	<10	42.5	42.5	Gray-brown, silty, fine to coarse Sand w/ gravel
S-2	0-2.5	34.3	223	257.3	Gray-brown, silty, fine to coarse Sand w/ wood chips, bark, roots
S-3	0-2	26.7	203	229.7	Gray-brown, silty, fine to coarse Sand w/ wood chips, bark, roots
S-4	0-1.5	45.4	764	809.4	Brown, silty, gravelly fine to coarse Sand w/ wood debris
S-5	0-1.5	17.5	233	250.5	Dk. brown-orange, silty, fine to coarse Sand
S-6	0-2.5	56.3	617	673.3	Dk. brown-orange, silty, fine to coarse Sand w/ wood & gravel
W-1	0-3	57.5	334	391.5	Brown, silty, fine to coarse Sand w/cobbles, gravel, wood debris
W-2	0-4	16.6	131	147.6	Mixed silt, sand, gravel & cobbles w/ wood & brick debris
W-3	0-4.5	68.7	457	525.7	Mixed silt, sand, gravel & cobbles w/ wood & brick debris
W-4	0-4	16.9	144	160.9	Gray, silty, fine to coarse Sand w/ gravel & wood/brick debris
W-5	0-3	39.9	225	264.9	Dk. brown, wood debris w/ intermixed sand
W-6	0-3	23.8	155	178.8	Dk. brown, wood debris w/ intermixed sand
W-7	0-3	141	1200	1341	Wood debris w/ brick debris & sand
P-1	0-4	<10	74.9	74.9	Brown, silty, fine to coarse Sand w/ brick & wood debris
P-2	0-3	13.1	86.7	99.8	Gray/brown, silty, gravelly, fine to coarse Sand w/ wood debris
P-3	0-2	10.4	74.1	84.5	Gray/brown, silty, gravelly, fine to coarse Sand w/ wood debris
G-1	1-1.5	19	197	216	Brown, silty, fine to coarse Sand
G-2	0.5-1	12.1	77.3	89.4	Gray/brown, gravelly, fine to coarse Sand
G-3	0-0.8	<10	<25	<25	Gray/brown, silty, gravelly, fine to coarse Sand
G-4	0-0.5	29.5	176	205.5	Brown, silty, fine to coarse Sand w/ wood fragments
G-5	0-0.5	46.6	338	384.6	Brown, silty, fine to coarse Sand w/ wood fragments
G-6	0-0.5	34	176	210	Brown, silty, fine to coarse Sand w/ wood fragments

Notes: * Diesel-range hydrocarbons (C12-C24)

* Heavy-oil range hydrocarbons (C24-C40)

* Results in the diesel organics range are primarily due to overlap from a heavy oil range product

TABLE 2 - Summary of Ground-Water Quality Data

Koll Bellefield
Bellevue, Washington

Analyte	*Well No.*	MW-K1(5)	BA-MW-1(3)	DW-1(4)	DW-2(4)	DW-3(4)	DW-4(4)	DW-5(4)	DW-6(4)
	Screen Depth(ft)	3-13	2.5-12.5	2.5-12.5	2.5-12.5	2.5-12.5	2.5-12.5	2.5-12.5	2.5-12.5
	Sample Date	12/18/97	11/25/96	3/15/96	3/15/96	3/15/96	3/15/96	3/15/96	3/15/96
Total Petroleum Hydrocarbons	**Method**								
TPH as Diesel (mg/l)	WTPH-DX(1)	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
TPH as Oil (mg/l)	WTPH-DX(1)	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75
PCBs (ug/l)									
Aroclor 1016	EPA 8081	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1221	EPA 8081	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1232	EPA 8081	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1242	EPA 8081	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1248	EPA 8081	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1254	EPA 8081	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1260	EPA 8081	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Aroclor 1262	EPA 8081	<0.10	---	---	---	---	---	---	---
Aroclor 1268	EPA 8081	<0.10	---	---	---	---	---	---	---
Polynuclear Aromatic Hydrocarbons (ug/l)									
Acenaphthene	EPA 8310(2)	**1.28**	---	---	---	---	---	**1.1**	---
Acenaphthylene	EPA 8310	<1.0	---	---	---	---	---	<1.0	---
Anthracene	EPA 8310	<1.0	---	---	---	---	---	<1.0	---
Benzo(a)anthracene*	EPA 8310	<0.10	---	---	---	---	---	<0.10	---
Benzo(a)pyrene*	EPA 8310	<0.10	---	---	---	---	---	<0.10	---
Benzo(b)fluoranthene*	EPA 8310	<0.10	---	---	---	---	---	<0.10	---
Benzo(ghi)perylene	EPA 8310	<0.10	---	---	---	---	---	<0.10	---
Benzo(k)fluoranthene*	EPA 8310	<0.10	---	---	---	---	---	<0.10	---
Chrysene*	EPA 8310	<0.10	---	---	---	---	---	**0.20**	---
Dibenzo(a,h)anthracene*	EPA 8310	<0.10	---	---	---	---	---	<0.10	---
Fluoranthene	EPA 8310(2)	**0.276**	---	---	---	---	---	<0.10	---
Fluorene	EPA 8310(2)	**1.46**	---	---	---	---	---	<1.0	---
Indeno(1,2,3-cd)pyrene*	EPA 8310	<0.10	---	---	---	---	---	<0.10	---
Naphthalene	EPA 8310(2)	**6.57**	---	---	---	---	---	<1.0	---
Phenanthrene	EPA 8310(2)	**1.53**	---	---	---	---	---	<1.0	---
Pyrene	EPA 8310	<1.0	---	---	---	---	---	**0.11**	---
Sum of carcinogenic PAHs		<0.10	---	---	---	---	---	**0.2**	---
Turbidity (NTU)	**Field**	**7**	**5**	**3.1**	**8.5**	**1.6**	**4.9**	**3.4**	**4.8**
Total Metals (mg/l)									
Arsenic	EPA 6010A	<0.001	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004	<0.004
Lead	EPA 6020	**0.0089**	**0.0070**	**0.007**	**0.014**	**0.0034**	<0.002	**0.0058**	**0.0054**
Zinc	EPA 6020	<0.020	<0.020	<0.020	**0.041**	<0.020	**0.021**	**0.068**	**0.025**
Dissolved Metals (mg/l)									
Arsenic	EPA 6010A	---	---	<0.004	<0.004	**0.0042**	<0.004	<0.004	<0.004
Lead	EPA 6020	---	---	**0.0021**	**0.0026**	<0.002	<0.002	<0.002	<0.002
Zinc	EPA 6020	---	---	<0.020	<0.020	<0.020	<0.020	**0.044**	<0.020

< = Not detected at indicated reporting limit
---- = Not analyzed
(1) WTPH-DX with silica gel cleanup
(2) Qualitative confirmation by GC/MS
(3) DOF 1997a
(4) DOF 1996
(5) DOF 1998
* = carcinogenic PAHs

Table 3 - Summary of Soil Quality Data - Building O Site
(Former Koll Center Bellefield)

Koll Bellefield
Bellevue, Washington

Analyte	*Boring No.*	B-K1	B-K1	MW-K1	MW-K1	Concentration Range Reported Elsewhere in Bellefield Office Pk. (DOF 1995)
	Sample No.	3-8'&8'	18'	3'	13'	
	Depth(ft)	3-9.5'	18-19.5'	3-4.5'	13-14.5	
	Material	Wood	Wood	Sand	Wood	
Total Petroleum Hydrocarbons	**Method**					
TPH as Diesel (mg/kg)	WTPH-DX(1)	273(2)	339(2)	394(2)	314(2)	<10 - 1400
TPH as Oil (mg/kg)	WTPH-DX(1)	2,600	2,280	2,890	1,680	52 - 9900
PCBs (mg/kg)	EPA 8081					
Aroclor 1242	EPA 8081	0.73	0.51	<0.05	<0.05	---
Aroclor 1254	EPA 8081	0.81	<0.05	0.36	<0.05	---
Aroclor 1260	EPA 8081	<0.05	0.38	<0.05	<0.05	---
Sum of PCBs	EPA 8081	1.54	0.89	0.36	<0.05	<0.05 - 0.75
Polynuclear Aromatic Hydrocarbons (mg/kg)						
Acenaphthene	EPA 8270 mod	0.49	1.8	<0.05	0.32	---
Acenaphthylene	EPA 8270 mod	0.17	<0.02	0.092	<0.02	---
Anthracene	EPA 8270 mod	1.0	1.7	0.19	0.61	---
Benzo(a)anthracene*	EPA 8270 mod	2.0	1.6	0.45	0.87	---
Benzo(a)pyrene*	EPA 8270 mod	2.1	1.3	0.54	0.47	---
Benzo(b)fluoranthene*	EPA 8270 mod	2.7	1.5	0.80	0.87	---
Benzo(ghi)perylene	EPA 8270 mod	1.5	0.67	0.40	0.40	---
Benzo(k)fluoranthene*	EPA 8270 mod	0.77	0.34	0.15	0.26	---
Chrysene*	EPA 8270 mod	1.9	1.7	0.52	0.80	---
Dibenzo(a,h)anthracene*	EPA 8270 mod	0.42	0.17	0.13	0.028	---
Fluoranthene	EPA 8270 mod	5.9	4.5	1.1	2.2	---
Fluorene	EPA 8270 mod	0.53	1.4	0.092	0.39	---
Indeno(1,2,3-cd)pyrene*	EPA 8270 mod	2.1	0.90	0.44	0.028	---
Naphthalene	EPA 8270 mod	0.25	4.6	<0.05	0.27	---
Phenanthrene	EPA 8270 mod	3.6	7.6	1.0	2.9	---
Pyrene	EPA 8270 mod	4.6	4.4	1.0	2.3	---
Sum of carcinogenic PAHs	EPA 8270 mod	11.9	7.5	3.0	3.3	---

< = Not detected at indicated reporting limit

(1) WTPH-DX with silica gel cleanup

(2) Results in the diesel organics range are primarily due to overlap from a heavy oil range product.

* = carcinogenic PAHs

TABLE 4 - Summary of PAH Concentrations in Ground-Water and Cleanup Levels

Koll Center Bellefield
Bellevue, Washington

Constituent	MW-K1	Drinking Water MTCA Method B(1)	MTCA Surface Water Criteria(2)	Ambient Freshwater Criteria(3)
Acenaphthene	1.28	960	643	520(4)
Fluroanthene	0.28	640	90.2	3980(5)
Fluorene	1.46	640	3460	na
Naphthalene	6.57	320	9880	620(4)
Phenanthene	1.53	na	na	6.3(4)(6)

Notes: All concentrations in ug/l

(1) - WAC 173-340-720 - CLARC II (Ecology 1996)

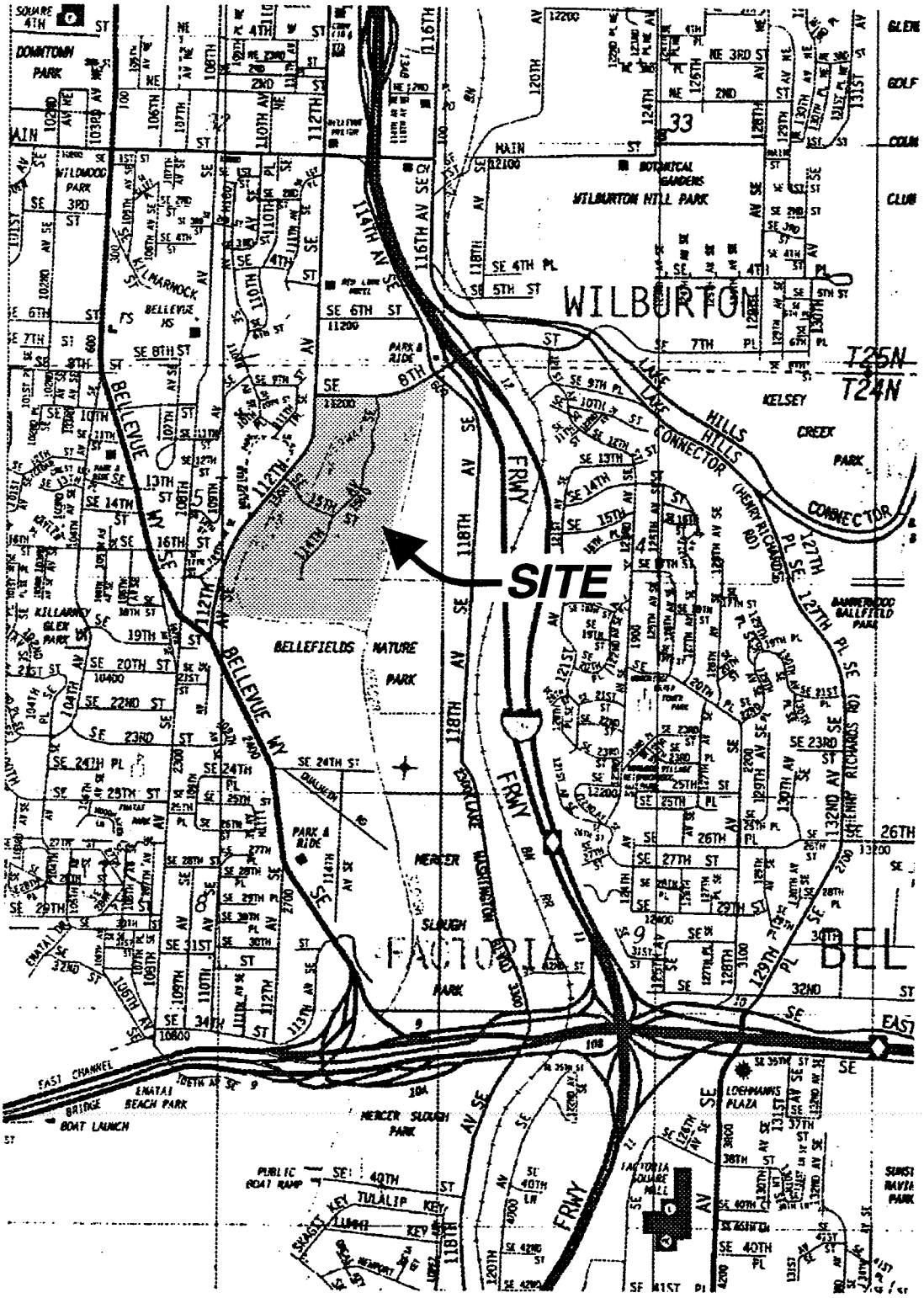
(2) - WAC 173-340-730 - CLARC II (Ecology 1996)

(3) - EPA Water Quality Criteria Summary(Draft) - Quality Criteria for Water 1994

(4) - Freshwater chronic criterion

(5) - Freshwater chronic criterion not available. Indicated value is the freshwater acute criterion

(6) - Proposed criterion

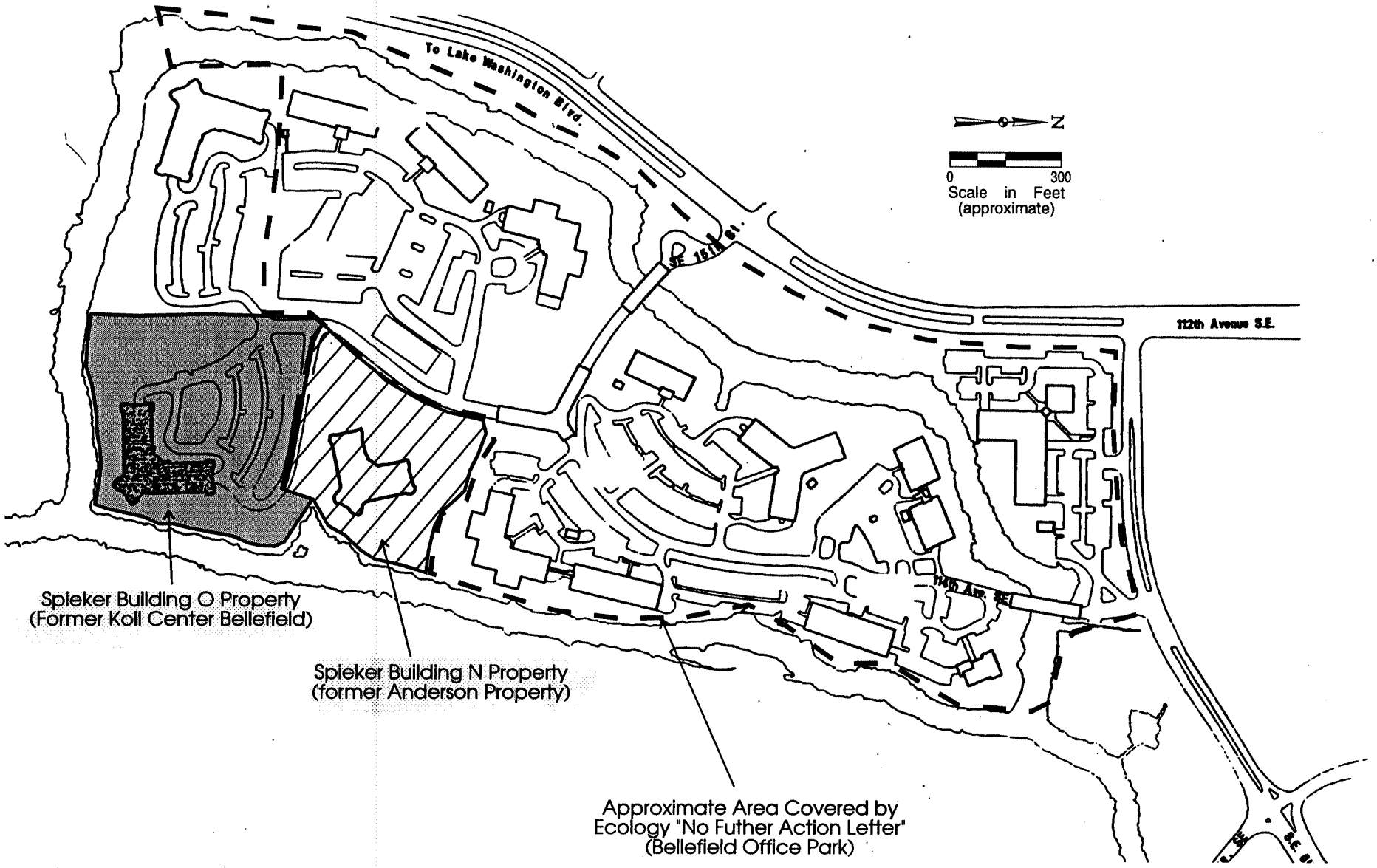


Bellefield Office Park
Bellevue Washington

VICINITY MAP

SPK-002 **FIGURE 1** January 1998

Dalton, Olmsted & Fuglevand, Inc.



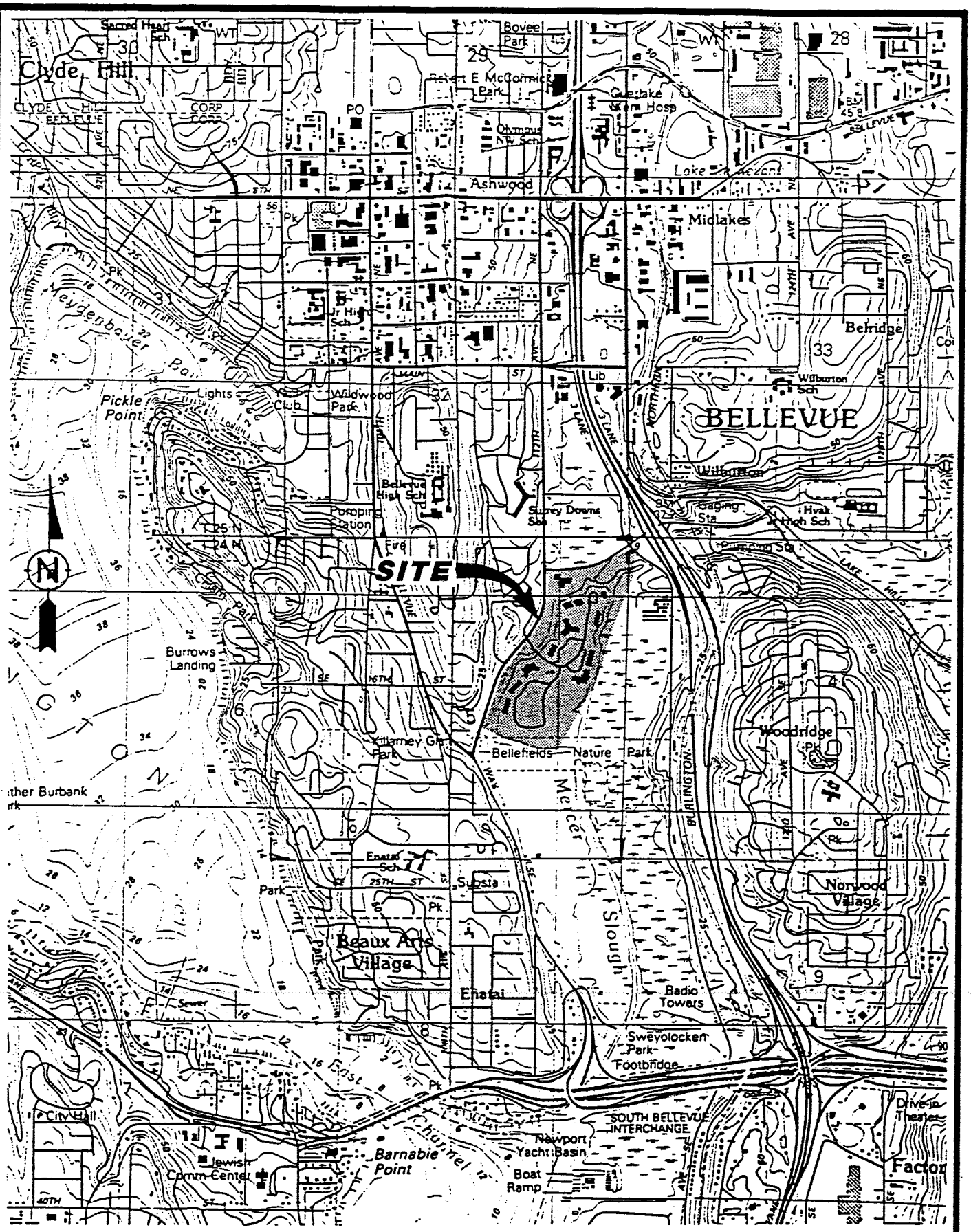
Bellefield Office Park
Bellevue, Washington

SITE MAP

SPK-004 **FIGURE 2** August 1998

Dalton, Olmsted & Fuglevand, Inc.

ref: Loc.cdr



RZA-AGRA
ENGINEERING & ENVIRONMENTAL SERVICES

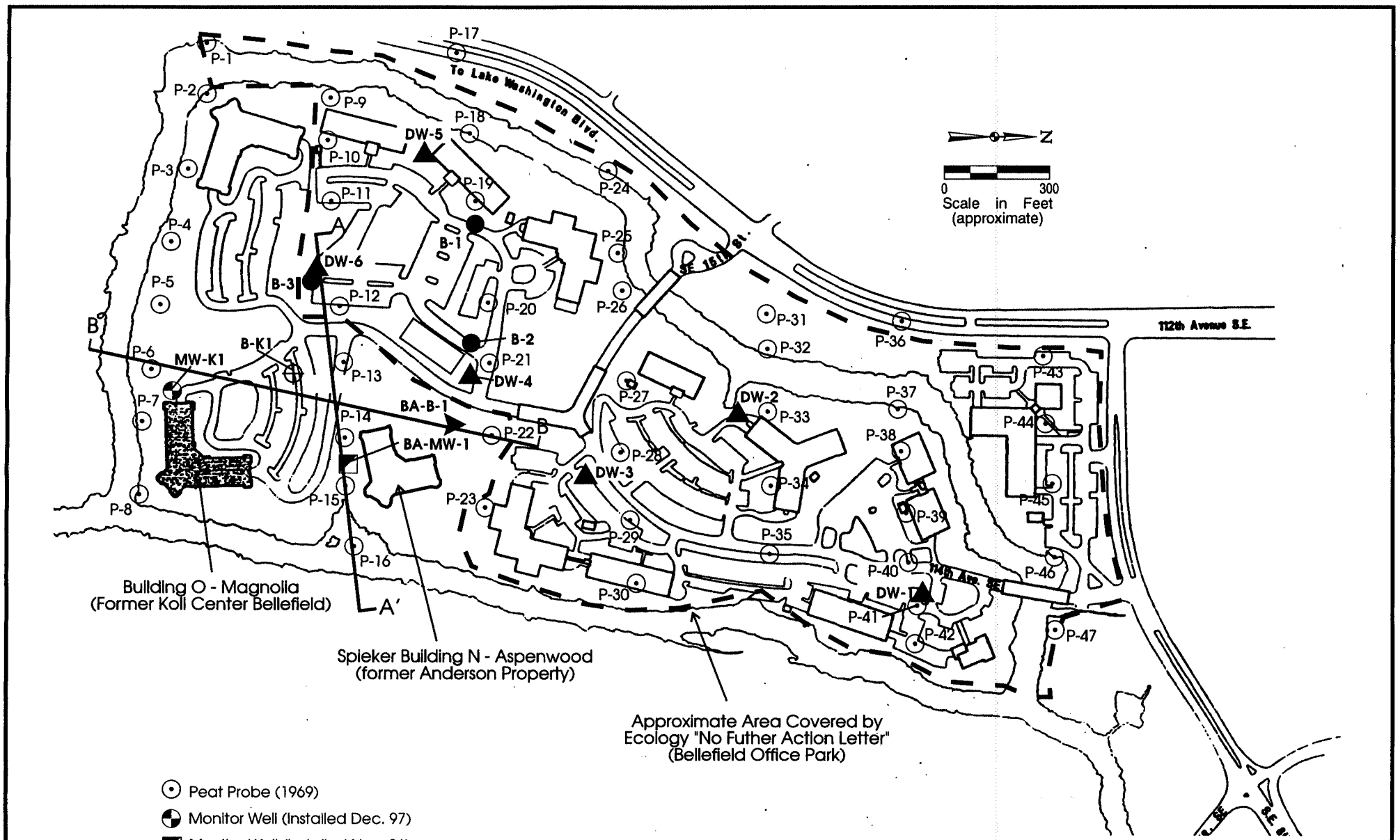
11335 N.E. 122nd Way
Suite 100
Kirkland, Washington
98034-6918

W.O.	
DESIGN	SST
DRAWN	DMW
DATE	JAN 1994
SCALE	N.T.S.

BELLEFIELD OFFICE PARK
11201 SOUTHEAST 8th STREET
BELLEVUE, WASHINGTON

TOPOGRAPHIC MAP

FIGURE 3



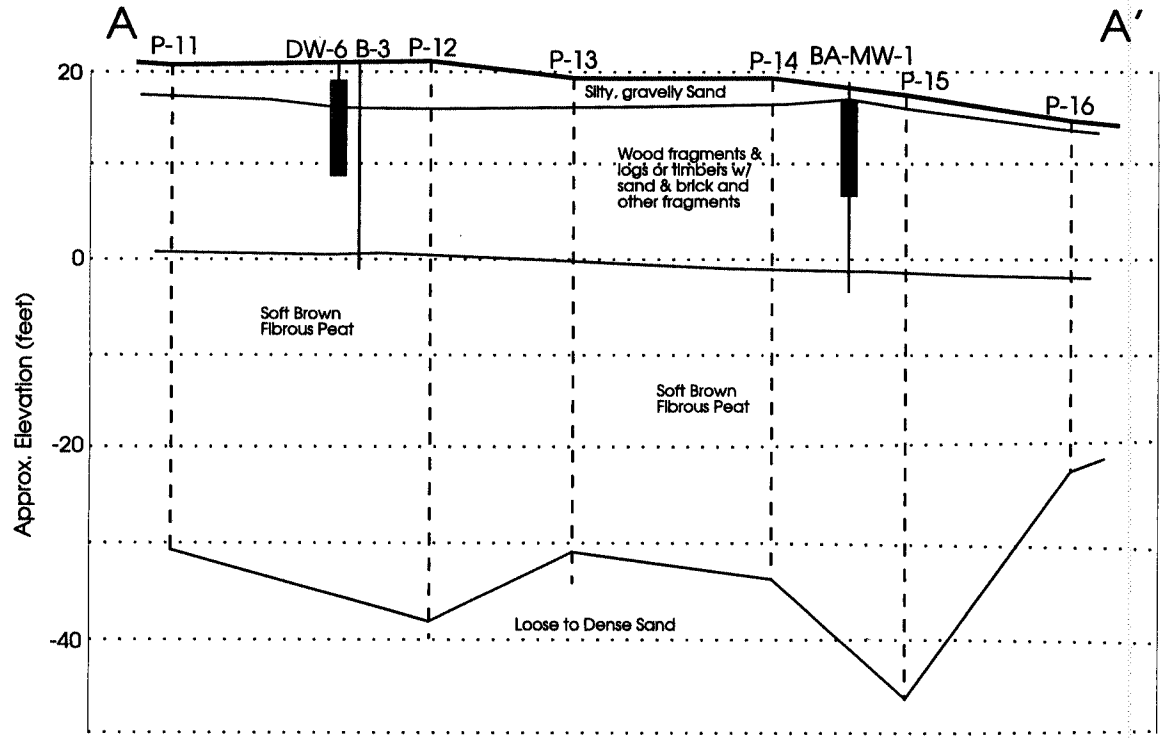
ref: Loc2.cdr

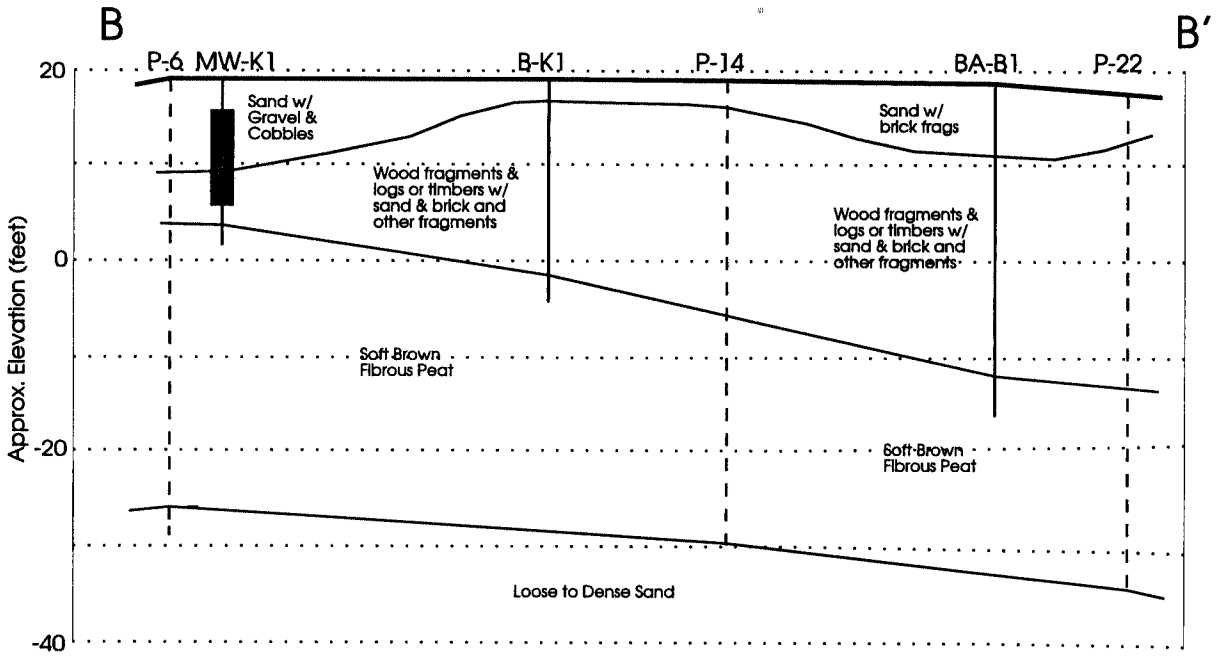
Bellefield Office Park
Bellevue, Washington

WELL, BORING AND PROBE LOCATIONS

SPK-004 **FIGURE 4** August 1998

Dalton, Olmsted & Fuglevand, Inc.





Legend

P-16
Peat Probe Completed in 1966 Prior to Major Fill Placement

B-3
Soil Boring Completed After Major Fill Placement

BA-MW-1
Monitor Well
Well Screen

0 100 200
Scale in Feet (Approximate)

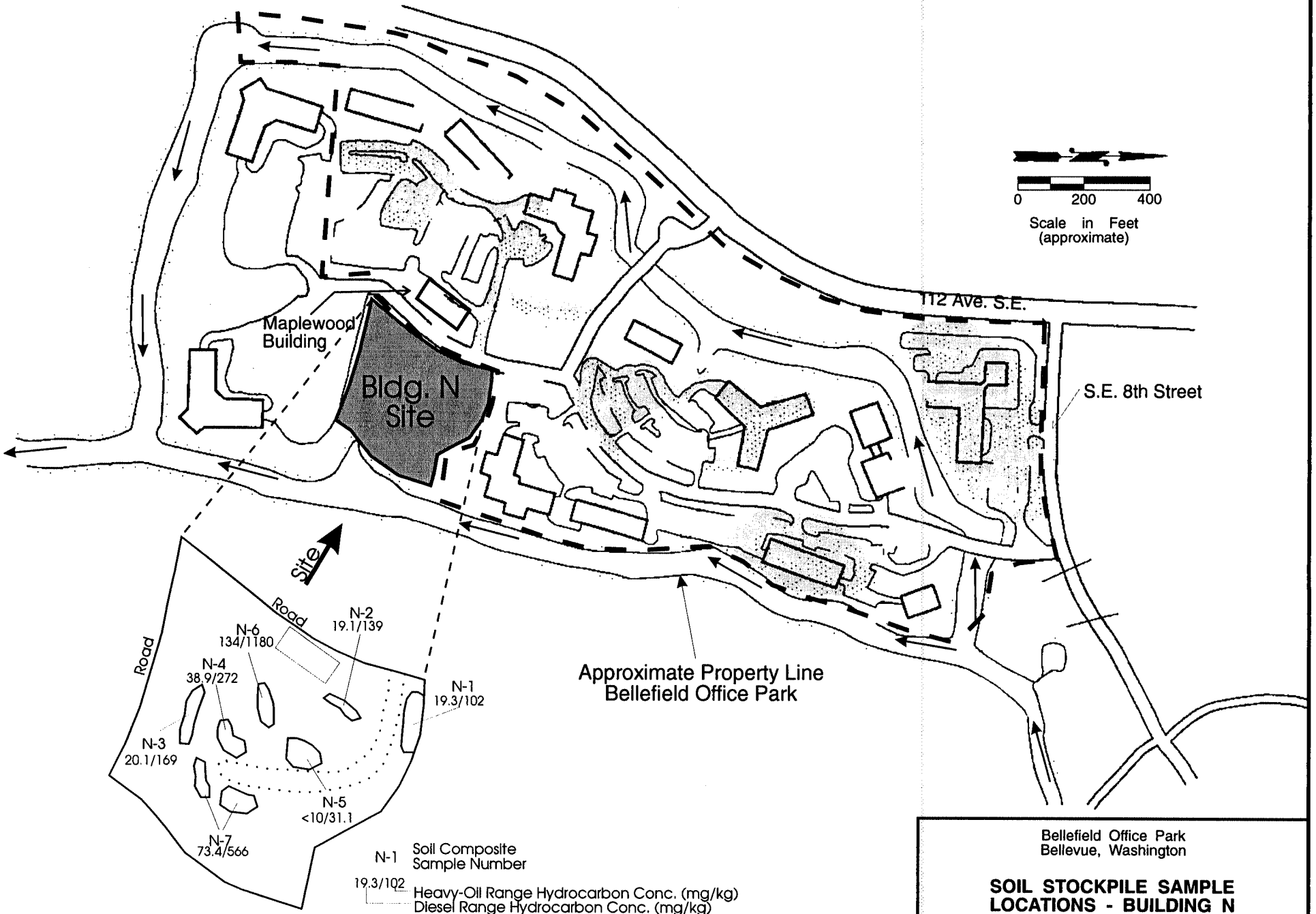
Ref: sections.cdr

Bellefield Office Park
Bellevue, Washington

GEOLOGIC SECTIONS A-A' AND B-B'

SPK-004 **FIGURE 5** Sept. 1998

Dalton, Olmsted & Fuglevand, Inc.



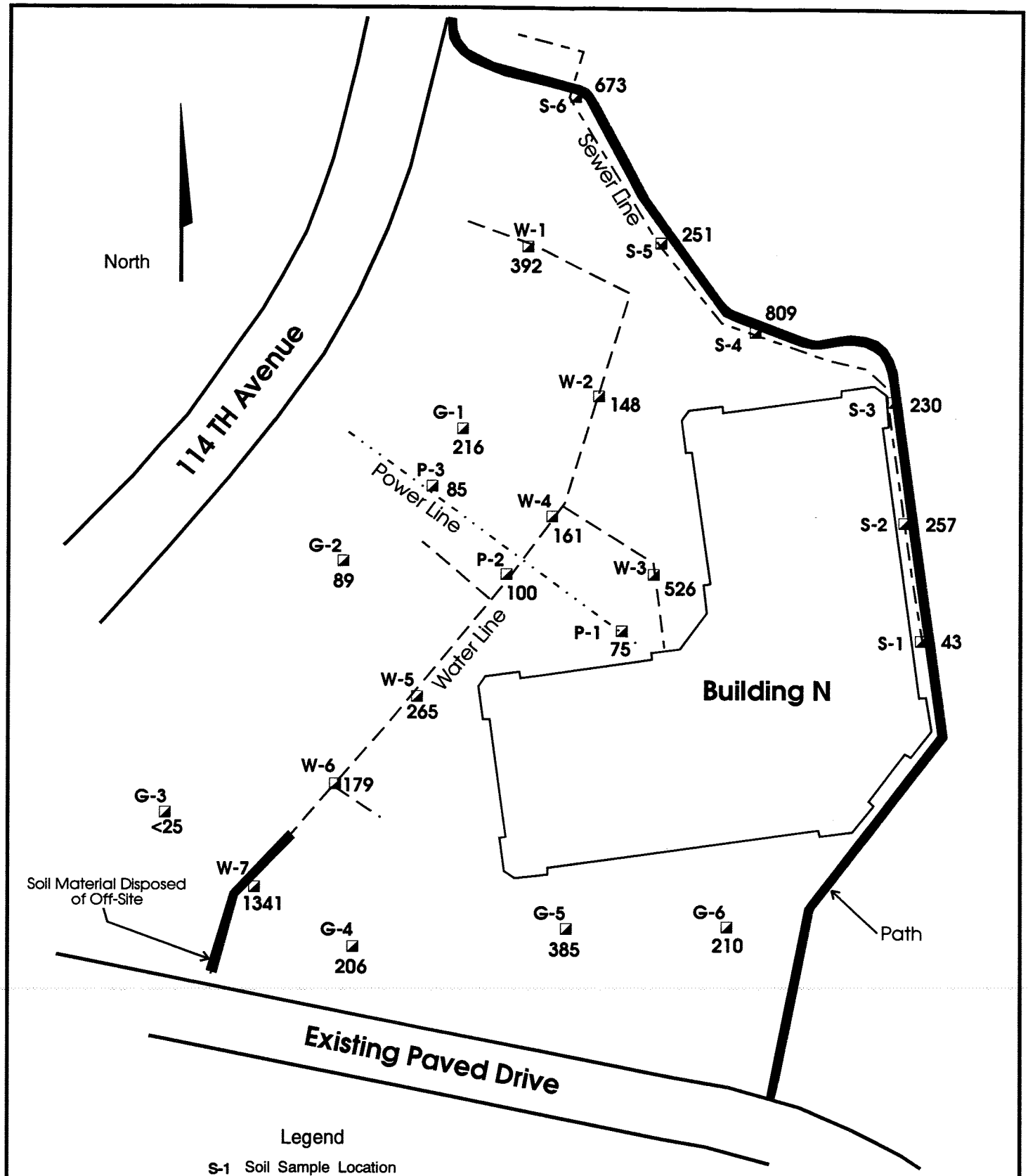
Bellefield Office Park
Bellevue, Washington

SOIL STOCKPILE SAMPLE LOCATIONS - BUILDING N

SPK-004 **FIGURE 6** September 98

Dalton, Olmsted & Fuglevand, Inc.

bldgN.cdr



Building N, Bellefield Office Park
Bellevue, Washington

SOIL SAMPLE LOCATIONS
UTILITY TRENCHES

SPK-004 **FIGURE 7** Sept. 97
Dalton, Olmsted & Fuglevand, Inc.

utilsoi.cdr

APPENDIX A
INDEPENDENT REMEDIAL ACTION REPORT
BELLEFIELD OFFICE PARK
June 1995

Dalton, Olmsted & Fuglevand, Inc. *Environmental Consultants*

19017 120th Avenue N.E., Suite 107 • Bothell, Washington 98011
Telephone (206) 486-7905 (FAX 486-7651)

June 16, 1995

Mr. Michael Gallagher
Department of Ecology
3190 160th Ave. S.E.
Bellevue, Washington 98008-5452

Re: Independent Remedial Action Report
Bellefield Office Park
Bellevue, Washington

Dear Mr. Gallagher:

On behalf of Spieker Properties, Inc., we are submitting the attached Independent Remedial Action Report for the Bellefield Office Park located west of I-405, south of S.E. 8th Street and east of 112 Ave. S.E. in Bellevue, Washington. As we discussed during our meeting on February 17, 1995, environmental studies and sampling have been completed on the property as part of a real estate transaction between Great Western Bank and Spieker Properties, Inc. The real estate transaction closed on March 1, 1995 and Spieker Properties is now the owner of the Bellefield Office Park.

The report provides a site history, discussion of the site hydrogeology, and summary and interpretation of environmental data. This information is presented using the general format outlined in Ecology publication No. 94-18 titled "Guidance on Preparing Independent Remedial Action Reports Under the Model Toxics Control Act - Working Draft March 9, 1994". With submittal of this report, Spieker Properties, Inc. is requesting a "No Further Action" status for the site.

Please call if you have any questions or if we can provide additional information.

Sincerely
Dalton, Olmsted & Fuglevand, Inc.

Matthew G. Dalton
Sr. Consulting Hydrogeologist

attachment
cc: Don Jefferson - Spieker Properties, Inc.
Steve Mitchell - Great Western Bank

INDEPENDENT REMEDIAL ACTON REPORT
Bellefield Office Park
Bellevue, Washington

Prepared for:

Spieker Properties, Inc.

Dalton, Olmsted & Fuglevand, Inc. *Environmental Consultants*

June 1995

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EXECUTIVE SUMMARY

The Bellefield Office Park is located west of Interstate 405, south of S.E. 8th. Street and east of 112th Avenue S.E. in Bellevue, Washington. Twelve one- to two story office buildings with associated parking lots, bridges, roadways and landscaped areas are present on the site. The office park is approximately 54 acres in size and is generally flat lying.

Development of the office park occurred over the Mercer Slough peat bog. Site development began in 1970 by importing and placing fill on top of the peat; dredging existing and new channels to improve drainage; and constructing buildings, bridges and pavements. The existing buildings were constructed between 1974 and 1982.

The imported fill was reportedly demolition wood debris from wood-frame residences that were demolished as a result of the construction of Interstate 405 located approximately one-quarter mile east of the site. Historic information indicates that some degree of fill control was used by the property owners to select primarily buoyant materials (such as wood) to create "floating" building pads that would later support the roadways and parking lots on the property. In addition to buoyant materials, unknown amounts of asphaltic debris and concrete rubble have been placed on the site.

Subsurface soil directly underlying the site typically consists of a variable thickness of wood demolition debris and sand, 4 to 30 feet thick. Beneath the fill are deposits of highly compressive organic peat; deposits of soft silt, with occasional sand and gravel; alternating layers of alluvial silt, sand, and gravel; and glacial till.

The low lying Mercer Slough receives stormwater runoff from paved areas (e.g. parking lots and roadways) located within and surrounding the slough, including runoff from I-405. The slough is dissected by several surface water channels, two of which surround the office. Flow in the slough is generally towards the south with discharge into Lake Washington. Ground-water levels lie at or within several feet of the ground-surface.

Based on the site's reported history as a landfill, EPA completed a Preliminary Site Assessment (PSA) and, in 1986, designated the site as a **No Further Action Site**. In 1989, the Washington State Department of Ecology reviewed existing information and **de-listed** the site from Washington State's published list of Confirmed and Suspected Contaminated Sites.

In the normal course of completing the environmental assessments for the property transfer, a maintenance employee voiced concerns about the nature of fill materials that may have been deposited at the site. The employee's descriptions of suspect materials were primarily consistent with the disposition of residential housing demolition debris. However, to address the concerns raised by this information, a testing program to further characterize the site conditions was implemented.

The testing program consisted of sampling and analyzing water and sediments in the Mercer Slough; ground-water through-out the site; and soil samples. Comparison of soil and ground-

water quality data with potential cleanup levels indicates that petroleum hydrocarbons and PCBs were of potential concern at the Bellefield Office Park site. Other constituents (volatiles organic compounds, PAHs and pesticides) were either not detected; were detected below potential cleanup levels (e.g. naphthalene); or were detected at only one location at a relatively low concentration (e.g. 4,4'-DDT).

PCBs and the highest concentrations of petroleum hydrocarbons were detected within the southern portion of the site. PCBs were detected in soil to a depth of 20 feet but at concentrations less than the MTCA Method A cleanup level of 1 mg/kg. Diesel range hydrocarbons were detected at concentrations between 45 mg/kg and 1,400 mg/kg while heavy oil hydrocarbons were detected at concentrations between 440 mg/kg and 9,900 mg/kg. These concentrations exceed the Method A criteria of 200 mg/kg, which was set to protect ground-water quality.

Lower concentrations of petroleum hydrocarbons were detected elsewhere on the property. Diesel range hydrocarbon concentrations were detected at concentrations of between 40 mg/kg and 730 mg/kg while heavy oil hydrocarbons were detected between 240 mg/kg and 920 mg/kg. At most locations on the property, over 80% of the petroleum hydrocarbons are composed of heavy oil hydrocarbons greater than carbon range C24.

The source of the PCBs to soil beneath the site is material that was deposited with the demolition debris. Petroleum hydrocarbon source analysis indicate the primary source of the hydrocarbons was street runoff.

Initial ground-water analyses on the site indicated PCB and petroleum hydrocarbon concentrations above cleanup levels. However, the reported detections were inconsistent with the chemical nature (i.e. solubility and mobility) of these constituents. Review of the data indicated the likely cause of the detections was particulate matter entrained in the samples during collection. To test this finding, several wells were sampled using low flow sampling techniques to minimize the concentration of particulates in the samples. The results of this sampling support the finding that the initial sampling procedures were effecting the laboratory results. Low flow sampling indicate that PCBs and petroleum hydrocarbons are not present in the dissolved state above cleanup levels and are not available to migrate to the slough via ground water flow. This finding is supported by the surface water quality analyses which did not detect PCBs or petroleum hydrocarbons in the Mercer Slough.

The most recent testing supports the previous EPA status for the site of "No Further Action". Because the data indicate little risk to human health and the environment, the site should be confirmed as a "No Further Action Site" by Ecology.

INDEPENDENT REMEDIAL ACTION REPORT
Bellefield Office Park
Bellevue, Washington

INTRODUCTION

This report presents a compilation and analysis of site history, hydrogeologic conditions and environmental quality data for the Bellefield Office Park located in Bellevue, Washington. The purpose of the analysis was to assess the available data to determine whether conditions at the site warrant further action. The report is being submitted to the Washington State Department of Ecology (Ecology) under the Independent Remedial Reporting provisions of the Model Toxics Control Act (MTCA) and to support a request for a "No Further Action Letter".

Much of the data presented in this report was collected by AGRA (formerly RZA-AGRA) as part of a real estate property transfer between Great Western Bank (seller) and Spieker Properties, Inc. (buyer). The property transaction closed on March 1 1995 and Spieker Properties is now the owner of the Bellefield Office Park.

SITE DESCRIPTION

Site Name: The subject property is known as the Bellefield Office Park.

Location: The office park is located west of Interstate 405, south of S.E. 8th Street and east of 112th Avenue S.E. in Bellevue, Washington (Figure 1). The site appears in the King/Pierce/Snohomish counties Thomas Guide (1994 edition) on page 566 Sector E7 and page 596 Sector E1. The site can also be located on the United States Geologic Survey (USGS) Bellevue South Quadrangle, 7.5 Minute Series Topographic Map within Section 5, Township 24 North, Range 5 East (or approximately 122° 11'40" west longitude, 47° 35" 45" north latitude).

Project Owner and contact: On March 1, 1995, Spieker Properties purchased the property. The company contact, mailing address and phone numbers are as follows:

Company Representative: Donald S. Jefferson

Phone number: (206) 453-1600

Mailing Address: Spieker Properties, Inc.
915 188th Ave. S.E.
Suite 110
Bellevue, Washington 98005-3855

Property Use: Twelve one-to two-story office buildings with associated parking lots, bridges, roadways and landscaped areas are present on the site (Figure 2). The office park is approximately 54 acres in size and is generally flat lying.

History and Landuse

Development of the office park occurred over a former peat bog. The existing buildings were constructed between 1974 and 1982 (RZA-AGRA 1994).

Prior to approximately 1916, the area in the vicinity of the site was under water and formed part of Lake Washington. Following construction of the Hiram Chittendon Locks, the lake level was lowered and the site emerged as a peat bog (AGI 1992). Site development began in 1970 by importing and placing fill on top of the peat; dredging existing and new channels to improve drainage; and constructing buildings, bridges and pavements. The imported fill was reportedly demolition wood debris from wood-frame residences that were demolished as a result of the construction of Interstate 405 located approximately one-quarter mile east of the site (RZA-AGRA 1994). Information obtained from AGRA indicates that some degree of fill control was used by the property owners to select primarily buoyant materials (such as wood) to create "floating" building pads that would later support the roadways and parking lots on the property. In addition to buoyant materials, unknown amounts of asphaltic debris and concrete rubble have been placed on the site.

Buildings and bridges in the office park are supported by pile foundations bearing below the peat. Consolidation of the peat deposits caused by filling to develop the site has caused ground settlements (AGI 1992). It is estimated that settlements of 2 to 3 feet or more have occurred since completion of the initial mass filling.

TOPOGRAPHY/GEOLOGY

Topography

Land surface elevations generally range between 14 and 18 feet based on the USGS topographic map "Bellevue South Quadrangle" (Figure 3). The Mercer Slough surrounds the site.

Geology

The Bellefield Office Park is situated along the western edge of a valley which drains from north to south into Lake Washington (Figure 3). Historically, this area was part of a much deeper valley created by glaciation. The valley, carved by the advance of glaciers, was then partially filled by alluvial (river) deposits consisting of silts, sands and gravels. The partially filled valley was inundated with water when downstream drainage was blocked. Lake deposits consisting of silt and peat subsequently filled the valley.

Subsurface Explorations: Geotechnical investigations began in the late 1960's to determine design parameters for development of the site. A series of peat probes were completed in 1969 (Twelker 1969) which defined the general subsurface conditions. These explorations were supplemented with soil borings at the sites of proposed buildings (Twelker 1971,1972, 1973a, 1973b, 1973c, 1974, 1978). In November 1994, AGRA drilled three soil borings (B-1, B-2, and B-3) as part of the property transfer environmental assessments (AGRA 1994).

Site Geology: Subsurface soil directly underlying the site typically consists of a variable thickness of wood demolition debris and sand (4 to 30 feet thick) placed as fill during development of the office park. Beneath the fill are deposits of highly compressive organic peat which varies in thickness from 10 to 90 feet. The peat deposits thicken in the north to south direction. Deposits of soft silt, with occasional sand and gravel, generally underlie the peat and are typically 10 to 30 feet thick. Beneath these layers are alternating layers of alluvial silt, sand, and gravel, 40 to 120 feet thick. Glacial till underlies the alluvial deposits.

Geologic section A-A' (Figure 5) illustrates the geologic conditions beneath the site. The trend of the section is shown on Figure 4. Peat deposits filled in a preexisting valley. Data from the 1969 peat probes indicated that the peat deposits ranged in thickness from 0 to 30 feet near S.E. 8th Street to 8 to over 60 feet near the south property line. The thickest peat deposits were present beneath the south-central portion of the office park.

The three borings (B-1, B-2, and B-3) drilled by AGRA in 1994 indicate that fill, 15 to over 20 feet thick, is present at the boring locations. In the boring logs (appendix A) the fill is described as "sand", "silty sand with wood debris", and "wood chips and construction debris".

Hydrology: As shown in Figures 2 and 3, the site is located in a north-south trending valley. Land surface elevations on the north, east, and west sides of the valley are greater than 50 feet, while elevations in the valley are less than 20 feet.

The low lying Mercer Slough receives stormwater runoff from paved areas (e.g. parking lots and roadways) located within and surrounding the slough, including runoff from I-405. The slough is dissected by several surface water channels, two of which surround the office park (Figures 2 and 3). The topographic relationships of the area also indicate that the slough likely receives ground-water recharge from the surrounding higher areas. In the Puget sound region, topographically higher areas are typically ground-water recharge areas, while lower areas are ground-water discharge areas.

Water levels in Lake Washington are controlled by the Hiram Chittendon Locks at elevations of between approximately 13 and 15 feet above mean sea level (AGI 1992). Surface water runoff at the site is handled by drains located on the adjacent streets, parking areas and sloughs. During periods of high precipitation, ground water levels and water levels in the adjacent slough rise and flood parking lots below an elevation of approximately 16 feet.

RELEASE INFORMATION/SITE CHARACTERIZATION

As part of the Phase 1 site assessment completed by RZA-AGRA (1994), files maintained by governmental agencies were consulted.

- Based on the sites reported history as landfill, the property was evaluated by the Environmental Protection Agency (EPA). A Preliminary Site Assessment (PSA) was completed by EPA in 1986. This PSA was performed in accordance with the requirements of the Federal Government's comprehensive Environmental Response, Recompensation, and Liability Act (also known as CERCLA or Superfund). As a result of the 1986 PSA, the subject property was designated by EPA as a **NO Further Action Site** (EPA 1986).

- In 1989, Ecology reviewed existing historical documentation pertaining to the site and EPA's previous work. Based on this review, Ecology **de-listed** the site from Washington State's published list of Confirmed and Suspected Contaminated Sites (Ecology 1989).

- No underground storage tanks (USTs) or leaking underground storage tanks (LUSTs) are registered with Ecology for the site. This finding was confirmed by interviews with site employees and site reconnaissance (to observe for fill caps and tank vents).

During the site reconnaissance completed by RZA-AGRA, several in-service electrical transformers were observed which potentially could contain polychlorinated biphenals (PCBs). The majority of the transformers exhibited Puget Power stickers certifying that the transformers were "NON PCB" which indicates that the transformers contain less than 1 part per million (ppm) PCBs. Three of the transformers did not contain stickers. Puget Power was contacted and indicated that the three transformers (without stickers) were "NON PCB" containing based on testing completed in August 1988.

In the normal course of completing the environmental assessments for the property transfer, the head maintenance employee for the Bellefield Office Park voiced concerns about the nature of fill materials that may have been deposited at the site. This employee indicated that during periodic (1978-1993) site maintenance and/or new roadway or parking lot construction, he observed suspect material on several parts of the site. The suspect areas are shown on Figure 6. RZA-AGRA reviewed information provided by this employee; interviewed the employee during several site walks; and concluded that the employee's descriptions of suspect materials were primarily consistent with the disposition of residential housing demolition debris. However, to address the concerns raised by this information, a testing program to further characterize the site conditions was implemented.

The testing program consisted of sampling and analysis of:

- Water and sediments in the Mercer Slough;
- Ground-water through-out the site; and
- Soil samples at selected locations.

Sampling locations are shown on Figure 6. The results of the testing program are summarized below.

Results of Sampling in the Mercer Slough

Surface Water Sampling and Analysis in Mercer Slough: The Mercer Slough surrounds the Bellefield Office Park (Figures 2 and 3). AGRA collected water samples from the slough at two downstream locations from the site. Samples were obtained from the east and west channels towards the south end of the site as shown in Figure 6. The samples were analyzed (by North Creek Analytical, Inc.) for a variety of constituents as listed below:

- pH
- Petroleum Hydrocarbons (WTPH-DX)
- Volatile Organic Compounds (EPA Method 8240)
- Semivolatile Organic Compounds (EPA Method 8270)
- Pesticides/PCBs (EPA Method 8081)
- Phenols (Method 420.1)
- Priority Metals (EPA Methods 6010/7000)

The results are summarized in attached Table 1. As indicated in Table 1, no constituents were detected above the laboratory reporting limits in the surface water samples. The pH was measured at 7.2 in both samples.

Bottom Sediment Sampling in Mercer Slough: Three samples of sediment, collected immediately beneath the surface water of the slough, were obtained at locations upstream (north) and downstream (south) of the site (Figure 6). One downstream sediment sample was collected and described by AGRA as being composed of "silts, clays & organics". Two upstream sediment samples were collected. One sample was described as a clean sand, while the second sample was described as being similar to the downstream sediment sample (i.e. composed of "silts, clays and organics"). The three sediment samples were analyzed for a similar range of constituents (by North Creek Analytical, Inc) as were conducted for the slough water samples (see above).

- The pH of the downstream sediment sample was reported to be 6.6. This pH is slightly acidic (a pH of 7 is neutral) which is consistent with the peaty environment in which the sample was collected.

- No volatile organic compounds or phenols were detected in the downstream sediment sample. The upstream sediment samples were not analyzed for these class of compounds because these compounds were not detected in the downstream water or sediment samples.

- Several metals were detected in the downstream sediment sample (chromium, copper, and zinc). No freshwater sediment criteria are available to compare to the sediment data. However, as illustrated in Table 2, the reported metal concentrations are below background concentrations for surficial soil in the Puget Sound Area (Ecology 1994b) and Model Toxics control Act (MTCA) Method B (WAC 173-340-740) cleanup levels for soil (Ecology 1994a)

Table 2 - Metal Concentrations in Mercer Slough Sediment

	Sediment Conc. (mg/kg)	Puget Sound Background (mg/kg)(1)	MTCA Soil Cleanup Level (mg/kg)(2)
Chromium	38	48	400
Copper	16	36	2960
Zinc	37	85	2400

Sources: (1) Ecology (1994b); (2) Ecology (1994a)

- Relatively high petroleum hydrocarbon concentrations (3,380 mg/kg to 4,700 mg/kg) were detected in both the upstream and downstream fine-grained (silt, clay & organic) sediment samples. A lower concentration of petroleum hydrocarbons (approximately 100 mg/kg) was detected in the sandy sediment sample. The data indicate that the source of the hydrocarbons is regional in nature, such as runoff from area parking lots and roadways. Possible sources of hydrocarbons to site sediments and soil is further discussed later in this report.

- Several semivolatile organic compounds were detected, mostly polycyclic aromatic hydrocarbons (PAHs) at concentrations less than 0.5 mg/kg. Lower concentrations of these constituents were detected in the downstream sediment sample as compared to the upstream samples. Similar to the petroleum hydrocarbons discussed above, the data indicate that the source of the detected PAHs is regional in nature.

- No PCBs were detected in the sediment samples. However, low concentration detections of dieldrin, heptachlor, and chlordane were reported. Chlordane was reportedly detected in the upstream sandy sediment sample while dieldrin and heptachlor were detected in the downstream sediment sample. No freshwater sediment criteria are available to compare to the sediment data. However, the reported pesticide concentrations are relatively low and are well below the MTCA-Method B cleanup levels for residential sites (Ecology 1994a) as summarized below in Table 3:

Table 3 - Pesticide Concentrations in Mercer Slough Sediment

	Sediment Conc. (mg/kg)	MTCA Soil Cleanup Level (mg/kg)(1)
Dieldrin	0.0037	0.063
Heptachlor	0.0062	0.222
Chlordane	0.0046	0.769

Source: (1) Ecology (1994a)

Results of Ground-Water Sampling

To collect data to assess ground-water quality beneath the site, AGRA installed and sampled 18 well points at locations shown in Figure 6. Each well point consisted of a 30-inch long, 1.25 diameter, stainless steel, slotted drive point, attached to a 1.25 -inch or 2.0-inch diameter galvanized steel riser pipe. The screen sections were driven to depths of between five and ten feet. This depth was chosen so ground-water samples in contact with the demolition debris could be collected. The typical well point screen depth interval is illustrated on Figure 5.

Samples were submitted to North Creek Analytical (Bothell, WA) for analysis of the following constituents:

- Volatile Organic Compounds (EPA Method 8021);
- Polycyclic Aromatic Hydrocarbons (EPA Method 8310 with selected GC/MS confirmation);
- Pesticides/PCBs (EPA Method 8081); and
- Petroleum Hydrocarbons (WTPH-DX)

The ground-water quality data is summarized in attached Table 4.

Volatile Organic Compounds in Ground Water: Ground-water samples collected on October 23 and 24, 1994 from locations MW-1 to MW-16 were analyzed for volatile organic compounds using EPA Method 8021. This method targets 58 compounds including common fuel components and solvents (e.g. benzene, toluene, ethylbenzene, xylenes, tetrachloroethlyene, trichloroethene etc.). A representative laboratory data sheet which shows the compounds analyzed and reporting limits is presented in Appendix B.

The only volatile compound detected in the sixteen samples was naphthalene (Table 4). This compound was detected in six of the sixteen samples at concentrations between 1.9 ug/l to 16 ug/l (Figure 7). The reporting limit for naphthalene was 1 ug/l.

Five of the six detections occurred in samples obtained from the southern portion of the site. The sixth detection was reported for location MW-9 located within the central portion of the site. Naphthalene was not detected in any of the surface water samples collected from the Mercer Slough (Table 1).

The maximum naphthalene concentration of 16 ug/l is well below available cleanup criteria. The detected concentrations are below the MTCA Method B ground-water cleanup level (based on drinking water ingestion) of 32 ug/l (Ecology 1994a) and ambient freshwater chronic criterion of 620 ug/l (EPA 1986).

Polycyclic Aromatic Hydrocarbons (PAHs) in Ground Water: PAHs, not including naphthalene which is discussed above, were detected in samples from three of sixteen locations; MW-1, MW-2, and MW-3 (see Tables 4 and 5). The detected PAH compounds include acenaphthene, benzo(ghi)perylene, benzo(k)fluoranthene, chrysene, fluoranthene, phenanthrene, and pyrene. No PAHs were detected in the surface water samples from the Mercer Slough.

Table 5 lists the detected concentrations and possible cleanup levels. Only benzo(k)fluoranthene and chrysene exceed the available cleanup levels (MTCA Method B) which are based on drinking water ingestion. Benzo(k) fluoranthene was detected in one of the sixteen locations (MW-2) at 0.98 ug/l while chrysene was detected in one of the sixteen locations (MW-1) at 1.5 ug/l.

The detected PAHs in the ground-water samples are likely the result of the compounds being present in soil coupled with particulates being entrained in the samples which were submitted to the laboratory for analysis. The issue is further discussed in a following report section.

PCBs/Pesticides in Ground Water: Pesticides were detected in two of sixteen ground-water sampling locations; MW-2 and MW-6 (Table 4). The pesticides 4,4"-DDD, 4,4'-DDE and 4,4'-DDT were detected in MW-2 while 4,4'-DDD was detected in a sample from MW-6.

The available cleanup levels are listed on Table 4. Concentrations of 4,4"-DDD and 4,4"DDE meet the available criteria. The concentration of 4,4'DDT is below the MTCA Method B cleanup level, but exceeds the ambient freshwater chronic criterion for 4,4'-DDT.

The data indicates that the pesticide detections are local in nature. Pesticides were not detected in ground-water samples at locations immediately adjacent to locations MW-2 and MW-6 and were not detected in surface water samples from the Mercer Slough (Figure 8). The pesticides reportedly detected in ground water are different from those detected in the Mercer Slough sediments.

PCBs were intermittently detected in three of eighteen sampling locations; MW-2, MW-6, and MW-10 (Table 4 and Figure 9). The highest concentrations (3.6 ug/l) of total PCBs were detected at location MW-2. Lower concentrations were detected at locations MW-6 (0.16 ug/l) and MW-10 (0.41 ug/l). PCBs were not detected at well point locations which surround the location where the highest PCB concentrations were detected.

The detections of PCBs are intermittent in nature.

- At location MW-2, the 3.6 ug/l detection occurred in a sample obtained on October 23, 1994 and analyzed by North Creek Analytical, Inc. However, no PCBs were detected (reporting limit of 0.1 ug/l) in a sample collected on November 30, 1994 and analyzed by Freidman & Bruya or in a sample collected on April 12, 1995 and analyzed by North Creek Analytical, Inc.

- At location MW-10, no PCBs were detected in a sample collected on October 23 and analyzed by North Creek Analytical, however North Creek reported a concentration of 0.41 ug/l in a sample collected on November 15, 1994. Friedman & Bruya did not detect PCBs in a sample collected on November 30, 1994 and North Creek did not detect PCBs in a sample collected on April 13, 1995 (reporting limit 0.1 ug/l).

The intermittent detections and nature of PCBs (low solubility and mobility in ground-water environments) indicate that the detections were likely caused by particulates entrained in the collected samples and that the results are not representative of dissolved PCBs with the potential to migrate via ground-water flow. This issue is further discussed in a following report section.

Petroleum Hydrocarbons in Ground Water: Petroleum hydrocarbons in ground-water samples were analyzed using the Washington State Method WTPH-DX. This method quantifies diesel range (C12 to C24) and heavy oil range (C24 to C36) hydrocarbons that will elute through a chromatographic column. The results are presented in Table 4.

Petroleum hydrocarbons were reportedly detected in samples from the eighteen well point locations. Diesel range hydrocarbon concentrations ranged from 0.29 mg/l to 5 mg/l, while heavy-oil range hydrocarbons ranged between less than 0.75 mg/l to 41 mg/l. The typical petroleum hydrocarbon cleanup level for petroleum hydrocarbons is 1 mg/l (based on *"prevention of adverse aesthetic characteristics"* - WAC-173-720). Concentrations in eight of the eighteen sample locations are below the typical cleanup level.

Review of the petroleum hydrocarbon data indicate, however, inconsistent concentrations. For example, the initial concentrations (October 94) in MW-2 (4 mg/l-diesel and 16 mg/l- heavy oil) are higher than the concentrations detected in the November 94 sample (0.5 mg/l-diesel and 3.8 mg/l-heavy oil). Conversely, the initial concentrations (October 94) in MW-11 (0.63 mg/l-diesel and 0.96 mg/l-heavy oil) are substantially lower than the concentrations detected in the November 94 sample (5.3 mg/l-diesel and 41 mg/l-heavy oil).

The variable concentrations and nature of "heavier" petroleum hydrocarbons (low solubility and mobility in ground-water environments) indicate that the detections are likely caused by particulates entrained in the collected samples and that the results are not representative of dissolved petroleum hydrocarbons with the potential to migrate via ground-water flow. This issue is further discussed in a following report section.

Results of Soil Sampling

AGRA collected nine samples from five well point locations and four hand auger locations and nine samples from three borings (B-1, B-2 and B-3). All the samples were analyzed for petroleum hydrocarbons using WTPH-DX. The samples from the borings were also analyzed for PCBs and volatile hydrocarbons (using EPA Method 8021). The results are summarized in Table 6.

Borings B-1, B-2 and B-3 were drilled in the general area where the highest PCB concentrations were detected in a ground-water sample (MW-2). The primary purpose of drilling the borings was to collect and analyze soil samples to provide data to further assess whether PCBs are present at the site. Soil samples were collected using a split-spoon sampler lowered through the center of a hollow stem auger.

Volatile Organic Compounds in Soil: Three samples (one from each boring) were analyzed for the 58 volatile organic compounds targeted using EPA Method 8021. As indicated in Table 6 and Figure 10, no volatile organic compounds were detected in the samples analyzed.

PCBs in Soil: PCBs analyses were made of nine samples collected from the borings. The results of the analyses are summarized in Table 6 and Figure 10.

PCBs were detected in five of the nine samples analyzed. Detected concentrations ranged between 0.11 mg/kg to 0.75 mg/kg which are below the MTCA Method A cleanup level for residential sites of 1.0 mg/kg (WAC 173-340-740). PCBs were detected in samples collected from depths of up to 20 feet.

Petroleum Hydrocarbons in Soil: The results of the petroleum hydrocarbon analyses are summarized in Table 6 and on Figure 11. Petroleum hydrocarbon concentrations in soil samples collected from the well point and hand auger locations ranged between 40 mg/kg and 750 mg/kg for diesel range hydrocarbons and 240 mg/kg to 920 mg/kg for heavy-oil range hydrocarbons. Concentrations of petroleum hydrocarbons in the boring samples ranged between 45 mg/kg and 1,400 mg/kg for diesel range hydrocarbons and 440 mg/kg to 9,900 mg/kg for heavy-oil hydrocarbons. Ten of the eighteen diesel-range sample results and all of the heavy oil range sample results are above the MTCA Method A cleanup level of 200 mg/kg which was set to protect ground-water quality (WAC 173-340-740).

In seventeen of the eighteen samples (approximately 94%), the petroleum hydrocarbons are primarily composed of heavy-oil hydrocarbon. As shown on Table 6, heavy oil hydrocarbons comprise approximately 80% to 93% of the hydrocarbons detected in the samples. In only one sample (SS5/WP15), do the lighter diesel range hydrocarbons comprise a majority of hydrocarbons present.

Discussion of PCB and Petroleum Hydrocarbon Detections in Ground Water

The variability in the analytical results for PCBs and petroleum hydrocarbons, and the solubility/migration characteristics of these compounds indicate that the sampling procedures used during the environmental assessments effected the analytical results. The samples sent to the laboratories were reportedly "turbid" and because PCBs and petroleum hydrocarbons were detected in site soils, the analytical results likely do not reflect the concentrations of dissolved constituents in ground water. PCBs and hydrocarbons (especially heavy oil hydrocarbons) absorb onto soil particles and will be "extracted" from the particles during sample preparation.

The PCB issue was addressed by AGRA and the two analytical laboratories involved in the project (North Creek Analytical, Inc, and Friedman & Bruya, Inc.). The findings of their collective analysis was that the intermittent detections of PCBs in several ground-water samples were *"most likely the result of relic, mobile PCB bearing solid particles (microscopic soil and/or organic particles) suspended in local ground water supplies as the result of soil disturbance during monitoring well installation and are not representative of actual groundwater quality in terms of actual dissolved PCB presence."* A summary of the collective findings are presented in a letter prepared by AGRA to Great Western Bank dated January 13, 1995 (see Appendix C).

To test this finding, Dalton, Olmsted & Fuglevand selected three well locations for resampling using a low flow sampling technique to minimize the suspension of soil particles in the samples submitted to the laboratory for analysis. Wells MW-2, MW-6 and MW-10 were selected to resample because PCBs and relatively high, but variable concentrations of petroleum hydrocarbons were detected in previous samples (see Table 4).

The wells were purged and the samples were obtained using a peristaltic pump. The wells were pumped at a rate of approximately 0.25 liters per minute. During pumping, samples were obtained and field electrical conductivity (Corning Checkmate System) and turbidity (LaMotte Model 2008 Turbidity Meter) measurements were made. When electrical conductivity and turbidity stabilized to within 10%, samples were collected and placed in containers provided by North Creek Analytical, Inc. The filled containers were placed in chilled coolers for transport to the laboratory. Standard chain-of-custody procedures were followed. North Creek Analytical analyzed the samples for PCBs (EPA Method 8081) and petroleum hydrocarbons (WTPH-DX).

Low flow sampling field and laboratory data are summarized in Figure 12 and Table 7. Initial turbidity measurements ranged between 21 and 68 NTUs. After pumping three to seven casing volumes, the final turbidity measurements ranged between 2.9 and 8.3 NTUs. No PCBs or heavy oil hydrocarbons were detected in "low-flow" ground-water samples. Diesel range hydrocarbons were detected at concentrations of between 0.32 and 0.69 mg/l. The diesel range hydrocarbon concentrations are below the MTCA Method A ground-water cleanup criteria of 1 mg/l.

Table 7 - Low flow Sampling Data

Parameter	MW-2	MW-6	MW-10
Conductivity (umohos)	329	754	172
Turbidity (NTUs)	4.9	2.9	8.3
Casing Volumes Purged	7	3	5
Petroleum Hydrocarbons			
Diesel Range (mg/l)	0.4	0.69	0.32
Heavy Oil Range (mg/l)	<0.75	<0.75	<0.75
PCBs (ug/l)	<0.10	<0.10	<0.10

The concentrations of petroleum hydrocarbons and PCBs reported for the low flow sampling event are substantially lower than those previously reported and are more consistent with what would be expected based on the nature of these constituents. For example, two previous analyses of heavy oil hydrocarbons in samples from MW-2 indicated concentrations of 3.8 mg/l and 41 mg/l (see Table 4). Heavy oil petroleum hydrocarbons were not detected in the low flow sample from MW-2 (Table 7). Similar results are indicated by the analyses for MW-6 and MW-10.

Based on this data we conclude that the analyses which detected PCBs and the relatively high concentrations of petroleum hydrocarbons were influenced by the turbidity of the samples and do not represent the concentrations of these constituents which will migrate into the slough via ground-water flow. The variability of the previous results was likely caused by the variability in turbidity of the samples.

Site Characterization Summary and Contaminant Sources

Characterization Summary: The comparison of soil and ground-water quality data with potential cleanup levels indicates that petroleum hydrocarbons and PCBs are of potential concern at the Bellefield Office Park site. Other constituents (volatiles organic compounds, PAHs and pesticides) were either not detected; were detected below potential cleanup levels (e.g. naphthalene); or were detected at only one location at a relatively low concentration (e.g. 4,4'-DDT).

PCBs and the highest concentrations of petroleum and hydrocarbons were detected within the southern portion of the site near borings B-1, B-2 and B-3. PCBs were detected in soil to a depth of 20 feet but at concentrations less than the MTCA Method A cleanup level of 1 mg/kg (Table 6). Diesel range hydrocarbons were detected at concentrations between 45 mg/kg and 1,400 mg/kg while heavy oil hydrocarbons were detected at concentrations between 440 mg/kg and 9,900 mg/kg. These concentrations exceed the Method A criteria of 200 mg/kg, which was set to protect ground-water quality.

Lower concentrations of petroleum hydrocarbons were detected elsewhere on the property. Diesel range hydrocarbon concentrations were detected at concentrations of between 40 mg/kg and 730 mg/kg while heavy oil hydrocarbons were detected between 240 mg/kg and 920 mg/kg.

At most locations on the property, over 80% of the petroleum hydrocarbons are composed of heavy oil hydrocarbons greater than carbon range C24.

Contaminant Sources: The source of PCBs to soil beneath the site is material that was deposited with the demolition debris in the landfill. There is no evidence to suggest that the PCBs originated as a surface spill that migrated from the surface into the subsurface.

In late November 1994, AGRA collected several soil and ground water samples to assess the origins of the petroleum hydrocarbons, including whether some of the hydrocarbons were naturally occurring biogenic material. The samples were submitted to Friedman & Bruya, Inc. for analysis and included the following:

- Ground-water samples from wells MW-2, MW-10, and MW-11; and
- Soil samples from borings B-1 and B-2 (SS-10, B-1, SS-11, B-2).

The results of their analyses are presented in Appendix D and are summarized below:

The samples were initially subjected to gas chromatography (GC) analysis using a flame ionization detector (FID). This analysis indicated the presence of heavy petroleum fractions in all samples, with some variation. These variations included identification of a medium distillate in water from MW-11 and some prominent peaks in soil sample SS-10 B1.

To further differentiate the hydrocarbons, fingerprint GC analysis coupled with Mass Spectrophometry (MS) was used.

- The GC/MS analysis detected the presence of pyrolysis by-products and polynuclear aromatic hydrocarbons (PAHs) typically associated with asphaltic debris in ground-water samples MW-2 and MW-10 and in soil samples SS-10 B-1.

- Organic acids commonly associated with tar and street runoff were detected in soil samples SS- 10 B1 and SS-11 B-2.

- The medium distillate detected in water sample MW-11 consisted of a highly refined petroleum hydrocarbon such as motor oil and diesel fuel.

Friedman & Bruya concluded that there was little indication of naturally occurring biogenic hydrocarbons in the samples, and that with the exception of the sample from MW-11, the origin of the hydrocarbons appeared to be the result of street run-off. These findings are consistent with the results of the WTPH-D analyses which indicate that over 80% of the petroleum hydrocarbons are in the heavy oil range and the upstream sediment analyses which detected substantial concentrations of petroleum hydrocarbons.

Potential Environmental Impacts: The primary potential receptor of any contamination in soil on the Bellefield Office Park site is aquatic life in the Mercer Slough which might migrate to the slough via ground water flow. PCB concentrations in soil are below potential cleanup

levels and it is unlikely that the ground-water (within the debris/peat deposits) will ever be used for drinking water purposes.

As discussed above, the low flow sampling results indicate that PCBs and most of the petroleum hydrocarbons are not present in the dissolved state and are not available to migrate to the slough via ground water flow. This is supported by the analyses of samples of slough water and sediments (Table 1). No PCBs were detected in either the water or sediment samples and petroleum hydrocarbons were not detected in the water samples.

PREVIOUS INVESTIGATIONS

A variety of investigations have been conducted for various purposes on the Bellefield Office Park:

- In the period of 1969 to 1978, a series of geotechnical reports were prepared by N.H Twelker & Associates, Inc. which present data on the geologic conditions beneath the site. The available reports are cited in the references section of this report.

- In 1986, EPA prepared a Preliminary Site Assessment (PSA) under CERCLA (Federal Superfund program). As described above, this assessment resulted in a "**No Further Action**" recommendation for the Bellefield Office Park.

- In 1989, the Washington State Department of Ecology reviewed existing historical documentation for the site. Based on this review, Ecology **de-listed** the site from Washington State's published list of Confirmed and Suspected Contaminated Sites.

- In 1992, Applied Geotechnology, Inc. prepared a report which summarizes the geologic and hydrologic conditions beneath the site. The report was prepared as part of a pavement rehabilitation project.

- In 1993 and 1994, as part of the real estate transaction between Great Western Savings and Spieker Properties, the consulting firm AGRA (formerly RZA-AGRA) prepared a Phase 1 Environmental Assessment report, dated July 25, 1994, which presents their preliminary evaluation of the site history and environmental conditions.

- In 1994, AGRA completed field testing of surface water and sediment in the Mercer Slough, and soil and ground water on the Bellefield Office Park site. The data collected by AGRA is discussed in this report and is summarized in a Project Executive Summary Report prepared by AGRA, dated December 20, 1994.

- In late 1994 and early 1995, additional sampling was completed by AGRA to further assess the sources of petroleum hydrocarbons and detections of PCBs in ground water samples. North Creek Analytical and Friedman & Bruya assisted AGRA in making these

assessments. The results of this work are summarized in letters prepared by AGRA (1995) and Friedman & Bruya (1994).

- In April 1995, Dalton, Olmsted & Fuglevand sampled three wells to further assess the dissolved concentrations of petroleum hydrocarbons and PCBs in ground water using low-flow sampling techniques. This work is described in this report.

SELECTION OF CLEANUP STANDARDS

Cleanup standards referenced in this report are based on the Model Toxics Control Act (MTCA) 173-340 WAC. Both Method A and Method B for soil (WAC 173-340-740) and ground water (WAC 173-340-720) were used.

In addition, available Ambient Water Quality Criteria published by EPA (1986) were compared to the environmental data. This is consistent with WAC 173-340-730 of the MTCA.

REMEDIAL ACTIONS AND RATIONALE

Based on the site characterization data, remedial action at the site has not been recommended:

- The Bellefield Office Park is located in an area which has received in the past and currently receives regional road runoff. This runoff contains petroleum hydrocarbons.
- PCB concentrations in soil are less than the MTCA Method A cleanup criteria of 1 mg/kg.
- Petroleum hydrocarbons which exist in soil are capped by 2 to 3 feet of fill soils, parking lots, and roadways.
- There is little evidence that contaminants are migrating to the Mercer Slough. Volatile organic compounds, PAHs and pesticides were either not detected; were detected below cleanup levels; or were detected at only one location, at a relatively low concentration in ground-water samples. Testing and evaluation of PCBs and petroleum hydrocarbons in ground water indicate only low concentrations of diesel range hydrocarbons are available to migrate, but are present at concentrations below the MTCA Method A criteria of 1 mg/l.
- Testing of surface water samples from the Mercer Slough did not detect contamination above reporting limits.

SAMPLING AND ANALYSIS

Sampling Procedures

Soil Sampling Methods: The borings were drilled using a hollow-stem auger. The drilling and sampling activities were observed and logged by AGRA representatives. Soil samples were obtained using a 2-inch split-spoon sampler using the Standard Penetration Test (SPT).

During drilling the samplers were decontaminated between each sampling run by scrubbing the sampler with a stiff brush in a mixture of detergent and water followed by consecutive rinses in tap water and distilled water. Down-hole drilling equipment such as rods and casing were decontaminated between drilling locations using a steam cleaner.

Near-surface soil samples were collected from hand-auger borings using stainless steel spoons. The hand auger and associated sampling equipment were decontaminated between sampling locations using similar procedures as for the machine auger borings discussed above.

Representative portions of each recovered sample were placed directly into laboratory prepared glass sample jars and were sealed with a Teflon lined screw cap. After collection, the samples were placed into a chilled cooler for transport to the laboratory. AGRA chain-of-custody procedures were maintained during sample handling.

Well Point Installation Procedures: Well points were installed at eighteen locations within the project site as temporary sampling wells. Each well point consisted of a 30-inch long 1.25 inch diameter, stainless steel, slotted drive point, attached to 1.25 or 2.0 inch diameter galvanized steel risers. These risers were typically five feet in length and were joined to the drive point using a high strength drive coupling.

The well points were advanced using a Portable Penetrating Barrel Sampler (PPBS) drive system. The drive system consists of a hydraulically activated, 90lb jackhammer driven by a gasoline powered hydraulic pump. The well points were driven into the ground to the desired depth or until refusal was encountered. Well point refusal was defined as less than 1-inch penetration per minute of driving. If refusal was encountered at a depth of less than five feet, the location of the well point was shifted and redriven. Conversely, if refusal was encountered at a depth greater than five feet, the well points were left in place.

The well points and casings were cleaned prior to insertion by scrubbing with a stiff brush with a solution of phosphate-free detergent and warm water. After washing, the points were rinsed with potable water, methanol or acetone, and finally deionized water.

Well Point Development and Sampling: Upon completion of the well point installation, each well was developed by removing five to seven casing volumes using a 1-inch diameter reusable stainless steel bailer. Prior to collecting samples from each well, AGRA, purged an additional three to five casing volumes.

Samples collected by AGRA were obtained using a stainless steel bailer. After collection, samples were placed in containers provided by the receiving laboratory. Samples were transported to the laboratory in chilled coolers using standard chain-of-custody procedures.

REFERENCES

AGI (Applied Geotechnology Ind.) 1992, Geotechnical Engineering Study, Proposed Pavement Rehabilitation, Bellefield Office Park, Bellevue, Washington, prepared for Great Western Savings Bank, March 27,1992 (AGI Project No. 14,571.022).

AGRA, 1995, Project Executive Summary Report, Bellefield Office Park, 11201 S.E. 8th Street, Bellevue, Washington, prepared for Great Western Bank, December 20, 1994, No.11-09378-03.

AGRA, 1995, PCB Interpretation Consensus Meeting Results, Bellefield Office Park Project, 11201 S.E. 8th Street, Bellevue, Washington 98005; prepared for Great Western Savings, January 13, 1995.

RZA-AGRA, 1994, Phase 1 Environmental Site Assessment, Bellefield Office Park, Bellevue, Washington, prepared for Spieker Properties, Inc., dated July 25, 1994.

Ecology (Washington State Department of Ecology), 1989, Ecology letter to Harold Johnson (Great Western Savings Bank) from Annette Petrie (Ecology), October 23, 1989.

Ecology (Washington State Department of Ecology), 1994a, Model Toxics Control Act Cleanup Levels and Risk Calculation (CLARC II) Update, Publication 94-145, August 31, 1994.

Ecology (Washington State Department of Ecology), 1994b, Natural Background Soil Metals Concentrations in Washington State, Publication 94-115, October 1994.

EPA (Environmental Protection Agency), 1986, Potential Hazardous Waste Site Disposition (May 7, 1986) and Potential Hazardous Waste Site Preliminary Assessment - Summary Memorandum, January 21, 1986.

EPA, 1986, Summary of Quality Criteria for Water, "Gold Book".

Friedman & Bruya, Include, 1994, Letter to AGRA presenting the results of testing of ground water and soil samples obtained on November 30, 1994, dated December 8, 1994.

RZA-AGRA, 1994, Phase 1 Environmental Assessment, Bellefield Office Park, Bellevue, Washington, prepared for Spieker Properties, Include, July 25, 1994, No 11-09718-00.

Twelker, N.H. & associates, 1969, Soils and Foundation Investigation - Progress Report, Bellefield Park, Proposed Residential Recreational and Office Development, prepared for Volotin Development Co., May 9, 1969.

Twelker, N.H. & Associates, 1971, Soils and Foundation Investigation, Proposed Street Improvement, S.E. 8th Street; Prepared for the city of Bellevue; March 1, 1971.

Twelker, N.H. & Associates, 1972, soils and Foundation Investigation, Hewlett-Packard-Neely Project; Prepared for the Bellefield company; December 19, 1972.

Twelker, N.H. & Associates, 1973a Soils and Foundation Investigation, Proposed Restaurant; Prepared for the Bellefield company; September 18, 1973.

Twelker, N.H. & Associates, 1973b, Soils and Foundation Investigation; buildings E & F; Prepared for the Bellefield Company; March 16, 1973.

Twelker, N.H. & Associates, 1969, Soils and Foundation Investigation, Bellefield Office Park - Building G; October 19, 1973.

Twelker, N.H. & Associates, 1969, Soils and Foundation Investigation; Proposed Restaurant Site; Prepared for the Bellefield Company; August 26, 1974.

Twelker, N.H. & Associates, 1978, Soils and Foundation Investigation; Proposed Office Project S.E. 8th and 112th Ave S.E., Bellevue, WA; Prepared for Great Western Savings; February 1, 1978.

TABLE 1 - Results of Mercer Slough Bottom Sediment and Surface Water Analyses

Bellefield Office Park
Bellevue, Washington

	Sediment Samples (mg/kg)			Surface Water Samples (mg/l)	
	Upstream(1)	Upstream(2)	Downstream(3)	West Water	East Water
Description	clean sand	silts, clays, organics		—	—
pH	—	—	6.6	7.2	7.2
WTPH-DX					
Diesel	18	480	2400	<0.25	<0.25
Heavy Oil	110	2900	2300	<0.75	<0.75
Volatiles (8240)	—	—	nd	nd	nd
Semivolatiles (8270)					
Benzoic Acid	<0.5	—	1.9	<0.01	<0.01
Benzo(a)anthracene	0.11	—	<0.1	<0.005	<0.005
Benzo(b)fluoranthene	0.21	—	<0.1	<0.005	<0.005
Benzo(ghi)perylene	0.1	—	<0.1	<0.005	<0.005
Benzo(a)pyrene	0.14	—	1.8	<0.005	<0.005
Chrysene	0.18	—	<0.1	<0.005	<0.005
Fluoranthene	0.29	—	<0.1	<0.005	<0.005
Phenanthrene	0.16	—	<0.1	<0.005	<0.005
Pyrene	0.29	—	<0.1	<0.005	<0.005
Others	nd	—	nd	nd	nd
Pesticides/PCBs (8081)					
Dieldrin	<0.002	—	0.0037	<0.00007	<0.00007
Heptachlor	<0.001	—	0.0062	<0.00004	<0.00004
Chlordane (technical)	0.0046	—	<0.001	<0.00015	<0.00015
PCBs	—	—	<0.005	<0.005	<0.005
Others	nd	—	nd	nd	nd
Phenols (420.1)	—	—	<0.5	<0.025	<0.025
Metals (6010/7000)					
Chromium	—	—	38	<0.01	<0.01
Copper	—	—	16	<0.02	<0.02
Zinc	—	—	37	<0.01	<0.01

Notes:

(1) - North H2O (soil) - on laboratory sheets

(2) - sed-upstream - on laboratory sheets

(3) - South Soil on laboratory sheets

(4) - antimony, arsenic, beryllium, cadmium, lead, mercury, nickel, selenium, silver, and thallium were analyzed but were not detected.

— - not analyzed

nd - not detected

TABLE 4 - SUMMARY OF GROUND-WATER QUALITY DATA

Bellefield Office Park
Bellevue, Washington

	WTPH-DX (mg/l)		WTPH-DX (mg/l)		WTPH-DX (mg/l)		WTPH-DX (mg/l)		Sampled Oct. 23/24, 94								
Date	Oct. 23/24, 94		Nov. 4, 94		April 12/13, 95		Nov. 14, 94(11)		Volatiles (8021) (ug/l)		Sum PAHs	PCBs/Pest.- 8081(ug/l)(8)					
Well	Diesel	Heavy Oil	Diesel	Heavy Oil	Diesel	Heavy Oil	Diesel	Heavy Oil	Naphthalene	Others	(ug/l)	4,4'-DDD	4,4'-DDE	4,4'-DDT	PCB-1242	PCB-1254	PCB-1260
MW-1	0.34	<0.75	----	----	----	----	----	----	<1	nd	4.9(3)	<0.08	<0.06	<0.18	<1	<1	<1
MW-2	4	16	----	----	0.5(7)	3.8(7)	0.40	<0.75	<1	nd	20.1(3)	**0.34**	**0.043**	**0.12**	**1.5(9)(10)**	**1.7(9)(10)**	**0.42(9)(10)**
MW-3	1.1	1.7	0.79(7)	0.95(7)	0.89	4.6	----	----	6.2	nd	3.6(3)	<0.04	<0.03	<0.09	<0.1	<0.1	<0.1
MW-4	0.37	<0.75	----	----	----	----	----	----	1.9	nd	nd	<0.04	<0.03	<0.09	<0.1	<0.1	<0.1
MW-5	0.27	<0.75	----	----	----	----	----	----	1.4	nd	nd	<0.04	<0.03	<0.09	<0.1	<0.1	<0.1
MW-6	2.1	4.8	0.81(7)	1.3(7)	1.1	1.8	0.69	<0.75	2.4	nd	nd(1)	**0.042**	<0.03	<0.09	<0.1	**0.16**	<0.1
MW-7	1.7	4.2	0.4(7)	0.75(7)	1.8	13	----	----	16	nd	nd	<0.04	<0.03	<0.09	<0.1	<0.1	<0.1
MW-8	0.89	0.75	----	----	0.85(7)	2.5(7)	----	----	<1	nd	nd	<0.04	<0.03	<0.09	<0.1	<0.1	<0.1
MW-9	0.76	0.77	----	----	----	----	----	----	2.8	nd	nd	<0.04	<0.03	<0.09	<0.1	<0.1	<0.1
MW-10	2.3	5.9	----	----	1.3(7)	2.3(7)	0.32	<0.75	<1	nd	----	<0.08	<0.06	<0.18	0.1(8)(9)	**0.41(8)(9)**	0.1(8)(9)
MW-11	0.63	0.96	----	----	5.3(7)	41(7)	----	----	<1	nd	nd	<0.04	<0.03	<0.09	<0.1	<0.1	<0.1
MW-12	0.53	<0.75	----	----	----	----	----	----	<1	nd	nd	<0.04	<0.03	<0.09	<0.1	<0.1	<0.1
MW-13	0.74	<0.75	----	----	----	----	----	----	<1	nd	nd	<0.04	<0.03	<0.09	<0.1	<0.1	<0.1
MW-14	0.94	1.3	0.4(7)	0.75(7)	0.29(7)	1.4(7)	----	----	<1	nd	nd	<0.04	<0.03	<0.09	<0.1	<0.1	<0.1
MW-15	0.61	<0.75	----	----	----	----	----	----	<1	nd	nd	<0.04	<0.03	<0.09	<0.1	<0.1	<0.1
MW-16	0.44	<0.75	----	----	----	----	----	----	<1	nd	nd	<0.04	<0.03	<0.09	<0.1	<0.1	<0.1
MW-17	----	----	----	----	0.67	3.40	----	----	----	----	----	<0.04	<0.03	<0.09	<0.1	<0.1	<0.1
MW-18	----	----	----	----	0.79	3.60	----	----	----	----	----	<0.04	<0.03	<0.09	<0.1	<0.1	<0.1
Cleanup Levels(2)																	
MTCA Method A	1	1	1	1	1	1	1	1	na	---	(3)	na	na	0.1	0.1	0.1	0.1
MTCA Method B	na	na	na	na	na	na	na	na	32	---	(3)	0.37	0.26	0.26	0.01	0.01	0.01
Freshwater Criteria(4)	na	na	na	na	na	na	na	na	620	---	(3)	na	1050(5)	0.001	0.014(6)	0.014(6)	0.014(6)

Notes:

(1) - Matrix interference caused relatively high reporting limit

(2) - MTCA Levels based on drinking water exposure

(3) - see Table 3

(4) - Freshwater chronic criteria

(5) - Freshwater acute criteria

(6) - For PCB mixtures

(7) - Samples obtained in new well points installed at approximately the same location because of TPH detections in well pipe rinsate blanks.

(8) - Sample for MW-10 pesticide/PCB analysis was collected on 11-15-94. PCB 1254 was not detected in a sample collected on October 23, 1994.

(9) - PCBs were not detected in samples collected on November 30, 1994 and analyzed by Friedman & Bruya, Inc.

(10) - PCBs were not detected in samples collected on April 12 and 13, 1995 using low flow sampling techniques.

(11) - Samples were obtained using a low flow sampling technique (see text)

na - not available

nd - not detected

---- - not tested

TABLE 5 - Results of PAH Analyses in Ground-Water

Bellefield Office Park
Bellevue, Washington

	MW-1	MW-2		MW-3		MTCA-Method B	Freshwater
EPA Method	8310	8310	8270	8310	8270	(ug/l)	Criteria (1)
Acenaphthene	<5	<5	<5	<5	5.7	960	520
Benzo(ghi) perylene	<0.1	2.1	<5	<0.1	<5	na	na
Benzo(k)fluoranthene	<0.1	0.98	<5	<0.1	<5	0.1(4)	na
Chrysene	1.5	<0.1	<5	<0.1	<5	0.1(4)	na
Fluoranthene	2.2	7.7	5.8	1.8	<5	640	3980(2)
Phenanthrene	<5	<5	5.3	<5	<5	na	6.3(3)
Pyrene	1.2	9.3	10.2	1.8	<5	480	na

(1) - Freshwater Chronic Criteria

(2) - Freshwater Chronic Criteria not available. Indicated value is the freshwater acute criteria

(3) - Proposed Criterion

(4) - MTCA Method A Criteria

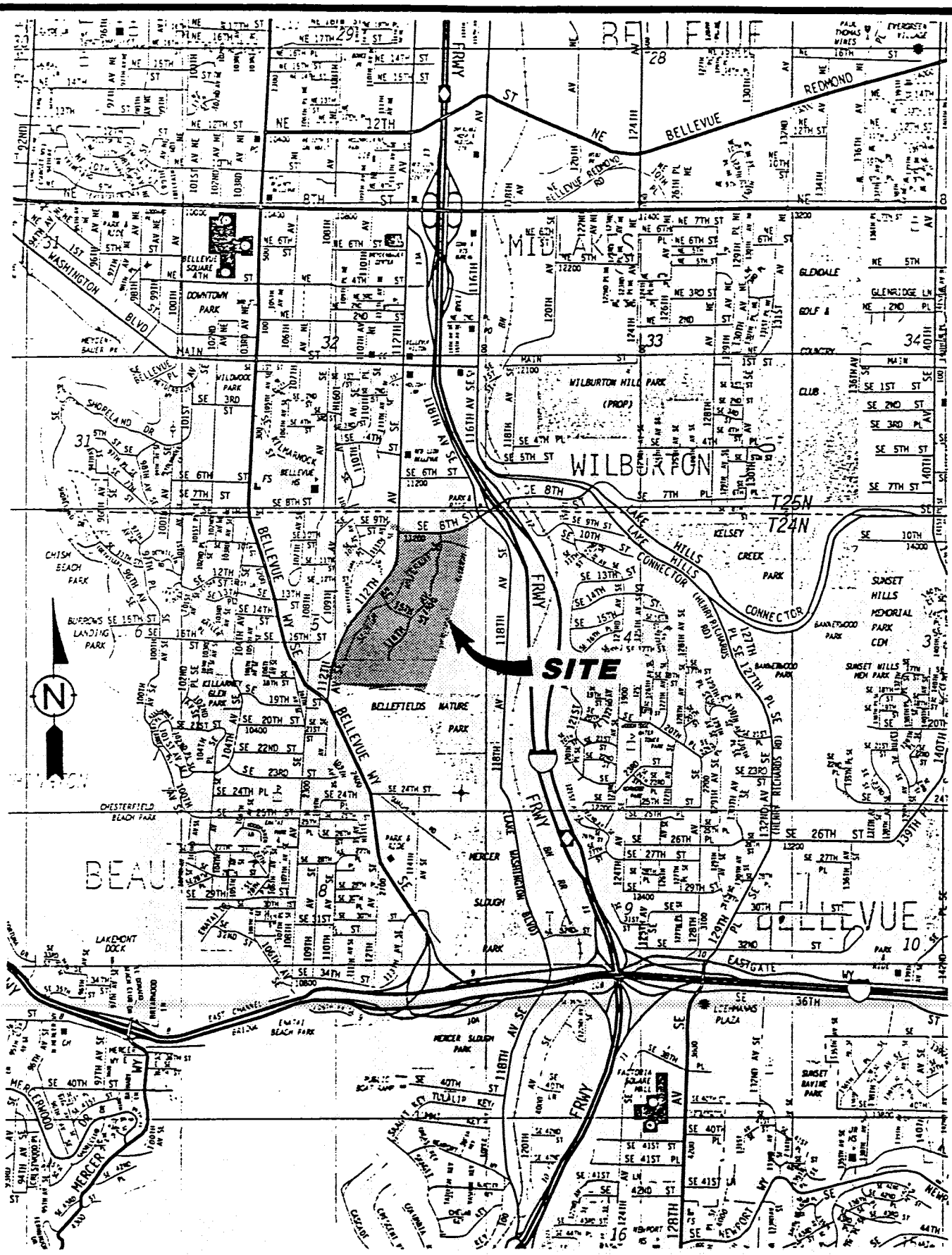
Sample Number	Depth (Feet)	WTPH-DX (mg/kg)		Percent Heavy Oil	PCBs (mg/kg)	Volatiles 8021
		Diesel	Heavy Oil			
SS-1/WP-12	<5	40	300	88.2	—	—
SS-2/WP14	<5	46	290	86.3	—	—
SS-3/WP-6	<5	60	340	85.0	—	—
SS-4/WP-10	<5	130	490	79.0	—	—
SS-5/WP-15	<5	730	240	24.7	—	—
SS-6	<5	95	710	88.2	—	—
SS-7	<5	110	920	89.3	—	—
SS-8	<5	78	390	83.3	—	—
SS-9	<5	97	590	85.9	—	—
B1/S3	7.5	1400	9900	87.6	0.34	nd
B1/S6	15	120	1500	92.6	<0.05	—
B1/S7	17.5	210	2700	92.8	<0.05	—
B2/S1	2.5	190	1800	90.5	<0.05	—
B2/S4	10	130	1600	92.5	<0.05	nd
B2/S8	20	530	2300	81.3	0.31	—
B3/S1	2.5	45	440	90.7	0.11	—
B3/S3	7.5	1200	5200	81.3	0.66	nd
B3/S7	17.5	1000	5000	83.3	0.75	—

Cleanup Levels(1)						
MTCA Method A	—	200	200		1	—
MTCA Method B	—	—	—		0.13	—

(1) - Model Toxics Control Act Cleanup Levels and Risk Calculation (CLARC II) Update August 31, 1994

— - not analyzed

nd - not detected



RZA-AGRA
ENGINEERING & ENVIRONMENTAL SERVICES

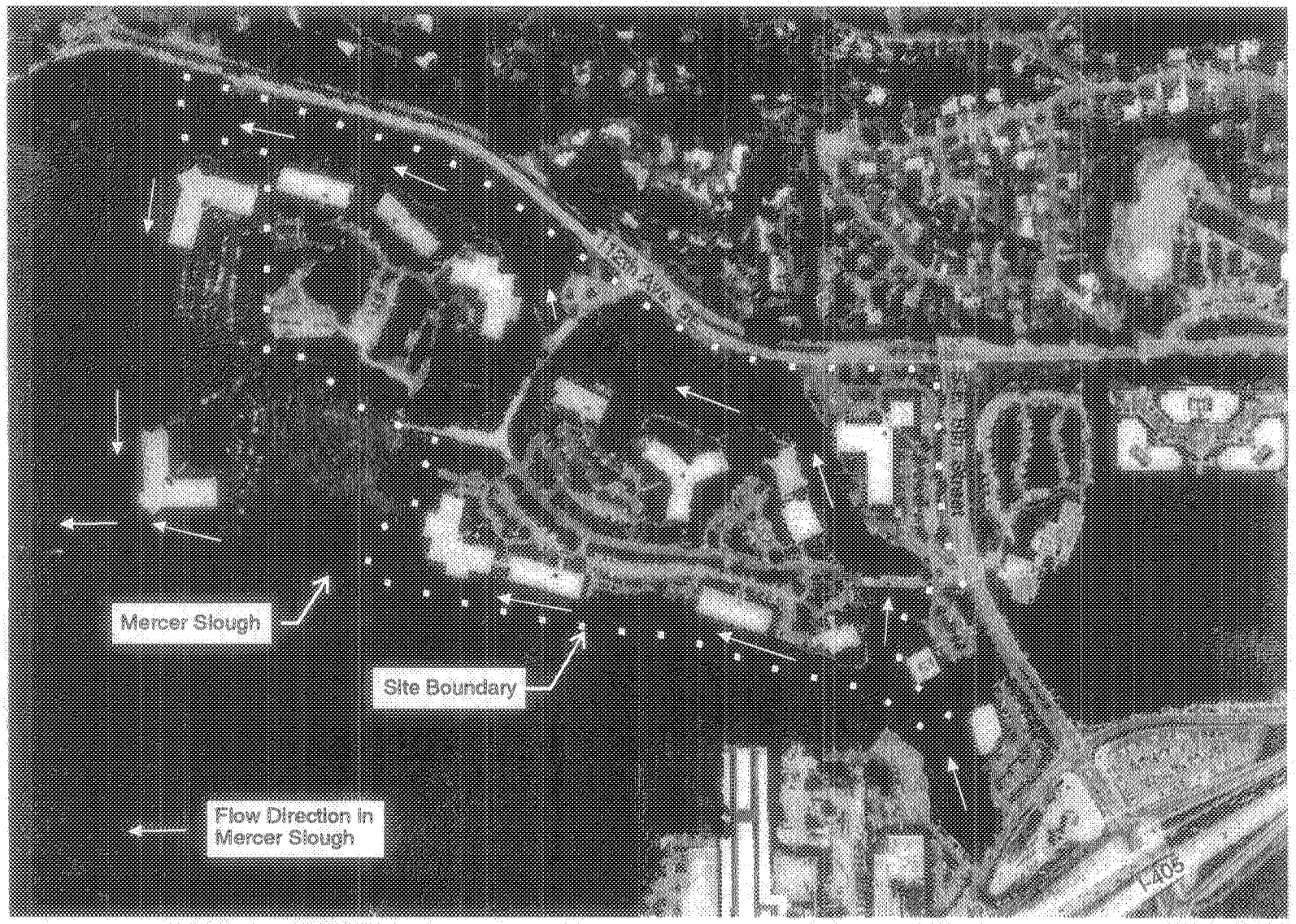
11335 N.E. 122nd Way
Suite 100
Kirkland, Washington
98034-6918

W.O. ____ 3
DESIGN SST
DRAWN DMW
DATE JAN 1994
SCALE N.T.S.

BELLEFIELD OFFICE PARK
11201 SOUTHEAST 8th STREET
BELLEVUE, WASHINGTON

LOCATION MAP

FIGURE 1



Air Photo - Bellevue - 1994
Source - Digital Geographic Systems
(Eugene, OR)

N

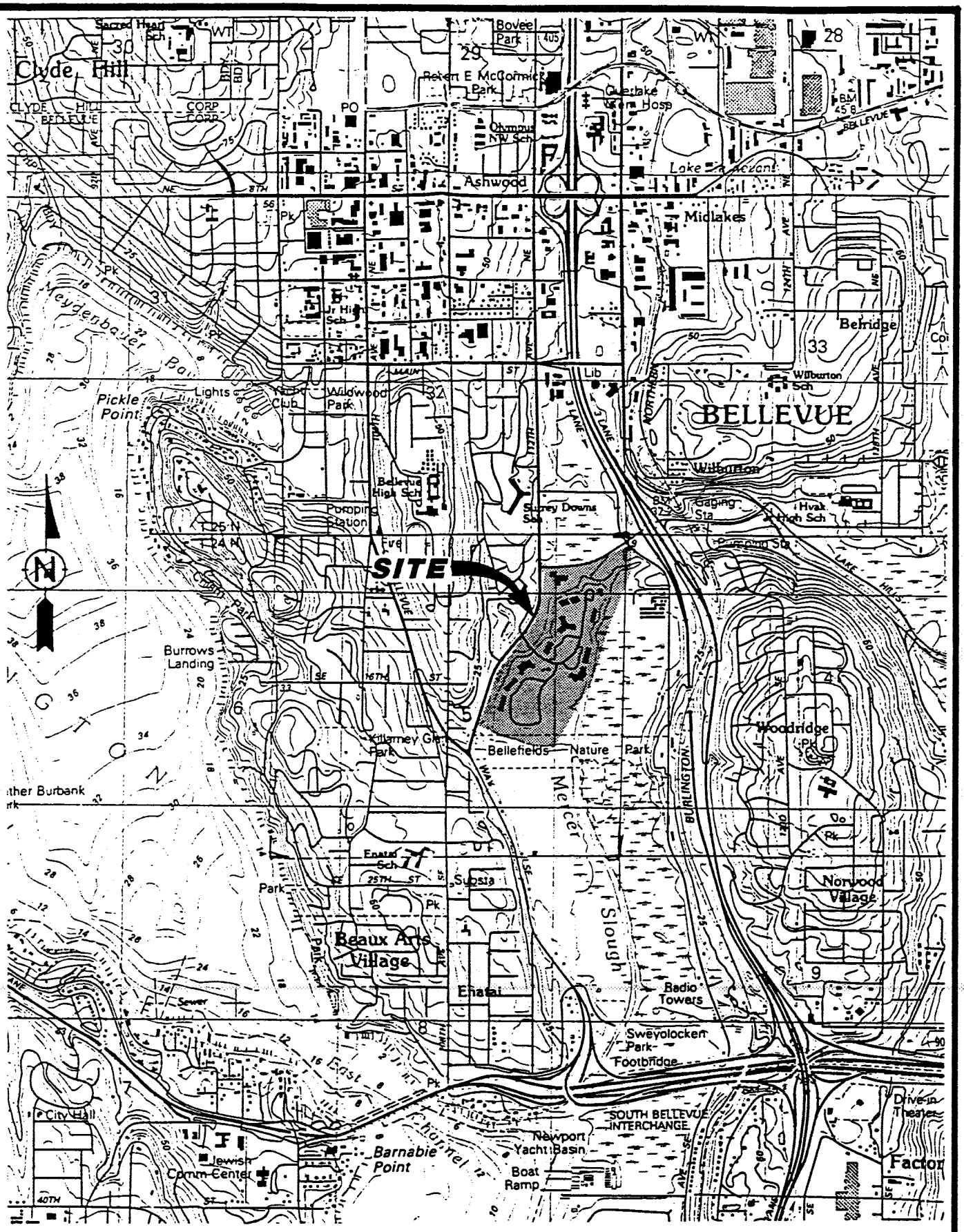
0 250 500
Scale in Feet
(approximate)

Bellefield Office Park
Bellevue, Washington

SITE FEATURES

HEW-020 FIGURE 2 March 1995
Dalton, Olmsted & Fuglevand, Inc.

ref: sitefea.cdr



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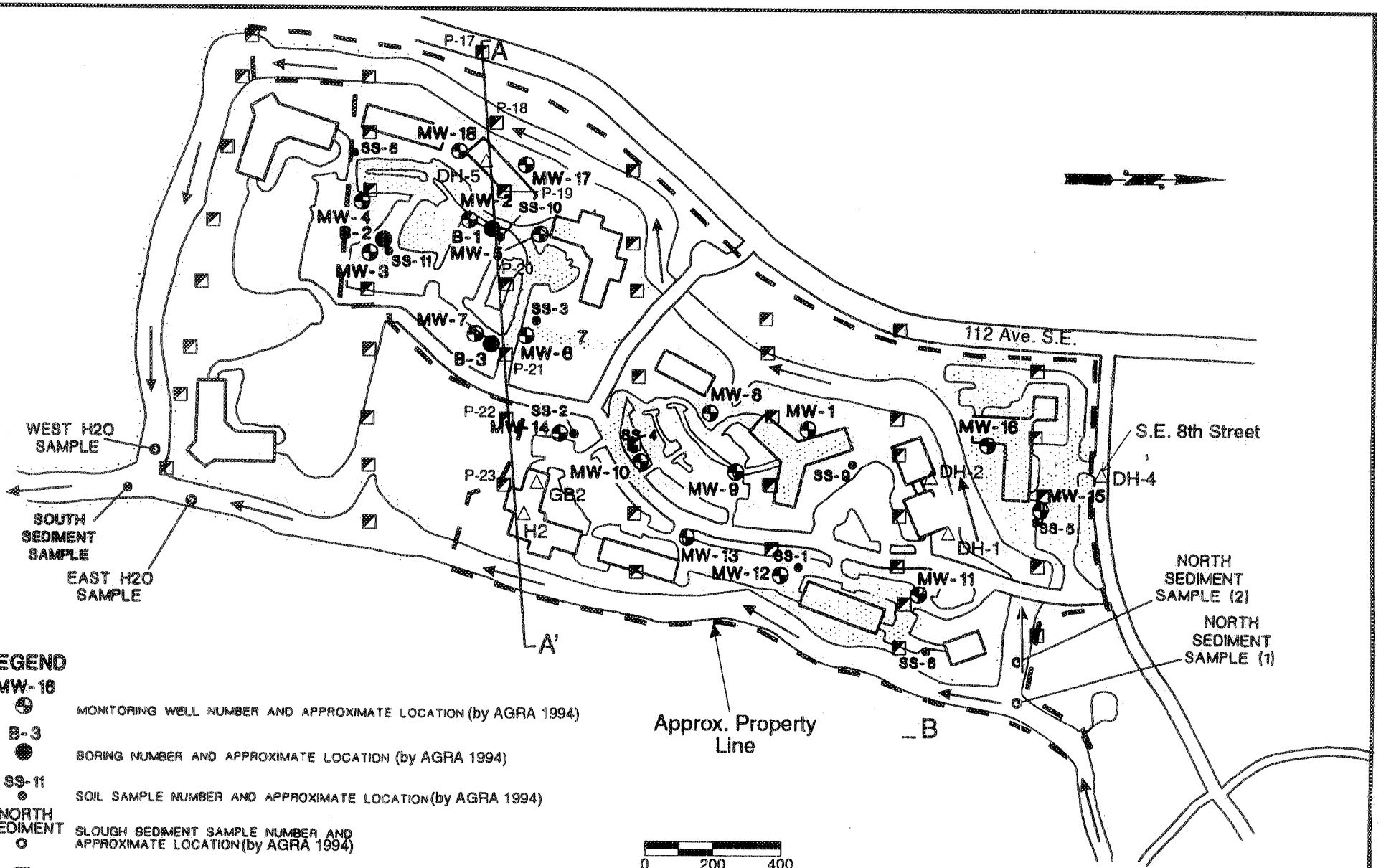
W.O.	
DESIGN	SST
DRAWN	DMW
DATE	JAN 1994
SCALE	N.T.S.

BELLEFIELD OFFICE PARK
11201 SOUTHEAST 8th STREET
BELLEVUE, WASHINGTON

TOPOGRAPHIC MAP

FIGURE 3



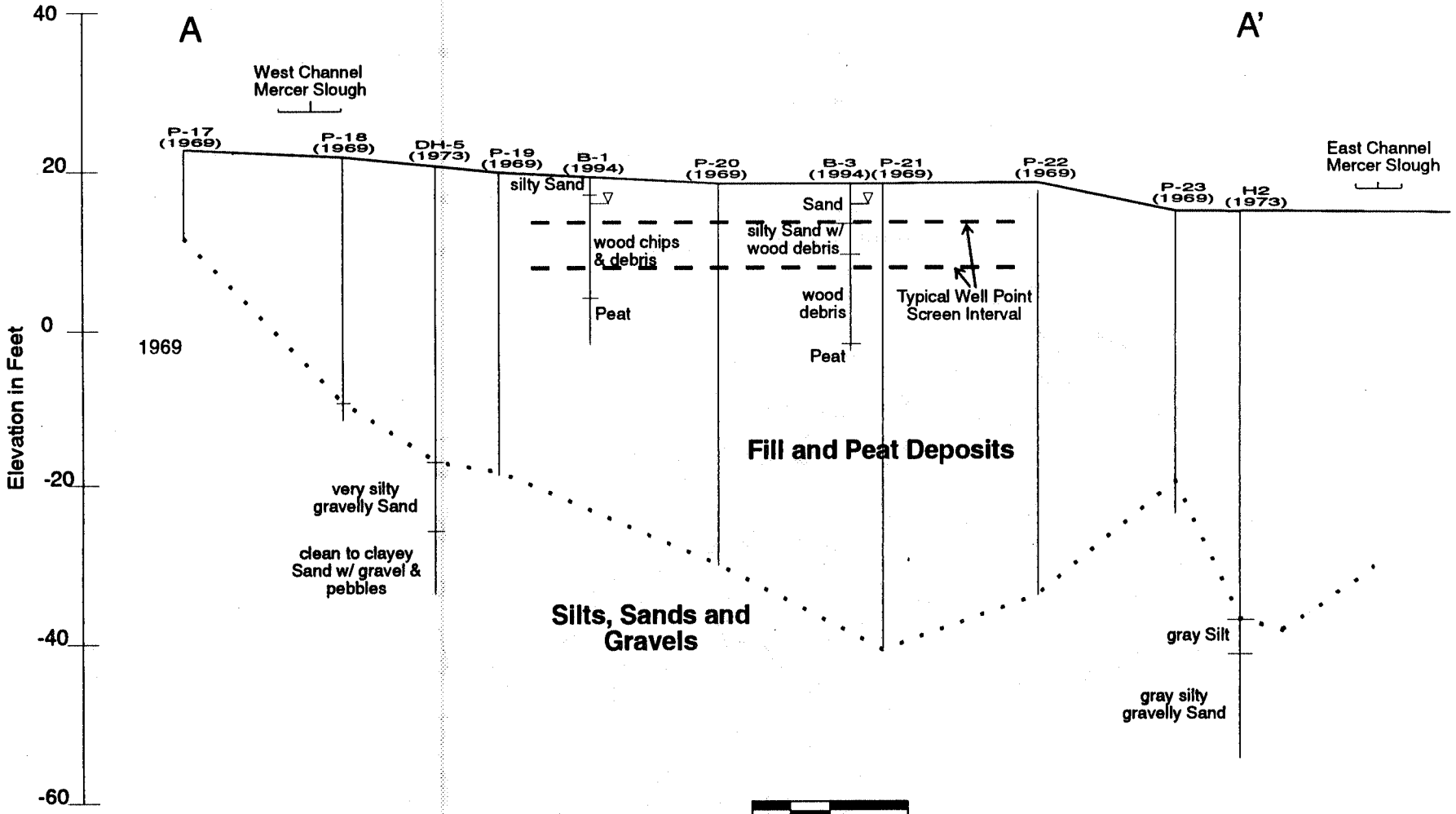
site4.cdr

Bellefield Office Park
Bellevue, Washington

Geologic Section Trends

HEW-020 **FIGURE 4** March 1995

Dalton, Olmsted & Fuglevand, Inc.



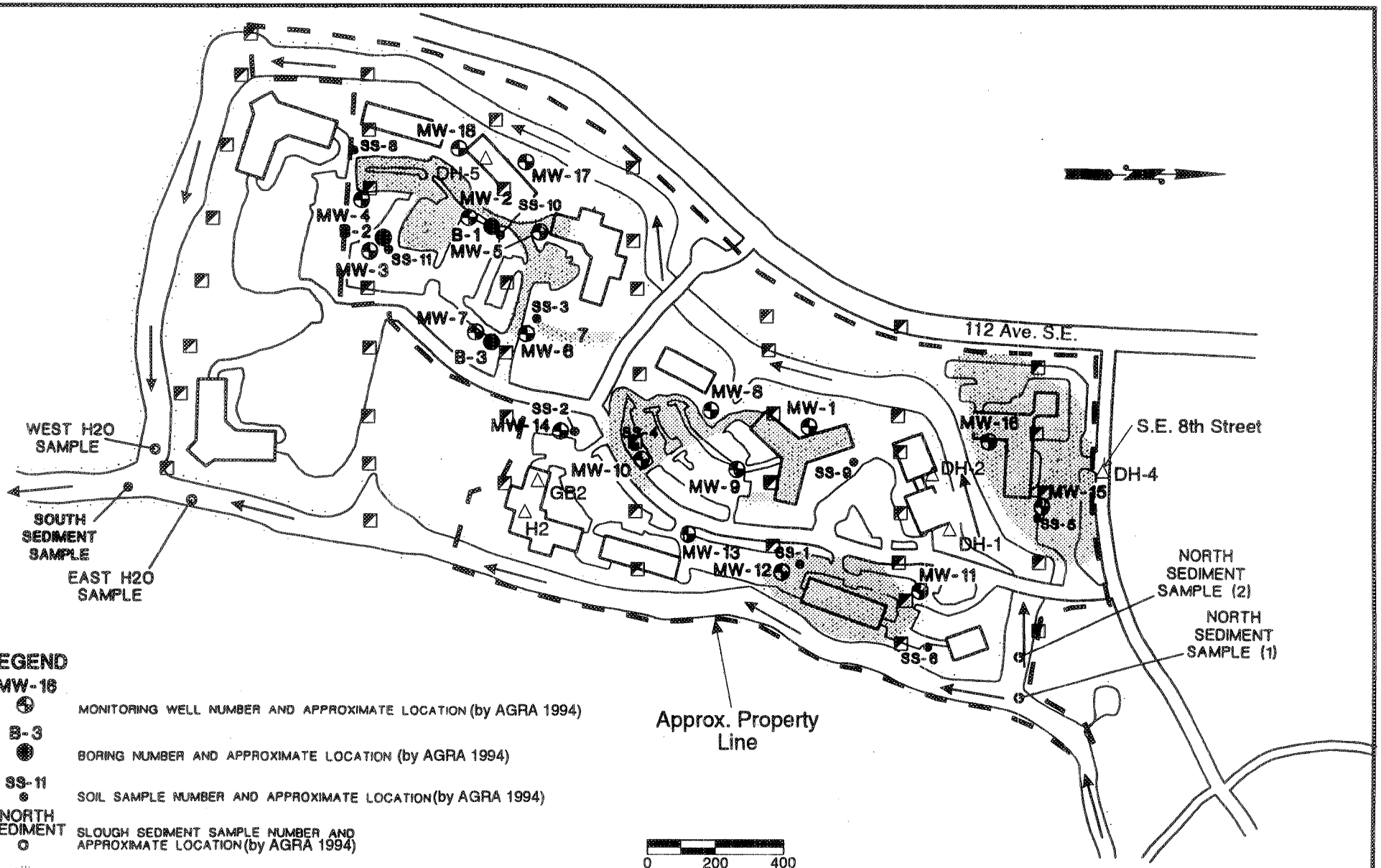
Note: Geologic relationships are approximate because of changes in conditions by filling, peat compression, etc. during the time period between the drilling of probes and borings (1969 to 1994).

Bellefield Office Park
Bellevue, Washington

GEOLOGIC SECTION A-A'

HEW-020 **FIGURE 5** March 1995

Dalton, Olmsted & Fuglevand, Inc.



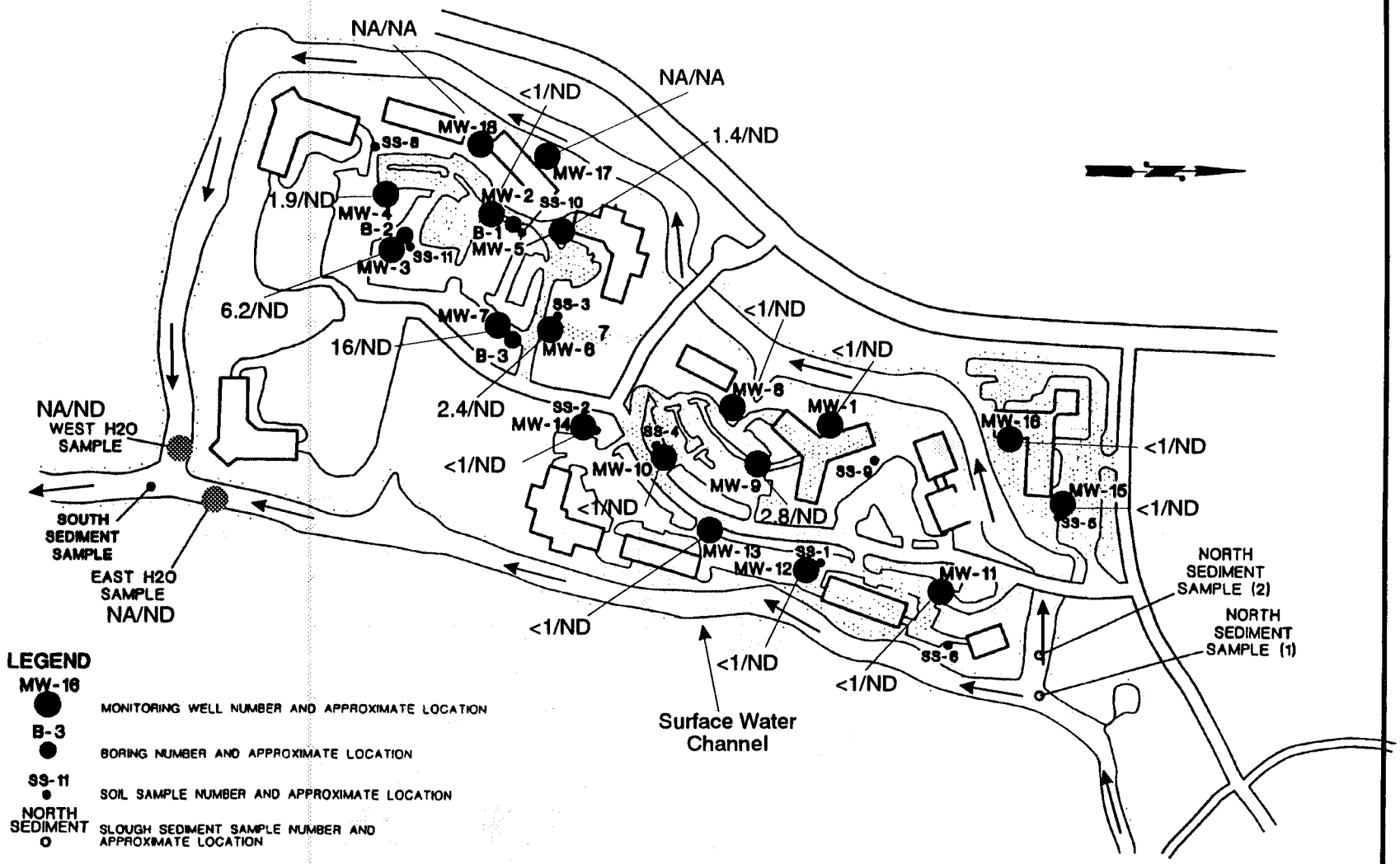
site1.cdr

Bellefield Office Park
Bellevue, Washington

Exploration/Sample Location Map

HEW-020 **FIGURE 6** March 1995

Dalton, Olmsted & Fuglevand, Inc.

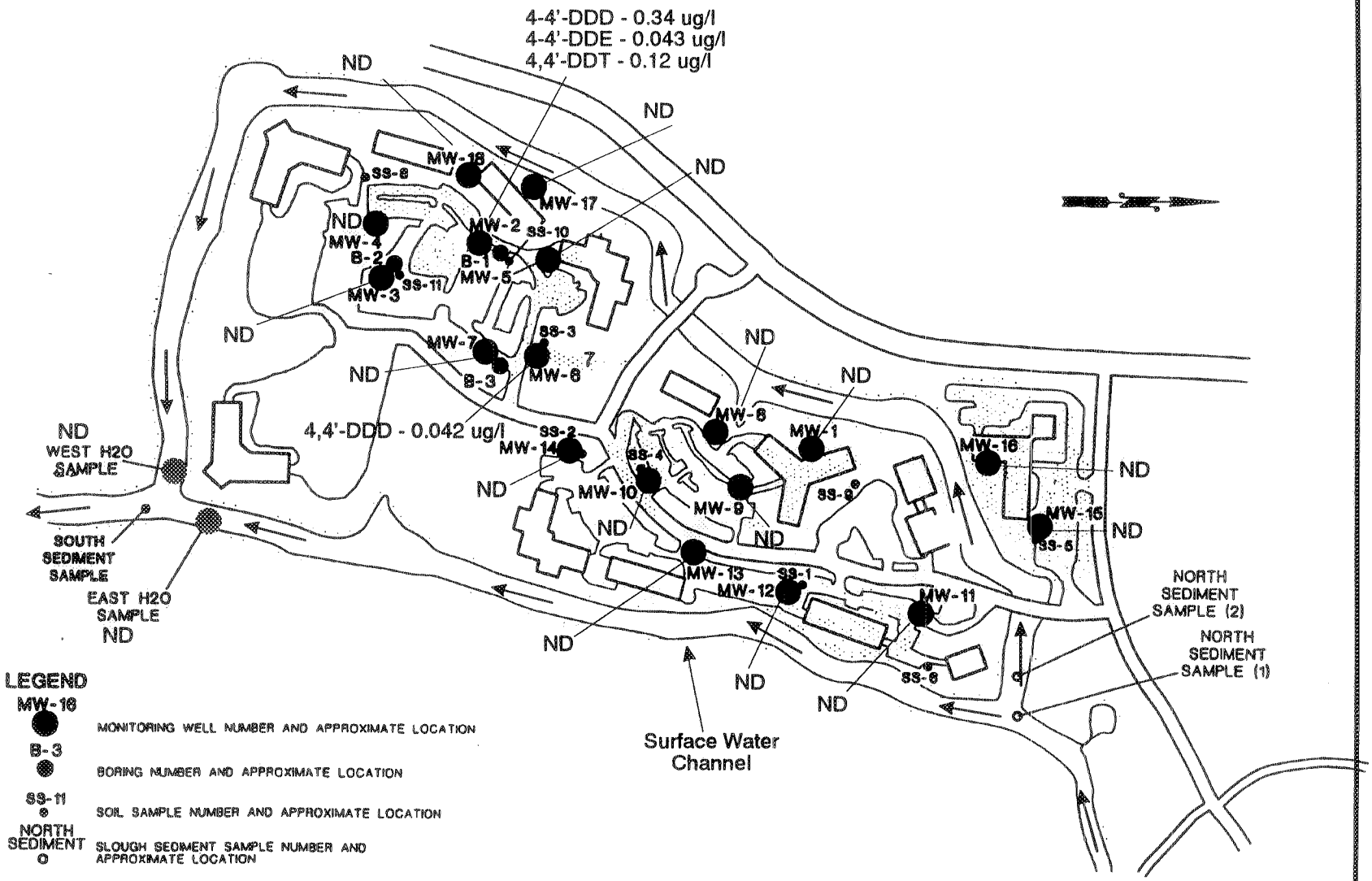


Bellefield Office Park
Bellevue, Washington

Naphthalene/Volatile Concentrations In Surface and Ground Water

HEW-020 **FIGURE 7** April 95

Dalton, Olmsted & Fuglevand, Inc.

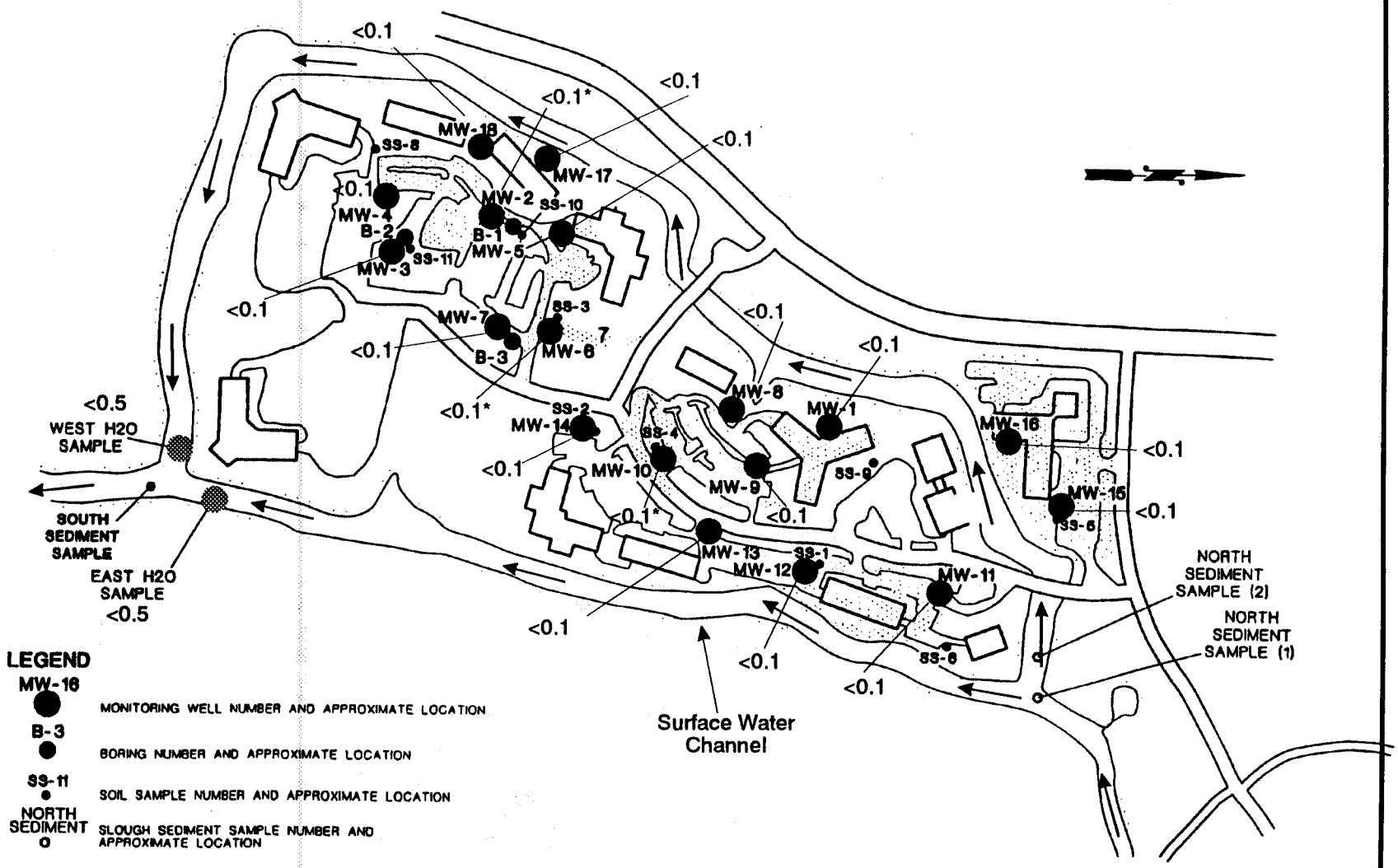


Bellefield Office Park
Bellevue, Washington

Pesticide Concentrations in Surface and Ground Water

HEW-020 **FIGURE 8** April 95

Dalton, Olmsted & Fuglevand, Inc.

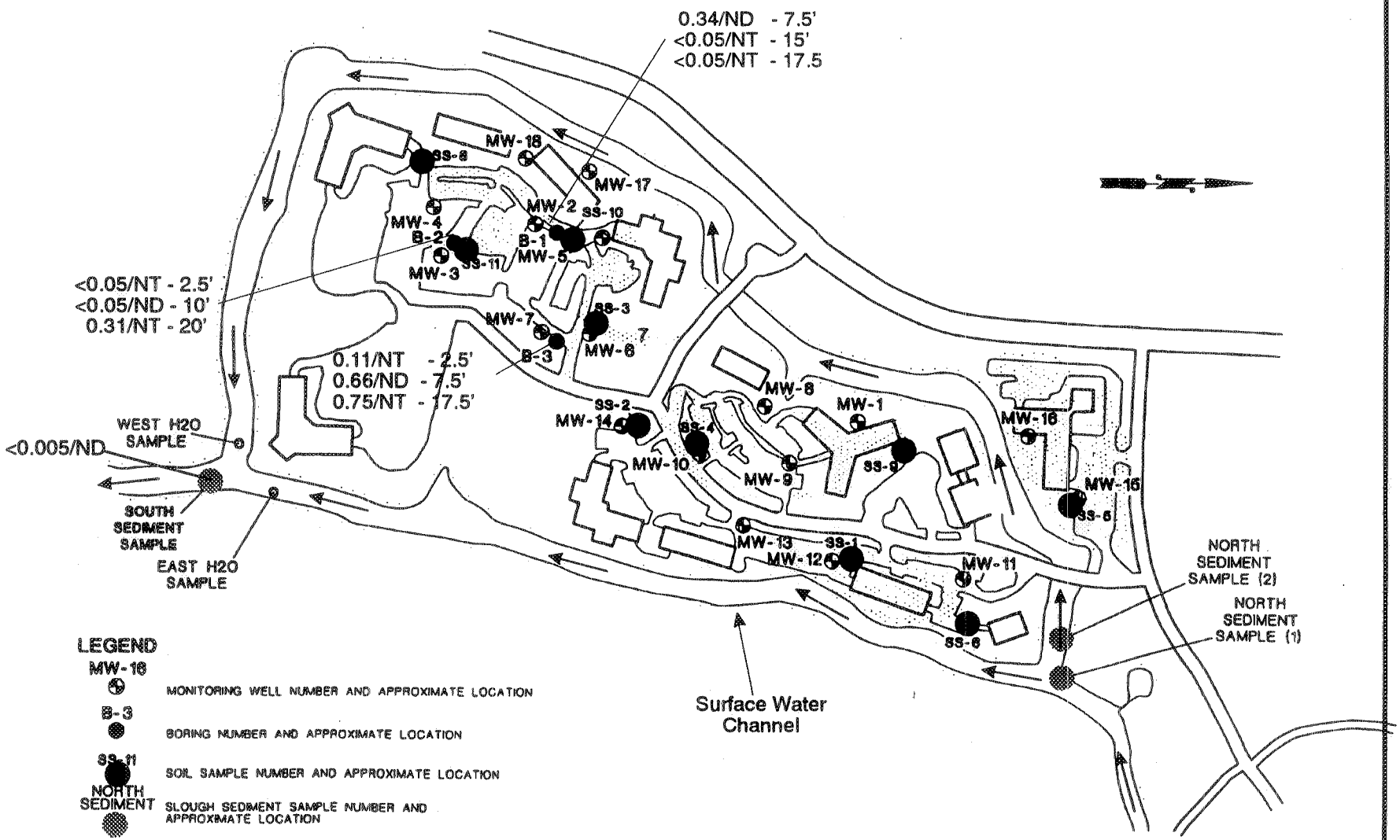


Bellefield Office Park
Bellevue, Washington

PCB Concentrations In Surface and Ground Water

HEW-020 **FIGURE 9** April 95

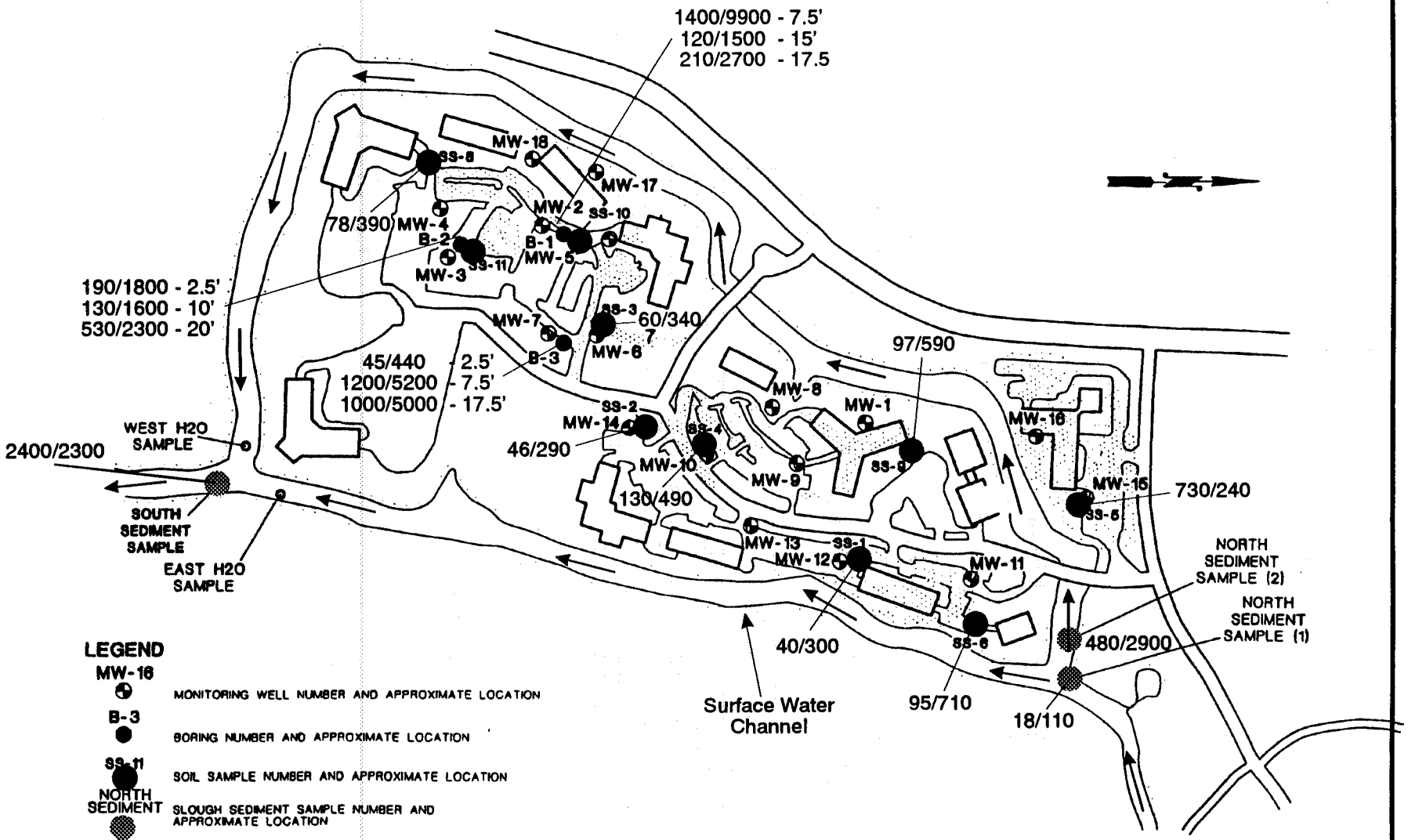
Dalton, Olmsted & Fuglevand, Inc.



Bellefield Office Park
Bellevue, Washington

PCB/Volatile Concentrations in Sediment and Soil

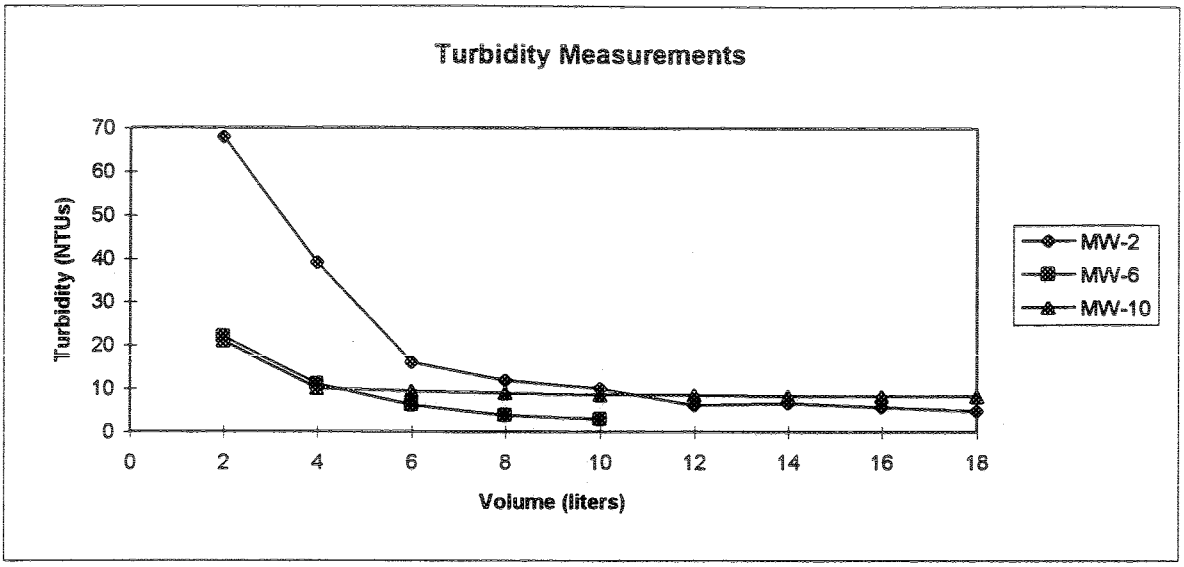
HEW-020 FIGURE 10 April 95
Dalton, Olmsted & Fuglevand, Inc.



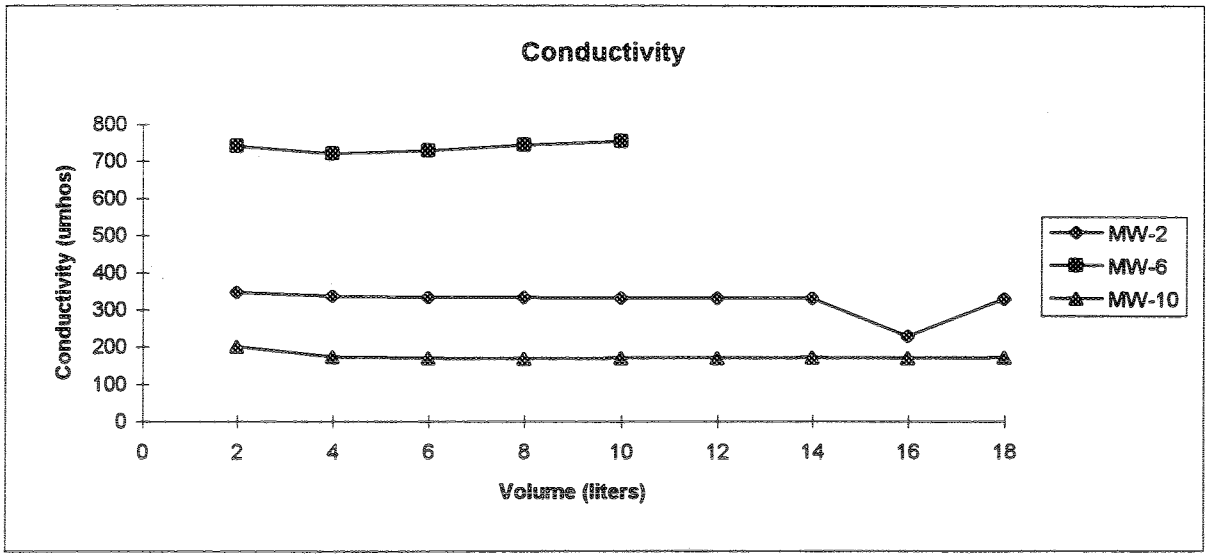
Bellefield Office Park
Bellevue, Washington

TPH CONCENTRATIONS IN SOIL

HEW-020 FIGURE 11 April 95
Dalton, Olmsted & Fuglevand, Inc.

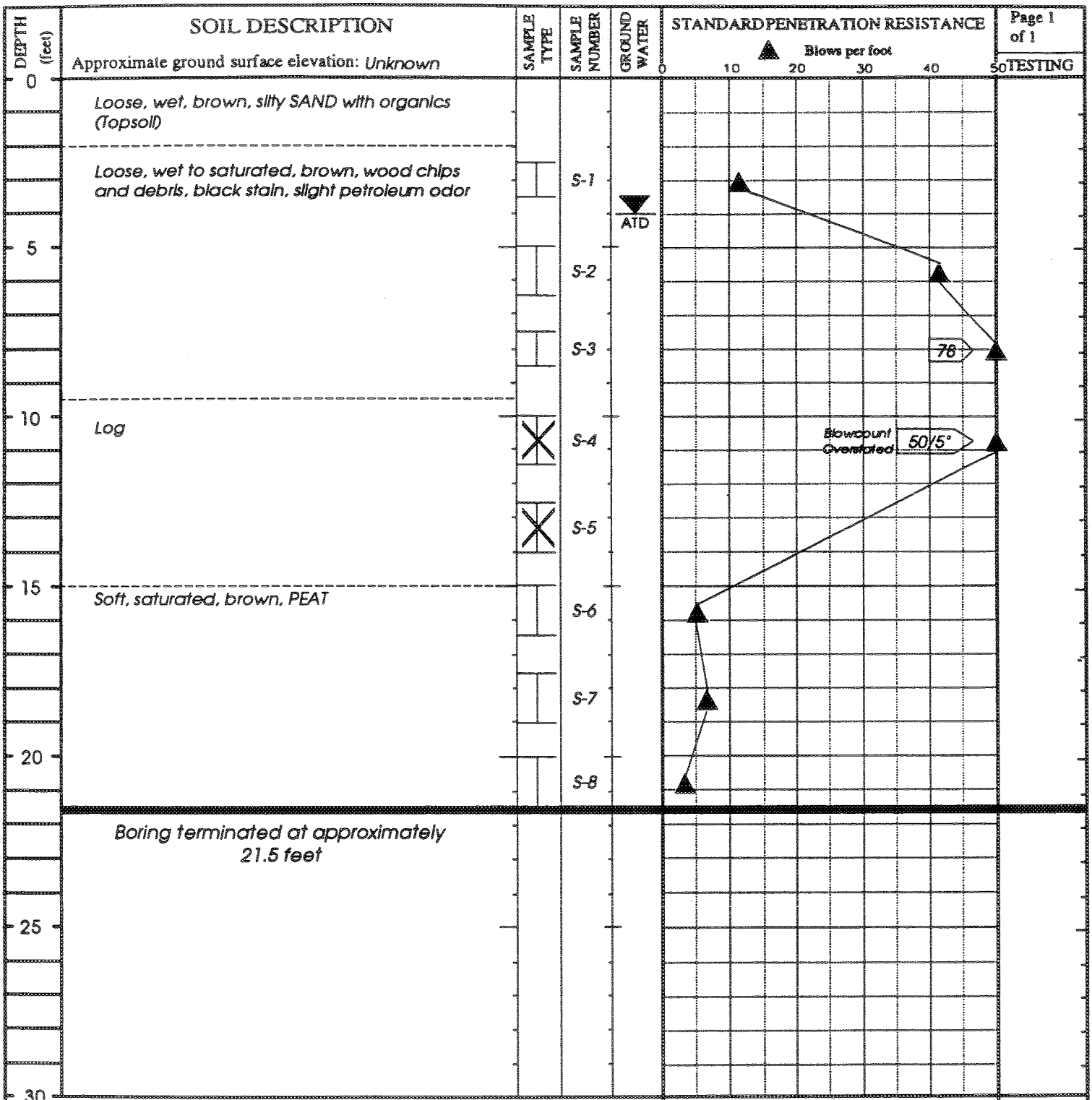


	Turbidity (NTUs)				Conductivity (umohos)		
Volume (liters)	MW-2	MW-6	MW-10	Volume (liters)	MW-2	MW-6	MW-10
2	68	22	21	2	346	740	200
4	39	11	10	4	335	720	173
6	16	6.2	9.4	6	333	728	169
8	12	3.9	9	8	333	744	168
10	10	2.9	8.5	10	331	754	170
12	6.2		8.5	12	331		170
14	6.6		8.3	14	330		171
16	5.7		8.3	16	228		170
18	4.9		8.3	18	329		172



APPENDIX A
BORING LOGS B-1, B-2 AND B-3

PROJECT: *Bellfield Business Park* W.O. *11-09378-02* BORING NO. *B-1*



LEGEND

2-inch OD split-spoon sample

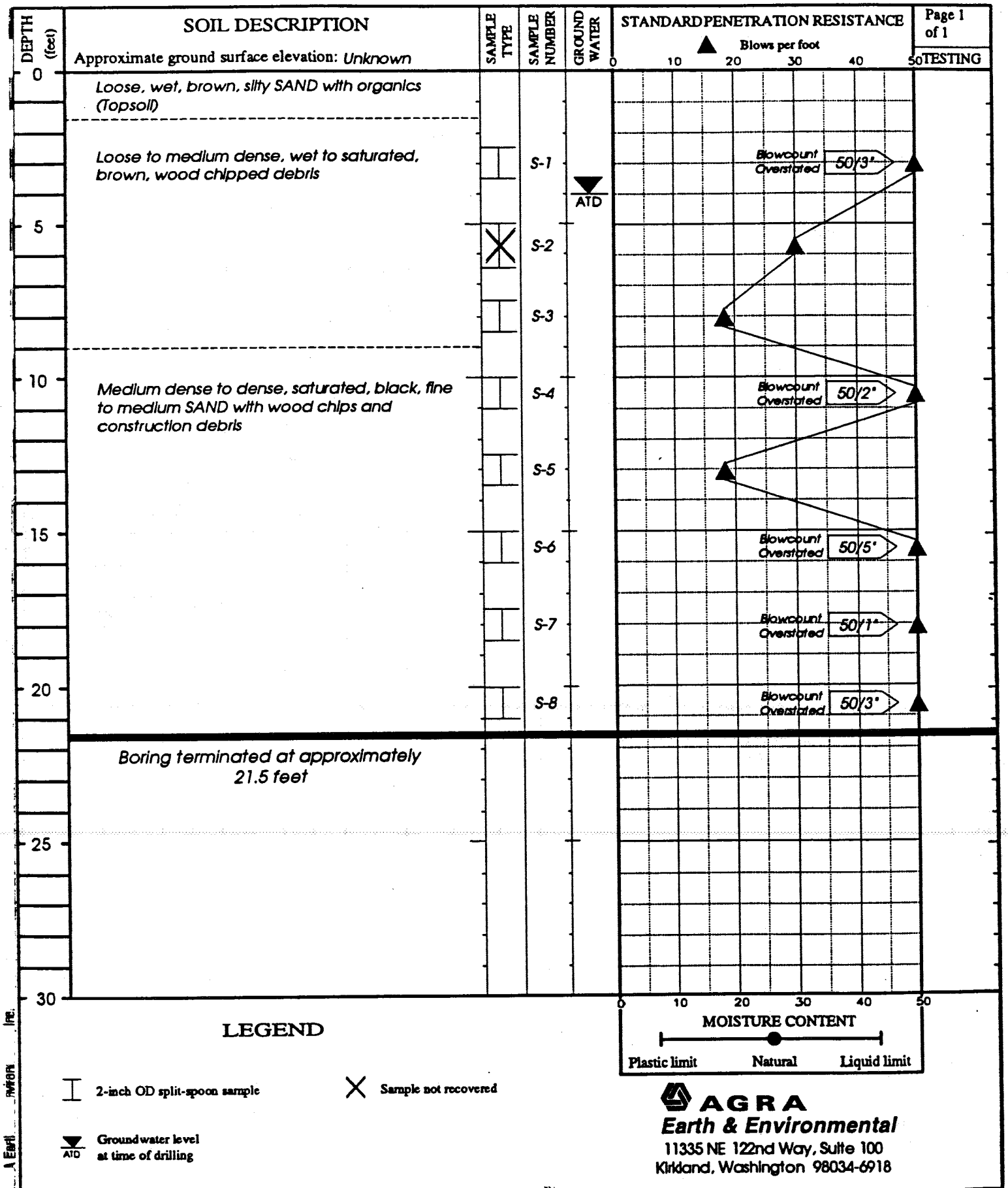
Sample not recovered

ATD Groundwater level at time of drilling

AGRA Earth & Environmental
11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started: *11 November 1994* Drilling completed: *11 November 1994* Logged by: *ELS*

PROJECT: *Bellfield Business Park* W.O. *11-09378-02* BORING NO. *B-2*



LEGEND

2-inch OD split-spoon sample

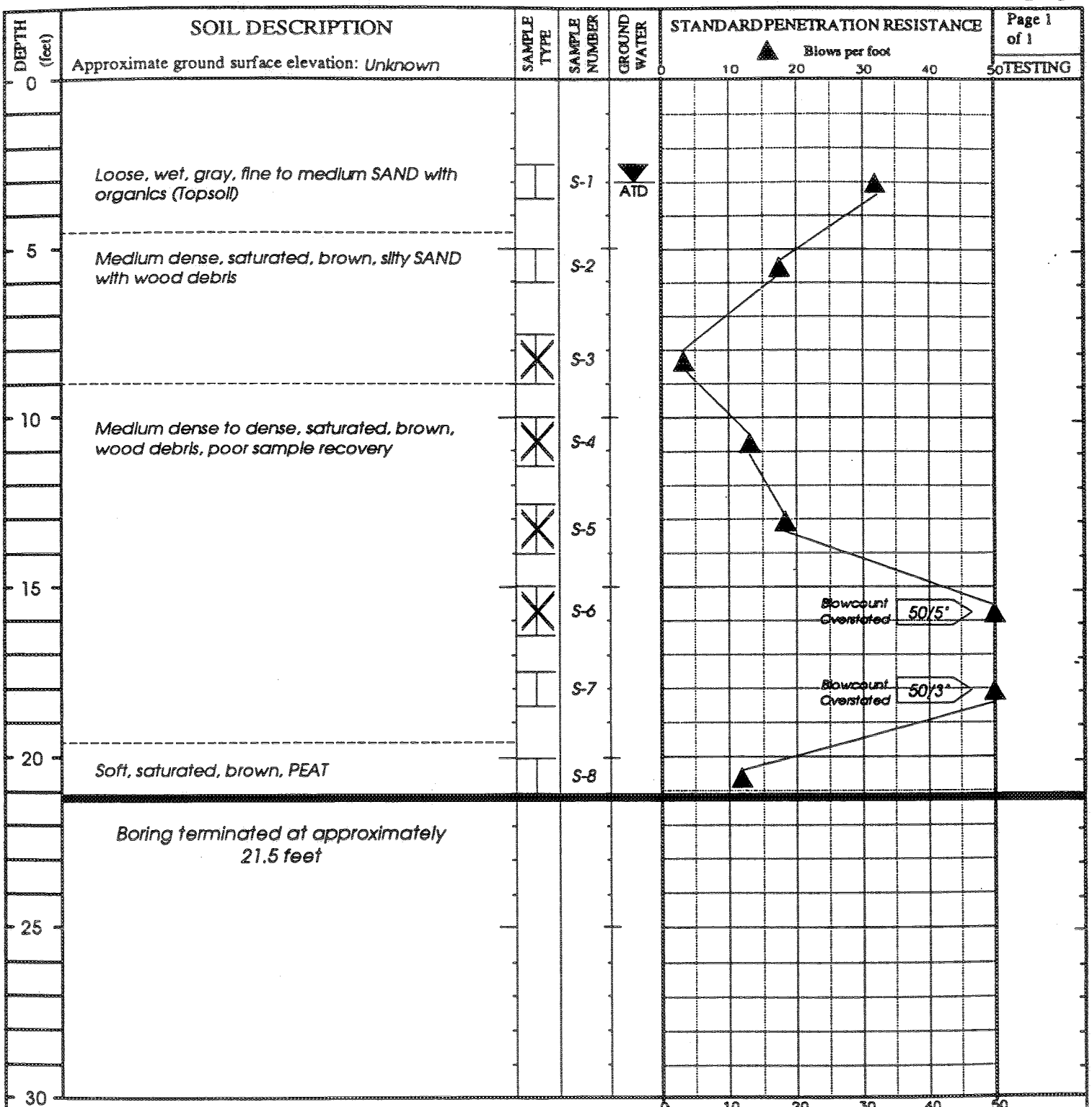
Sample not recovered

ATD Groundwater level at time of drilling

AGRA
Earth & Environmental
11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

Drilling started: *11 November 1994* Drilling completed: *11 November 1994* Logged by: *ELS*

PROJECT: *Bellfield Business Park* W.O. *11-09378-02* BORING NO. *B-3*



LEGEND

2-inch OD split-spoon sample

Sample not recovered

ATD Groundwater level at time of drilling

AGRA Earth & Environmental
11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918

AGRA Earth and Environmental, Inc.

Drilling started: *11 November 1994* Drilling completed: *11 November 1994* Logged by: *ELS*

APPENDIX B
REPRESENTATIVE LABORATORY DATA SHEETS

NORTH CREEK ANALYTICAL

18939 120th Avenue N.E., Suite 101 • Bothell, WA 98011-9508 (206) 481-9200 • FAX 485-2992
East 11115 Montgomery, Suite B • Spokane, WA 99206-4776 (509) 924-9200 • FAX 924-9290
9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

AGRA Earth & Environmental	Client Project ID:	BBP, #11-09378-02	Sampled:	Oct 23, 1994
11335 NE 122nd Way, #100	Sample Descript:	Water, MW-2	Received:	Oct 24, 1994
Kirkland, WA 98034	Analysis Method:	EPA 8021	Analyzed:	Oct 28, 1994
Attention: Rob Cousins	Sample Number:	410-1398	Reported:	Oct 31, 1994

VOLATILE ORGANIC COMPOUNDS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Benzene	1.0	N.D.
Bromobenzene	1.0	N.D.
Bromochloromethane	1.0	N.D.
Bromodichloromethane	1.0	N.D.
Bromoform	1.0	N.D.
Bromomethane	1.0	N.D.
n-Butylbenzene	1.0	N.D.
sec-Butylbenzene	1.0	N.D.
tert-Butylbenzene	1.0	N.D.
Carbon tetrachloride	1.0	N.D.
Chlorobenzene	1.0	N.D.
Chloroethane	1.0	N.D.
Chloroform	1.0	N.D.
Chloromethane	1.0	N.D.
2-Chlorotoluene	1.0	N.D.
4-Chlorotoluene	1.0	N.D.
Dibromochloromethane	1.0	N.D.
1,2-Dibromo-3-chloropropane	1.0	N.D.
1,2-Dibromoethane	1.0	N.D.
Dibromomethane	1.0	N.D.
1,2-Dichlorobenzene	1.0	N.D.
1,3-Dichlorobenzene	1.0	N.D.
1,4-Dichlorobenzene	1.0	N.D.
Dichlorodifluoromethane	1.0	N.D.
1,1-Dichloroethane	1.0	N.D.
1,2-Dichloroethane	1.0	N.D.
1,1-Dichloroethene	1.0	N.D.
cis-1,2-Dichloroethene	1.0	N.D.
trans-1,2-Dichloroethene	1.0	N.D.
1,2-Dichloropropane	1.0	N.D.
1,3-Dichloropropane	1.0	N.D.
2,2-Dichloropropane	1.0	N.D.
1,1-Dichloropropene	1.0	N.D.
Ethyl Benzene	1.0	N.D.
Hexachlorobutadiene	1.0	N.D.
Isopropylbenzene	1.0	N.D.
p-Isopropyltoluene	1.0	N.D.
Methyl ethyl ketone	10	N.D.
Methylene chloride	5.0	N.D.

NORTH CREEK ANALYTICAL

18939 120th Avenue N.E., Suite 101 • Bothell, WA 98011-8508 (206) 481-9200 • FAX 485-2992
East 11115 Montgomery, Suite B • Spokane, WA 99206-4776 (509) 924-9200 • FAX 924-9290
9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

AGRA Earth & Environmental	Client Project ID: BBP, #11-09378-02	Sampled: Oct 23, 1994
11335 NE 122nd Way, #100	Sample Descript: Water, MW-2	Received: Oct 24, 1994
Kirkland, WA 98034	Analysis Method: EPA 8021	Analyzed: Oct 28, 1994
Attention: Rob Cousins	Sample Number: 410-1398	Reported: Oct 31, 1994

VOLATILE ORGANIC COMPOUNDS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Naphthalene	1.0	N.D.
n-Propylbenzene	1.0	N.D.
Styrene	1.0	N.D.
1,1,1,2-Tetrachloroethane	1.0	N.D.
1,1,2,2-Tetrachloroethane	1.0	N.D.
Tetrachloroethene	1.0	N.D.
Toluene	1.0	N.D.
1,2,3-Trichlorobenzene	1.0	N.D.
1,2,4-Trichlorobenzene	1.0	N.D.
1,1,1-Trichloroethane	1.0	N.D.
1,1,2-Trichloroethane	1.0	N.D.
Trichloroethene	1.0	N.D.
Trichlorofluoromethane	1.0	N.D.
1,2,3-Trichloropropane	1.0	N.D.
1,2,4-Trimethylbenzene	1.0	N.D.
1,3,5-Trimethylbenzene	1.0	N.D.
Vinyl chloride	1.0	N.D.
o-Xylene	1.0	N.D.
m,p-Xylene	1.0	N.D.

4-Bromofluorobenzene Surrogate Recovery, %: ELCD: 97; PID: 103
Surrogate Recovery Control Limits are ELCD: 69 - 135 %; PID: 60 - 145%.
Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Please Note:
Report was amended on November 3, 1994.

Shannon Stowell
Project Manager

4101398.RZA <16>

NORTH CREEK ANALYTICAL

18939 120th Avenue N.E., Suite 101 • Bothell, WA 98011-9508 (206) 481-9200 • FAX 485-2992
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AGRA Earth & Environmental	Client Project ID:	BBP, #11-09738-02	Sampled:	Oct 24, 1994
11335 NE 122nd Way, #100	Sample Descript:	Water, MW-11	Received:	Oct 24, 1994
Kirkland, WA 98034	Analysis Method:	EPA 8310	Extracted:	Oct 24, 1994
Attention: Rob Cousins	Sample Number:	410-1412	Analyzed:	Oct 27, 1994
			Reported:	Oct 31, 1994

POLYNUCLEAR AROMATIC HYDROCARBONS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Acenaphthene	5.0	N.D.
Acenaphthylene	5.0	N.D.
Anthracene	5.0	N.D.
Benzo (a) anthracene	0.10	N.D.
Benzo (a) pyrene	0.10	N.D.
Benzo (b) fluoranthene	0.10	N.D.
Benzo (ghi) perylene	0.10	N.D.
Benzo (k) fluoranthene	0.10	N.D.
Chrysene	0.10	N.D.
Dibenzo (a,h) anthracene	0.10	N.D.
Fluoranthene	0.10	N.D.
Fluorene	5.0	N.D.
Indeno (1,2,3-cd) pyrene	0.10	N.D.
Naphthalene	5.0	N.D.
Phenanthrene	5.0	N.D.
Pyrene	0.50	N.D.

2-Fluorobiphenyl Surrogate Recovery, %: 71
Surrogate Recovery Control Limits are 33 - 115 %.
Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

NORTH CREEK ANALYTICAL

18939 120th Avenue N.E., Suite 101 • Bothell, WA 98011-9508 (206) 481-9200 • FAX 485-2992
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9405 S.W. Nimbus Avenue • Beaverton, OR 97008-7132 (503) 643-9200 • FAX 644-2202

AGRA Earth & Environmental	Client Project ID:	BBP, #11-09738-02	Sampled: Oct 24, 1994
11335 NE 122nd Way, #100	Sample Descript:	Water, MW-11	Received: Oct 24, 1994
Kirkland, WA 98034	Analysis Method:	EPA 8081	Extracted: Oct 25, 1994
Attention: Rob Cousins	Sample Number:	410-1412	Analyzed: Oct 28, 1994
			Reported: Oct 31, 1994

ORGANOCHLORINE PESTICIDES AND PCB'S

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Aldrin	0.040	N.D.
alpha-BHC	0.020	N.D.
beta-BHC	0.030	N.D.
delta-BHC	0.020	N.D.
gamma-BHC (Lindane)	0.030	N.D.
Chlordane	0.15	N.D.
4,4'-DDD	0.040	N.D.
4,4'-DDE	0.030	N.D.
4,4'-DDT	0.090	N.D.
Dieldrin	0.070	N.D.
Endosulfan I	0.030	N.D.
Endosulfan II	0.050	N.D.
Endosulfan sulfate	0.070	N.D.
Endrin	0.080	N.D.
Endrin aldehyde	0.080	N.D.
Heptachlor	0.030	N.D.
Heptachlor expoxide	0.030	N.D.
Methoxychlor	5.0	N.D.
Toxaphene	0.50	N.D.
PCB-1016	0.10	N.D.
PCB-1221	0.10	N.D.
PCB-1232	0.10	N.D.
PCB-1242	0.10	N.D.
PCB-1248	0.10	N.D.
PCB-1254	0.10	N.D.
PCB-1260	0.10	N.D.

Tetrachloro-m-xylene Surrogate Recovery, %: 57
Surrogate Recovery Control Limits are 33 - 124 %.
Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Shannon Stowell
Project Manager

APPENDIX C
PCB INTERPRETATION MEETING RESULTS
AGRA - January 13, 1995 Letter

AGRA
Earth & Environmental

AGRA Earth &
Environmental, Inc.
11335 NE 122nd Way
Suite 100
Kirkland, Washington
U.S.A. 98034-6918
Tel (206) 820-4669
Fax (206) 821-3914

13 January 1995
11-09378-04

Great Western Bank, A Federal Savings Bank
Legal Department
9200 Oakdale, 7th Floor
Chatsworth, California 91311

Attention: Ms Andrea Vogel

Subject: PCB Interpretation Consensus Meeting Results
Bellefield Office Park Project
11201 SE 8th Street
Bellevue, WA 98005

Dear Ms. Vogel:

As per your request, AGRA Earth & Environmental Inc. (AGRA) is pleased to present the results of the above referenced meeting. Those attending the meeting, held at 9:00 AM, 12 January 1995 at North Creek Analytical's Bothell, Washington facility were:

- Mr. Shannon Stowell, North Creek Analytical (NCA);
- Mr. Dennis Wells, NCA;
- Ms. Melinda Seibel, NCA;
- Mr. Andrew Friedman, Friedman & Bruya Inc.;
- Mr. Daryl Petrarca, AGRA.

BACKGROUND

The purpose of the meeting was to bring together the chemical analysts from Friedman & Bruya Inc. and North Creek Analytical to attempt to reach a consensus opinion on the presence or non-presence of PCB's in soil and groundwater samples obtained from the Bellefield Office Park during subsurface screening work performed by AGRA on the site in October and November 1994.

NCA's analysts had reported the presence of PCB's (below Washington State Model Toxics Control Act (MTCA) clean-up levels)in soil samples B-1/S-3/7.5, B-2/S-8/20, B-3/S-1/2.5, B-3/S-7/17.5. NCA also had reported elevated PCB concentrations(slightly above MTCA method B cleanup levels) in groundwater samples MW-2(23 October 1994), MW-6(23 October 1994), and MW-10(15 November 1995). FBI analysts reported no presence of PCBs in groundwater

samples MW-2,MW-10, MW-11,and soil samples SS-11(B-2), and SS-10 (B-1) obtained 30 November 1994.

In the October 23 1994 groundwater sampling event, a total of 16 temporary monitoring wells were sampled across the property (see attached Figure 1) and only monitoring wells MW-2 and MW-6 exhibited apparent indications of PCBs in groundwater. Monitoring wells MW-17 and MW-18 were later installed in the borings B-1, B-2, B-3 area and also did not exhibit PCBs upon groundwater testing. It should be noted that monitoring well MW-10 groundwater was analyzed at this time and did not exhibit PCB concentrations as reported by NCA. During the 15 November 1994 resampling and analysis event, monitoring well MW-10 groundwater unexpectedly exhibited a PCB concentration of .41 parts per billion (ppb). Because of the apparent sporadic or transitory occurrence of PCB compounds in samples taken from the same location at different times, and other questions concerning the reliability of state testing methods to distinguish naturally occurring hydrocarbons from manmade petroleum product hydrocarbons several soil and groundwater samples were collected for additional confirmation testing. These additional groundwater samples were obtained from Monitoring wells MW-2, MW-10, and MW-11 and submitted on 30 November 1994 to FBI for chemical evaluation (Fingerprinting Analysis). Mr. Andrew Friedman was requested by AGRA to render an opinion on the possible presence of PCBs in the 30 November 1994 soil samples obtained from near borings B-1 and B-2 and groundwater samples obtained from MW-2, MW-10 and MW-11. Mr Friedman reported no PCBs were exhibited in these soil and groundwater samples as evidenced by the Gas Chromatograph/ Electron Capture Detection (GC\ECD) chromatograms generated during analysis. Based upon this analytical data it became AGRA's and Mr. Friedman's opinion that NCA observed PCB concentrations in earlier obtained samples were probably the result of interpreting weathered heavy end petroleum hydrocarbons exhibited on the chromatograms as PCBs.

MEETING RESULTS

Meeting members agreed to review existing GC/ECD chromatograms from past sampling and analysis events performed by each lab in order to provide a consensus opinion stating either;

- PCBs are not present and reported concentrations were probably interpretations caused by the presence of weathered petroleum compounds; or

- PCBs are present as reported in soil and groundwater samples.

After reviewing the Bellefield Office Park project chromatograms in detail, including PCB standards comparison chromatograms used in the original analyses by both NCA and FBI, the meeting members agreed that PCBs were present in samples (October,November 1994)

originally reported by NCA, and not present in soil and groundwater samples obtained on 30 November 1994 analyzed and reported by FBI.

SOIL

It was agreed that PCBs reported from soil samples obtained from various depths in Borings B-1, B-2 and B-3 in fact did exist. These concentrations are below State MTCA cleanup levels.

GROUNDWATER

Groundwater samples obtained from monitoring wells on the subject property appeared to exhibit PCBs intermittently. For example, multiple sampling and analysis of monitoring wells MW-2 and MW-10 exhibited sporadic PCB hits as presented below:

		Sampling Date	PCB- 1242-	1254-	1260 in ppb
•	MW-2	23 October 1994 (NCA)	1.5	1.7	0.42
		30 November 1994 (FBI)	non-detect----------		
•	MW-10	23 October 1994 (NCA)	non-detect----------		
		15 November 1994 (NCA)		0.41	
		30 November 1994 (FBI)	non-detect----------		

Meeting members agreed, that given the ephemeral appearance of PCBs in groundwater samples as described above, the PCB concentrations reported in groundwater analyses are most likely the result of relic, mobile PCB bearing solid particulates (microscopic soil and/ or organic particles) suspended in local groundwater supplies as the result of soil disturbance during monitoring well installation, and are not representative of actual groundwater quality in terms of actual dissolved PCB presence. It was agreed that physically demonstrating this assumption would be difficult. Although collected groundwater samples were extremely turbid, indicating a high level of suspended particulate matter, regulatory agencies would likely balk at the idea of filtering collected samples to remove PCB relic particulates due to possible adherence of non-relic PCBs, if present, to the filtering material, producing artificially low reported concentrations. A second possible method to remove relic particulates would involve centrifuging the groundwater sample, to allow non-representative PCB bearing particulates to

settle out of solution, thereby providing a more representative groundwater sample for anlaysis. There is however uncertainty that centrifuging the groundwater sample would effectively remove possible PCB relic materials based upon the suspected particulate's probable buoyancy parameters.

Given this information it is unlikely that a definitive statement can easily (if at all) be scientifically arrived at as to whether PCBs, which meeting members agree are present in soil samples obtained from borings B-1, B-2, and B-3 on a portion of the site (at levels below state clean-up levels) are present in groundwater samples in a non-relic free phase form.

SUMMARY

Results of studies performed to date by AGRA indicate that PCB containing soils do exist at depths ranging from 2-3 feet to approximately 20 feet on the southwest portion of the property in the area of borings B-1, B-2, B-3. Surface soils (0-3 feet deep) tested on other portions of the site did not exhibit PCB presence. Upon analysis no observed soil PCB concentrations exceeded state clean-up levels and it is unlikely that these materials would require remediation.

Of more importance is the fact that eighteen groundwater wells were tested across the site for the presence of PCBs and only MW-2, MW-6, and MW-10 have produced intermittent evidence of PCB presence as described earlier in this report. At first glance PCB concentrations exhibited by groundwater samples appear to exhibit levels that slightly exceed state groundwater quality criteria. However because what is understood in the scientific community about the fate and transport of PCBs, particularly their lack of water solubility and adsorption characteristics and given their intermittent occurrence in groundwater samples from the site, it is more likely that observed groundwater PCB concentrations are related to the presence of artifact particles with attached PCB compounds rather than dissolved phase PCBs in the ground water which might become bioavailable to the flora and fauna of the site.

In that PCBs were not detected in the surface waters downgradient of the property and most wells sampled on the property did not exhibit PCB contamination it is unlikely that the presence of PCB's, in the soil concentrations detected, present a significant soil or groundwater environmental problem for the subject property.

Meeting members have agreed to sign this document solely indicating their participation in this review meeting and concurrence with the reported meeting findings.

Mr. Dennis Wells, NCA;

Ms. Melinda Seibel, NCA;

Mr. Andrew Friedman, FBI;

Mr. Shannon Stowell, NCA

We appreciate the opportunity to be of service. Should you have any questions, please do not hesitate to call (206-820-4669).

Respectfully submitted,
AGRA Earth & Environmental, Inc.

Daryl S. Petrarca R.E.A.
Associate

James S. Dransfield, P.E.
Senior Associate

JAMES S. DRANSFIELD
STATE OF WASHINGTON
20153
REGISTERED
PROFESSIONAL ENGINEER
EXPIRES 12/19/ 95

cc: Steve Mitchell/Great Western Bank

DSP/JSD/lad

APPENDIX D
FRIEDMAN & BRUYA REPORT
December 8, 1994

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Andrew John Friedman
James E. Bruya, Ph.D.
(206) 285-8282

3012 16th Avenue West
Seattle, WA 98119-2029
FAX: (206) 283-5044

December 8, 1994

Daryl Petrarca, Project Leader
AGRA Earth & Environmental, Inc.
11335 NE 122nd Way, Suite 100
Kirkland, WA 98034-6918

Dear Mr. Petrarca:

Enclosed are the results from the testing of material submitted on November 30, 1994 from your 11-09378-02, Bellefield Office Park project.

The original GC/FID traces showed a medium boiling, individual peak pattern with a high boiling hump of material in MW-2 and MW-10, a medium petroleum distillate with a symmetrical *n*-alkane pattern, and a high boiling hump of material in sample MW-11, a high boiling hump of material in sample SS-11 (B-2), and a high boiling hump of material with a few prominent individual peaks in sample SS-10 (B-1). No PCB's were detected in any of the GC/ECD chromatograms generated.

The GC/MS was then employed to distinguish whether one, the individual peak patterns were PNA's resulting from pyrolysis (burning) and/or the presence of coal tar, or were other compounds which would be assumed to arise from biological origins, and whether two, the high boiling humps were refined distillates containing mostly alkanes, or were petroleum bases such as tars and asphalts containing a mixture of compound types, including organic acids, or were biological in origin.

The GC/MS results showed that the individual peak patterns in the GC/FID of MW-2, MW-10, and SS-10 (B-1) were indeed PNA's. The GC/MS results also showed that MW-11 contained a highly refined product such as a motor oil, along with a diesel. The high boiling material in MW-2 surprisingly also contained mostly alkanes, suggesting the material in this sample also was highly refined. The high boiling material in SS-10 and SS-11 appeared to contain organic acids as expected in a tar or street run-off. The high boiling material in MW-10 was at a level too low to characterize further in this manner.

The TLC of SS-11 and MW-11 supported the difference seen between the refined material in MW-11 and the tar-like material in SS-11. Both contained saturated hydrocarbons at Rf 0.9 (Hexane) at levels high enough to support that these both contain material of petroleum origin. SS-11 may contain material of biological origin. The material in SS-11, (as well as in SS-10), however, is consistent with street asphalt run-off.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

The fractionation of sample MW-11 showed that there was little or no organic material present other than the distilled and refined petroleum products. The fractionation of sample SS-11 showed that there was approximately one third of the material seen in the methylene chloride extractable fraction and the methanol extractable fraction contained virtually none of the material. Two thirds of what was seen in the total extract eluted in the hexane extractable fraction of saturated alkanes. This indicates a probable asphalt, a tar or heavily used motor oil as a source for this material.

This fractionation information can be extrapolated to what is seen in the other samples when compared with their GC/FID traces and what we know from the GC/MS analyses about what types of materials are present. The organics in SS-10 are approximately 95% of the same material that is in SS-11 with approximately 5% pyrogenic PNA's. MW-2 organics consist of approximately 50% pyrogenic PNA's and 50% refined petroleum product such as motor oil. MW-10 organics consist of approximately 80% pyrogenic PNA's and 20% high boiling material. As said before, the high boiling material is at a level too low to characterize its constituents.

In summary, no clear indication of naturally occurring biogenic hydrocarbons was seen in any of the samples. With the exception of MW-11 all of the material present is consistent with a long term input of road run-off accumulating over a long period of time. MW-11 shows the presence of relatively unweathered diesel fuel or heating oil and motor oil. Though this is typical of street run-off, the diesel does not show the usual weathering pattern, suggesting it is of more recent deposition.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Andrew John Friedman
Chemist

sao
Enclosures

FRIEDMAN & BRUYA, INC.
ENVIRONMENTAL CHEMISTS

Date of Report: December 8, 1994
Date Received: November 30, 1994
Project: 11-09878-02, Bellefield Office Park
Date Samples Extracted: November 30, 1994

RESULTS FROM THE ANALYSIS OF SOIL SAMPLES FOR FINGERPRINT CHARACTERIZATION BY CAPILLARY GAS CHROMATOGRAPHY USING A FLAME IONIZATION DETECTOR (FID) AND ELECTRON CAPTURE DETECTOR (ECD)

Sample ID	GC Characterization
SS-10 (B-1)	The GC trace using the flame ionization detector (FID) showed the presence of high boiling compounds. The patterns displayed by these peaks are indicative of motor oil and tar. The high boiling compounds appeared as a pattern of peaks eluting from n-C_{20} to beyond n-C_{36} showing a maximum near n-C_{28}. The GC/ECD trace showed the presence of halogenated or highly oxidized compounds. The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis.
SS-11 (B-2)	The GC trace using the flame ionization detector (FID) showed the presence of high boiling compounds. The patterns displayed by these peaks are indicative of motor oil and tar. The high boiling compounds appeared as a pattern of peaks eluting from n-C_{20} to beyond n-C_{36} showing a maximum near n-C_{28}. The GC/ECD trace showed the presence of halogenated or highly oxidized compounds. The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: December 8, 1994
Date Received: November 30, 1994
Project: 11-09378-02, Battlefield Office Park
Date Samples Extracted: November 30, 1994

RESULTS FROM THE ANALYSIS OF WATER SAMPLES FOR FINGERPRINT CHARACTERIZATION BY CAPILLARY GAS CHROMATOGRAPHY USING A FLAME IONIZATION DETECTOR (FID) AND ELECTRON CAPTURE DETECTOR (ECD)

Sample ID	GC Characterization
MW-2	The GC trace using the flame ionization detector (FID) showed the presence of high boiling compounds. The patterns displayed by these peaks are indicative of coal tar and an unidentified product. The high boiling compounds appeared as a ragged pattern of peaks eluting from *n*-C_9 to beyond *n*-C_{36} showing a maximum near *n*-C_{15}. The GC/ECD trace showed the presence of halogenated or highly oxidized compounds.
MW-10	The GC trace using the flame ionization detector (FID) showed the presence of high boiling compounds. The patterns displayed by these peaks are indicative of coal tar and an unidentified product. The high boiling compounds appeared as a ragged pattern of peaks eluting from *n*-C_{12} to beyond *n*-C_{36} showing a maximum near *n*-C_{21}. The GC/ECD trace showed the presence of halogenated or highly oxidized compounds. The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis.
MW-11	The GC trace using the flame ionization detector (FID) showed the presence of medium and high boiling compounds. The patterns displayed by these peaks are indicative of diesel fuel, as well as motor oil and lube oil. The medium boiling compounds appeared as a regular pattern of peaks eluting from *n*-C_{15} to *n*-C_{22} showing a maximum near *n*-C_{18}. A regular pattern of the *n*-alkanes is seen for the medium boiling product. The high boiling compounds appeared as a pattern of peaks eluting from *n*-C_{20} to beyond *n*-C_{36} showing a maximum near *n*-C_{28}. An irregular pattern of *n*-alkanes was seen in the GC/FID trace. The GC/ECD trace showed the presence of halogenated or highly oxidized compounds. The large peak seen near 25 minutes on the GC/FID trace is pentacosane, added as a quality assurance check for this GC analysis.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: December 8, 1994
Date Received: November 30, 1994
Project: 11-09378-02, Bellefield Office Park
Date Samples Extracted: December 2, 1994
Date Extracts Analyzed: December 2, 1994

RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLE FOR CONTAMINANT CHARACTERIZATION BY THIN LAYER CHROMATOGRAPHY

Sample ID	TLC Characterization
SS-11 (B-2)	The thin layer chromatographic trace showed the presence of non-polar, moderately polar and highly polar organic compounds, such as those found in tar or asphalt. This characterization is based on the presence of a band of material at Rf 0.9 (hexane), visible with iodine staining only that is indicative of saturated hydrocarbons. A second band of material was seen at Rf 0.1 to 0.4 (hexane), visible under both short and long wave UV light, as well as with iodine staining and is indicative of high boiling aromatic hydrocarbons. Material was also seen streaked from the origin through Rf 1.0 (methylene chloride). A large amount of material was left at the origin. The thin layer chromatographic trace showed an absence of significant concentrations of semi-volatile or non-volatile organic compounds.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

TO: D.S.P.

Date of Report: December 8, 1994
Date Received: November 30, 1994
Project: 11-09378-02, Bellefield Office Park
Date Samples Extracted: December 2, 1994
Date Extracts Analyzed: December 2, 1994

RESULTS FROM THE ANALYSIS OF THE WATER SAMPLE FOR CONTAMINANT CHARACTERIZATION BY THIN LAYER CHROMATOGRAPHY

Sample ID	TLC Characterization
MW-11	The thin layer chromatographic trace showed the presence of non-polar, moderately polar and highly polar organic compounds, such as those found in diesel and/or motor oil and heavy tar. This characterization is based on the presence of a band of material at Rf 0.9 (hexane), visible with iodine staining only that is indicative of saturated hydrocarbons. A second band of material was seen at Rf 0.2 to 0.6 (hexane), visible under both short and long wave UV light, as well as with iodine staining and is indicative of high boiling aromatic hydrocarbons. Material was also seen streaked from the origin through Rf 1.0 (methylene chloride). A small amount of material was seen at the origin. The bulk of the material was seen in the hexane section, with a large amount of the material at Rf 0.9.
	The thin layer chromatographic trace showed an absence of significant concentrations of semi-volatile or non-volatile organic compounds.

11335 NE 122nd Way, Suite 100
Kirkland, Washington 98034-6918
Tel (206) 820-4669 Fax (206) 821-3914

11/30/94

CHAIN OF CUSTODY

4:20

DEC-12-1994 11:55 FROM FRIEDMAN & BRUYA TO 8213914 P.08

PROJECT: BELLEFIELD OFFICE PARK	PROJECT No. 11-09378-02
CLIENT: GREAT WESTERN BANK	PHONE No.
PROJECT MANAGER: DARYL PETRANGA	PHONE No. 820-4669
SAMPLER'S NAME (please print): ROB COUSINS	PHONE No. " "
SAMPLER'S SIGNATURE: [signature]	

	SAMPLE I.D.	DATE	TIME	MATRIX	PRESERVATIVE	CONTAINERS No.	CONTAINERS VOL.
1	SS-10 (B-1)	11-30-94	3:15	S		2	4oz
2	SS-11 (B-2)	↓		S		2	4oz
3	MW-2	↓		W		2	L
4	MW-10	↓		W		2	L
5	MW-11	↓		W		2	L
6							
7							
8							
9							
10							

ANALYSIS REQUESTED (circle, check box or write preferred method in box)

Sample	BTEX by EPA 602/8020	WTPH-G	BTEX / WTPH-G	WTPH-HCID	WTPH-D / WTPH-D EXTENDED	TPH by EPA 8015 MODIFIED	WTPH-418.1 MODIFIED	TPH by EPA 418.1	GC/MS EPA 624/8240 or EPA 8260 Volatiles	GC/MS EPA 625/8270 Semi-volatiles	VOCs EPA 601/8010 or EPA 602/8020	PCBs EPA 608/8080	LEAD EPA 6010/EPA 7421 Total/Dissolved	TOTAL METALS	TCLP	HFS	ID	[illegible]
1																X	553[illegible]	
2																X	553[illegible]	
3																X	553[illegible]	
4																X	55370	
5																X	55372	

SAMPLE RECEIPT	LABORATORY	TURNAROUND TIME	SPECIAL INSTRUCTIONS / ADDITIONAL COMMENTS
TOTAL # CONTAINERS: 10	SHIPPING I.D. / AIRBILL #	☐ 8 HOUR	ASAP TURNAROUND
CONDITION OF CONTAINERS: SEALED	CARRIER	☐ 24 HOUR	
CONDITION OF SEALS	SOT DESIGNATION	☐ 1 WEEK	(LAB: PB)
		☐ 2 WEEK (standard)	
		☐ OTHER	

	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
1	[signature]	11-30-94	4:10	Kathy Mills FBI	11/30/94	4:10
2						
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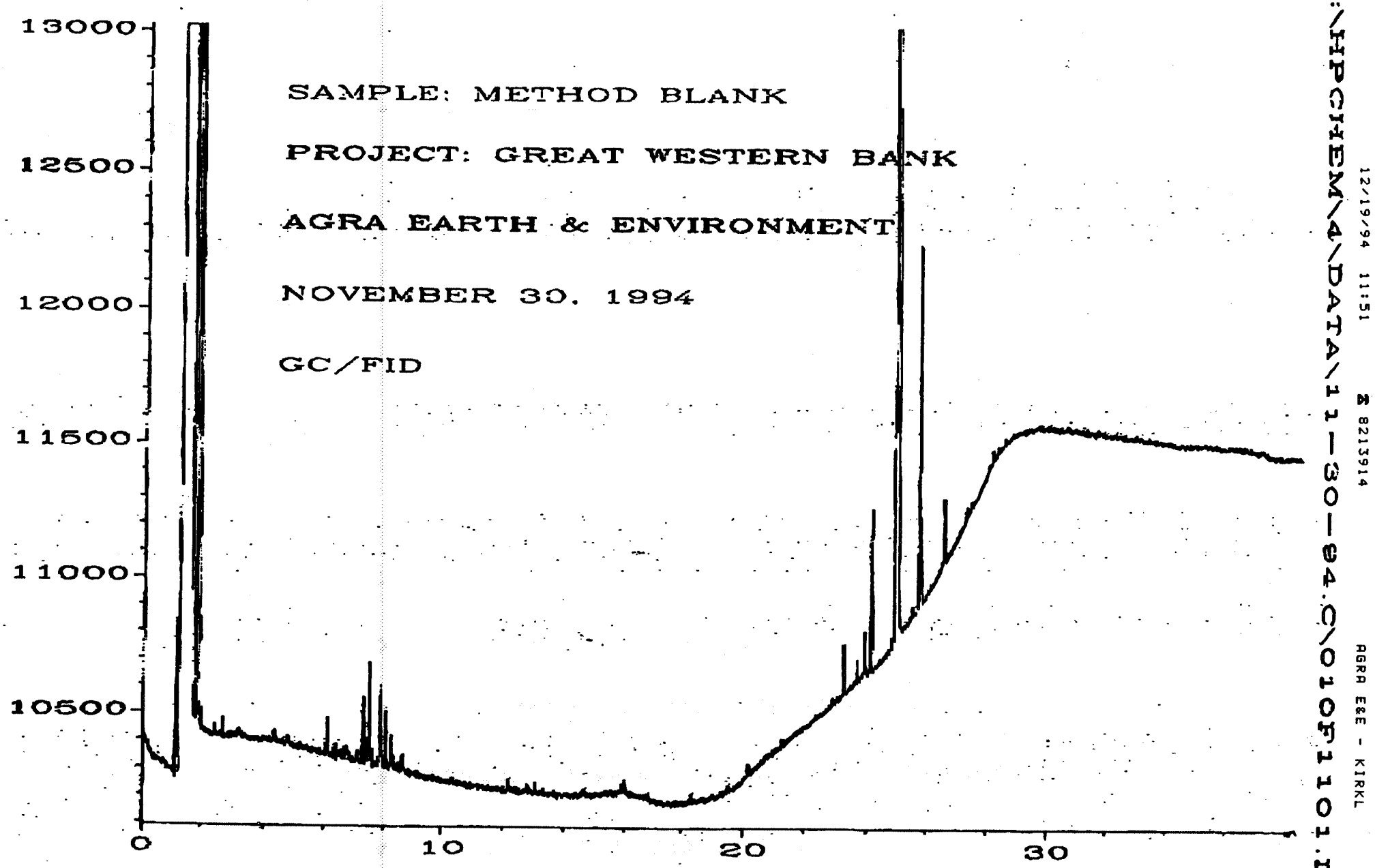
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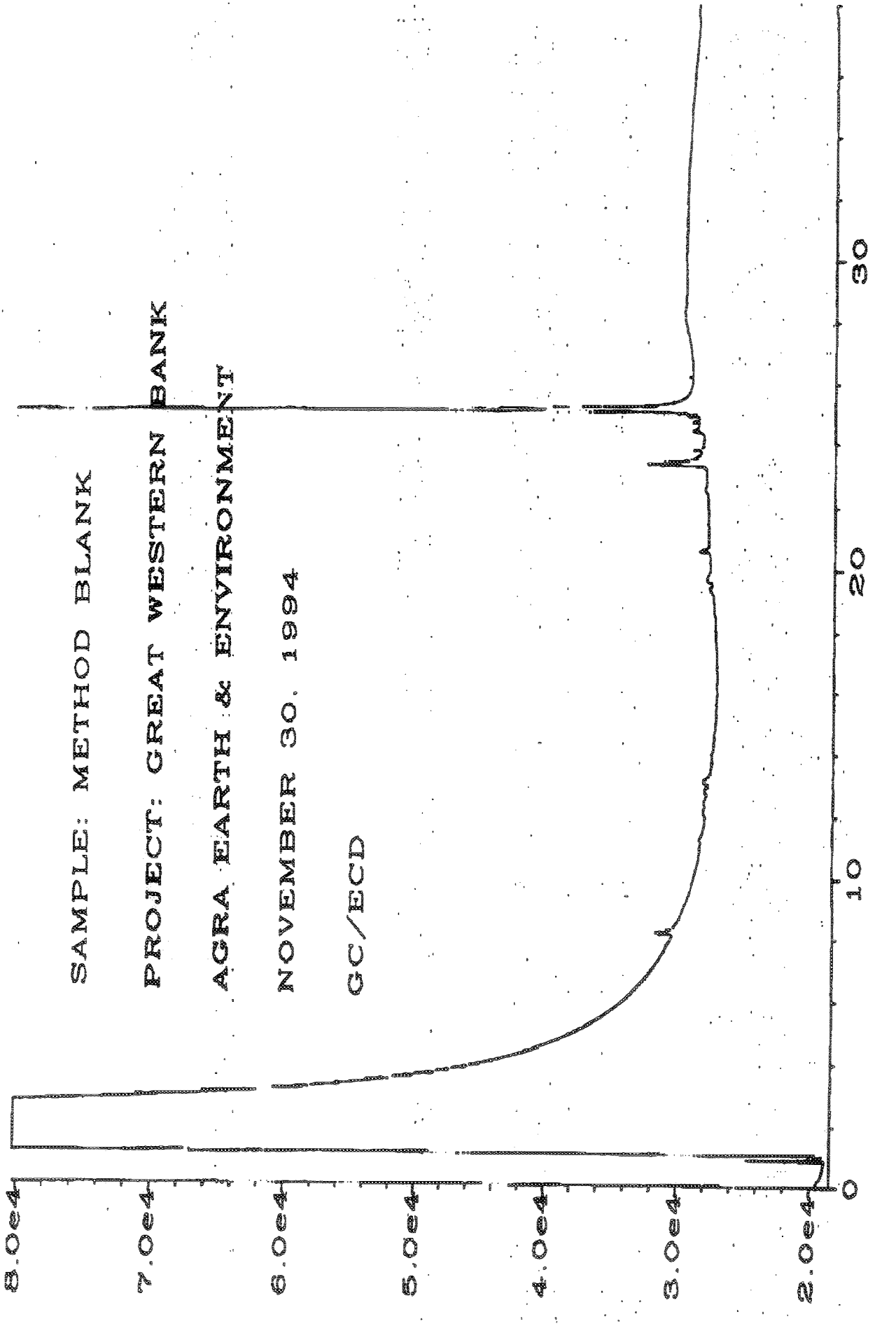

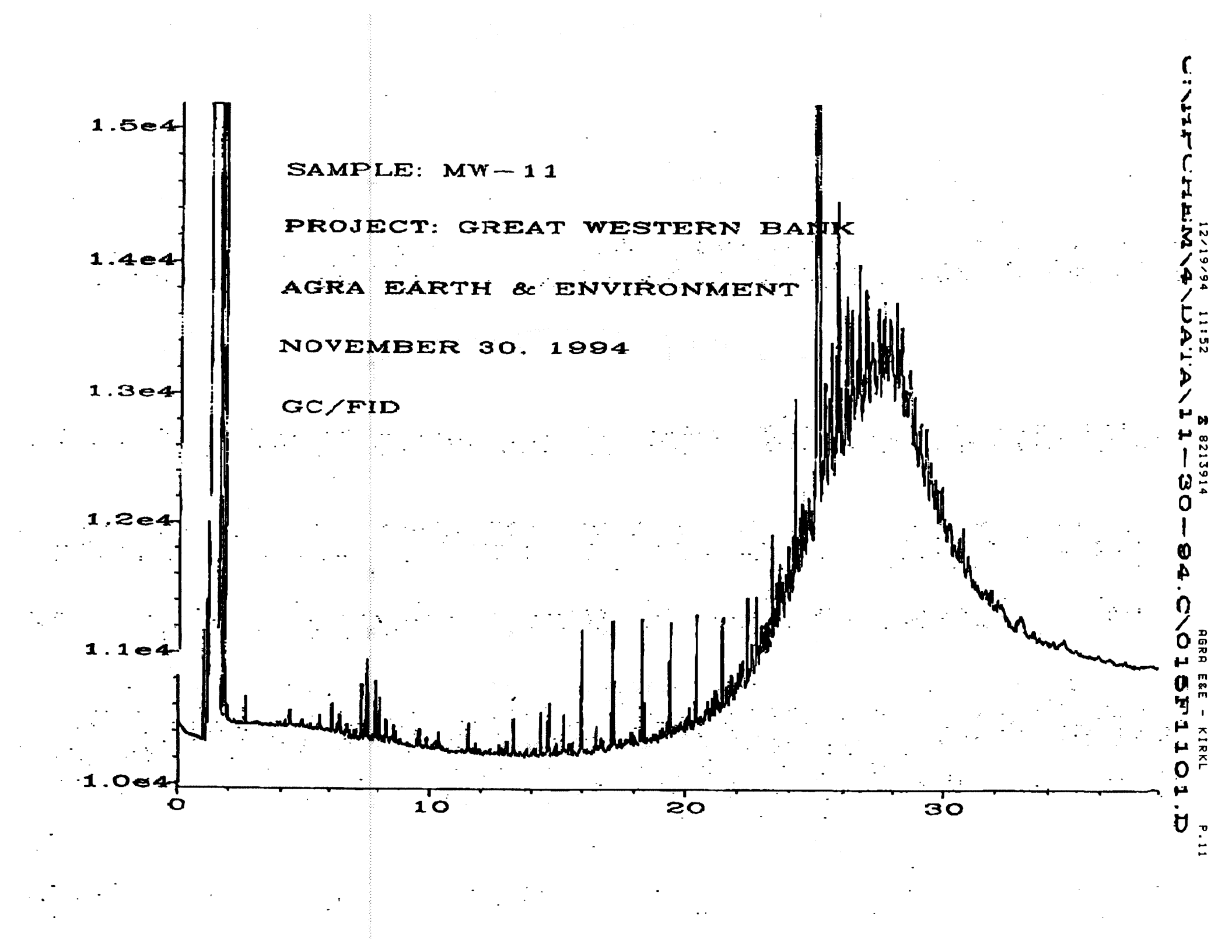
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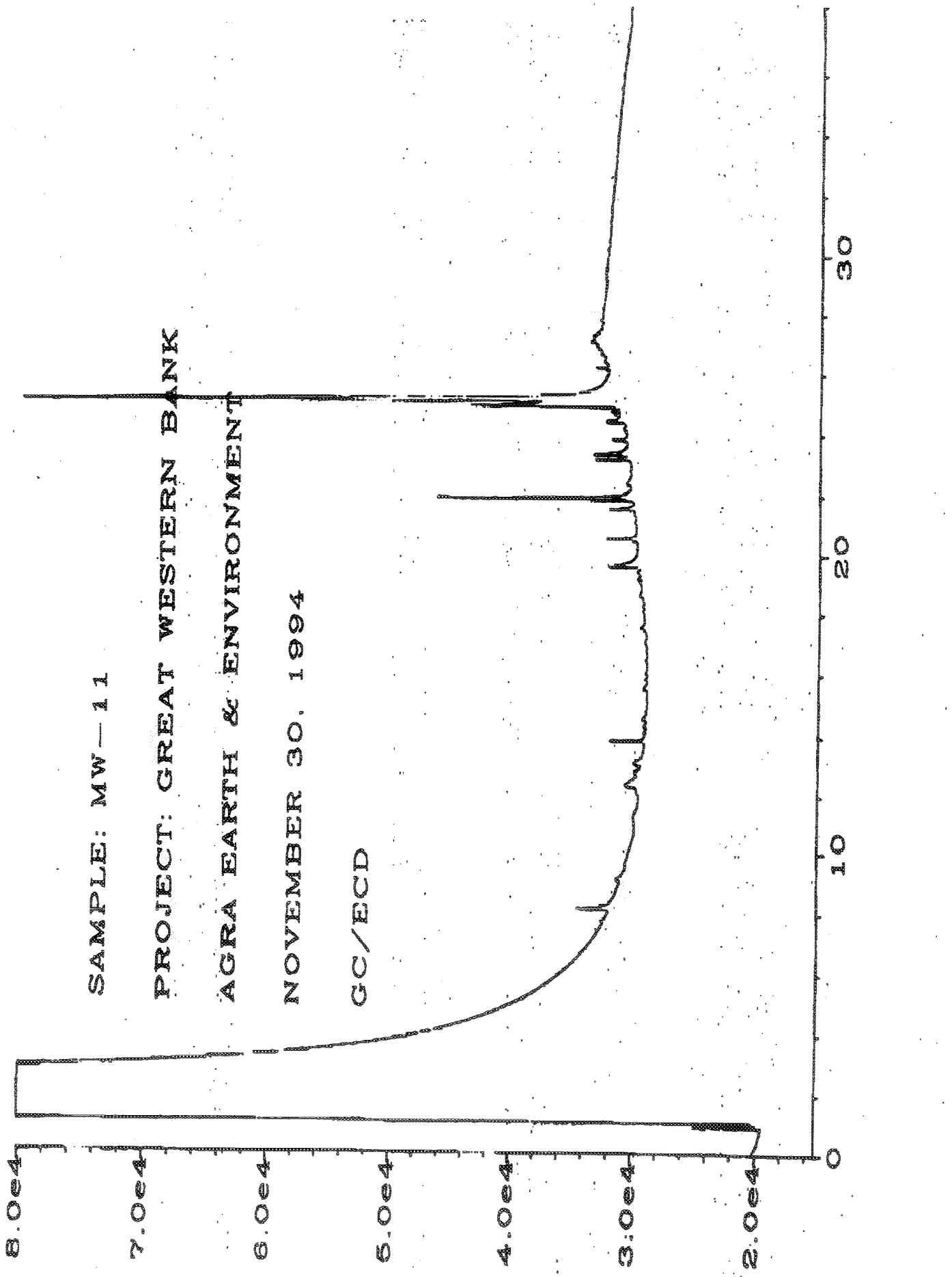

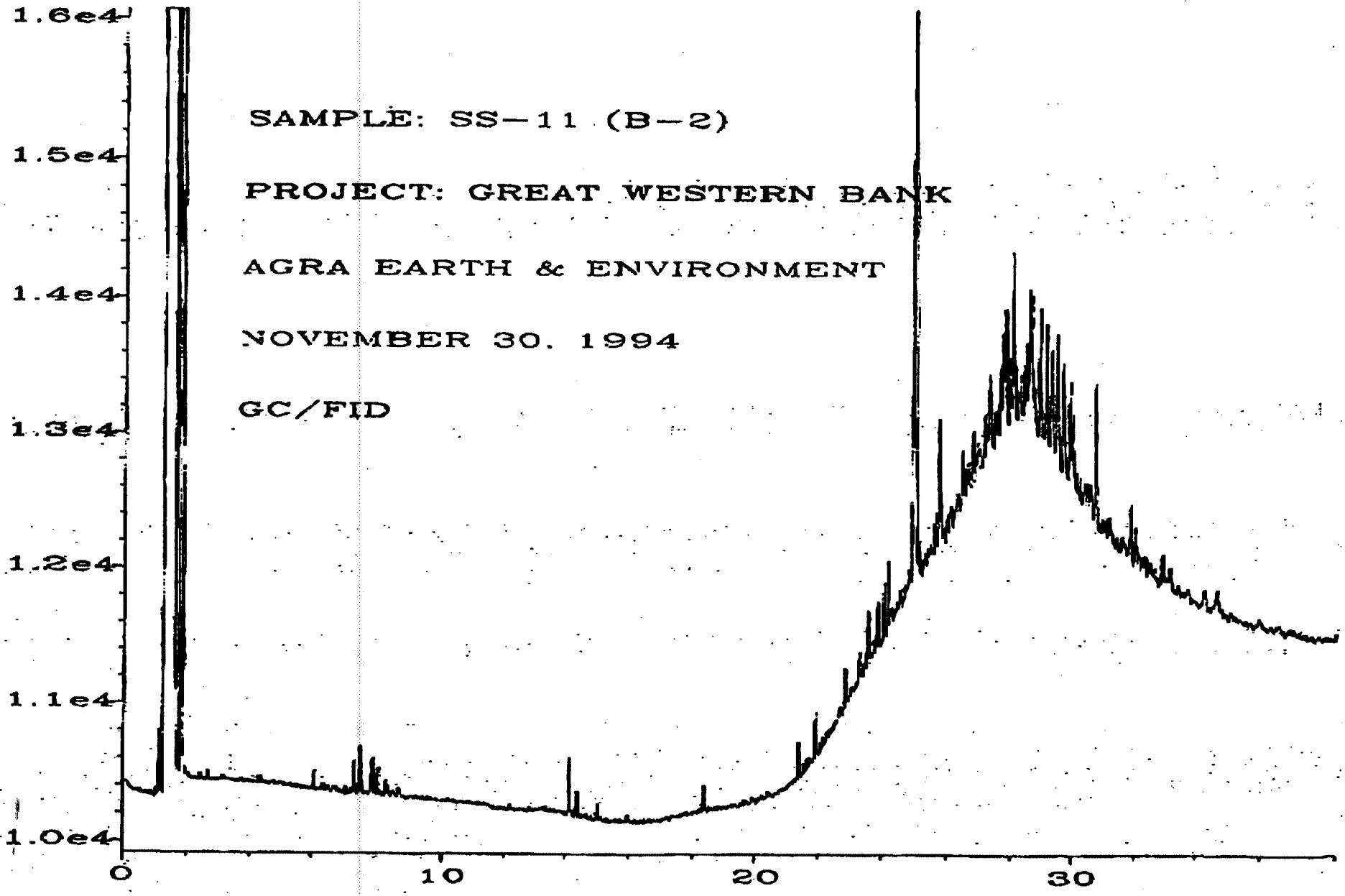
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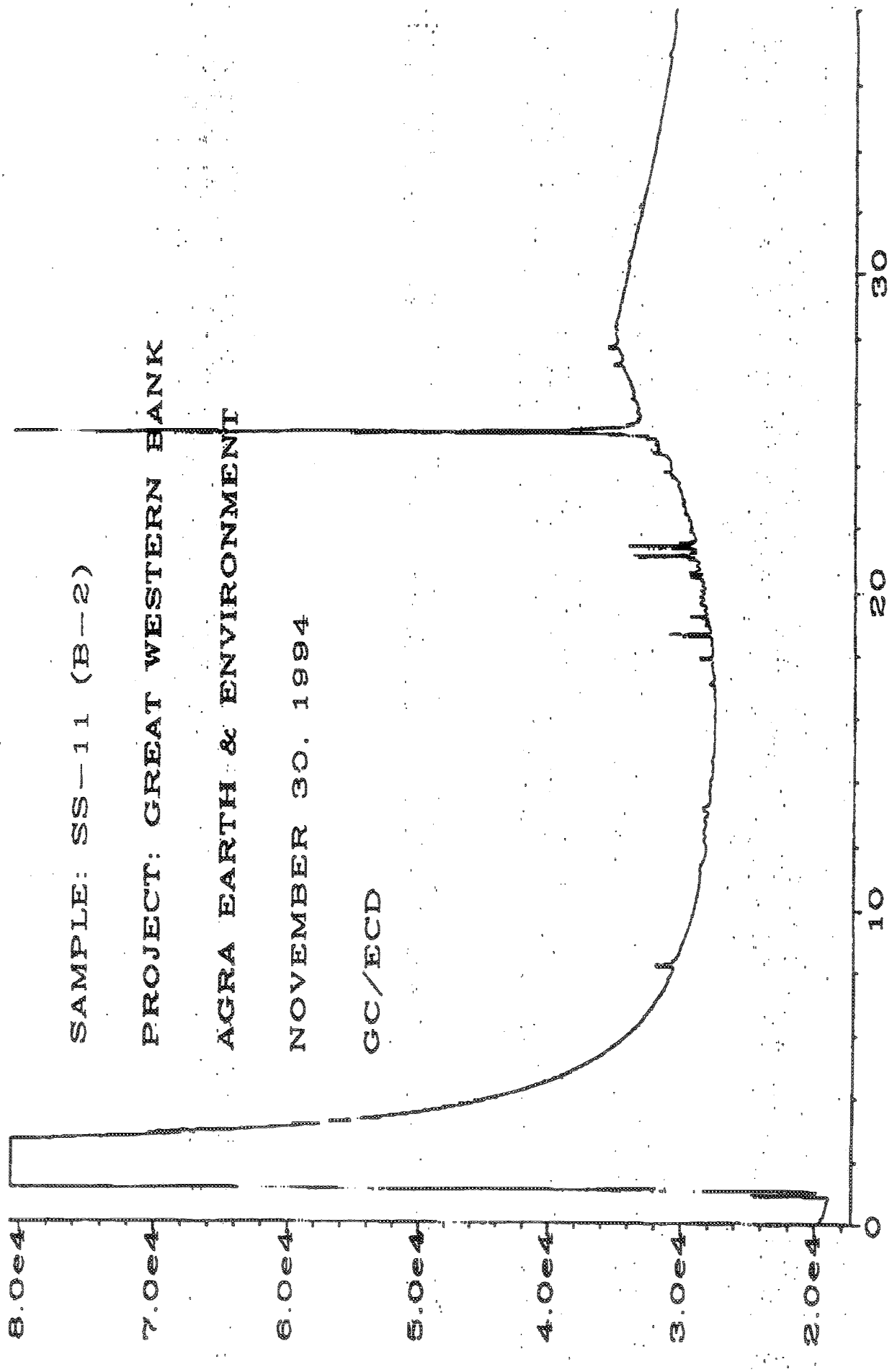

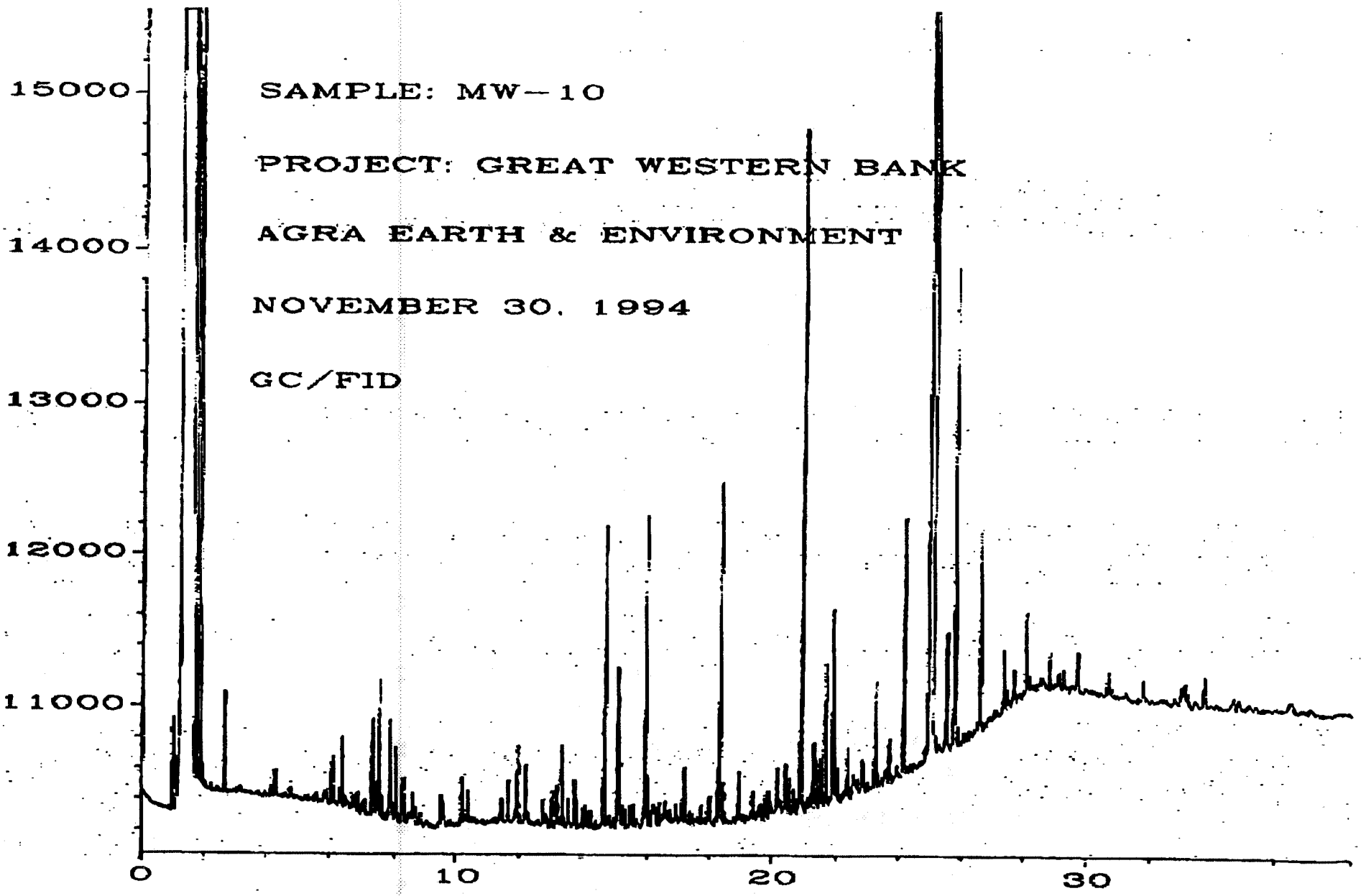
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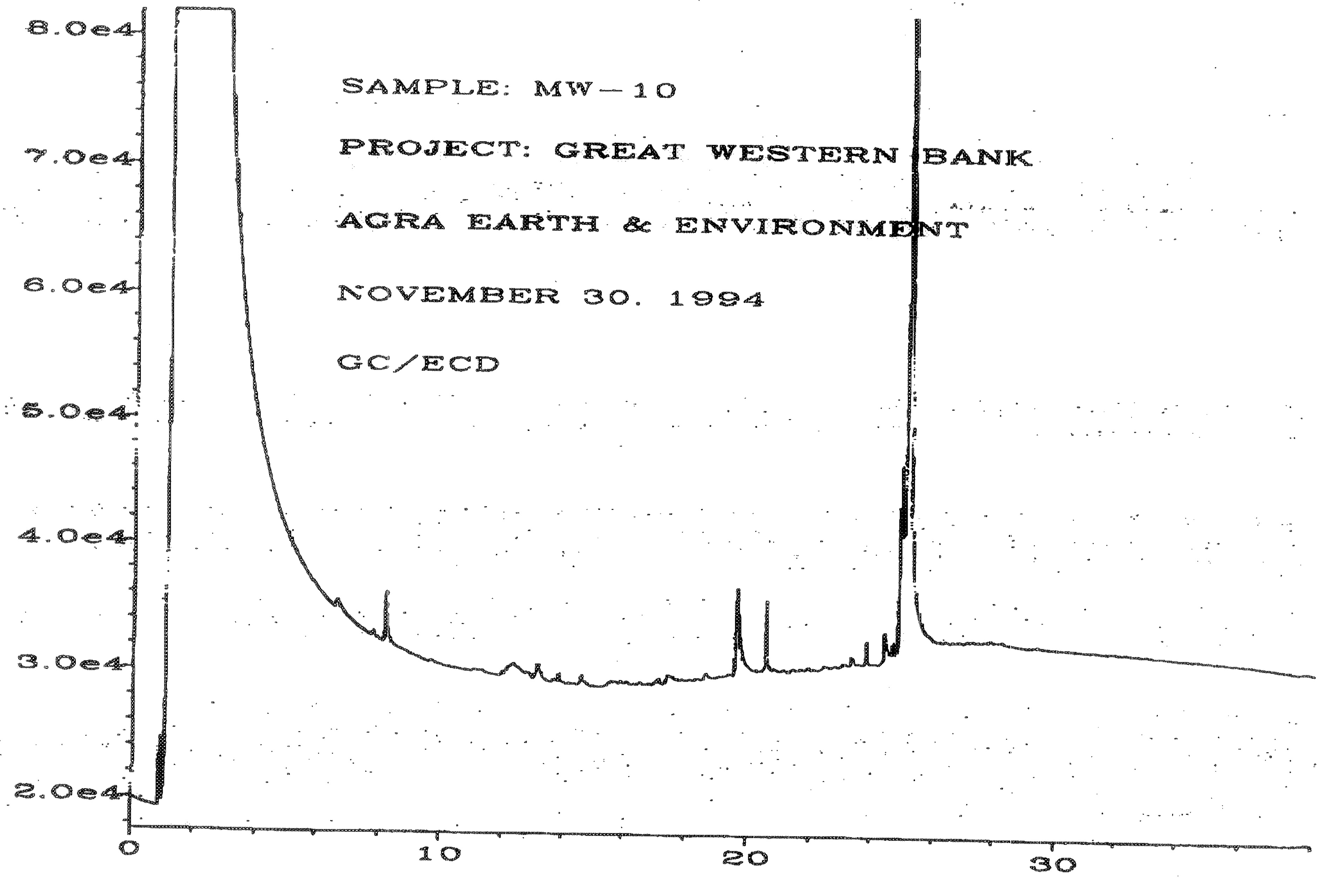
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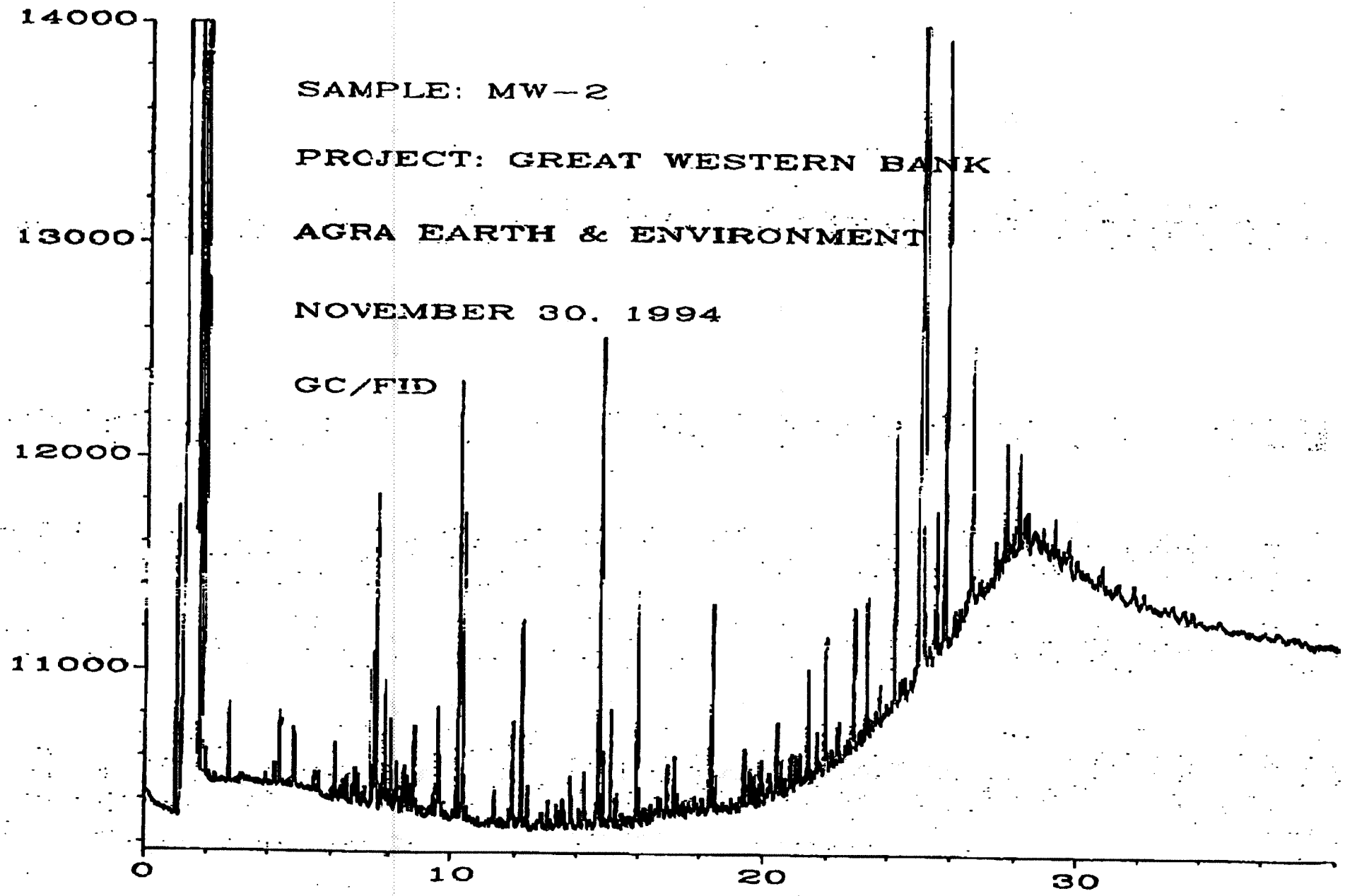
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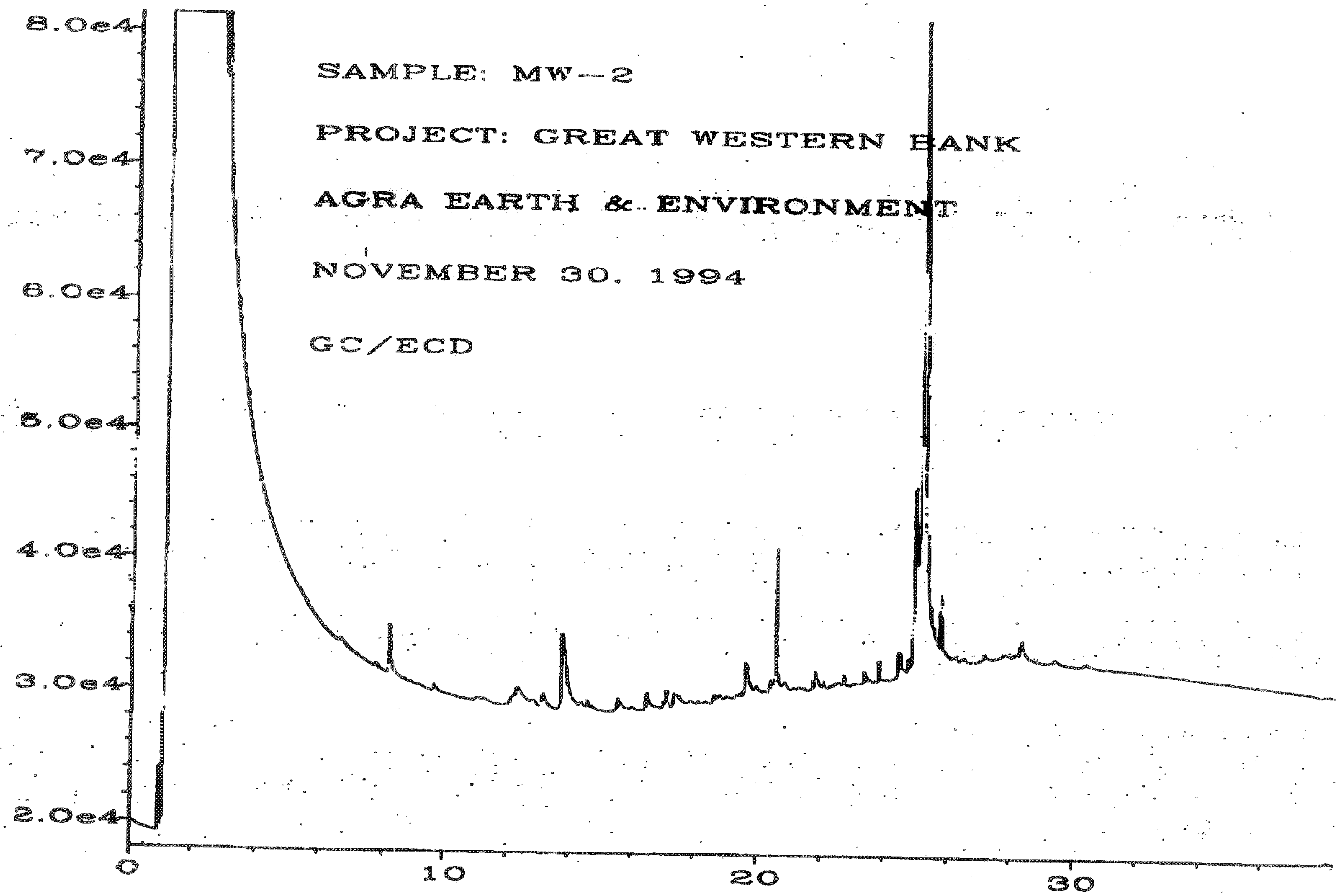

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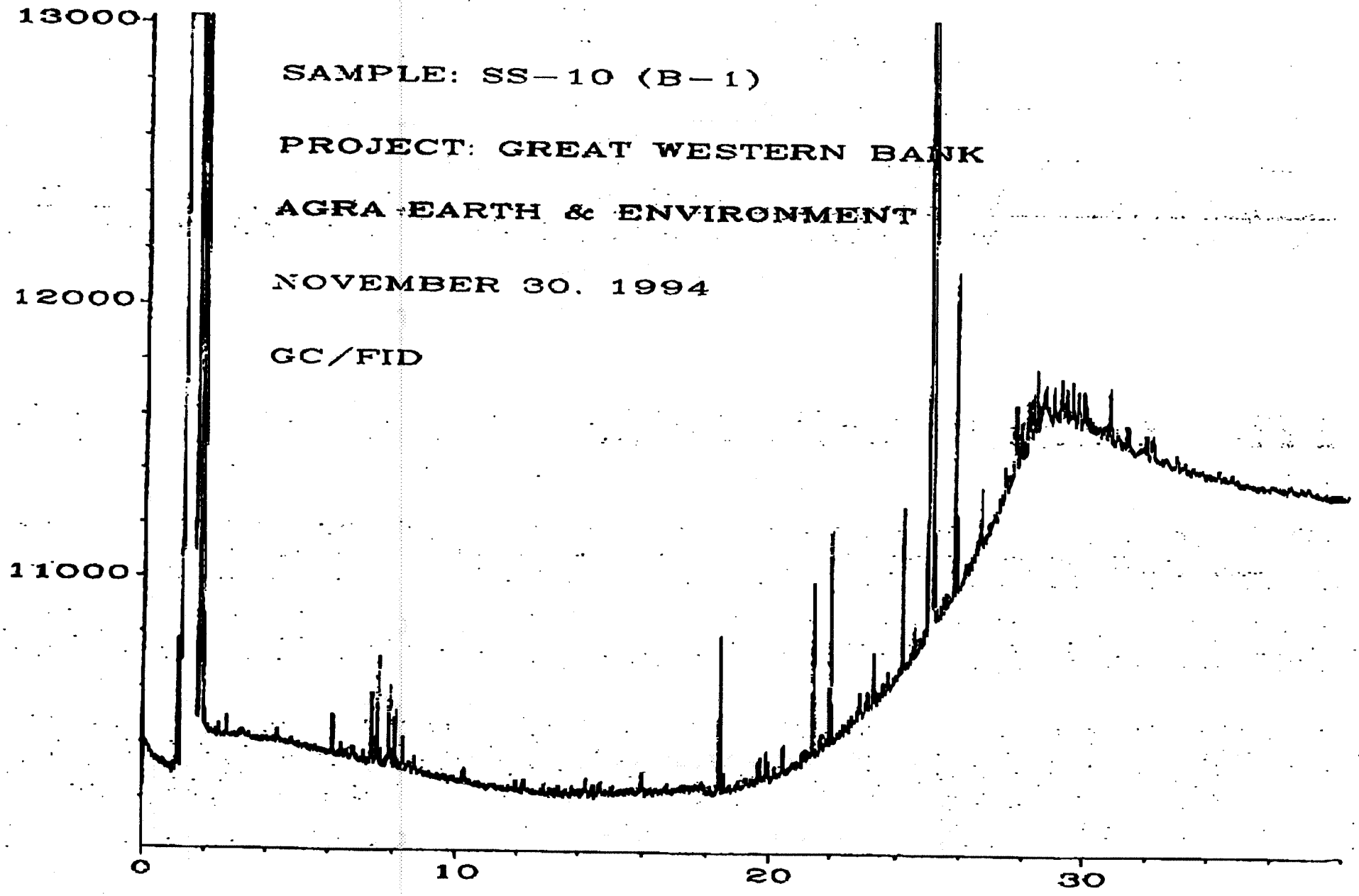

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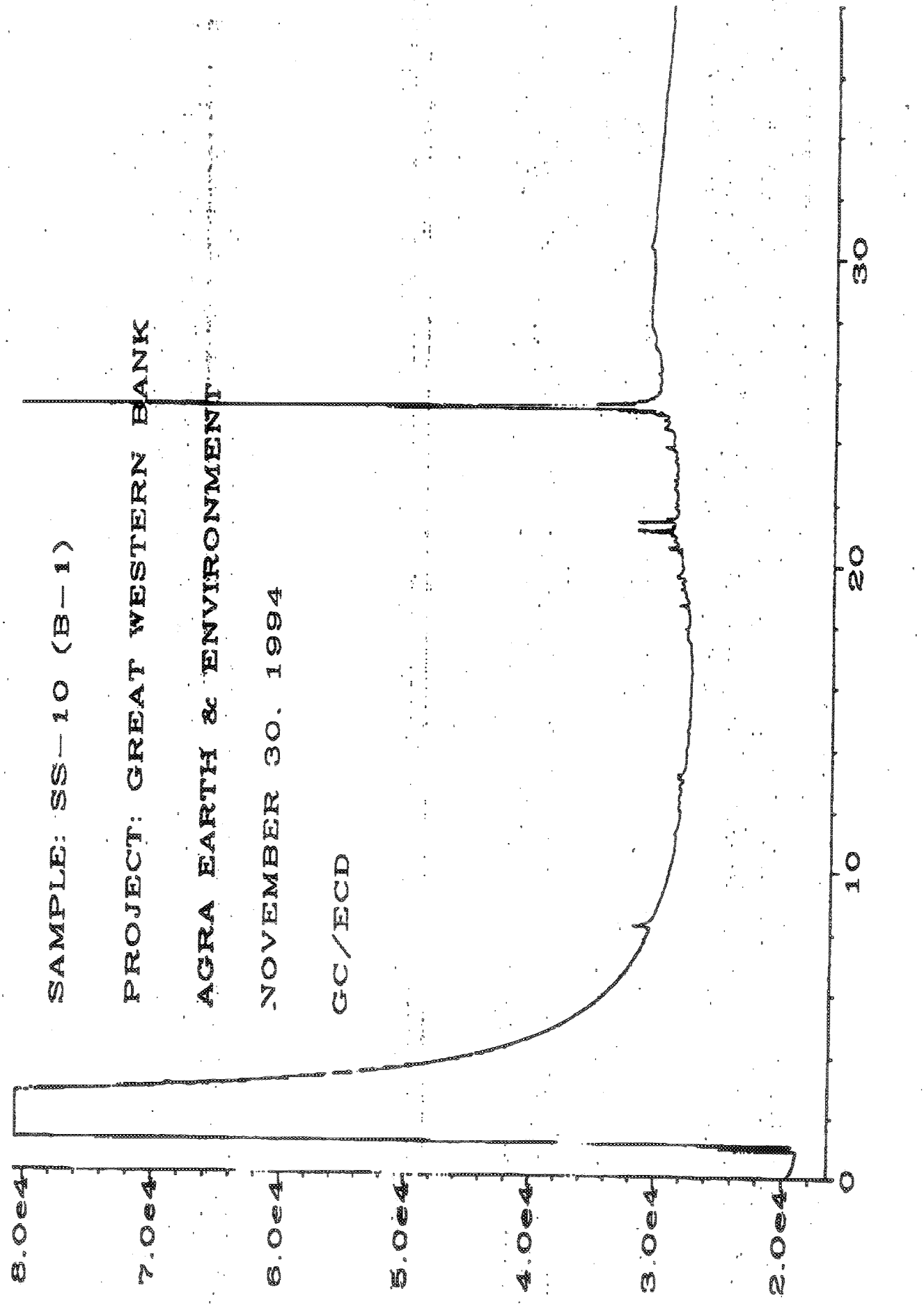

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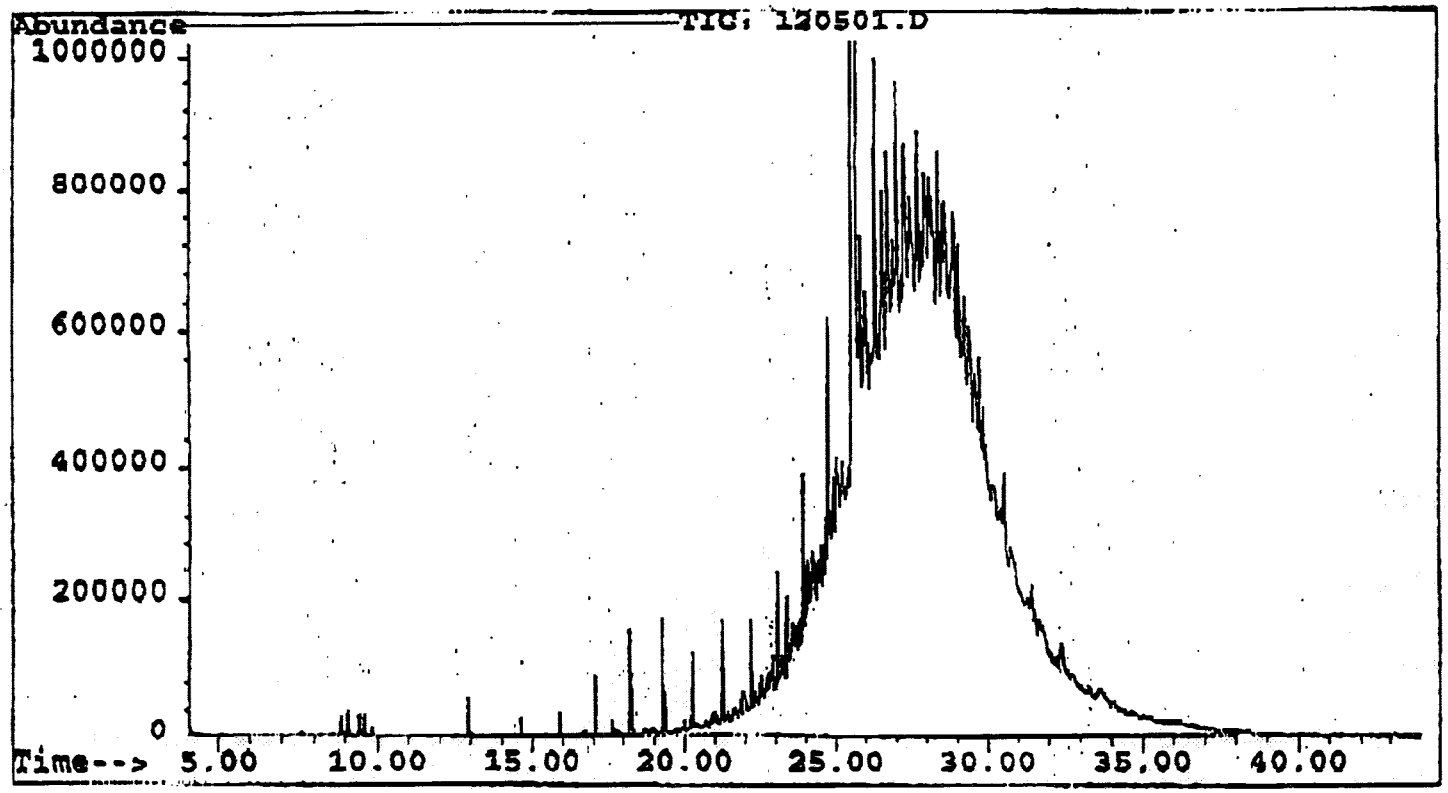

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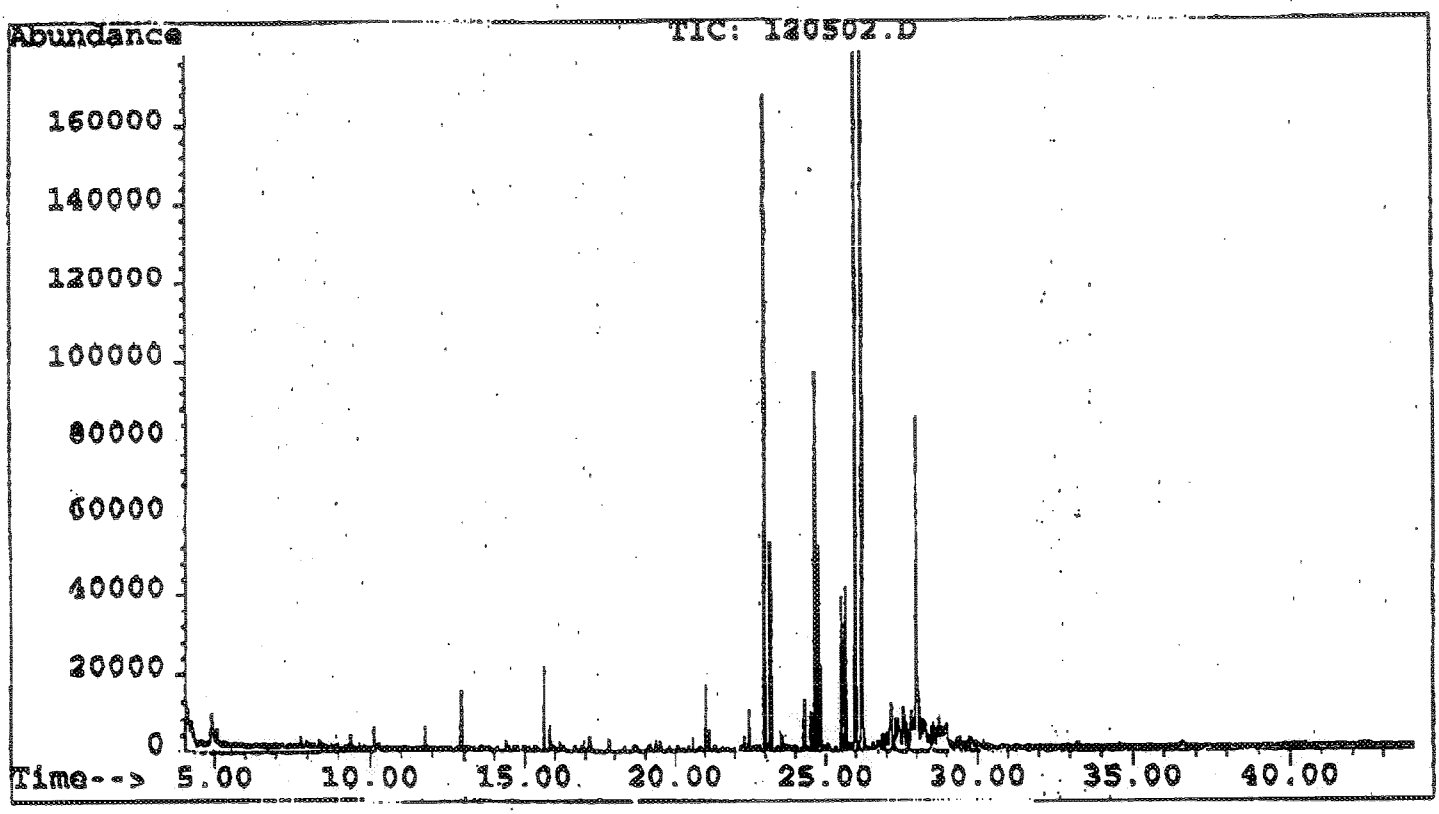

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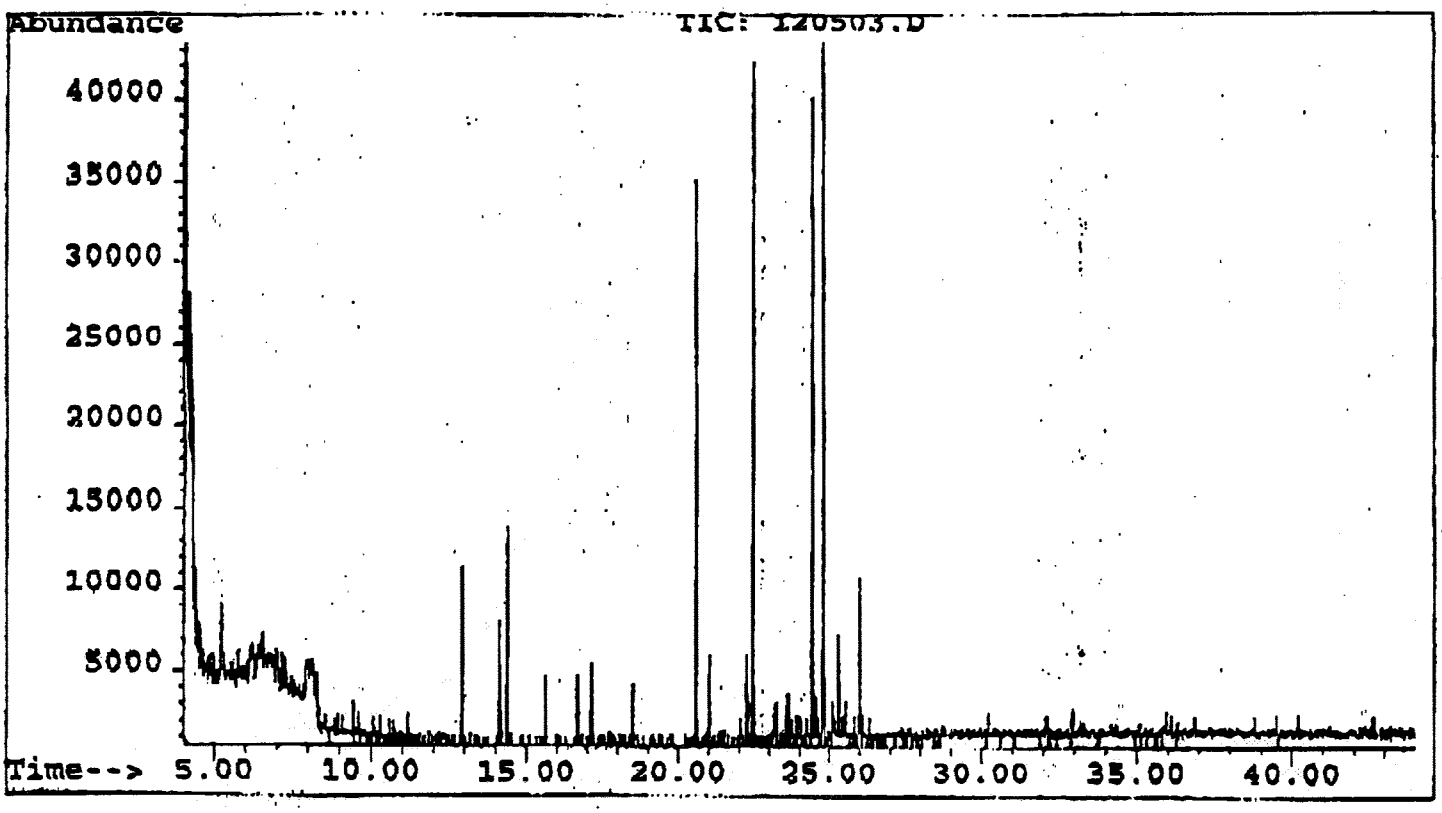

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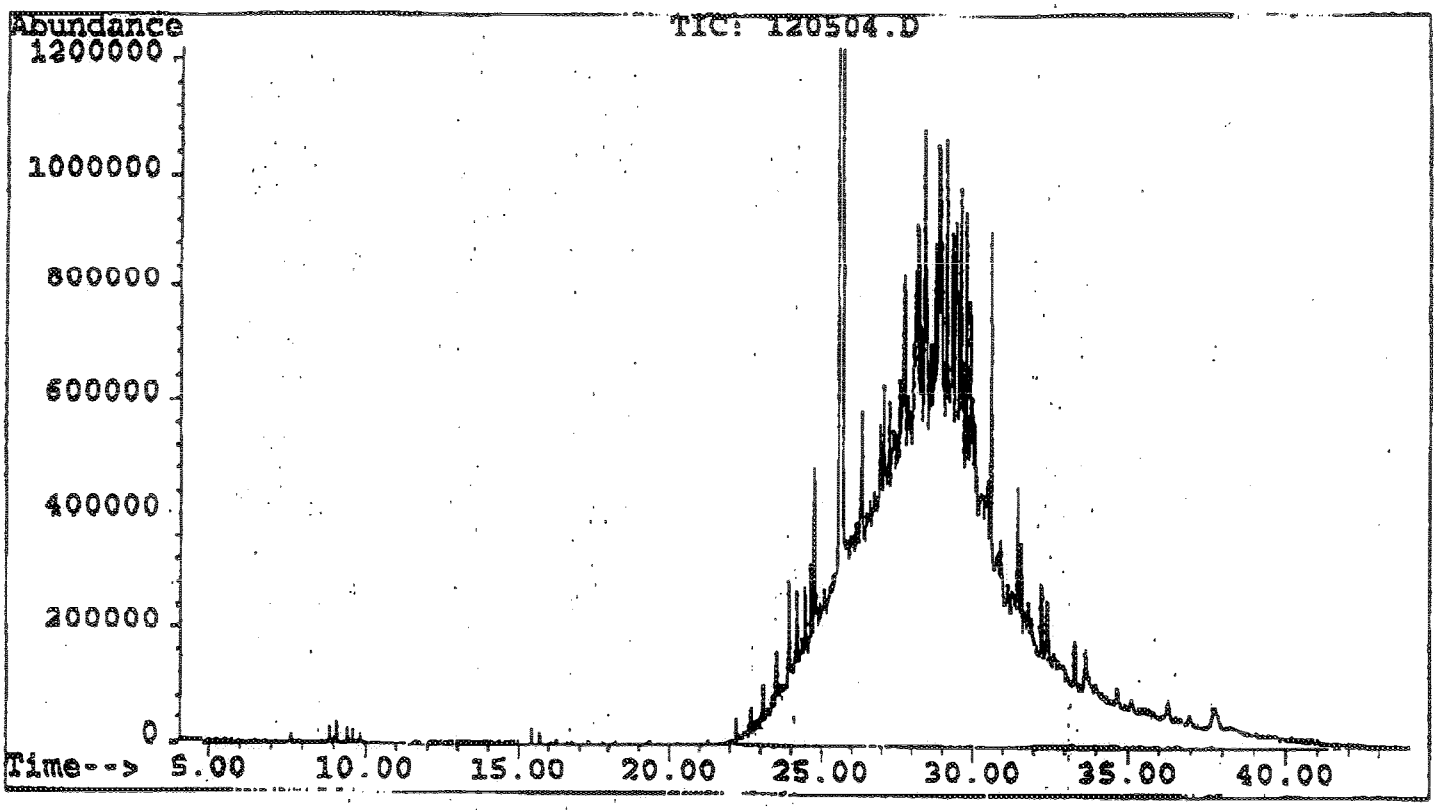

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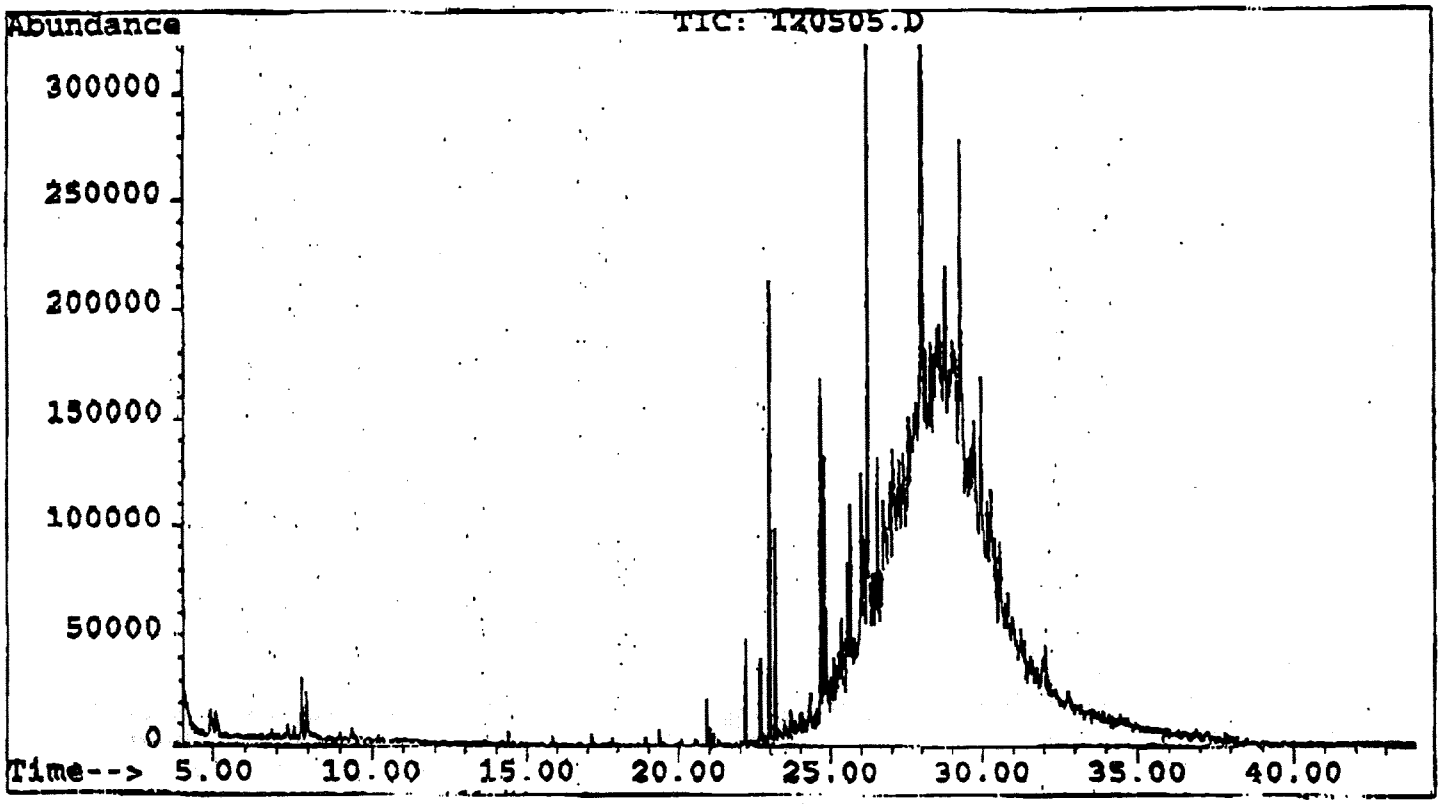

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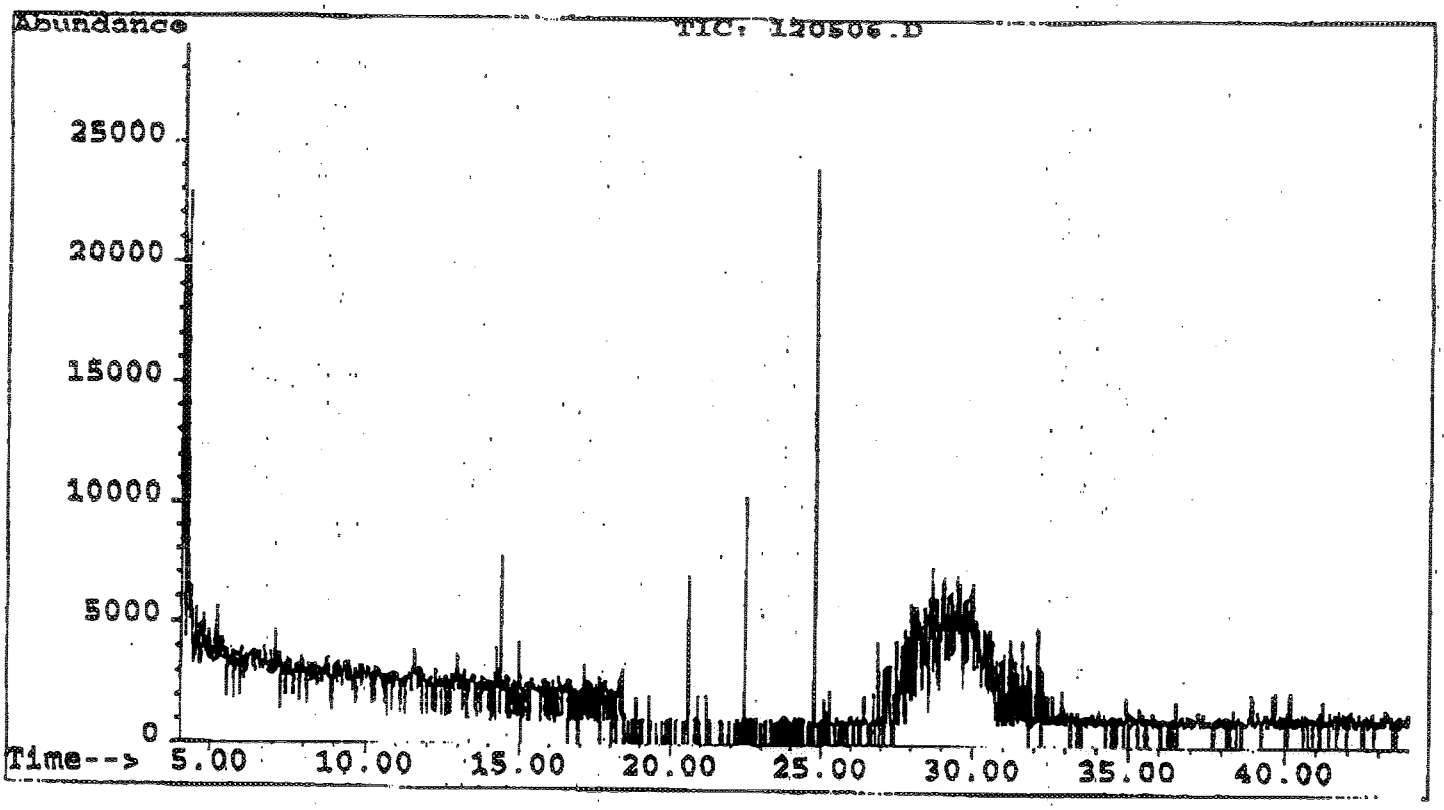

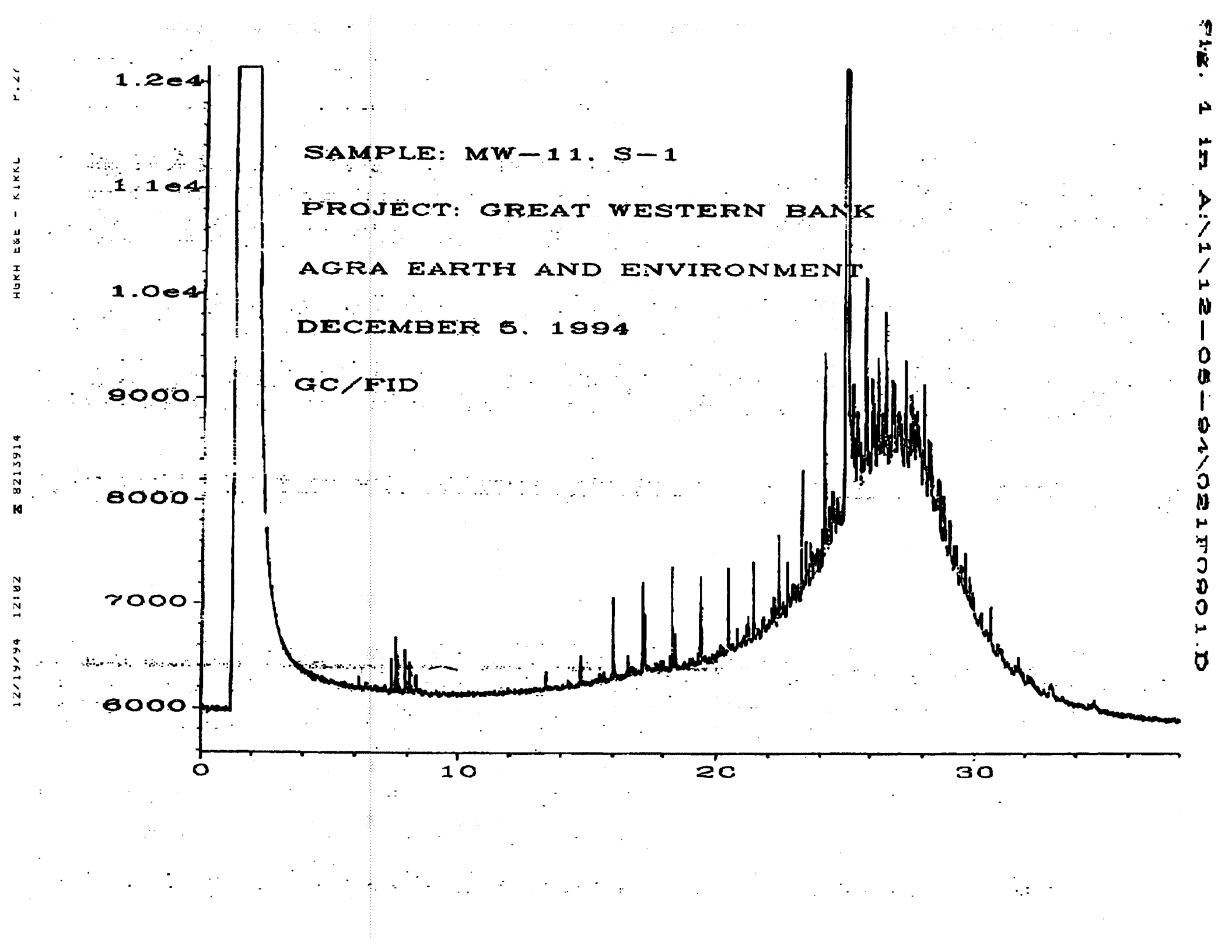
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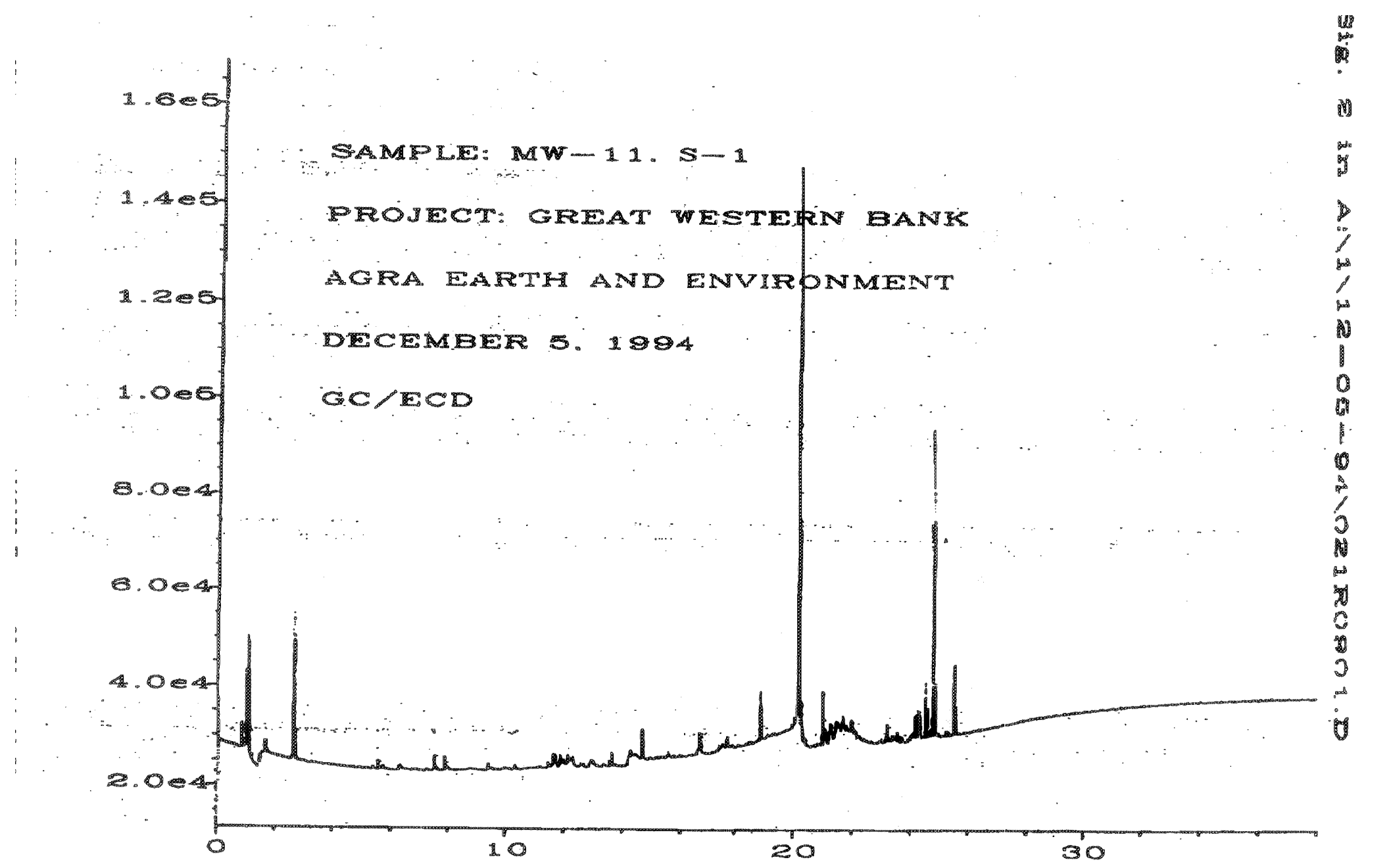
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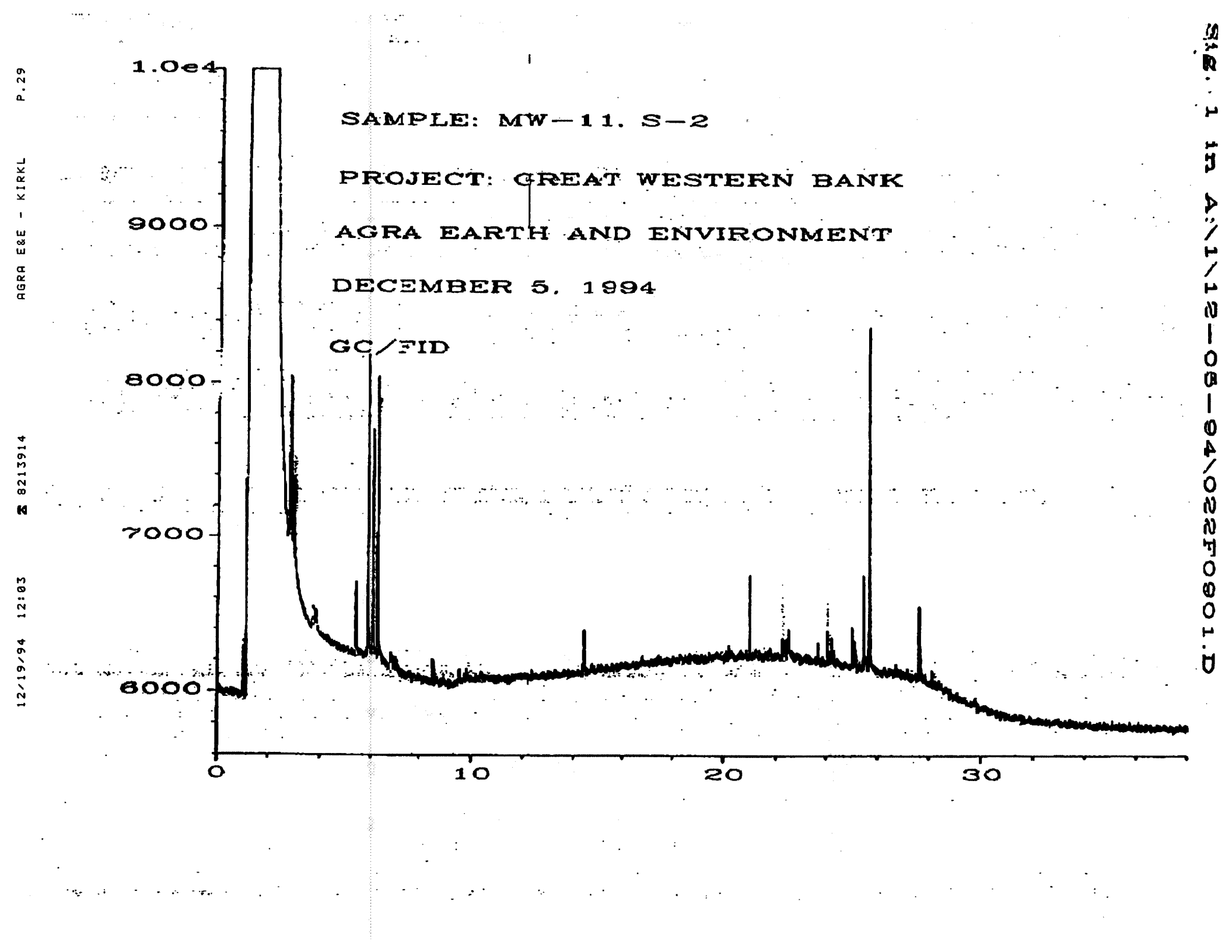
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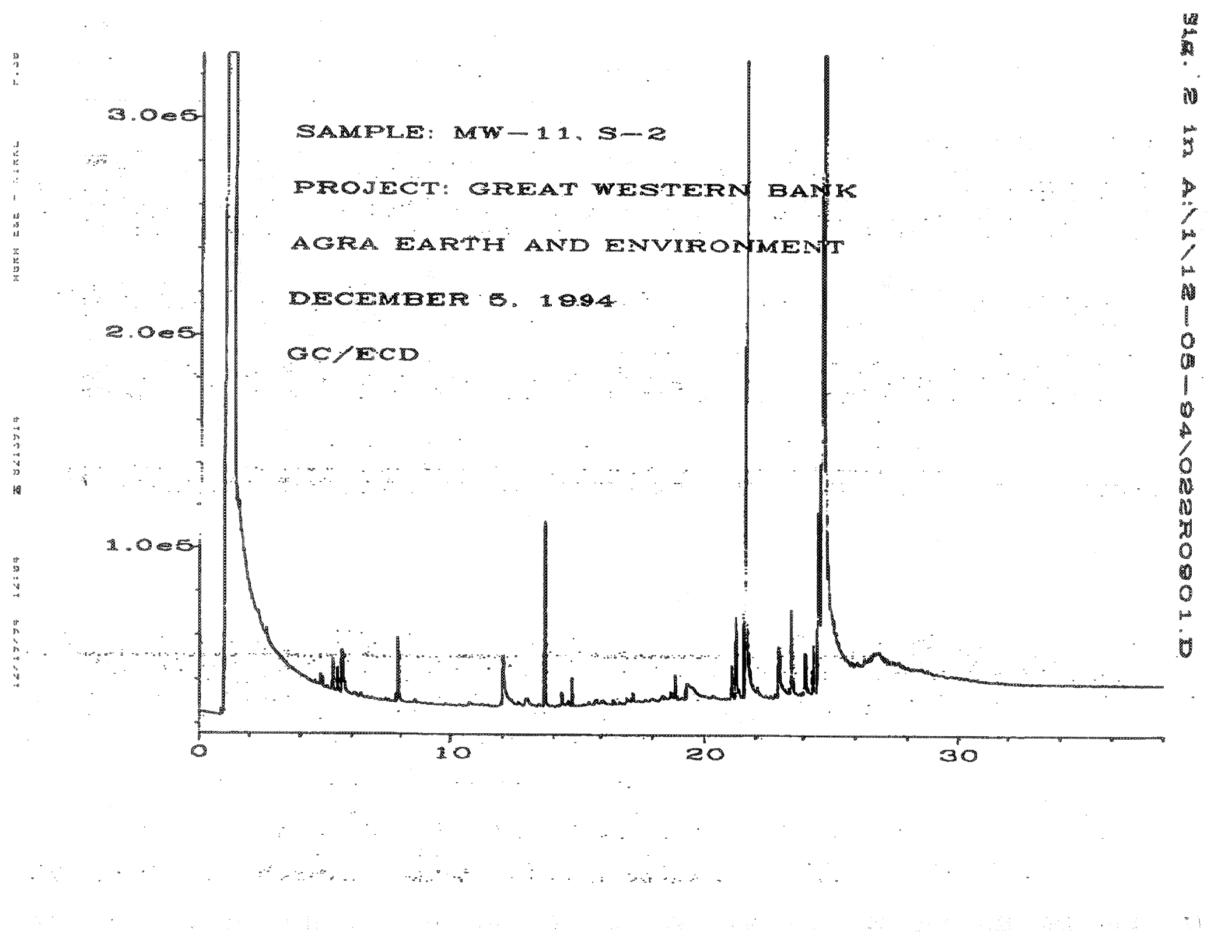
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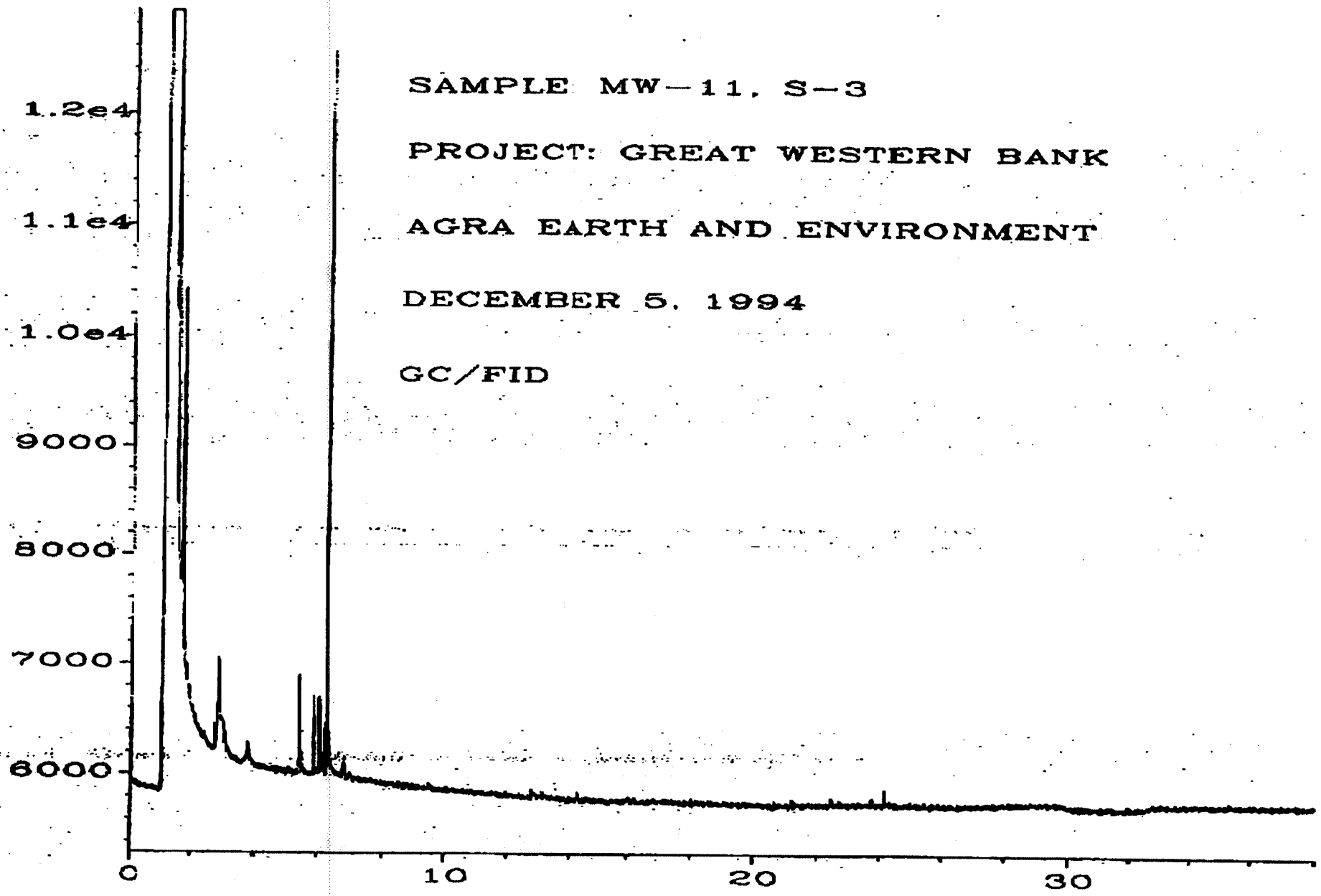

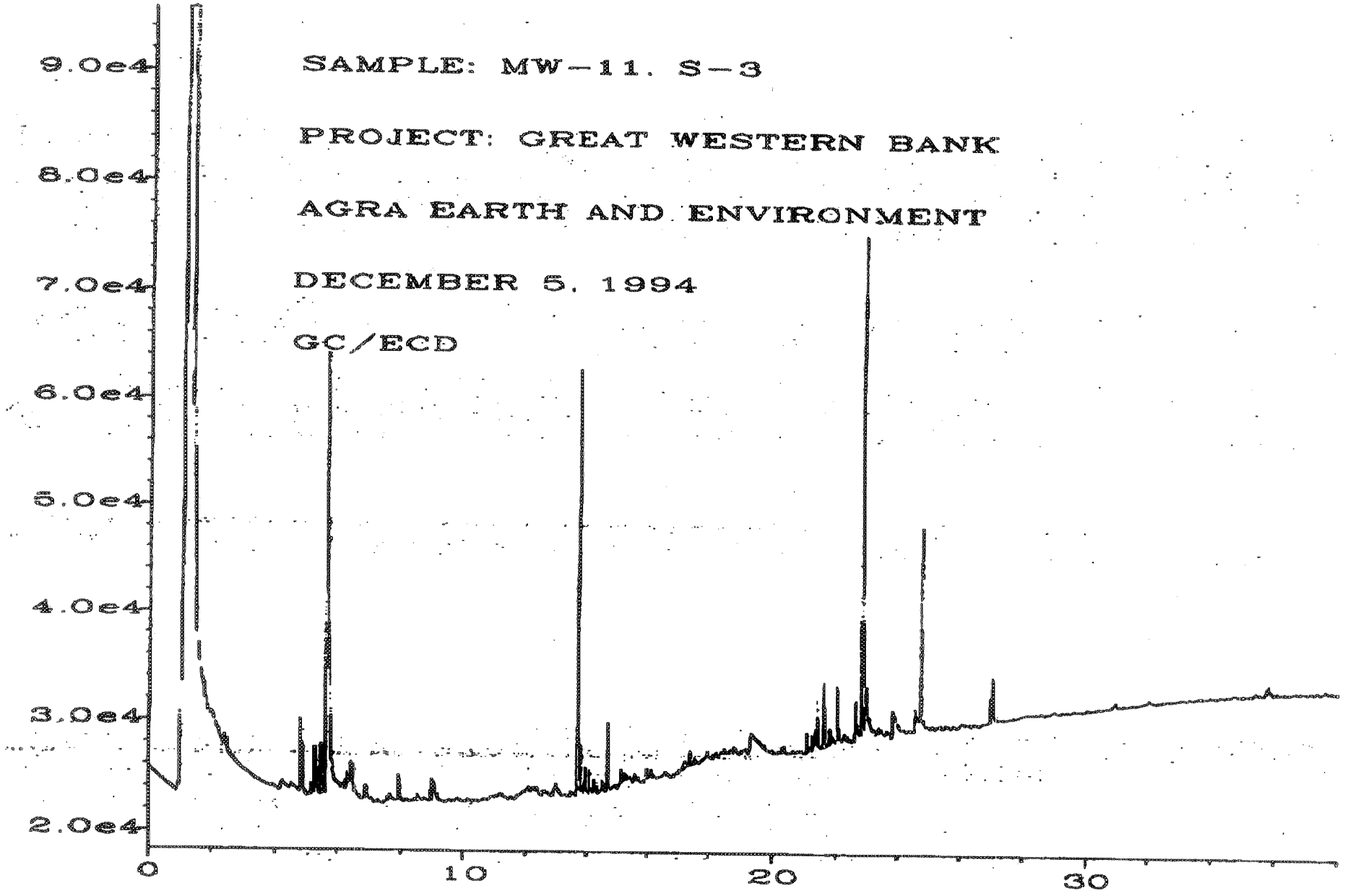

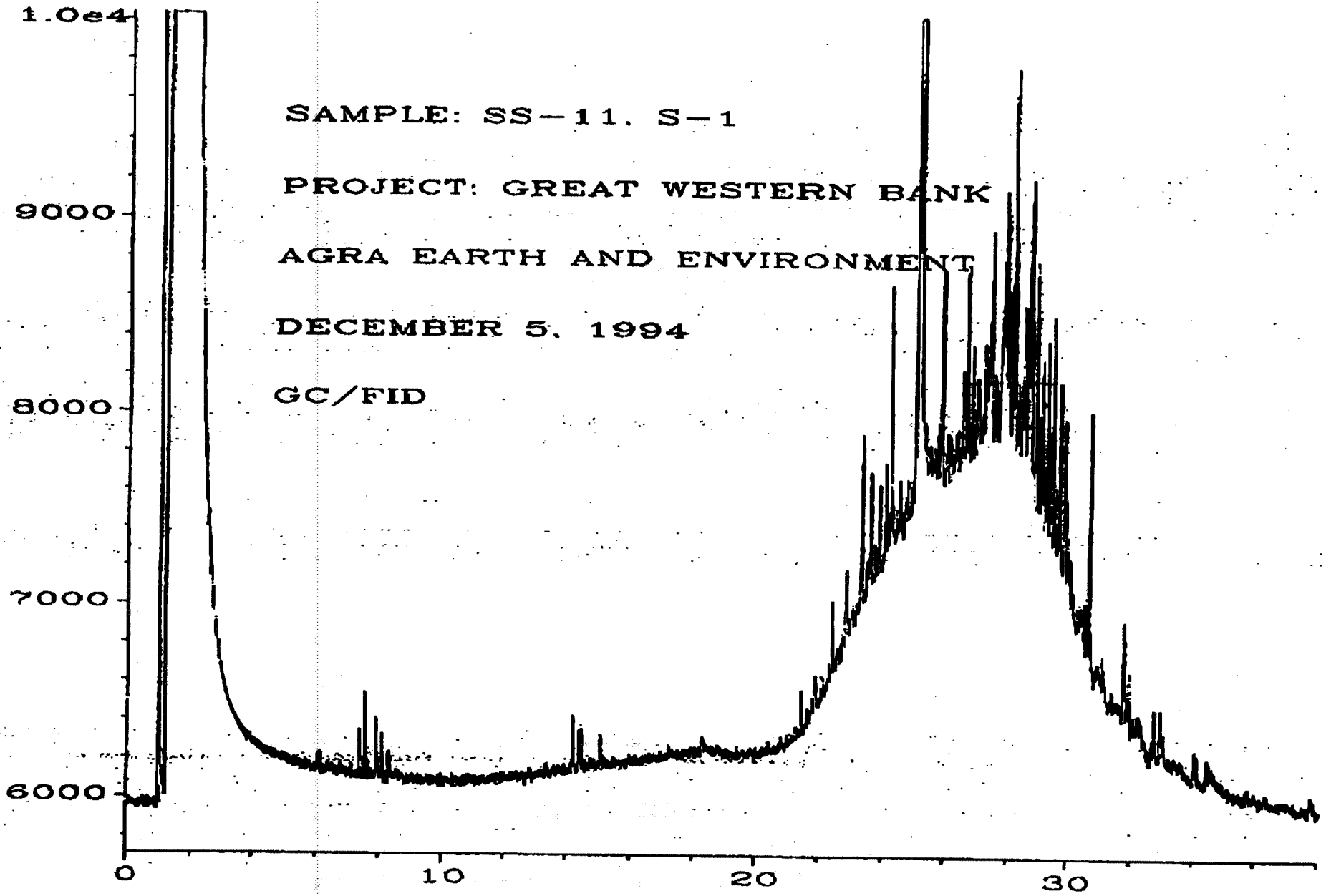
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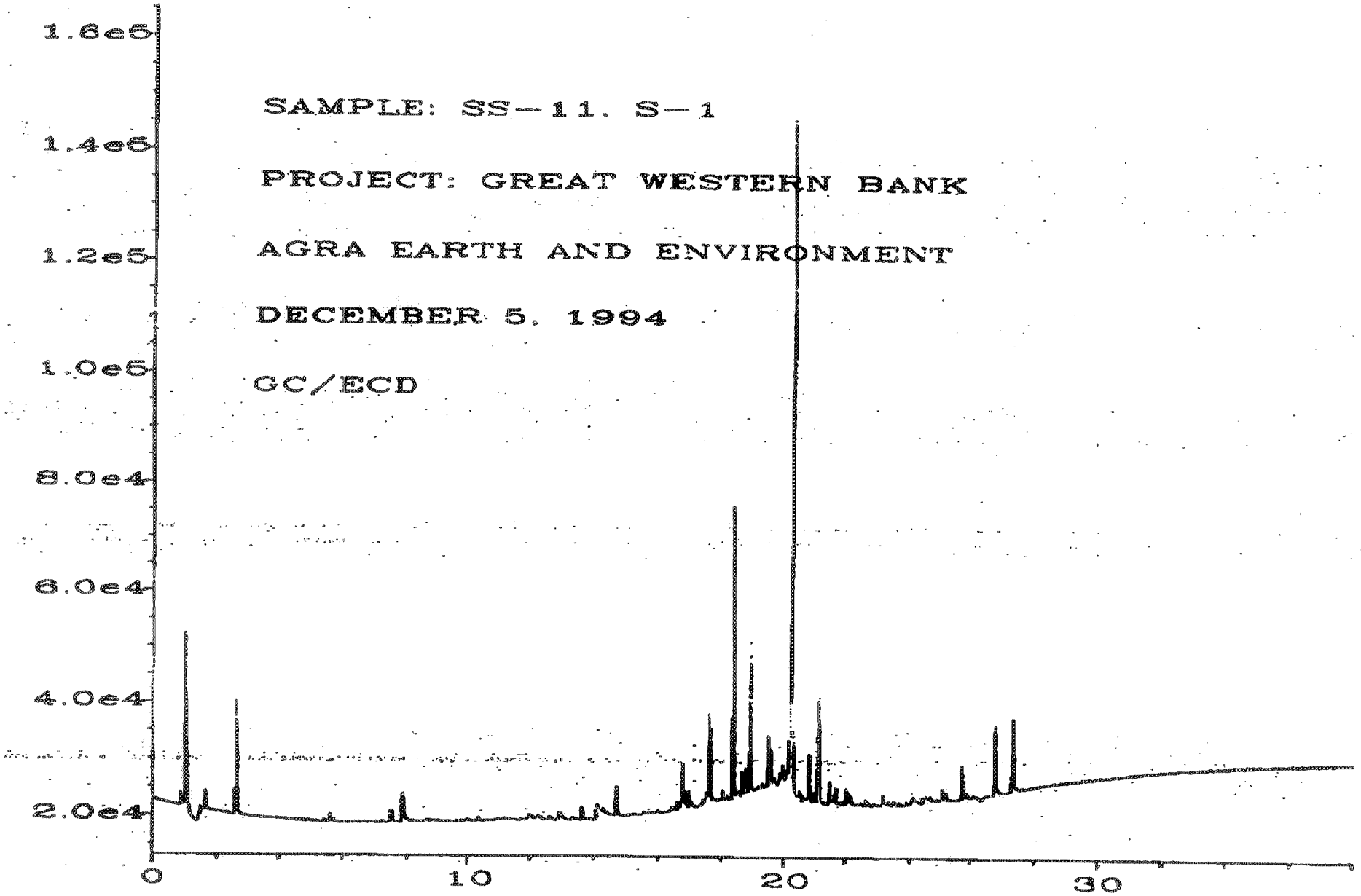
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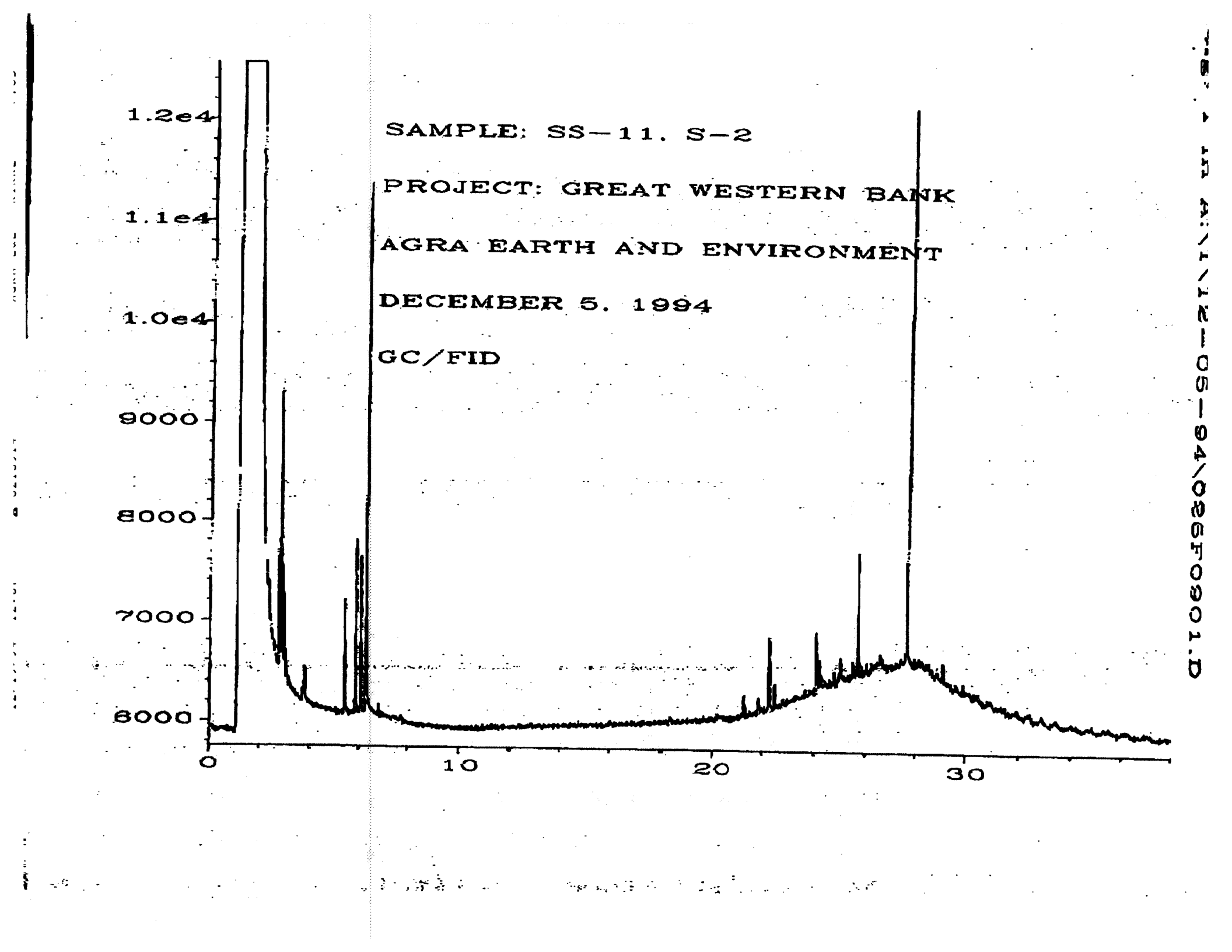
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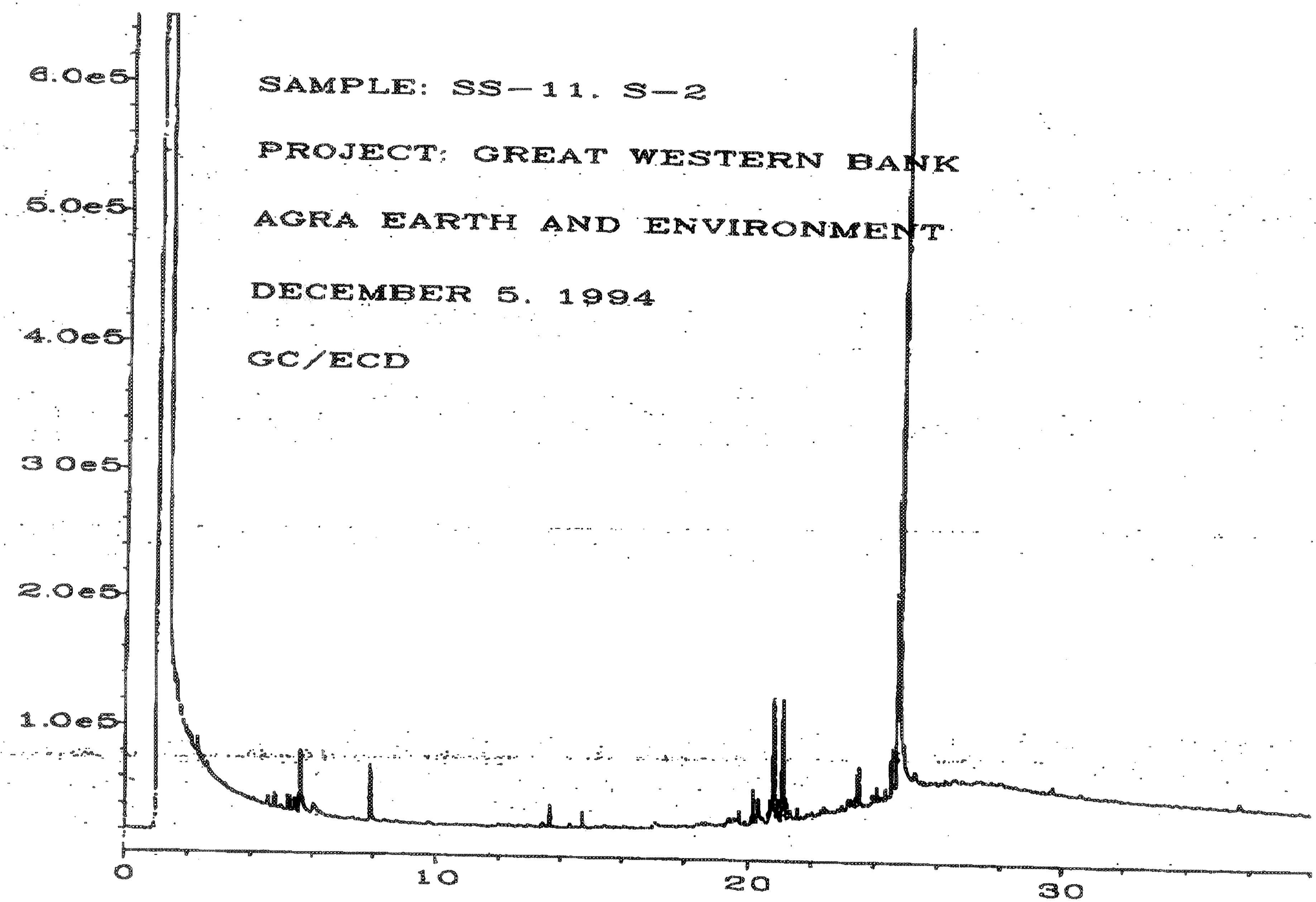
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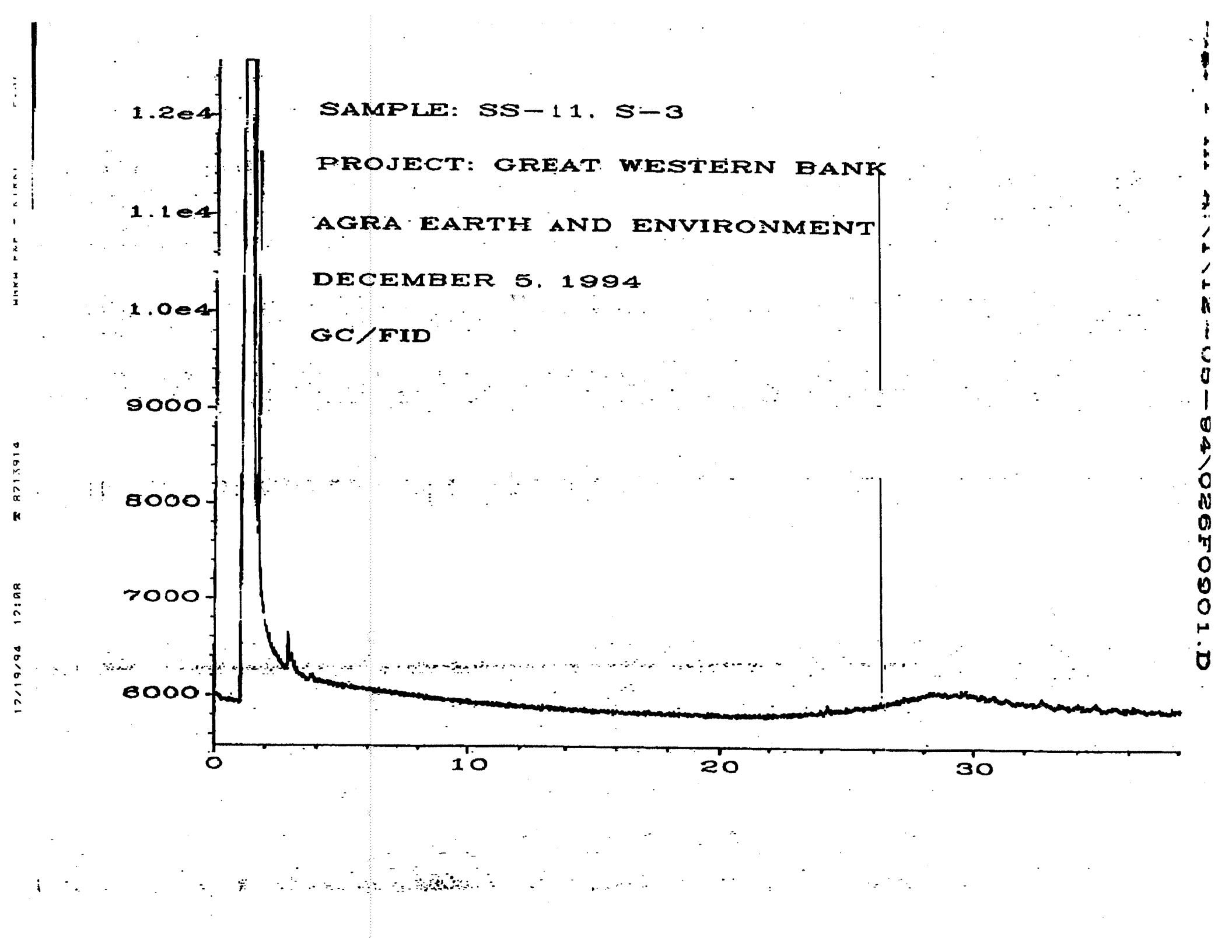
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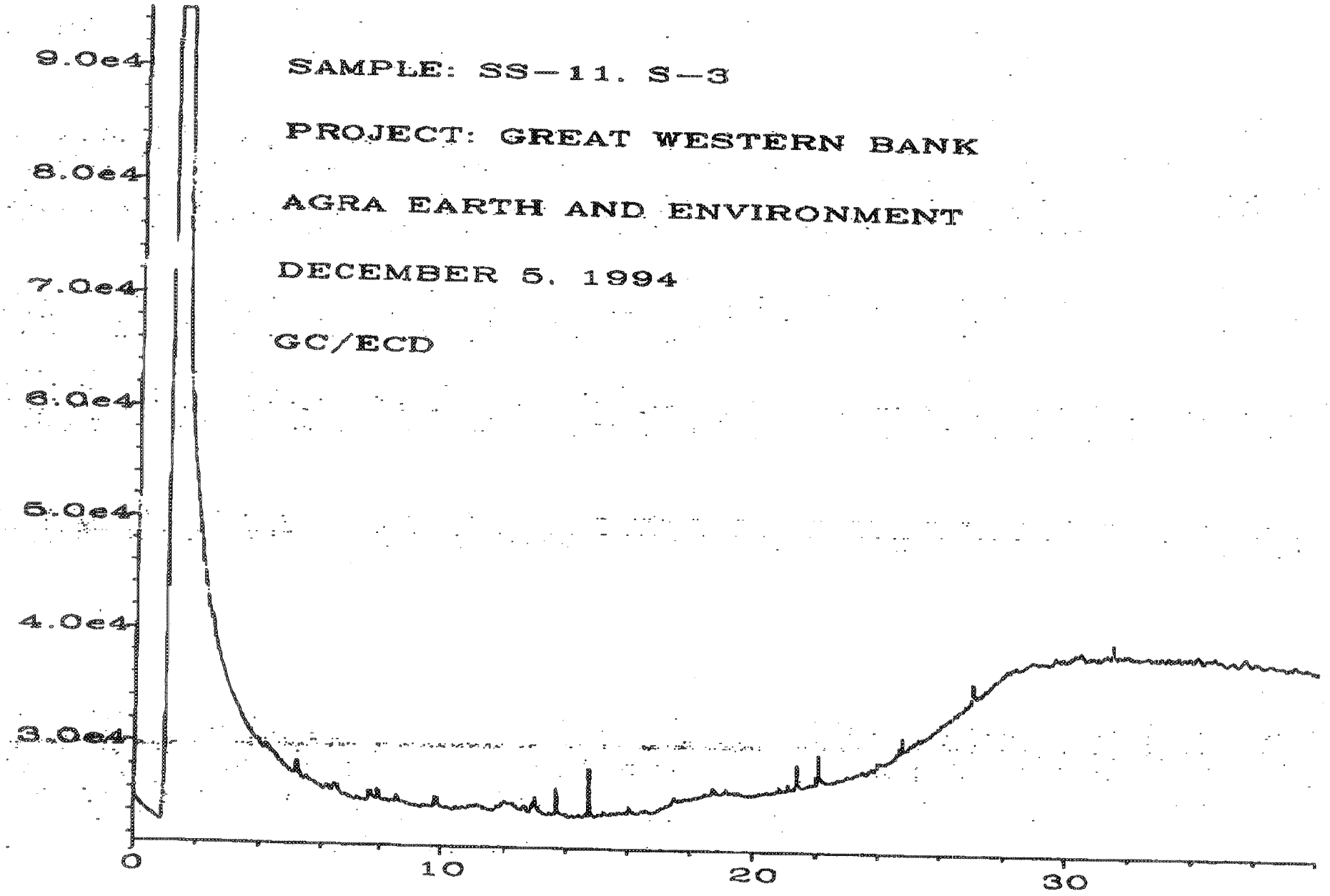
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APPENDIX B
REQUEST FOR NO FURTHER ACTION LETTER
BELLEFIELD OFFICE PARK
April 1996

(Presents results of additional ground-water monitoring)

Dalton, Olmsted & Fuglevand, Inc. *Environmental Consultants*

11711 Northcreek Parkway S., Suite 101 • Bothell, Washington 98011
Telephone (206) 486-7905 (FAX 486-7651)

April 30, 1996

Elaine Atkinson
Department of Ecology
Northwest Regional Office
3190 - 160th Ave. S.E.
Bellevue, Washington 98008-5452

Re: Request for No Further Action Letter
Bellefield Office Park
Bellevue, Washington

Dear Ms. Atkinson:

This letter report presents the results of our additional ground-water quality sampling at the Bellefield Office Park located in Bellevue, Washington. The purpose of the work was to provide additional technical support for Ecology to issue a "No Further Action" letter for the site. This work supplements the data and analyses presented in our June 1995 (DOF 1995) report and was conducted consistent with:

- Ecology's January 18, 1996 fax to Dalton, Olmsted & Fuglevand, Inc. (DOF);
- Ecology's January 29, 1996 to letter DOF;
- DOF's February 15, 1996 fax to Ecology; and
- Phone conversations between DOF and Ecology.

On behalf of the site owner, Spieker Properties, Inc., we request that a "No Further Action" letter be issued for the site.

BACKGROUND

In June 1995, Dalton, Olmsted & Fuglevand, Inc. (DOF), submitted to the Washington State Department of Ecology (Ecology) an "Independent Remedial Action Report" to support Spieker Properties request for a "No Further Action" (NFA) letter. In January 1996, DOF received the results of Ecology's review of the report that indicated that additional ground-water and Mercer Slough sediment sampling were required before an NFA letter could be issued. The ground-water quality data was required to provide additional information on whether migration from fills located on the site have the potential to impact the Mercer Slough.

Based on discussions between DOF and Ecology, it was agreed that Ecology could issue a NFA letter with respect to the site fills if additional ground-water quality sampling was completed. Spieker Properties elected not to complete additional sediment sampling because of the uncertainty of delineating the sources of constituents detected in Mercer Slough sediments.

A scope of work was developed with input from Ecology that included the following:

- Installing six monitor wells at the locations shown on Figure 2.

- Collecting and analyzing ground-water samples from the wells for the following constituents:
  - Petroleum hydrocarbons (WTPH-DX);
  - PCBs;
  - Total and dissolved priority pollutant metals; and
  - Polynuclear aromatic hydrocarbons (well DW-5 only).

Well installation procedures and geologic logs are presented in Attachment 1. Ground-water sampling procedures and laboratory data sheets are presented in Attachment 2.

GEOLOGIC OBSERVATIONS

The wells were installed on March 7 and 8, 1996. Drilling was completed to an approximate depth of 14-feet to penetrate into the materials underlying the surface. The materials encountered during drilling generally consisted of a two to four foot thick surface layer of mixed silty SAND, SILT, GRAVEL and wood chips that were underlain by fibrous peat. At locations DW-5 and DW-6, fibrous wood and brick fragments in a silty SAND matrix were encountered at depths of between approximately 10-feet and 14-feet below ground surface.

DEPTH TO GROUND-WATER AND SCREENING INTERVAL

Ground-water was encountered at depths of between approximately 1.2-feet and 3.7-feet below ground level on March 15, 1996. Based on the geologic materials and depth to ground water, well screens were set at a ten-foot depth interval between 2.5-feet and 12.5-feet in each well.

RESULTS OF GROUND-WATER SAMPLING

Ground-water samples were collected using low-flow sampling procedures (see Attachment 2) on March 15, 1996. The results of the laboratory analyses are summarized on Table 1. No

petroleum hydrocarbons, PCBs, cadmium, chromium, copper, mercury, or nickel were detected in any of the ground-water samples.

The following constituents were detected in one or more samples:

TABLE 2 - Summary of Constituent Detections

	Detection Frequency	Concentration Range (ug/l)
Acenaphthene	1/1	1.1
Chrysene	1/1	0.2
Pyrene	1/1	0.11
Total Arsenic	0/6	<4
Dissolved Arsenic	1/6	4.2
Total Iron	6/6	4,000 - 29,000
Dissolved Iron	6/6	4,600 - 27,000
Total Lead	5/6	<2 - 14
Dissolved Lead	2/6	<2 - 2.6
Total Manganese	6/6	900 - 2,500
Dissolved Manganese	6/6	1,100 - 3,100
Total Zinc	4/6	<20 - 68
Dissolved Zinc	1/6	<20 - 44

COMPARISON OF DETECTED CONCENTRATIONS WITH AMBIENT WATER QUALITY CRITERIA

The Bellefield Office Park is surrounded by the Mercer Slough which is the primary receptor of ground-water that migrates from the site. For this reason, concentrations of the constituents detected in the ground-water samples were compared to freshwater ambient water quality criteria developed under the Federal Clean Water Act.

Criteria for manganese and iron are not available. However, these constituents are naturally occurring and are commonly present in ground waters of Washington State. Relatively high concentrations of iron and manganese would be expected in ground water samples from peaty deposits where low dissolved oxygen concentrations typically exist.

Three polynuclear aromatic hydrocarbons (PAHs) were detected in the sample from well DW-5 at concentrations just over the reporting limit. No ambient water quality criteria are available for these constituents. However, the highest concentration (acenaphthene at 1.1 ug/l) is well below the acute and chronic Lowest Observed Effect Level (LOEL) of 1,700 ug/l and 520 ug/l, respectively (EPA 1991). It should be noted that well DW-5 is located and screened directly in the fill materials where petroleum hydrocarbons and PCBs were detected in soil samples (DOF 1995) and is not representative of concentrations that would migrate in ground water. We

would expect that as ground water migrated out of these materials the detected PAHs would decline in concentration by absorption onto the matrix materials.

As summarized above in Table 2, total and/or dissolved arsenic, lead, and zinc were detected in several of the ground-water samples. The concentrations of total lead and zinc are higher than the dissolved concentrations and are attributed to a larger number of particulates being present in the unfiltered (total) samples as compared to the filtered (dissolved) samples.

The Environmental Protection Agency (EPA) has developed freshwater ambient water quality criteria for the detected metals and recommends that dissolved metal concentrations be used:

> *"It is the policy of the Office of Water that the use of dissolved metal to set and measure compliance with water quality standards is the recommended approach, because dissolved metal more closely approximates the bioavailable fraction of metal in the water column than does total recoverable metal"* (EPA 1995).

The dissolved concentration range and ambient water quality criteria are summarized below in Table 3. The criteria for lead and zinc are hardness (as $CaCO_3$) dependent. A hardness value of 85 mg/l was used to develop the criteria based on a sample obtained from the Mercer Slough on April 5, 1996.

TABLE 3 - Comparison of Ground-Water and Ambient Water Quality Criteria (1)

	Concentration Range(2)	Acute (3)	Chronic(4)
Arsenic	<4 to 4.2	360	190
Lead	<2 to 2.6	54	2.1
Zinc	<20 to 44	100	90

Notes:
(1) - Concentrations and criteria in ug/l - ppb.
(2) - Dissolved metal concentrations
(3) - Dissolved metal criteria based on Criteria Maximum Concentration (CMC) - the highest concentration of a pollutant to which aquatic life can be exposed for a short period of time (1-hour average) without deleterious effects.
(4) - Dissolved metal criteria based on Criteria Continuous Concentration (CCC) - the highest concentration of a pollutant to which aquatic life can be exposed for an extended period of time (4 days) without deleterious effects.

As indicated in Table 3, none of the metal concentrations in ground water exceed the acute criteria or exceed the chronic criteria for arsenic and zinc. The dissolved lead chronic criterion of 2.1 ug/l is only marginally exceeded in the sample from DW-2 where a dissolved lead concentration of 2.6 ug/l was measured.

It should be noted that the ambient water quality criteria were developed for assessing impacts to aquatic organisms via direct contact. The only exceedance of any of the criteria was for lead in a ground water sample from a well (DW-2) located in the center of the business park (Figure 2).

CONCLUSIONS

The supplemental ground-water quality data collected as part of this current work supports Spieker Properties request for a No Further Action letter associated with the site fills. The available ground-water quality data indicates little potential for the fills to impact the Mercer Slough environment.

The primary contaminants of concern, based on the soil data, are petroleum hydrocarbons and PCBs. These compounds were not detected in any of the ground water samples collected/analyzed during this work.

Several dissolved metals were measured above reporting limits in several of the ground-water samples. The concentrations of the detected metals are below acute ambient water quality criteria and only one of the six locations sampled marginally exceeded a chronic criteria at a location in the center of the office park.

REFERENCES

- Dalton, Olmsted & Fuglevand, Inc., 1995, Independent Remedial Action Report, Bellefield Office Park, Bellevue, Washington, Prepared for Spieker Properties, Inc., June 1995.

- EPA, 1991, Water Quality Criteria Summary, May 1, 1991 (based on Ambient Water Quality Criteria for Acenaphthene, EPA 440/5-80-015, October 1980).

- EPA, 1992, 40 CFR Part 131 - Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants; States' Compliance; Final Rule that appeared in the December 22, 1992 Federal Register; and

- EPA, 1995, 40 CFR Part 131 - Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants; States' Compliance; Revision of Metals Criteria - Interim Rule that appeared in the May 4, 1995 Federal Register.

CLOSING

The services described in this report were performed consistent with generally accepted professional consulting principals and practices. No other warranty, expressed or implied,

is made. These services were performed for the sole use and information of Spieker Properties, Inc. for specific application to the Bellefield Office Park. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for Spieker Properties purposes (i.e. obtaining a No Further Action Letter), locations, time frames and indicated project parameters. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

Dalton, Olmsted & Fuglevand, Inc.

Matthew G. Dalton
Sr. Consulting Hydrogeologist

attachments: Figure 1 - Site Vicinity Map
Figure 2 - Well Location Map
Table 1 - Summary of Ground-Water Quality Data

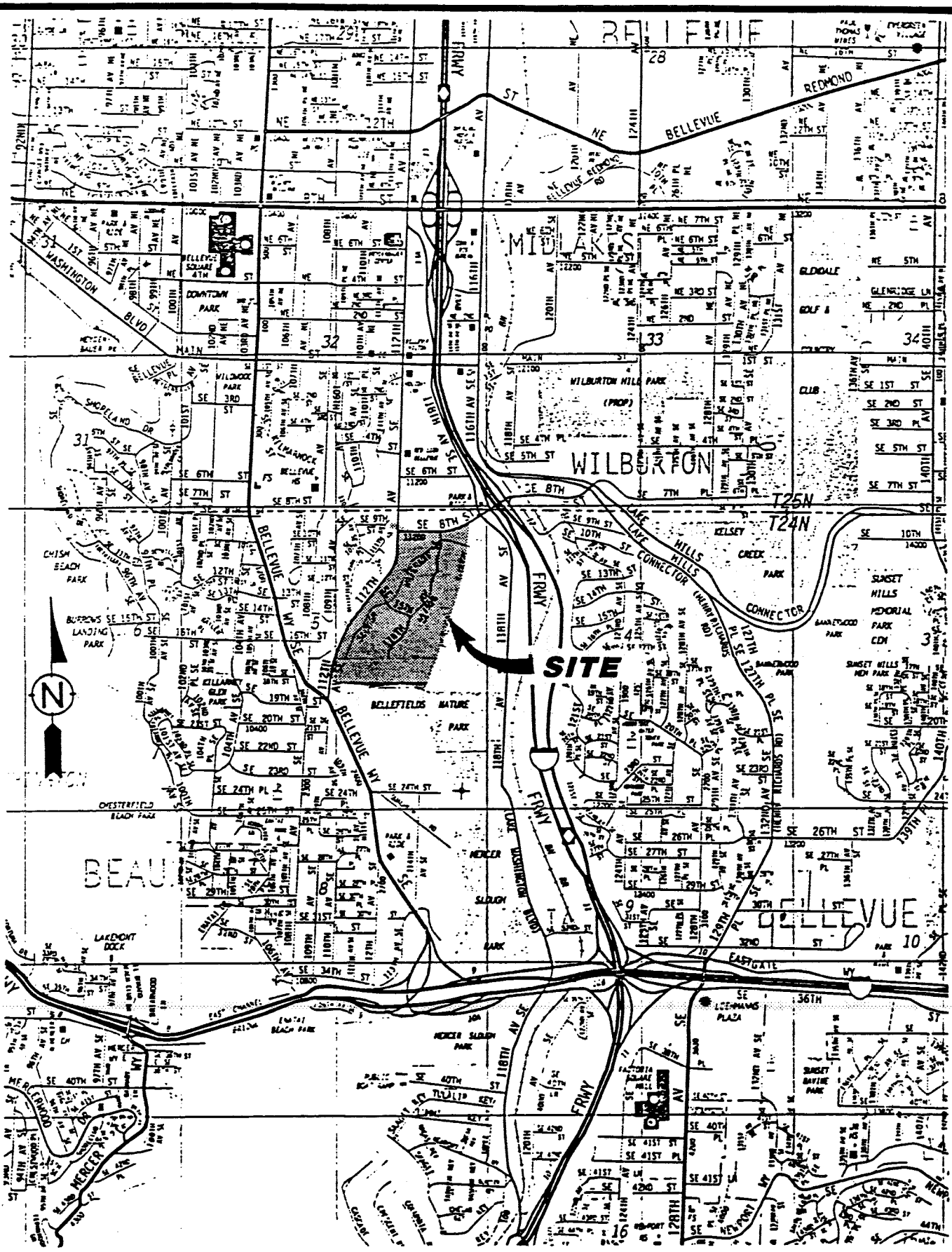
Attachment 1 - Well Installation Field Procedures and Logs
Attachment 2 - Ground-Water Sampling Procedures and Laboratory Data Sheets

TABLE 1 - Summary of Water Quality Data

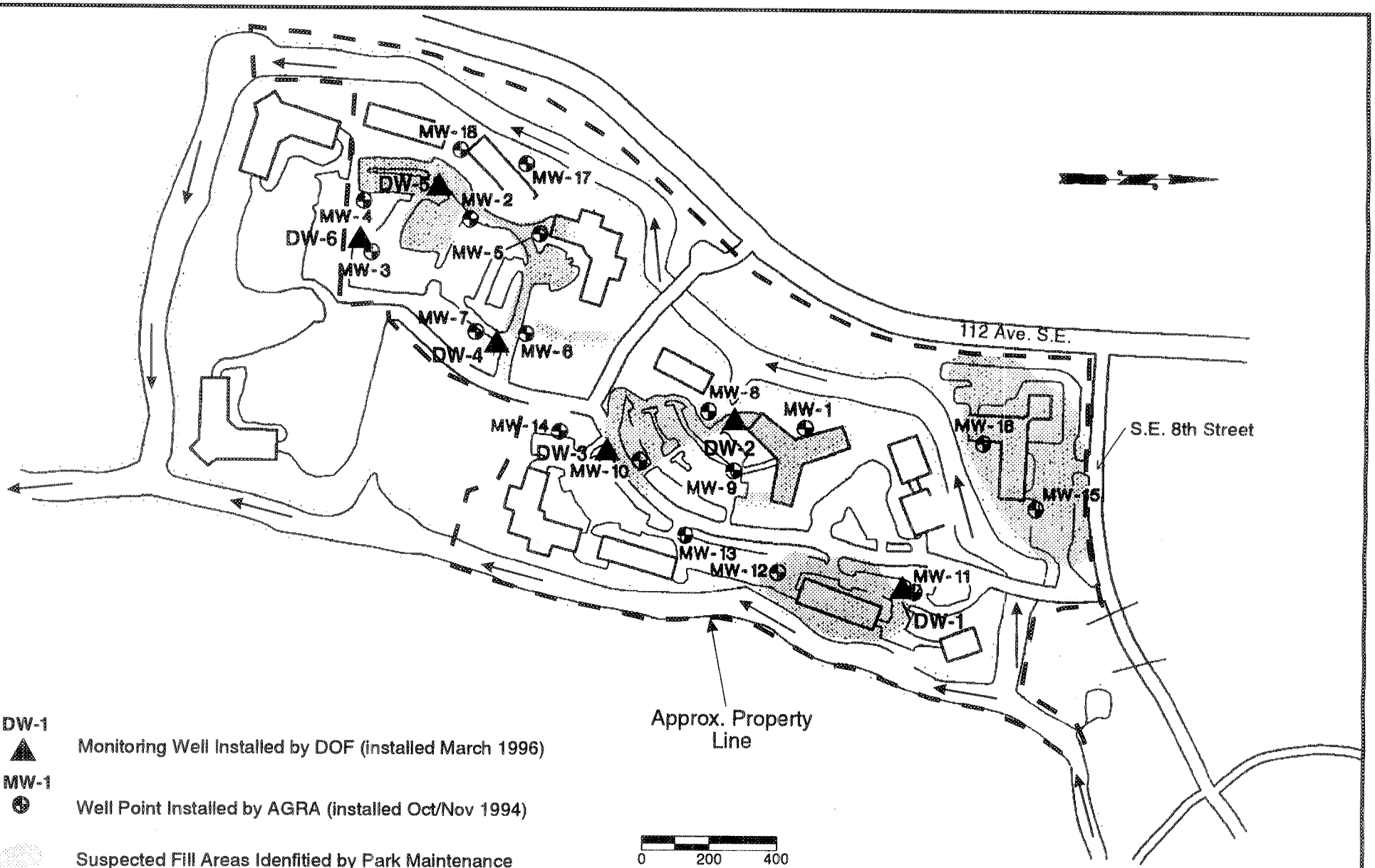
Bellefield Office Park
Bellevue, Washington

Constituents/Well Nos.	DW-1	DW-2	DW-3	DW-4	DW-5	DW-6
Petroleum Hydrocarbons (mg/l)						
Diesel Range (C12-C24)	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Heavy Oil Range (>C24)	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75
Polychlorinated Biphenyls (PCBs) - ug/l						
PCB 1016	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB 1221	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB 1232	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB 1242	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB 1248	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB 1254	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
PCB 1260	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Polynuclear Aromatic Hydrocarbons (ug/l)						
Acenaphthene	—	—	—	—	**1.1**	—
Anthracene	—	—	—	—	<1.0	—
Benzo(a)anthracene	—	—	—	—	<1.0	—
Benzo(a)pyrene	—	—	—	—	<0.1	—
Benzo(b)fluoranthene	—	—	—	—	<0.1	—
Benzo(g,h,i)perylene	—	—	—	—	<0.1	—
Benzo(k)fluoranthene	—	—	—	—	<0.1	—
Chrysene	—	—	—	—	**0.2**	—
Dibenzo(a,h)anthracene	—	—	—	—	<0.1	—
Fluroanthene	—	—	—	—	<0.1	—
Fluorene	—	—	—	—	<1.0	—
Indeno(1,2,3-cd)pyrene	—	—	—	—	<0.1	—
Naphthalene	—	—	—	—	<1.0	—
Phenanthrene	—	—	—	—	<1.0	—
Pyrene	—	—	—	—	**0.11**	—
Total Metals (ug/l)						
Arsenic	<4	<4	<4	<4	<4	<4
Cadmium	<5	<5	<5	<5	<5	<5
Chromium	<10	<10	<10	<10	<10	<10
Copper	<30	<30	<30	<30	<30	<30
Iron	**4000**	**19000**	**13000**	**9600**	**23000**	**29000**
Lead	**7**	**14**	**3.4**	<2	**5.8**	**5.4**
Manganese	**1100**	**920**	**1600**	**2500**	**900**	**1700**
Mercury	<1	<1	<1	<1	<1	<1
Nickel	<30	<30	<30	<30	<30	<30
Zinc	<20	**41**	<20	**21**	**68**	**25**
Dissolved Metals (ug/l)						
Arsenic	<4	<4	**4.2**	<4	<4	<4
Cadmium	<5	<5	<5	<5	<5	<5
Chromium	<10	<10	<10	<10	<10	<10
Copper	<30	<30	<30	<30	<30	<30
Iron	**4600**	**18000**	**13000**	**10000**	**22000**	**27000**
Lead	**2.1**	**2.6**	<2	<2	<2	<2
Manganese	**1400**	**1100**	**1800**	**3100**	**1100**	**1800**
Mercury	<1	<1	<1	<1	<1	<1
Nickel	<30	<30	<30	<30	<30	<30
Zinc	<20	<20	<20	<20	**44**	<20

Notes: —— - not analyzed



RZA-AGRA ENGINEERING & ENVIRONMENTAL SERVICES *11335 N.E. 122nd Way* *Suite 100* *Kirkland, Washington* *98034-6918*	W.O. ____ DESIGN SST DRAWN DMW DATE JAN 1994 SCALE N.T.S.	**BELLEFIELD OFFICE PARK** **11201 SOUTHEAST 8th STREET** **BELLEVUE, WASHINGTON** **LOCATION MAP** **FIGURE 1**



Bellefield Office Park
Bellevue, Washington

Well and Well Point Location Map

HEW-020 **FIGURE 2** April 1996

Dalton, Olmsted & Fuglevand, Inc.

site1ud.cdr

ATTACHMENT 1
WELL INSTALLATION FIELD PROCEDURES
AND GEOLOGIC/WELL LOGS
BELLEFIELD OFFICE PARK

The wells were installed by Holt Drilling, Inc. using a Mobile Drill B59 hollow-stem auger drilling rig on March 7 and 8, 1996. Dave Cooper, a geologist representing Dalton, Olmsted & Fuglevand, Inc., observed the drilling and well installation. During drilling, soil samples were obtained using a 2-inch to 3-inch split-spoon drive sampler. The number of blows to drive the samplers a distance of three successive 6-inch intervals were recorded.

Once the final drilling depth was reached, the wells were installed by lowering 2-inch diameter, Schedule 40 PVC screen and riser pipe through the auger center. A sand pack was installed around and above the screeen as the auger was extracted. The well was finished by placing a bentonite chip and concrete seal above the sand pack and installing a flush-to-ground monument.

Dalton, Olmsted & Fuglevand, Inc.
Environmental Consultants

MONITORING WELL NO. DW-1 - DESCRIPTION OF SAMPLES, TESTS, AND INSTALLATION

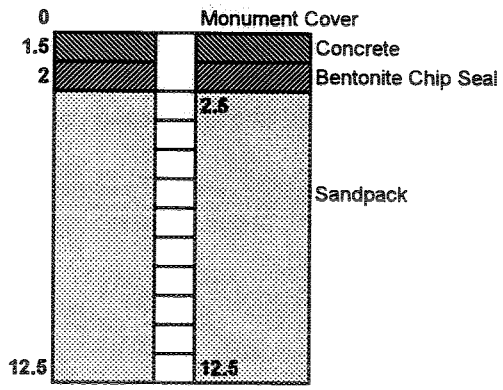
Field Rep:D. Cooper	Location:
Drilling Co.: Holt	Elevation:
Driller: Clyde	Date Completed: 3/8/96
Drill Type: Mobile B59	Weather: clear & warm
Size/Type Casing: 4" I.D. Hollow-Stem Auger	

Spl.No.	Type	Drill Action	Spl Depth (Ft. From - To	Blows/ 6 inches	Spl length	Field Tests	Sample Description
1	2"Drive	Gravely	2.5 - 4	6/6/11	2"	none	Wood chip in shoe; poor recovery
2	3"Drive	Jerky	5 - 6.5	3/3/3	0"	none	No recovery; springy drive motion
3	3"Drive	smooth	7.5 - 9	0/1/1	18"	none	V. soft, brown, fibrous PEAT
4	3"Drive	smooth	10 - 11.5	0/2/3	18"	none	Same
5	3"Drive	smooth	12.5 - 14	0/0/1	18"	none	Same, less fibrous

Depth(ft.) **SUMMARY LOG**

0
Gray, gravely, silty SAND w/ brick
2 fragments (Till Fill)
Wood chip (in sampler drive shoe)
Very soft, brown, fibrous PEAT
14 Less fibrous at 12.5-feet
(Bottom of Boring)

MONITORING WELL DIAGRAM



NOTES:
1. No sheens observed during drilling or sampling.
2. The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

MONITORING WELL INFORMATION

Riser Length: 2'	Diameter: 2-inches
Sandpack: 10-20 Sand (top/bot) 2.5'/12.5'	Seal: Bentonite/Concrete (top/bot) 0/2.5'
Screen: PVC/0.010" length 10' (top/bot) 2.5'/12.5'	Monument: Cast Iron - flush

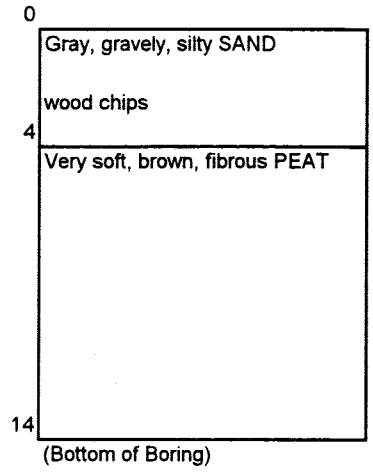
Dalton, Olmsted & Fuglevand, Inc.
Environmental Consultants

MONITORING WELL NO. DW-2 - DESCRIPTION OF SAMPLES, TESTS, AND INSTALLATION

Field Rep:D. Cooper	Location:
Drilling Co.: Holt	Elevation:
Driller: Clyde	Date Completed: 3/8/96
Drill Type: Mobile B59	Weather: clear & warm
Size/Type Casing: 4" I.D. Hollow-Stem Auger	

Spl.No.	Type	Drill Action	Spl Depth (Ft. From - To	Blows/ 6 inches	Spl length	Field Tests	Sample Description
1	3"Drive	Stiff	2.5 - 4	11/17/45	12"	none	Mottled brown, gravel, sand and silt w/ wood chip
2	3"Drive	Gravely/cobble	5 - 6.5	50-4"	2"	none	Fibrous wood - 2" spalls - poor recovery
3	3"Drive	smooth	7.5 - 9	0/1/1	18"	none	V. soft, brown, fibrous PEAT
4	3"Drive	smooth	10 - 11.5	0/0/1	18"	none	Same
5	3"Drive	smooth	12.5 - 14	0/0/1	18"	none	Same

Depth(ft.) **SUMMARY LOG**



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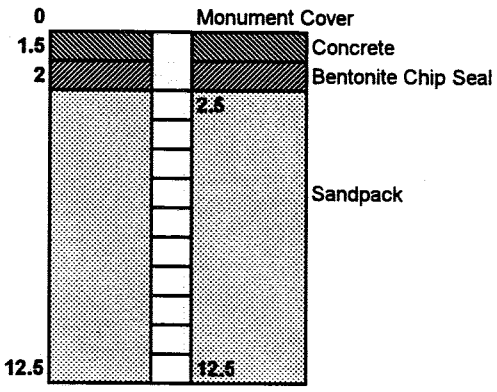


NOTES:
1. No sheens observed during drilling or sampling.
2. The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

MONITORING WELL INFORMATION

Riser Length: 2'	Diameter: 2-inches
Sandpack: 10-20 Sand (top/bot) 2.5'/12.5'	Seal: Bentonite/Concrete (top/bot) 0/2.5'
Screen: PVC/0.010" length 10' (top/bot) 2.5'/12.5'	Monument: Cast Iron - flush

Dalton, Olmsted & Fuglevand, Inc.
Environmental Consultants

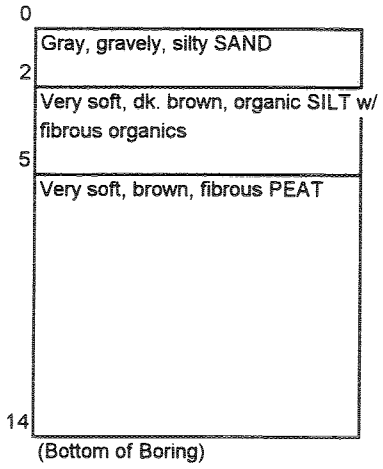
MONITORING WELL NO. DW-3 - DESCRIPTION OF SAMPLES, TESTS, AND INSTALLATION

Field Rep:D. Cooper
Drilling Co.: Holt
Driller: Clyde
Drill Type: Mobile B59
Size/Type Casing: 4" I.D. Hollow-Stem Auger

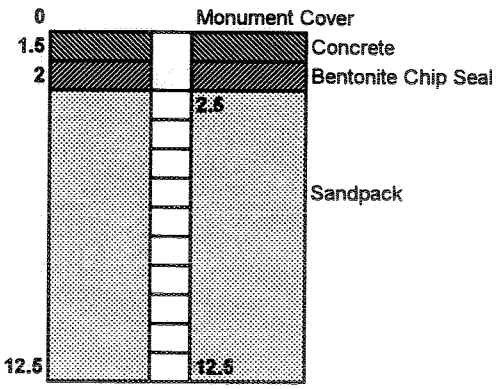
Location:
Elevation:
Date Completed: 3/7/96
Weather: clear & warm

Spl.No.	Type	Drill Action	Spl Depth (Ft. From - To	Blows/ 6 inches	Spl length	Field Tests	Sample Description
1	2"Drive	smooth	2.5 - 4	1-12"	12"	none	V.soft, dk. brown, SILT w/fibrous organics
2	2"Drive	smooth/easy	5 - 6.5	6/0/0	0"	none	No recovery
3	2"Drive	smooth	7.5 - 9	0/1/1	18"	none	V. soft, brown, fibrous PEAT
4	2"Drive	smooth	10 - 11.5	0/0/1	18"	none	Same
5	2"Drive	smooth	12.5 - 14	0/0/1	18"	none	Same

Depth(ft.) **SUMMARY LOG**



MONITORING WELL DIAGRAM



NOTES:
1. No sheens observed during drilling or sampling.
2. The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

MONITORING WELL INFORMATION

Riser Length: 2'	Diameter: 2-inches
Sandpack: 10-20 Sand (top/bot) 2.5'/12.5'	Seal: Bentonite/Concrete (top/bot) 0/2.5'
Screen: PVC/0.010" length 10' (top/bot) 2.5'/12.5'	Monument: Cast Iron - flush

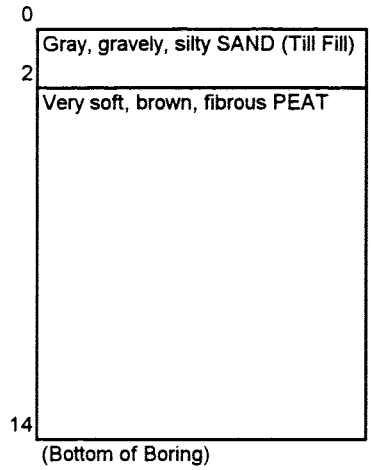
Dalton, Olmsted & Fuglevand, Inc.
Environmental Consultants

MONITORING WELL NO. DW-4 - DESCRIPTION OF SAMPLES, TESTS, AND INSTALLATION

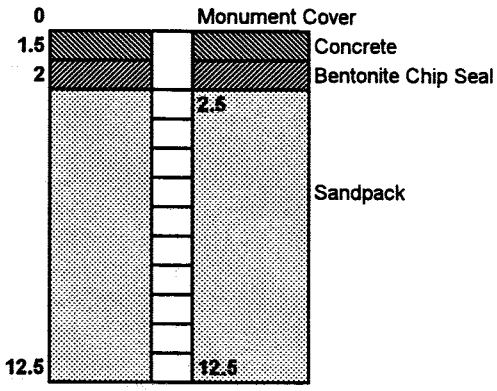
Field Rep:D. Cooper — Location:
Drilling Co.: Holt — Elevation:
Driller: Clyde — Date Completed: 3/7/96
Drill Type: Mobile B59 — Weather: clear & warm
Size/Type Casing: 4" I.D. Hollow-Stem Auger

Spl.No.	Type	Drill Action	Spl Depth (Ft. From - To	Blows/ 6 inches	Spl length	Field Tests	Sample Description
1	2"Drive	gravely	2.5 - 4	0/0/1	1"	none	Wood in shoe, poor recovery
2	2"Drive	jerky action	5 - 6.5	20-0"	1"	none	Wood chip in shoe (log?)
3	2"Drive	smooth	7.5 - 9	15/5/2	12"	none	6" dk.br. wood chip over v.loose, brown fibrous PEAT
4	2"Drive	smooth	10 - 11.5	3/1/1	1"	none	Fibrous peat in shoe
5	2"Drive	jerky	12.5 - 14	15/7/5	1"	none	Dr. brown wood fragments

Depth(ft.) **SUMMARY LOG**



MONITORING WELL DIAGRAM



NOTES:
1. No sheens observed during drilling or sampling.
2. The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

MONITORING WELL INFORMATION

Riser Length: 2'	Diameter: 2-inches
Sandpack: 10-20 Sand (top/bot) 2.5'/12.5'	Seal: Bentonite/Concrete (top/bot) 0/2.5'
Screen: PVC/0.010" length 10' (top/bot) 2.5'/12.5'	Monument: Cast Iron - flush

Dalton, Olmsted & Fuglevand, Inc.
Environmental Consultants

MONITORING WELL NO. DW-5 - DESCRIPTION OF SAMPLES, TESTS, AND INSTALLATION

Field Rep:D. Cooper
Drilling Co.: Holt
Driller: Clyde
Drill Type: Mobile B59
Size/Type Casing: 4" I.D. Hollow-Stem Auger
Location:
Elevation:
Date Completed: 3/8/96
Weather: clear & warm

Spl.No.	Type	Drill Action	Spl Depth (Ft. From - To	Blows/ 6 inches	Spl length	Field Tests	Sample Description
1	3"Drive	easy	2.5 - 4	50-4"	4"	none	Wet, brown, silty SAND w/ wood fragments
2	3"Drive	smooth	5 - 6.5	50-3"	3"	none	Black, fibrous wood in silty SAND matrix (sl. sheen)
3	3"Drive	smooth	7.5 - 9	50-3"	0"	none	No recovery; spongy blows likely wood fiber
4	3"Drive	smooth	10 - 11.5	50-5"	5"	none	Black, fibrous wood in silty SAND matrix; brick frags.
5	3"Drive	smooth	12.5 - 14	7/18/30	—	none	Same (plastic cup debris in sampler)

Depth(ft.) **SUMMARY LOG**

0
Dk. brown to black, silty SAND w/ wood frags and black coal-like frags. (no sheen)
4
Black, wood fibers in silty SAND matrix, (plastic sheeting and slight sheen at 5'-6')

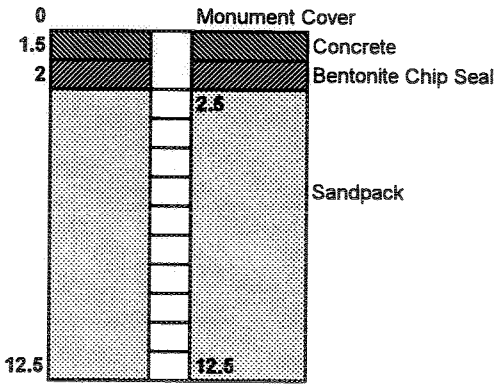
- no sheens below 6'
- brick fragments

- plastic cup in sampler

14
(Bottom of Boring)

NOTES:
1. The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

MONITORING WELL DIAGRAM



MONITORING WELL INFORMATION

Riser Length: 2'	Diameter: 2-inches
Sandpack: 10-20 Sand (top/bot) 2.5'/12.5'	Seal: Bentonite/Concrete (top/bot) 0/2.5'
Screen: PVC/0.010" length 10' (top/bot) 2.5'/12.5'	Monument: Cast Iron - flush

Dalton, Olmsted & Fuglevand, Inc.
Environmental Consultants

MONITORING WELL NO. DW-6 - DESCRIPTION OF SAMPLES, TESTS, AND INSTALLATION

Field Rep:D. Cooper	Location:
Drilling Co.: Holt	Elevation:
Driller: Clyde	Date Completed: 3/8/96
Drill Type: Mobile B59	Weather: clear & warm
Size/Type Casing: 4" I.D. Hollow-Stem Auger	

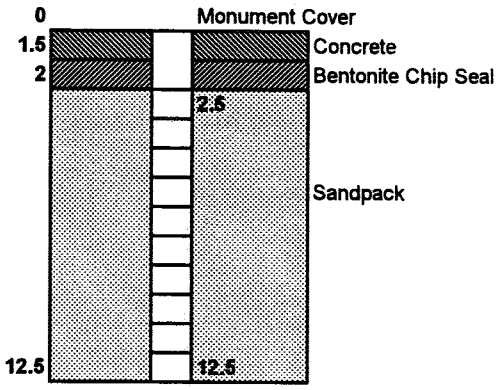
Spl.No.	Type	Drill Action	Spl Depth (Ft. From - To	Blows/ 6 inches	Spl length	Field Tests	Sample Description
1	3"Drive	gravely	2.5 - 4	50-6"	6"	none	Wet, mottled gray, gravely, silty SAND
2	3"Drive	hard, gravely	5 - 6.5	10/11/22	12"	none	Black,brown, wood fibers and sandy GRAVEL
3	3"Drive	smoother	7.5 - 9	17/25/42	6"	none	Black-brown, wood fibers in silty SAND, brick frags.
4	3"Drive	smooth	10 - 11.5	6/5/7	0"	none	No recovery
5	3"Drive	smooth	12.5 - 14	50-2"	2"	none	Dk. brown, wood fibers in silty SAND, brick frags.

Depth(ft.) **SUMMARY LOG**

0
Gray, gravely, silty SAND (no sheen)
4
Black to brown, wood fibers and sandy GRAVEL w/ silt and brick fragments (slight sheen at 5' to 6')
7
Black to brown, wood fiber in black silty SAND matrix w/ brick fragments (no sheen)
14
(Bottom of Boring)

NOTES:
(1) The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

MONITORING WELL DIAGRAM



MONITORING WELL INFORMATION

Riser Length: 2'		Diameter: 2-inches	
Sandpack: 10-20 Sand		Seal:	Bentonite/Concrete
	(top/bot) 2.5'/12.5'		(top/bot) 0/2.5'
Screen:	PVC/0.010"	Monument:	Cast Iron - flush
	length 10'		
	(top/bot) 2.5'/12.5'		

ATTACHMENT 2
GROUND-WATER SAMPLING PROCEDURES
AND LABORATORY DATA SHEETS
BELLEFIELD OFFICE PARK

The wells were sampled on March 15, 1996 using low-flow sampling techniques. Purging and sampling was conducted with a peristaltic pump at an approximate discharge rate of 0.5 liters per minute. All tubing was replaced prior to sampling each well. During sampling, temperature, pH, electrical conductivity and turbidity were measured in the field. Samples were obtained after the field parameters stabilzed to within 10%. Between 1 and 9 casing volumes were removed prior to sampling. The field data for samples submitted to the laboratory are summarized in Table 2-1 below:

TABLE 2-1 - Summary of Field Measurements

Well	Volume Removed (liters)	Temp. (C)	pH	Conductivity (uS)	Turbidity (NTU)
DW-1	1.3	13.6	6.3	607	3.1
DW-2	8.9	11.1	6.2	440	8.5
DW-3	1.1	11.1	6.2	507	1.6
DW-4	1.1	10.8	6.4	648	4.9
DW-5	1.1	9.5	6.4	450	3.4
DW-6	3.9	9.9	6.4	694	4.8

Samples for dissolved metals analysis were passed through an in-line 0.45 micron filter (GWV High Capacity In-line Groundwater Sampling Capsule by Gelman Sciences) using the peristaltic pump. Samples were placed in jars provided by the receiving laboratory (North Creek Analytical - Bothell, WA). After each container was filled, it was placed into chilled coolers and were transported to the laboratory the same day using standard chain-of-custody procedures.

Samples were analyzed using standard EPA or Washington State Methods. The laboratory data sheets are presented with this attachment.

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Environmental Laboratory Services

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Dalton, Olmsted & Fuglevand, Inc.	Project Name:	Bellefield Office Park	
11711 N. Creek Parkway, #D-101	Client Project :	Not Provided	
Bothell, WA 98011			Received: Apr 5, 1996
Attention: Matt Dalton	NCA Project #:	B604082	Reported: Apr 8, 1996

PROJECT SUMMARY PAGE

Laboratory Sample Number	Sample Description	Sample Matrix	Date Sampled
B604082-01	HARDNESS #1	Water	4/5/96

The results in this report apply to the samples analyzed in accordance with the chain of custody document.
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NORTH CREEK ANALYTICAL Inc.

Laura Dutton

Laura Dutton
Project Manager

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Dalton, Olmsted & Fuglevand, Inc.	Client Project ID:	Bellefield Office Park	Sampled:	Apr 5, 1996
11711 N. Creek Parkway, #D-101	Sample Matrix:	Water	Received:	Apr 5, 1996
Bothell, WA 98011	Analysis Method:	SM 2340-B/6010	Digested:	Apr 6, 1996
Attention: Matt Dalton	First Sample #:	B604082-01	Analyzed:	Apr 8, 1996
			Reported:	Apr 8, 1996

LABORATORY ANALYSIS FOR: HARDNESS

Sample Number	Sample Description	Reporting Limit mg/L (ppm)	Sample Result mg/L (ppm)
B604082-01	HARDNESS #1	1.0	83
BLK040696	Method Blank	1.0	N.D.

Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Laura Dutton

Laura Dutton
Project Manager

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Dalton, Olmsted & Fuglevand, Inc.
11711 N. Creek Parkway, #D-101
Bothell, WA 98011
Attention: Matt Dalton

Client Project ID: Bellefield Office Park
Sample Matrix : Water
Units: mg/L (ppm)

Digested: Apr 6, 1996
Reported: Apr 8, 1996

QUALITY CONTROL DATA REPORT

ANALYTE

Hardness

EPA Method: SM 2340-B/6010
Date Analyzed: Apr 8, 1996

ACCURACY ASSESSMENT

LCS Spike Conc. Added:	6.62
LCS Spike Result:	8.05
LCS Spike % Recovery:	122
Upper Control Limit:	125
Lower Control Limit:	75
Matrix Spike Sample #:	B604080-01
MS/MSD % Recovery:	Q-3/Q-3

PRECISION ASSESSMENT

Sample #:	B604080-01
Original:	720
Duplicate:	710
Relative % Difference:	1.4

NORTH CREEK ANALYTICAL Inc.

Laura Dutton

Laura Dutton
Project Manager

Please Note:
Q-3 = The Spike Recovery for this QC sample cannot be accurately calculated due to high concentration of analyte in the sample.

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481-9200 FAX 485-2992
East 11115 Montgomery, Suite B, Spokane, WA 99206-4779 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

CHAIN OF CUSTODY REPORT

Work Order # B604082

REPORT TO: Matt Dalton	INVOICE TO:
ATTENTION: DOF	ATTENTION: DOF Attn: M Dalton
ADDRESS:	ADDRESS:
PHONE: 486-7905 FAX:	P.O. NUMBER: NCA QUOTE #:
PROJECT NAME: Bellefield Office Park	
PROJECT NUMBER:	
SAMPLED BY: T. Olmsted	

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: [10] Standard | 7 | 5 | 4 | 3 | 2 | 1 | Same Day

Fuels & Hydrocarbon Analyses: [5] Standard | 3-4 | 2 | 1 | Same Day

OTHER Specify:

* Turnaround Requests less than standard may incur Rush Charges.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Analysis Request: Hardness CaCO3	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1.	Hardness #1	4/5/96 1030	B603082-01	X	W	1	
2.							
3.							
4.							
5.							
6.							
7.							
8.							
9.							
10.							

RELINQUISHED BY (Signature): T. Olmsted	DATE: 4/5/96
PRINT NAME: T. Olmsted FIRM: DOF	TIME: 1030
RELINQUISHED BY (Signature):	DATE:
PRINT NAME: FIRM:	TIME:

RECEIVED BY (Signature): Laura Dutton	DATE: 4/5
PRINT NAME: Laura Dutton FIRM: NCA	TIME: 1038
RECEIVED BY (Signature):	DATE:
PRINT NAME: FIRM:	TIME:

ADDITIONAL REMARKS:

PAGE 1 OF 1

NORTH CREEK ANALYTICAL
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Dalton, Olmsted & Fuglevand, Inc.	Project Name:	Bellefield Office Park	
11711 N. Creek Parkway, #D-101	Client Project :	#HEW-020	
Bothell, WA 98011			Received: Mar 18, 1996
Attention: Matt Dalton	NCA Project #:	B603293	Reported: Apr 2, 1996

PROJECT SUMMARY PAGE

Laboratory Sample Number	Sample Description	Sample Matrix	Date Sampled
B603293-01	DW-1	Water	3/15/96
B603293-02	DW-2	Water	3/15/96
B603293-03	DW-3	Water	3/15/96
B603293-04	DW-4	Water	3/15/96
B603293-05	DW-5	Water	3/15/96
B603293-06	DW-6	Water	3/15/96
B603293-07	DUPL-1 (DW-3) MEO	Water	3/15/96

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NORTH CREEK ANALYTICAL Inc.

Laura Dutton
Project Manager

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Dalton, Olmsted & Fuglevand, Inc.	Client Project ID:	Bellefield Office Park	Sampled:	Mar 15, 1996
11711 N. Creek Parkway, #D-101	Sample Matrix:	Water	Received:	Mar 18, 1996
Bothell, WA 98011	Analysis Method:	WTPH-D Extended	Extracted:	Mar 18, 1996
Attention: Matt Dalton	First Sample #:	B603293-01	Analyzed:	Mar 21-22, 1996
			Reported:	Mar 22, 1996

TOTAL PETROLEUM HYDROCARBONS - DIESEL RANGE EXTENDED

Sample Number	Sample Description	Diesel Result mg/L (ppm)	Heavy Oil Result mg/L (ppm)	Surrogate Recovery %
B603293-01	DW-1	N.D.	N.D.	90, C-3
B603293-02	DW-2	N.D.	N.D.	85, C-3
B603293-03	DW-3	N.D.	N.D.	78, C-3
B603293-04	DW-4	N.D.	N.D.	76, C-3
B603293-05	DW-5	N.D.	N.D.	77, C-3
B603293-06	DW-6	N.D.	N.D.	94, C-3
B603293-07	DUPL-1	N.D.	N.D.	66, C-3
BLK031896	Method Blank	N.D.	N.D.	82, C-3
Reporting Limit:		**0.25**	**0.75**	

2-Fluorobiphenyl surrogate recovery control limits are 50 - 150%.
Extractable Hydrocarbons are quantitated as Diesel Range Organics (C12 - C24) and Heavy Oil Range Organics (>C24).
Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Laura Dutton

Laura Dutton
Project Manager

Please Note:
C-3 = To reduce matrix interference, the sample extract has undergone silica-gel clean-up, Method 3630, which is specific to polar compound contamination.

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Dalton, Olmsted & Fuglevand, Inc.
11711 N. Creek Parkway, #D-101
Bothell, WA 98011
Attention: Matt Dalton

Client Project ID: Bellefield Office Park
Sample Matrix: Water
Analysis Method: WTPH-D
Units: mg/L (ppm)

Extracted: Mar 18, 1996
Analyzed: Mar 21, 1996
Reported: Mar 22, 1996

HYDROCARBON QUALITY CONTROL DATA REPORT

ACCURACY ASSESSMENT
Laboratory Control Sample

Diesel, C-3

Spike Conc. Added:	2.04
Spike Result:	1.78
% Recovery:	87
Upper Control Limit %:	121
Lower Control Limit %:	54

PRECISION ASSESSMENT
Sample Duplicate

Diesel Range Organics, C-3

Sample Number:	B603293-01
Original Result:	N.D.
Duplicate Result:	N.D.
Relative % Difference:	Relative Percent Difference values are not reported at sample concentration levels less than 10 times the Reporting Limit.
Maximum RPD:	44

C-3 = To reduce matrix interference, the sample extract has undergone a silica-gel cleanup, Method 3630, which is specific to non-polar compound contamination.

NORTH CREEK ANALYTICAL Inc.

Laura Dutton

Laura Dutton
Project Manager

% Recovery: $\frac{\text{Spike Result}}{\text{Spike Concentration Added}} \times 100$

Relative % Difference: $\frac{\text{Original Result - Duplicate Result}}{(\text{Original Result + Duplicate Result}) / 2} \times 100$

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Dalton, Olmsted & Fuglevand, Inc.	Client Project ID:	Bellefield Office Park	Sampled:	Mar 15, 1996
11711 N. Creek Parkway, #D-101	Sample Descript:	Water, DW-1	Received:	Mar 18, 1996
Bothell, WA 98011	Analysis Method:	EPA 8080	Extracted:	Mar 20, 1996
Attention: Matt Dalton	Sample Number:	B603293-01 C-1, C-2	Analyzed:	Mar 22, 1996
			Reported:	Apr 1, 1996

POLYCHLORINATED BIPHENYLS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
PCB 1016	0.10	N.D.
PCB 1221	0.10	N.D.
PCB 1232	0.10	N.D.
PCB 1242	0.10	N.D.
PCB 1248	0.10	N.D.
PCB 1254	0.10	N.D.
PCB 1260	0.10	N.D.

Tetrachloro-m-xylene Surrogate Recovery, %: 69
Surrogate Recovery Control Limits are 24 - 118 %.
Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Laura Dutton

Laura Dutton
Project Manager

Please Note:
C-1 = To reduce matrix interference, the sample extract has undergone Sulfuric acid clean-up, Method 3665, which is specific to hydrocarbon contamination.
C-2 = To reduce matrix interference, the sample extract has undergone copper clean-up, Method 3660, which is specific to sulfur contamination.

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Dalton, Olmsted & Fuglevand, Inc.	Client Project ID:	Bellefield Office Park	Sampled:	Mar 15, 1996
11711 N. Creek Parkway, #D-101	Sample Descript:	Water, DW-2	Received:	Mar 18, 1996
Bothell, WA 98011	Analysis Method:	EPA 8080	Extracted:	Mar 20, 1996
Attention: Matt Dalton	Sample Number:	B603293-02 C-1, C-2	Analyzed:	Mar 22, 1996
			Reported:	Apr 1, 1996

POLYCHLORINATED BIPHENYLS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
PCB 1016	0.10	N.D.
PCB 1221	0.10	N.D.
PCB 1232	0.10	N.D.
PCB 1242	0.10	N.D.
PCB 1248	0.10	N.D.
PCB 1254	0.10	N.D.
PCB 1260	0.10	N.D.

Tetrachloro-m-xylene Surrogate Recovery, %: 59
Surrogate Recovery Control Limits are 24 - 118 %.
Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Laura Dutton

Laura Dutton
Project Manager

Please Note:
C-1 = To reduce matrix interference, the sample extract has undergone Sulfuric acid clean-up, Method 3665, which is specific to hydrocarbon contamination.
C-2 = To reduce matrix interference, the sample extract has undergone copper clean-up, Method 3660, which is specific to sulfur contamination.

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Dalton, Olmsted & Fuglevand, Inc.	Client Project ID:	Bellefield Office Park	Sampled:	Mar 15, 1996
11711 N. Creek Parkway, #D-101	Sample Descript:	Water, DW-3	Received:	Mar 18, 1996
Bothell, WA 98011	Analysis Method:	EPA 8080	Extracted:	Mar 20, 1996
Attention: Matt Dalton	Sample Number:	B603293-03 C-1, C-2	Analyzed:	Mar 22, 1996
			Reported:	Apr 1, 1996

POLYCHLORINATED BIPHENYLS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
PCB 1016	0.10	N.D.
PCB 1221	0.10	N.D.
PCB 1232	0.10	N.D.
PCB 1242	0.10	N.D.
PCB 1248	0.10	N.D.
PCB 1254	0.10	N.D.
PCB 1260	0.10	N.D.

Tetrachloro-m-xylene Surrogate Recovery, %: 59
Surrogate Recovery Control Limits are 24 - 118 %.
Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Laura Dutton

Laura Dutton
Project Manager

Please Note:
C-1 = To reduce matrix interference, the sample extract has undergone Sulfuric acid clean-up, Method 3665, which is specific to hydrocarbon contamination.
C-2 = To reduce matrix interference, the sample extract has undergone copper clean-up, Method 3660, which is specific to sulfur contamination.

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Dalton, Olmsted & Fuglevand, Inc.	Client Project ID:	Bellefield Office Park	Sampled:	Mar 15, 1996
11711 N. Creek Parkway, #D-101	Sample Descript:	Water, DW-4	Received:	Mar 18, 1996
Bothell, WA 98011	Analysis Method:	EPA 8080	Extracted:	Mar 20, 1996
Attention: Matt Dalton	Sample Number:	B603293-04 C-1, C-2	Analyzed:	Mar 22, 1996
			Reported:	Apr 1, 1996

POLYCHLORINATED BIPHENYLS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
PCB 1016	0.10	N.D.
PCB 1221	0.10	N.D.
PCB 1232	0.10	N.D.
PCB 1242	0.10	N.D.
PCB 1248	0.10	N.D.
PCB 1254	0.10	N.D.
PCB 1260	0.10	N.D.

Tetrachloro-m-xylene Surrogate Recovery, %: 57
Surrogate Recovery Control Limits are 24 - 118 %.
Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Laura Dutton

Laura Dutton
Project Manager

Please Note:
C-1 = To reduce matrix interference, the sample extract has undergone Sulfuric acid clean-up, Method 3665, which is specific to hydrocarbon contamination.
C-2 = To reduce matrix interference, the sample extract has undergone copper clean-up, Method 3660, which is specific to sulfur contamination.

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Dalton, Olmsted & Fuglevand, Inc.	Client Project ID:	Bellefield Office Park	Sampled:	Mar 15, 1996
11711 N. Creek Parkway, #D-101	Sample Descript:	Water, DW-5	Received:	Mar 18, 1996
Bothell, WA 98011	Analysis Method:	EPA 8080	Extracted:	Mar 20, 1996
Attention: Matt Dalton	Sample Number:	B603293-05 C-1, C-2	Analyzed:	Mar 22, 1996
			Reported:	Apr 1, 1996

POLYCHLORINATED BIPHENYLS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
PCB 1016	0.10	N.D.
PCB 1221	0.10	N.D.
PCB 1232	0.10	N.D.
PCB 1242	0.10	N.D.
PCB 1248	0.10	N.D.
PCB 1254	0.10	N.D.
PCB 1260	0.10	N.D.

Tetrachloro-m-xylene Surrogate Recovery, %: 64
Surrogate Recovery Control Limits are 24 - 118 %.
Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Laura Dutton

Laura Dutton
Project Manager

Please Note:
C-1 = To reduce matrix interference, the sample extract has undergone Sulfuric acid clean-up, Method 3665, which is specific to hydrocarbon contamination.
C-2 = To reduce matrix interference, the sample extract has undergone copper clean-up, Method 3660, which is specific to sulfur contamination.

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Dalton, Olmsted & Fuglevand, Inc.	Client Project ID:	Bellefield Office Park	Sampled:	Mar 15, 1996
11711 N. Creek Parkway, #D-101	Sample Descript:	Water, DW-6	Received:	Mar 18, 1996
Bothell, WA 98011	Analysis Method:	EPA 8080	Extracted:	Mar 20, 1996
Attention: Matt Dalton	Sample Number:	B603293-06 C-1, C-2	Analyzed:	Mar 22, 1996
			Reported:	Apr 1, 1996

POLYCHLORINATED BIPHENYLS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
PCB 1016	0.10	N.D.
PCB 1221	0.10	N.D.
PCB 1232	0.10	N.D.
PCB 1242	0.10	N.D.
PCB 1248	0.10	N.D.
PCB 1254	0.10	N.D.
PCB 1260	0.10	N.D.

Tetrachloro-m-xylene Surrogate Recovery, %: 63
Surrogate Recovery Control Limits are 24 - 118 %.
Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Laura Dutton

Laura Dutton
Project Manager

Please Note:
C-1 = To reduce matrix interference, the sample extract has undergone Sulfuric acid clean-up, Method 3665, which is specific to hydrocarbon contamination.
C-2 = To reduce matrix interference, the sample extract has undergone copper clean-up, Method 3660, which is specific to sulfur contamination.

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Dalton, Olmsted & Fuglevand, Inc.	Client Project ID:	Bellefield Office Park	Sampled:	Mar 15, 1996
11711 N. Creek Parkway, #D-101	Sample Descript:	Water, DUPL-1	Received:	Mar 18, 1996
Bothell, WA 98011	Analysis Method:	EPA 8080	Extracted:	Mar 20, 1996
Attention: Matt Dalton	Sample Number:	B603293-07 C-1, C-2	Analyzed:	Mar 22, 1996
			Reported:	Apr 1, 1996

POLYCHLORINATED BIPHENYLS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
PCB 1016	0.10	N.D.
PCB 1221	0.10	N.D.
PCB 1232	0.10	N.D.
PCB 1242	0.10	N.D.
PCB 1248	0.10	N.D.
PCB 1254	0.10	N.D.
PCB 1260	0.10	N.D.

Tetrachloro-m-xylene Surrogate Recovery, %: 64
Surrogate Recovery Control Limits are 24 - 118 %.
Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Laura Dutton

Laura Dutton
Project Manager

Please Note:
C-1 = To reduce matrix interference, the sample extract has undergone Sulfuric acid clean-up, Method 3665, which is specific to hydrocarbon contamination.
C-2 = To reduce matrix interference, the sample extract has undergone copper clean-up, Method 3660, which is specific to sulfur contamination.

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Dalton, Olmsted & Fuglevand, Inc.
11711 N. Creek Parkway, #D-101
Bothell, WA 98011
Attention: Matt Dalton

Client Project ID: Bellefield Office Park
Sample Descript: Method Blank
Analysis Method: EPA 8080
Sample Number: BLK032096 C-1, C-2

Extracted: Mar 20, 1996
Analyzed: Mar 22, 1996
Reported: Apr 1, 1996

POLYCHLORINATED BIPHENYLS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
PCB 1016	0.10	N.D.
PCB 1221	0.10	N.D.
PCB 1232	0.10	N.D.
PCB 1242	0.10	N.D.
PCB 1248	0.10	N.D.
PCB 1254	0.10	N.D.
PCB 1260	0.10	N.D.

Tetrachloro-m-xylene Surrogate Recovery, %: 79
Surrogate Recovery Control Limits are 24 - 118 %.
Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Laura Dutton

Laura Dutton
Project Manager

Please Note:
C-1 = To reduce matrix interference, the sample extract has undergone Sulfuric acid clean-up, Method 3665, which is specific to hydrocarbon contamination.
C-2 = To reduce matrix interference, the sample extract has undergone copper clean-up, Method 3660, which is specific to sulfur contamination.

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Dalton, Olmsted & Fuglevand, Inc.
11711 N. Creek Parkway, #D-101
Bothell, WA 98011
Attention: Matt Dalton

Client Project ID: Bellefield Office Park
Sample Matrix: Water
Analysis Method: EPA 8080
Units: µg/L (ppb)
QC Sample #: BLK032096 C-1, C-2

Extracted: Mar 20, 1996
Analyzed: Mar 22, 1996
Reported: Apr 1, 1996

BLANK SPIKE QUALITY CONTROL DATA REPORT

ANALYTE	Aroclor 1260
Sample Result:	N.D.
Spike Conc. Added:	10.0
Spike Result:	7.13
Spike % Recovery:	71%
Spike Dup. Result:	7.39
Spike Duplicate % Recovery:	74%
Upper Control Limit %:	125
Lower Control Limit %:	35
Relative % Difference:	3.6%
Maximum RPD:	24

NORTH CREEK ANALYTICAL Inc.

Laura Dutton

Laura Dutton
Project Manager

Please Note:
C-1 = To reduce matrix interference, the sample extract has undergone Sulfuric acid clean-up, Method 3665, which is specific to hydrocarbon contamination.
C-2 = To reduce matrix interference, the sample extract has undergone copper clean-up, Method 3660, which is specific to sulfur contamination.

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Dalton, Olmsted & Fuglevand, Inc.	Client Project ID:	Bellefield Office Park	Sampled:	Mar 15, 1996
11711 N. Creek Parkway, #D-101	Sample Descript:	Water, DW-5	Received:	Mar 18, 1996
Bothell, WA 98011	Analysis Method:	EPA 8310	Extracted:	Mar 22, 1996
Attention: Matt Dalton	Sample Number:	B603293-05	Analyzed:	Mar 25, 1996
			Reported:	Apr 2, 1996

POLYNUCLEAR AROMATIC HYDROCARBONS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Acenaphthene	**1.0**	**1.1**
Acenaphthylene	1.0	N.D.
Anthracene	1.0	N.D.
Benzo (a) anthracene	0.10	N.D.
Benzo (a) pyrene	0.10	N.D.
Benzo (b) fluoranthene	0.10	N.D.
Benzo (ghi) perylene	0.10	N.D.
Benzo (k) fluoranthene	0.10	N.D.
Chrysene	**0.10**	**0.20**
Dibenzo (a,h) anthracene	0.10	N.D.
Fluoranthene	0.10	N.D.
Fluorene	1.0	N.D.
Indeno (1,2,3-cd) pyrene	0.10	N.D.
Naphthalene	1.0	N.D.
Phenanthrene	1.0	N.D.
Pyrene	**0.10**	**0.11**

2-Fluorobiphenyl Surrogate Recovery, %: 87
Surrogate Recovery Control Limits are 28 - 118 %.
Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Laura Dutton

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Project Manager

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Dalton, Olmsted & Fuglevand, Inc.	Client Project ID:	Bellefield Office Park		
11711 N. Creek Parkway, #D-101	Sample Descript:	Method Blank		
Bothell, WA 98011	Analysis Method:	EPA 8310	Extracted:	Mar 22, 1996
Attention: Matt Dalton	Sample Number:	BLK032296	Analyzed:	Mar 25, 1996
			Reported:	Apr 2, 1996

POLYNUCLEAR AROMATIC HYDROCARBONS

Analyte	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Acenaphthene	1.0	N.D.
Acenaphthylene	1.0	N.D.
Anthracene	1.0	N.D.
Benzo (a) anthracene	0.10	N.D.
Benzo (a) pyrene	0.10	N.D.
Benzo (b) fluoranthene	0.10	N.D.
Benzo (ghi) perylene	0.10	N.D.
Benzo (k) fluoranthene	0.10	N.D.
Chrysene	0.10	N.D.
Dibenzo (a,h) anthracene	0.10	N.D.
Fluoranthene	0.10	N.D.
Fluorene	1.0	N.D.
Indeno (1,2,3-cd) pyrene	0.10	N.D.
Naphthalene	1.0	N.D.
Phenanthrene	1.0	N.D.
Pyrene	0.10	N.D.

2-Fluorobiphenyl Surrogate Recovery, %: 80
Surrogate Recovery Control Limits are 28 - 118 %.
Analytes reported as N.D. were not detected above the stated Reporting Limit.

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Laura Dutton

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Dalton, Olmsted & Fuglevand, Inc.
11711 N. Creek Parkway, #D-101
Bothell, WA 98011
Attention: Matt Dalton

Client Project ID: Bellefield Office Park
Sample Matrix: Water
Analysis Method: EPA 8310
Units: µg/L (ppb)
QC Sample #: BLK032296

Extracted: Mar 22, 1996
Analyzed: Mar 25, 1996
Reported: Apr 2, 1996

BLANK SPIKE QUALITY CONTROL DATA REPORT

ANALYTE	Fluorene	Indeno(1,2,3-cd) pyrene	Chrysene
Sample Result:	N.D.	N.D.	N.D.
Spike Conc. Added:	10.0	10.0	10.0
Spike Result:	7.88	10.2	7.70
Spike % Recovery:	79%	102%	77%
Spike Dup. Result:	8.67	11.0	8.70
Spike Duplicate % Recovery:	87%	110%	87%
Upper Control Limit %:	124	137	113
Lower Control Limit %:	19	15	16
Relative % Difference:	10%	8%	11%
Maximum RPD:	39	28	27

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$$\%\ \text{Recovery:} = \frac{\text{Spike Result - Sample Result}}{\text{Spike Conc. Added}} \times 100$$

$$\text{Relative \% Difference:} = \frac{\text{Spike Result - Spike Dup. Result}}{\text{(Spike Result + Spike Dup. Result) / 2}} \times 100$$

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Dalton, Olmsted & Fuglevand, Inc.
11711 N. Creek Parkway, #D-101
Bothell, WA 98011
Attention: Matt Dalton

Client Project ID: Bellefield Office Park
Sample Descript: DW-1
Sample Matrix: Water
Sample Number: B603293-01

Sampled: Mar 15, 1996
Received: Mar 18, 1996
Digested: Mar 22, 1996
Analyzed: Mar 22-27, 1996
Reported: Apr 1, 1996

TOTAL METALS ANALYSIS

Analyte	EPA Method	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Arsenic	7060	4.0	N.D.
Cadmium	6010	5.0	N.D.
Chromium	6010	10	N.D.
Copper	6010	30	N.D.
Iron	**6010**	**150**	**4,000**
Lead	**7421**	**2.0**	**7.0**
Manganese	**6010**	**5.0**	**1,100**
Mercury	7470 Modified	1.0	N.D.
Nickel	6010	30	N.D.
Zinc	6010	20	N.D.

Analytes reported as N.D. were not detected above the stated Reporting Limit.

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Dalton, Olmsted & Fuglevand, Inc.	Client Project ID:	Bellefield Office Park	Sampled:	Mar 15, 1996
11711 N. Creek Parkway, #D-101	Sample Descript:	DW-2	Received:	Mar 18, 1996
Bothell, WA 98011	Sample Matrix:	Water	Digested:	Mar 22, 1996
Attention: Matt Dalton	Sample Number:	B603293-02	Analyzed:	Mar 22-27, 1996
			Reported:	Apr 1, 1996

TOTAL METALS ANALYSIS

Analyte	EPA Method	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Arsenic	7060	4.0	N.D.
Cadmium	6010	5.0	N.D.
Chromium	6010	10	N.D.
Copper	6010	30	N.D.
Iron	**6010**	**150**	**19,000**
Lead	**7421**	**2.0**	**14**
Manganese	**6010**	**5.0**	**920**
Mercury	7470 Modified	1.0	N.D.
Nickel	6010	30	N.D.
Zinc	**6010**	**20**	**41**

Analytes reported as N.D. were not detected above the stated Reporting Limit.

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Dalton, Olmsted & Fuglevand, Inc.
11711 N. Creek Parkway, #D-101
Bothell, WA 98011
Attention: Matt Dalton

Client Project ID: Bellefield Office Park
Sample Descript: DW-3
Sample Matrix: Water
Sample Number: B603293-03

Sampled: Mar 15, 1996
Received: Mar 18, 1996
Digested: Mar 22, 1996
Analyzed: Mar 22-27, 1996
Reported: Apr 1, 1996

TOTAL METALS ANALYSIS

Analyte	EPA Method	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Arsenic	7060	4.0	N.D.
Cadmium	6010	5.0	N.D.
Chromium	6010	10	N.D.
Copper	6010	30	N.D.
Iron	**6010**	**150**	**13,000**
Lead	**7421**	**2.0**	**3.4**
Manganese	**6010**	**5.0**	**1,600**
Mercury	7470 Modified	1.0	N.D.
Nickel	6010	30	N.D.
Zinc	6010	20	N.D.

Analytes reported as N.D. were not detected above the stated Reporting Limit.

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Laura Dutton

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Dalton, Olmsted & Fuglevand, Inc.
11711 N. Creek Parkway, #D-101
Bothell, WA 98011
Attention: Matt Dalton

Client Project ID: Bellefield Office Park
Sample Descript: DW-4
Sample Matrix: Water
Sample Number: B603293-04

Sampled: Mar 15, 1996
Received: Mar 18, 1996
Digested: Mar 22, 1996
Analyzed: Mar 22-27, 1996
Reported: Apr 1, 1996

TOTAL METALS ANALYSIS

Analyte	EPA Method	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Arsenic	7060	4.0	N.D.
Cadmium	6010	5.0	N.D.
Chromium	6010	10	N.D.
Copper	6010	30	N.D.
Iron	**6010**	**150**	**9,600**
Lead	7421	2.0	N.D.
Manganese	**6010**	**5.0**	**2,500**
Mercury	7470 Modified	1.0	N.D.
Nickel	6010	30	N.D.
Zinc	**6010**	**20**	**21**

Analytes reported as N.D. were not detected above the stated Reporting Limit.

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Dalton, Olmsted & Fuglevand, Inc.	Client Project ID:	Bellefield Office Park	Sampled:	Mar 15, 1996
11711 N. Creek Parkway, #D-101	Sample Descript:	DW-5	Received:	Mar 18, 1996
Bothell, WA 98011	Sample Matrix:	Water	Digested:	Mar 22, 1996
Attention: Matt Dalton	Sample Number:	B603293-05	Analyzed:	Mar 22-27, 1996
			Reported:	Apr 1, 1996

TOTAL METALS ANALYSIS

Analyte	EPA Method	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Arsenic	7060	4.0	N.D.
Cadmium	6010	5.0	N.D.
Chromium	6010	10	N.D.
Copper	6010	30	N.D.
Iron	**6010**	**150**	**23,000**
Lead	**7421**	**2.0**	**5.8**
Manganese	**6010**	**5.0**	**900**
Mercury	7470 Modified	1.0	N.D.
Nickel	6010	30	N.D.
Zinc	**6010**	**20**	**68**

Analytes reported as N.D. were not detected above the stated Reporting Limit.

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Laura Dutton

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Dalton, Olmsted & Fuglevand, Inc.
11711 N. Creek Parkway, #D-101
Bothell, WA 98011
Attention: Matt Dalton

Client Project ID: Bellefield Office Park
Sample Descript: DW-6
Sample Matrix: Water
Sample Number: B603293-06

Sampled: Mar 15, 1996
Received: Mar 18, 1996
Digested: Mar 22, 1996
Analyzed: Mar 22-27, 1996
Reported: Apr 1, 1996

TOTAL METALS ANALYSIS

Analyte	EPA Method	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Arsenic	7060	4.0	N.D.
Cadmium	6010	5.0	N.D.
Chromium	6010	10	N.D.
Copper	6010	30	N.D.
Iron	**6010**	**150**	**29,000**
Lead	**7421**	**2.0**	**5.4**
Manganese	**6010**	**5.0**	**1,700**
Mercury	7470 Modified	1.0	N.D.
Nickel	6010	30	N.D.
Zinc	**6010**	**20**	**25**

Analytes reported as N.D. were not detected above the stated Reporting Limit.

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Laura Dutton

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Dalton, Olmsted & Fuglevand, Inc.
11711 N. Creek Parkway, #D-101
Bothell, WA 98011
Attention: Matt Dalton

Client Project ID: Bellefield Office Park
Sample Descript: DUPL-1
Sample Matrix: Water
Sample Number: B603293-07

Sampled: Mar 15, 1996
Received: Mar 18, 1996
Digested: Mar 22, 1996
Analyzed: Mar 22-27, 1996
Reported: Apr 1, 1996

TOTAL METALS ANALYSIS

Analyte	EPA Method	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Arsenic	7060	4.0	N.D.
Cadmium	6010	5.0	N.D.
Chromium	6010	10	N.D.
Copper	6010	30	N.D.
Iron	**6010**	**150**	**13,000**
Lead	**7421**	**2.0**	**4.0**
Manganese	**6010**	**5.0**	**1,500**
Mercury	7470 Modified	1.0	N.D.
Nickel	6010	30	N.D.
Zinc	6010	20	N.D.

Analytes reported as N.D. were not detected above the stated Reporting Limit.

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Laura Dutton

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603293.DOF <22>

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Dalton, Olmsted & Fuglevand, Inc.
11711 N. Creek Parkway, #D-101
Bothell, WA 98011
Attention: Matt Dalton

Client Project ID: Bellefield Office Park
Sample Descript: Method Blank
Sample Matrix: Water
Sample Number: BLK032296

Digested: Mar 22, 1996
Analyzed: Mar 22-27, 1996
Reported: Apr 1, 1996

TOTAL METALS ANALYSIS

Analyte	EPA Method	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Arsenic	7060	4.0	N.D.
Cadmium	6010	5.0	N.D.
Chromium	6010	10	N.D.
Copper	6010	30	N.D.
Iron	6010	150	N.D.
Lead	7421	2.0	N.D.
Manganese	6010	5.0	N.D.
Mercury	7470 Modified	1.0	N.D.
Nickel	6010	30	N.D.
Zinc	6010	20	N.D.

Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Laura Dutton

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603293.DOF <23>

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Dalton, Olmsted & Fuglevand, Inc.
11711 N. Creek Parkway, #D-101
Bothell, WA 98011
Attention: Matt Dalton

Client Project ID: Bellefield Office Park
Sample Descript: DW-1
Sample Matrix: Water
Sample Number: B603293-01

Sampled: Mar 15, 1996
Received: Mar 18, 1996

Analyzed: Mar 22-27, 1996
Reported: Apr 1, 1996

DISSOLVED METALS ANALYSIS

Analyte	EPA Method	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Arsenic	7060	4.0	N.D.
Cadmium	6010	5.0	N.D.
Chromium	6010	10	N.D.
Copper	6010	30	N.D.
Iron	**6010**	**150**	**4,600**
Lead	**7421**	**2.0**	**2.1**
Manganese	**6010**	**5.0**	**1,400**
Mercury	7470 Modified	1.0	N.D.
Nickel	6010	30	N.D.
Zinc	6010	20	N.D.

Analytes reported as N.D. were not detected above the stated Reporting Limit.

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Laura Dutton

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Dalton, Olmsted & Fuglevand, Inc.
11711 N. Creek Parkway, #D-101
Bothell, WA 98011
Attention: Matt Dalton

Client Project ID: Bellefield Office Park
Sample Descript: DW-2
Sample Matrix: Water
Sample Number: B603293-02

Sampled: Mar 15, 1996
Received: Mar 18, 1996

Analyzed: Mar 22-27, 1996
Reported: Apr 1, 1996

DISSOLVED METALS ANALYSIS

Analyte	EPA Method	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Arsenic	7060	4.0	N.D.
Cadmium	6010	5.0	N.D.
Chromium	6010	10	N.D.
Copper	6010	30	N.D.
Iron	**6010**	**150**	**18,000**
Lead	**7421**	**2.0**	**2.6**
Manganese	**6010**	**5.0**	**1,100**
Mercury	7470 Modified	1.0	N.D.
Nickel	6010	30	N.D.
Zinc	6010	20	N.D.

Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Laura Dutton

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603293.DOF <25>

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Dalton, Olmsted & Fuglevand, Inc.	Client Project ID:	Bellefield Office Park	Sampled:	Mar 15, 1996
11711 N. Creek Parkway, #D-101	Sample Descript:	DW-3	Received:	Mar 18, 1996
Bothell, WA 98011	Sample Matrix:	Water		
Attention: Matt Dalton	Sample Number:	B603293-03	Analyzed:	Mar 22-27, 1996
			Reported:	Apr 1, 1996

DISSOLVED METALS ANALYSIS

Analyte	EPA Method	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Arsenic	**7060**	**4.0**	**4.2**
Cadmium	6010	5.0	N.D.
Chromium	6010	10	N.D.
Copper	6010	30	N.D.
Iron	**6010**	**150**	**13,000**
Lead	7421	2.0	N.D.
Manganese	**6010**	**5.0**	**1,800**
Mercury	7470 Modified	1.0	N.D.
Nickel	6010	30	N.D.
Zinc	6010	20	N.D.

Analytes reported as N.D. were not detected above the stated Reporting Limit.

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Laura Dutton

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Dalton, Olmsted & Fuglevand, Inc.
11711 N. Creek Parkway, #D-101
Bothell, WA 98011
Attention: Matt Dalton

Client Project ID: Bellefield Office Park
Sample Descript: DW-4
Sample Matrix: Water
Sample Number: B603293-04

Sampled: Mar 15, 1996
Received: Mar 18, 1996

Analyzed: Mar 22-27, 1996
Reported: Apr 1, 1996

DISSOLVED METALS ANALYSIS

Analyte	EPA Method	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Arsenic	7060	4.0	N.D.
Cadmium	6010	5.0	N.D.
Chromium	6010	10	N.D.
Copper	6010	30	N.D.
Iron	**6010**	**150**	**10,000**
Lead	7421	2.0	N.D.
Manganese	**6010**	**5.0**	**3,100**
Mercury	7470 Modified	1.0	N.D.
Nickel	6010	30	N.D.
Zinc	6010	20	N.D.

Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

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603293.DOF <27>

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Dalton, Olmsted & Fuglevand, Inc.
11711 N. Creek Parkway, #D-101
Bothell, WA 98011
Attention: Matt Dalton

Client Project ID: Bellefield Office Park
Sample Descript: DW-5
Sample Matrix: Water
Sample Number: B603293-05

Sampled: Mar 15, 1996
Received: Mar 18, 1996

Analyzed: Mar 22-27, 1996
Reported: Apr 1, 1996

DISSOLVED METALS ANALYSIS

Analyte	EPA Method	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Arsenic	7060	4.0	N.D.
Cadmium	6010	5.0	N.D.
Chromium	6010	10	N.D.
Copper	6010	30	N.D.
Iron	**6010**	**150**	**22,000**
Lead	7421	2.0	N.D.
Manganese	**6010**	**5.0**	**1,100**
Mercury	7470 Modified	1.0	N.D.
Nickel	6010	30	N.D.
Zinc	**6010**	**20**	**44**

Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

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Dalton, Olmsted & Fuglevand, Inc.
11711 N. Creek Parkway, #D-101
Bothell, WA 98011
Attention: Matt Dalton

Client Project ID: Bellefield Office Park
Sample Descript: DW-6
Sample Matrix: Water
Sample Number: B603293-06

Sampled: Mar 15, 1996
Received: Mar 18, 1996

Analyzed: Mar 22-27, 1996
Reported: Apr 1, 1996

DISSOLVED METALS ANALYSIS

Analyte	EPA Method	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Arsenic	7060	4.0	N.D.
Cadmium	6010	5.0	N.D.
Chromium	6010	10	N.D.
Copper	6010	30	N.D.
Iron	**6010**	**150**	**27,000**
Lead	7421	2.0	N.D.
Manganese	**6010**	**5.0**	**1,800**
Mercury	7470 Modified	1.0	N.D.
Nickel	6010	30	N.D.
Zinc	6010	20	N.D.

Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Laura Dutton

Laura Dutton
Project Manager

603293.DOF <29>

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (206) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Dalton, Olmsted & Fuglevand, Inc.	Client Project ID:	Bellefield Office Park	Sampled:	Mar 15, 1996
11711 N. Creek Parkway, #D-101	Sample Descript:	DUPL-1	Received:	Mar 18, 1996
Bothell, WA 98011	Sample Matrix:	Water		
Attention: Matt Dalton	Sample Number:	B603293-07	Analyzed:	Mar 22-27, 1996
			Reported:	Apr 1, 1996

DISSOLVED METALS ANALYSIS

Analyte	EPA Method	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Arsenic	7060	4.0	N.D.
Cadmium	6010	5.0	N.D.
Chromium	6010	10	N.D.
Copper	6010	30	N.D.
Iron	**6010**	**150**	**14,000**
Lead	7421	2.0	N.D.
Manganese	**6010**	**5.0**	**1,800**
Mercury	7470 Modified	1.0	N.D.
Nickel	6010	30	N.D.
Zinc	6010	20	N.D.

Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Laura Dutton

Laura Dutton
Project Manager

603293.DOF <30>

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Dalton, Olmsted & Fuglevand, Inc.
11711 N. Creek Parkway, #D-101
Bothell, WA 98011
Attention: Matt Dalton

Client Project ID: Bellefield Office Park
Sample Descript: Method Blank
Sample Matrix: Water
Sample Number: BLK0322-032796

Analyzed: Mar 22-27, 1996
Reported: Apr 1, 1996

DISSOLVED METALS ANALYSIS

Analyte	EPA Method	Reporting Limit µg/L (ppb)	Sample Results µg/L (ppb)
Arsenic	7060	4.0	N.D.
Cadmium	6010	5.0	N.D.
Chromium	6010	10	N.D.
Copper	6010	30	N.D.
Iron	6010	150	N.D.
Lead	7421	2.0	N.D.
Manganese	6010	5.0	N.D.
Mercury	7470 Modified	1.0	N.D.
Nickel	6010	30	N.D.
Zinc	6010	20	N.D.

Analytes reported as N.D. were not detected above the stated Reporting Limit.

NORTH CREEK ANALYTICAL Inc.

Laura Dutton

Laura Dutton
Project Manager

603293.DOF <31>

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (206) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Dalton, Olmsted & Fuglevand, Inc.
11711 N. Creek Parkway, #D-101
Bothell, WA 98011
Attention: Matt Dalton

Client Project ID: Bellefield Office Park
Sample Matrix : Water
Units: µg/L (ppb)

Digested: Mar 22, 1996
Reported: Apr 1, 1996

TOTAL METALS QUALITY CONTROL DATA REPORT

ANALYTE	As	Cd	Cr	Cu	Fe	Pb	Mn
EPA Method:	7060	6010	6010	6010	6010	7421	6010
Date Analyzed:	Mar 25, 1996	Mar 27, 1996	Mar 25, 1996	Mar 25, 1996	Mar 25, 1996	Mar 22, 1996	Mar 25, 1996
ACCURACY ASSESSMENT							
LCS Spike Conc. Added:	50.0	1,000	1,000	1,000	1,000	25	1,000
LCS Spike Result:	56.9	710	810	840	880	24	840
LCS Spike % Recovery:	114	71	81	84	88	96	84
Upper Control Limit:	132	98	102	105	125	122	118
Lower Control Limit:	84	66	68	57	72	88	58
Matrix Spike Sample #:	B603293-01	B603293-02	B603293-02	B603293-02	B603293-02	B603293-01	B603293-02
MS/MSD % Recovery:	114/114	78/73	84/78	84/81	Q-3/Q-3	104/90	82/79
PRECISION ASSESSMENT							
Sample #:	B603293-01	B603293-02	B603293-02	B603293-02	B603293-02	B603293-01	B603293-02
Original:	N.D.	N.D.	N.D.	N.D.	19,000	7.0	920
Duplicate:	N.D.	N.D.	N.D.	N.D.	20,000	7.3	890
Relative % Difference:	Q-5	Q-5	Q-5	Q-5	5.1	Q-5	3.3

NORTH CREEK ANALYTICAL Inc.

Laura Dutton

Laura Dutton
Project Manager

Please Note:
Q-3 = The Spike Recovery for this QC sample cannot be accurately calculated due to high concentration of analyte in the sample.
Q-5 = RPD values are not reported at sample concentrations <10 X the Reporting Limit.

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Dalton, Olmsted & Fuglevand, Inc.
11711 N. Creek Parkway, #D-101
Bothell, WA 98011
Attention: Matt Dalton

Client Project ID: Bellefield Office Park
Sample Matrix : Water
Units: µg/L (ppb)

Digested: Mar 22, 1996
Reported: Apr 1, 1996

TOTAL METALS QUALITY CONTROL DATA REPORT

ANALYTE	Hg	Ni	Zn
EPA Method:	7470 Modified	6010	6010
Date Analyzed:	Mar 25, 1996	Mar 25, 1996	Mar 25, 1996
ACCURACY ASSESSMENT			
LCS Spike Conc. Added:	5.0	1,000	1,000
LCS Spike Result:	4.8	820	810
LCS Spike % Recovery:	96	82	81
Upper Control Limit:	121	115	109
Lower Control Limit:	71	48	55
Matrix Spike Sample #:	B603293-03	B603293-02	B603293-02
MS/MSD % Recovery:	91/94	84/77	84/80
PRECISION ASSESSMENT			
Sample #:	B603293-03	B603293-02	B603293-02
Original:	N.D.	N.D.	41
Duplicate:	N.D.	N.D.	46
Relative % Difference:	RPD values are not reported at sample concentration levels <10 X the Reporting Limit.		

NORTH CREEK ANALYTICAL Inc.

Laura Dutton
Project Manager

Lab Control Sample % Recovery: $\frac{\text{Conc. of L.C.S.}}{\text{L.C.S. Spike Conc. Added}} \times 100$

Relative % Difference: $\frac{\text{Original Result - Duplicate Result}}{(\text{Original Result + Duplicate Result}) / 2} \times 100$

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NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ▪ (206) 481-9200 ▪ FAX 485-2992
SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Dalton, Olmsted & Fuglevand, Inc.
11711 N. Creek Parkway, #D-101
Bothell, WA 98011
Attention: Matt Dalton

Client Project ID: Bellefield Office Park
Sample Matrix : Water
Units: µg/L (ppb)

Reported: Apr 1, 1996

DISSOLVED METALS QUALITY CONTROL DATA REPORT

ANALYTE	As	Cd	Cr	Cu	Fe	Pb	Mn
EPA Method:	206.2	6010	6010	6010	6010	239.2	6010
Date Analyzed:	Mar 25, 1996	Mar 27, 1996	Mar 25, 1996	Mar 25, 1996	Mar 25, 1996	Mar 22, 1996	Mar 25, 1996
ACCURACY ASSESSMENT							
LCS Spike Conc. Added:	50.0	1,000	1,000	1,000	1,000	25	1,000
LCS Spike Result:	54.3	780	810	820	840	24	840
LCS Spike % Recovery:	109	78	81	82	84	96	84
Upper Control Limit:	132	98	102	105	125	122	118
Lower Control Limit:	84	66	68	57	72	88	58
Matrix Spike Sample #:	B603293-01	B603293-03	B603293-03	B603293-03	B603293-03	B603293-01	B603293-03
MS/MSD % Recovery:	111/107	94	96/93	97/95	Q-3/Q-3	103/104	91/84
PRECISION ASSESSMENT							
Sample #:	B603293-01	B603293-03	B603293-03	B603293-03	B603293-03	B603293-01	B603293-03
Original:	N.D.	N.D.	N.D.	N.D.	13,000	2.1	1,800
Duplicate:	N.D.	N.D.	N.D.	N.D.	13,000	N.D.	1,800
Relative % Difference:	Q-5	Q-5	Q-5	Q-5	0.0	Q-5	0.0

NORTH CREEK ANALYTICAL Inc.

Laura Dutton
Project Manager

Please Note:
Q-3 = The Spike Recovery for this QC sample cannot be accurately calculated due to high concentration of analyte in the sample.
Q-5 = RPD values are not reported at sample concentrations <10 X the Reporting Limit.

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Dalton, Olmsted & Fuglevand, Inc.
11711 N. Creek Parkway, #D-101
Bothell, WA 98011
Attention: Matt Dalton

Client Project ID: Bellefield Office Park
Sample Matrix : Water
Units: µg/L (ppb)

Reported: Apr 1, 1996

DISSOLVED METALS QUALITY CONTROL DATA REPORT

ANALYTE	Hg	Ni	Zn
EPA Method:	7470 Modified	6010	6010
Date Analyzed:	Mar 25, 1996	Mar 25, 1996	Mar 25, 1996
ACCURACY ASSESSMENT			
LCS Spike Conc. Added:	5.0	1,000	1,000
LCS Spike Result:	4.7	820	810
LCS Spike % Recovery:	94	82	81
Upper Control Limit:	114	115	109
Lower Control Limit:	75	48	55
Matrix Spike Sample #:	B603293-02	B603293-03	B603293-03
MS/MSD % Recovery:	90/90	97/92	103/100
PRECISION ASSESSMENT			
Sample #:	B603293-02	B603293-03	B603293-03
Original:	N.D.	N.D.	N.D.
Duplicate:	N.D.	N.D.	N.D.
Relative % Difference:	RPD values are not reported at sample concentration levels <10 X the Reporting Limit.		

NORTH CREEK ANALYTICAL Inc.

Laura Dutton
Project Manager

Lab Control Sample % Recovery: $\frac{\text{Conc. of L.C.S.}}{\text{L.C.S. Spike Conc. Added}} \times 100$

Relative % Difference: $\frac{\text{Original Result - Duplicate Result}}{(\text{Original Result + Duplicate Result}) / 2} \times 100$

603293.DOF <35>

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508 (206) 481-9200 FAX 485-2992
East 11115 Montgomery, Suite B, Spokane, WA 99206-4779 (509) 924-9200 FAX 924-9290
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132 (503) 643-9200 FAX 644-2202

CHAIN OF CUSTODY REPORT

Work Order # B603293

REPORT TO: DALTON, OLMSTED & FUGLEVAND
ATTENTION: MATT DALTON
ADDRESS: BOTHELL, WA
PHONE: 486-7905 FAX:
PROJECT NAME: BELLEFIELD OFFICE PARK
PROJECT NUMBER: HEW-020
SAMPLED BY: D. COOPER

INVOICE TO: D.O.F.
ATTENTION: MATT DALTON
ADDRESS:
P.O. NUMBER: NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: [X] Standard | 7 | 5 | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: [X] Standard | 3-4 | 2 | 1 | Same Day
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	WTPH-DX	PCBs 8081	PAH's	METALS (TOT.)*	METALS (FILT.)*	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1.	DW-1	3/15	B603293-01	X	X		X	X	W		
2.	DW-2	1600	-02	X	X		X	X			
3.	DW-3	1330	-03	X	X		X	X		4	
4.	DW-4	1230	-04	X	X		X	X		4	
5.	DW-5	1145	-05	X	X	X	X	X		6	
6.	DW-6	1030	-06	X	X		X	X		4	
7.	DUP-1 (DW-3)	1335	-07	X	X		X	X		4	
8.											
9.											
10.											

RELINQUISHED BY (Signature): DC Cooper DATE: 3/18/96
PRINT NAME: D. Cooper FIRM: DOF TIME: 0900

RECEIVED BY (Signature): M. Girard DATE: 3/18/96
PRINT NAME: M. Girard FIRM: NCA TIME: 9:05

RELINQUISHED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:

RECEIVED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS: * ANALYZE FOR METALS: Ar, Cd, Cr, Cu, Fe, Pb, Mn, Ni, Zn, Hg
— USE ACID WASH/SILICA GEL CLEANUP FOR TPH-DX

APPENDIX C
NO FURTHER ACTION LETTER
BELLEFIELD OFFICE PARK
November 1996

(For initial Bellefield Office Park purchase)

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
Northwest Regional Office, 3190 - 160th Ave S.E. • Bellevue, Washington 98008-5452 • (206) 649-7000

November 1, 1996

Mr. Donald S. Jefferson
Spieker Properties
915 - 188th Avenue SE
Suite 110
Bellevue, WA 98005-3855

Dear Mr. Jefferson:

Re: Bellefield Office Park, 11201 SE Eighth Street, Bellevue, WA

Thank you for submitting the results of your independent remedial action for Department of Ecology (Ecology) review. Ecology appreciates your initiative in pursuing this administrative option under the Model Toxics Control Act (MTCA), Ch. 70.105D RCW.

Ecology's Toxics Cleanup Program has reviewed the following information regarding the Bellefield Office Park site at 11201 SE Eighth Street in Bellevue, Washington:

1. Phase I Environmental Site Assessment, prepared by RZA AGRA (now AGRA Earth and Environmental), dated July 25, 1994.

2. Project Executive Summary Report, prepared by AGRA Earth and Environmental, dated February 28, 1995.

3. Independent Remedial Action Report, prepared by Dalton, Olmsted & Fuglevand, (DOF), dated June 1995.

4. Request for No Further Action Letter, prepared by DOF, dated April 30, 1996.

5. Miscellaneous information in Ecology central files.

The above-named reports were prepared without Ecology oversight such as would occur under an Agreed Order or Consent Decree. However, based upon the information

summarized in these reports, Ecology has determined that, at this time, the release of total petroleum hydrocarbons (TPH), polychlorinated biphenyls (PCBs), and polynucleated aromatic hydrocarbons (PAHs) into the groundwater and/or upland soil at the site no longer poses a threat to human health or the environment.

Therefore, Ecology has determined that no further action is necessary at this site with regard to the release of TPH, PCBs, and PAHs to the groundwater and/or upland soil. This no further action determination is conditioned on your previous recording of a Restrictive Covenant on the deed for the property at the office of the King County Clerk. The Restrictive Covenant was necessary due to concentrations of TPH, PCBs and PAHs above MTCA cleanup levels. Please be aware that failure to abide by any portion(s) of the Restrictive Covenant may result in Ecology's withdrawal of its no further action determination.

Although Ecology is issuing the determination that no further action appears to be necessary to protect human health and the environment, this determination does not release you from any long term monitoring or maintenance at the site. Confirmational monitoring of the permanent on-site wells should therefore occur semi-annually for an additional three year period, then annually for another two years, at which time Ecology will review the information to ensure continued protection of human health and the environment. All monitoring wells should be tested for TPH and total arsenic, lead and zinc. In addition, monitoring wells DW-2 and DW-5 should be analyzed for PAHs, while DW-3, DW-4, DW-5 and DW-6 should be tested for PCBs.

Failure to conduct monitoring and necessary maintenance may result in Ecology's withdrawal of this no further action determination. In addition, this no further action determination does not apply to any remedial actions determined necessary as a result of confirmational monitoring.

Please be aware that because your actions were not conducted under a consent decree with Ecology, this no further action letter is not a settlement by the state under RCW 70.105D.040(4). Moreover, this determination is made only with respect to the release of TPH, PCBs, and PAHs to the groundwater and/or upland soil at the 11201 SE Eighth Street property as identified in the above-listed documents. It does not apply to any other release or potential release at the property, any other areas on the property, nor any other properties held by Spieker Properties or Great Western Bank.

Ecology does not assume any liability for any release, threatened release or other conditions at the site, or for any actions taken or omitted by any person or his/her agents or employees with regard to the release, threatened release, or other conditions at the site.

Ecology reserves the right to require further action at the site with regard to the soil, groundwater or other contaminated media if new or different information other than that presented in the above reports becomes known or available.

Please contact me at (206) 649-7042 if you have any questions.

Sincerely,

Elaine P. Atkinson
Environmental Scientist

EPA:ea:tm

cc: Mr. Matthew Dalton, Dalton, Olmsted and Fuglevand, Inc.
Mr. Ronald Hanson, City of Bellevue

APPENDIX D
RESULTS OF SOIL AND GROUND-WATER SAMPLING
BUILDING N SITE

1. **DOF (January 2, 1997), Soil and Ground-Water Sampling Anderson Property Adjacent to Bellefield Office Park**

2. **DOF (March 18, 1997), Results of Soil Sampling, Building N Site Bellefield Office Park.**

3. **DOF (June 6, 1997), Soil Sampling and Analysis, Building N Construction Site, Bellefield Office Park, Bellevue, WA**

Dalton, Olmsted & Fuglevand, Inc. *Environmental Consultants*

11711 Northcreek Parkway S., Suite 101 • Bothell, Washington 98011
Telephone (206) 486-7905 (FAX 486-7651)

January 2, 1997

Don Jefferson
Spieker Properties, Inc.
915 118th Ave. S.E.
Suite 110
Bellevue, WA 98005-3855

Re: Soil and Ground-Water Sampling
Anderson Property Adjacent to Bellefield Office Park
Bellevue, WA

Dear Don:

This report presents the results of our soil and ground-water sampling on property located east of the Bellefield Office Park Maplewood Building (1687 114th. Ave SE), Bellevue, Washington (Figures 1 and 2). We understand that the property (herein termed Anderson Property) is approximately 4 acres. The purpose of the work was to generally evaluate whether the environmental conditions beneath the subject property are similar to those on the adjacent Bellefield Office Park site.

COMPLETED WORK

The scope of work was completed in general accordance with our proposal dated November 18, 1996. The work scope was based upon previous testing completed on the Bellefield Office Park (DOF 1995;1996); on the conditions of a *No Further Action* letter issued by the Washington State Department of Ecology (Ecology 1996) for the Bellefield Office Park; and on discussions between Don Jefferson (Spieker Properties) and Matthew Dalton (Dalton, Olmsted & Fuglevand, Inc. - DOF). Work completed on the Anderson Property was as follows:

- Two soil borings were drilled and soil samples were collected as the borings were advanced;
- Soil samples were analyzed for petroleum hydrocarbons and PCBs;
- One of the borings was converted to a monitor well;

- A ground-water sample was obtained from the monitor well and analyzed for petroleum hydrocarbons, PCBs and total metals (arsenic, lead and zinc).

Boring/well logs, soil sampling procedures, and well installation procedures are presented in Attachment 1. Ground-water sampling procedures and soil/ground water laboratory data sheets are presented in Attachment 2.

RESULTS OF SOIL SAMPLING AND ANALYSIS

Geologic Conditions: At boring BA-B-1 (Figure 2), brown and gray, silty to very silty, gravely, fine to coarse SAND with brick fragments was encountered to a depth of approximately 5.5 feet. From 5.5 feet to approximately 30 feet, the samples consisted predominately of wood fragments and logs or timbers with some fine to coarse sand and brick fragments. Soft, brown, fibrous PEAT was encountered at a depth of approximately 30 feet below ground level to the final boring depth of approximately 33 feet. A sheen was observed on wood fragments collected between a depth of 22.5 and 24 feet.

At boring/well BA-MW-1, brown, silty, gravely, fine to coarse SAND with roots was encountered to a depth of approximately 2 feet. From 2 feet to approximately 20 feet, the samples consisted of predominantly wood fragments and logs or timbers with a silty to very silty, fine to coarse sand matrix with brick and other fragments. Soft, brown granular PEAT was encountered at a depth of approximately 20 feet to the final boring depth of approximately 22 feet.

Results of Soil Quality Analyses. Two soil samples from BA-MW-1 and three soil samples from BA-B-1 were analyzed for petroleum hydrocarbons (using Washington State Method WTPH-D,extended with silica gel cleanup) and PCBs (EPA Method 8081). The results of the analyses are summarized in Table 1.

No PCBs were detected above the reporting limit of 0.05 mg/kg. Diesel range hydrocarbon concentrations ranged between less than 10 mg/kg to 228 mg/kg. Heavy-oil range hydrocarbon concentrations ranged between approximately 50 mg/kg and 1340 mg/kg. The highest concentration of petroleum hydrocarbons was measured in a soil sample collected from location BA-MW-1 at a depth of approximately 17.5 feet.

Petroleum hydrocarbon concentrations measured on the Anderson Property are less than or similar to the concentrations reported (DOF 1995 - Table 6) for samples collected from borings B-1 to B-3 on the west side of the Maplewood Building on the Bellefield Office Park (locations are shown on Figure 2). A comparison of the petroleum hydrocarbon concentrations is presented below:

Petroleum Hydrocarbons (mg/kg)	Anderson Property (BA-B-1; BA-MW-1)	Bellefield Office Park (B-1 to B-3)
Diesel-Range Hydrocarbons	<10 to 228	45 to 1400
Heavy-Oil Range Hydrocarbons	52 to 1340	440 to 9900

RESULTS OF GROUND-WATER ANALYSES

A ground-water sample was obtained from well BA-MW-1 on November 25, 1996. Low flow/low turbidity sampling procedures were used to collect the sample. The sample was analyzed by North Creek Analytical, Inc. for petroleum hydrocarbons and PCBs, and total arsenic, lead and zinc. The results are summarized in Table 1. Laboratory data sheets and sampling procedures are presented in Attachment 2.

As summarized in Table 1, petroleum hydrocarbons, PCBs, total arsenic and total zinc were not detected above the laboratory reporting limits. Total lead was detected at a concentration of approximately 0.007 mg/l. The sample turbidity (5 NTUs) and total lead concentration detected in well BA-MW-1 are similar to the turbidities (1.6 to 8.5 NTUs) and total lead concentrations (less than 0.002 mg/l to 0.014 mg/l) previously measured in wells DW-1 to DW-6 located on the Bellefield Office Park (well locations are shown on Figure 2).

REFERENCES

DOF (Dalton, Olmsted & Fuglevand, Inc.), 1995, Independent Remedial Action Report, Bellefiled Office Park, Bellevue, Washington, Prepared for Spieker Properties, Inc., June 1995.

DOF (Dalton, Olmsted & Fuglevand, Inc.), 1996, Request for No Further Action Letter, Bellefield Office Park, Bellevue, Washington, Prepared for Spieker Properties, Inc., April 1996.

Ecology (Washington State Department of Ecology), 1996, Letter to Don Jefferson (Spieker Properties, Inc.) dated November 1, 1996.

CLOSING

The services described in this report were performed consistent with generally accepted professional consulting principals and practices. No other warranty, expressed or implied, is made. These services were performed for the sole use and information of Spieker Properties, Inc. for specific application to the subject property. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for Spieker Properties purposes, locations, time frames and indicated project parameters. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

Dalton, Olmsted & Fuglevand, Inc.

Matthew G. Dalton
Sr. Consulting Hydrogeologist

attachments: Figure 1 - Site Vicinity Map
Figure 2 - Boring/Well Locations

Attachment 1 - Soil Sampling and Well Installation Procedures and Geologic/Well Logs.
Attachment 2 - Ground-Water Sampling Procedures and Soil/Ground-Water Laboratory Data Sheets.

TABLE 1 - Results of Soil and Ground-Water Analyses

RESULTS OF SOIL ANALYSES

Location	Depth (feet)	Petroleum Hydrocarbons (mg/kg)		PCBs (mg/kg)
		Diesel Range	Heavy-Oil Range	
BA-B1	2.5	<10	51.9	<0.05
BA-B1	12.5	142	721	<0.05
BA-B1	22.5	209	451	<0.05
BA-MW-1	7.5	19.4	115	<0.05
BA-MW-1	17.5	228	1340	<0.05

RESULTS OF GROUND-WATER ANALYSES (1)

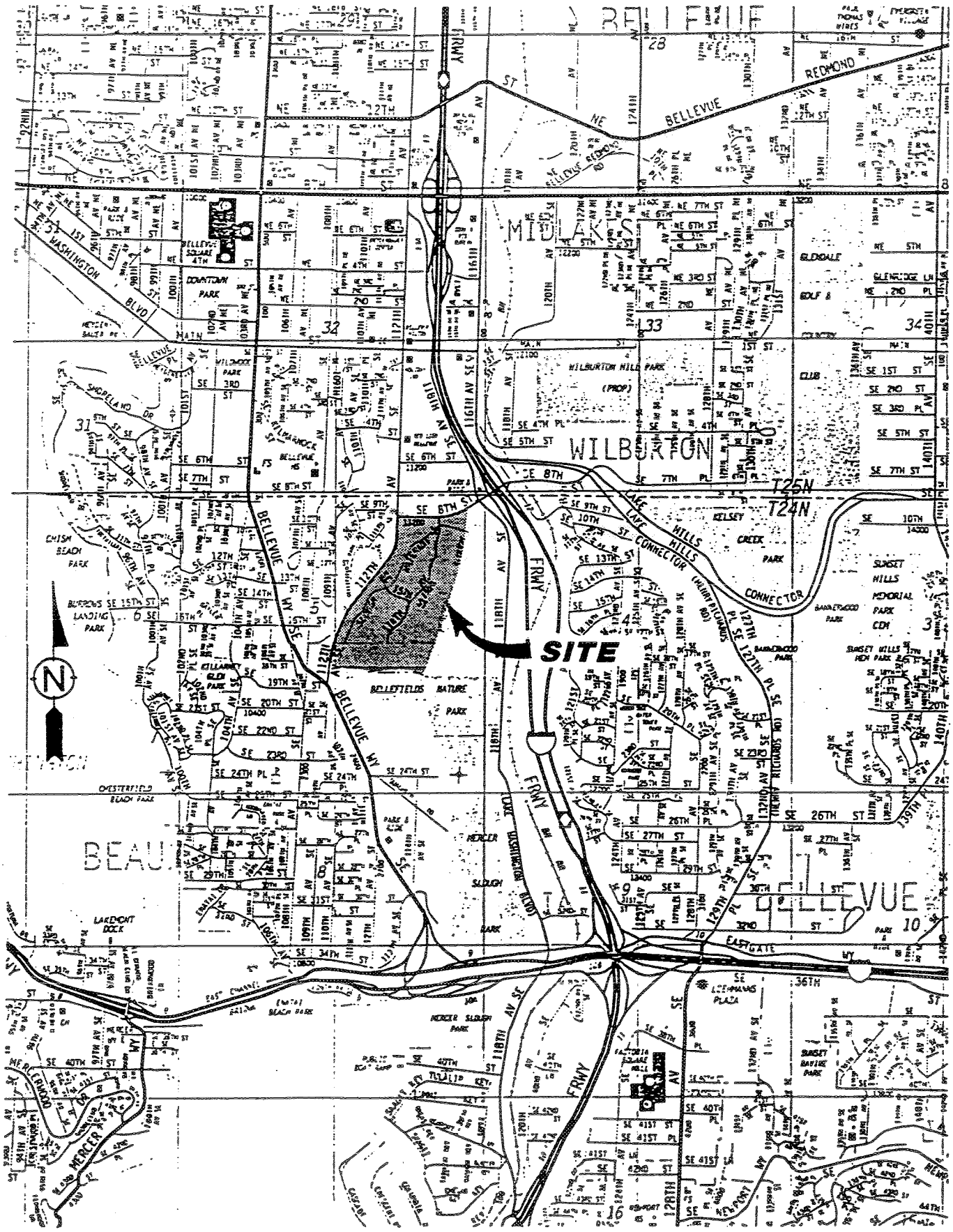
Field Analyses

Location	Screen Depth (feet)	pH	Electrical Conductivity(uS)	Temp. (C)	Turbidity (NTUs)
BA-MW-1	2.5 - 12.5	6.3	1102	15.3	5

Laboratory Analyses

Location	Screen Depth (feet)	Petroleum Hydrocarbons (mg/L)		PCBs (mg/L)	Total Metals (mg/l)		
		Diesel Range	Heavy-Oil Range		Arsenic	Lead	Zinc
BA-MW-1	2.5 - 12.5	<0.25	<0.75	<0.0001	<0.004	0.007	<0.02

Notes: (1) Sample was obtained on November 25, 1996.

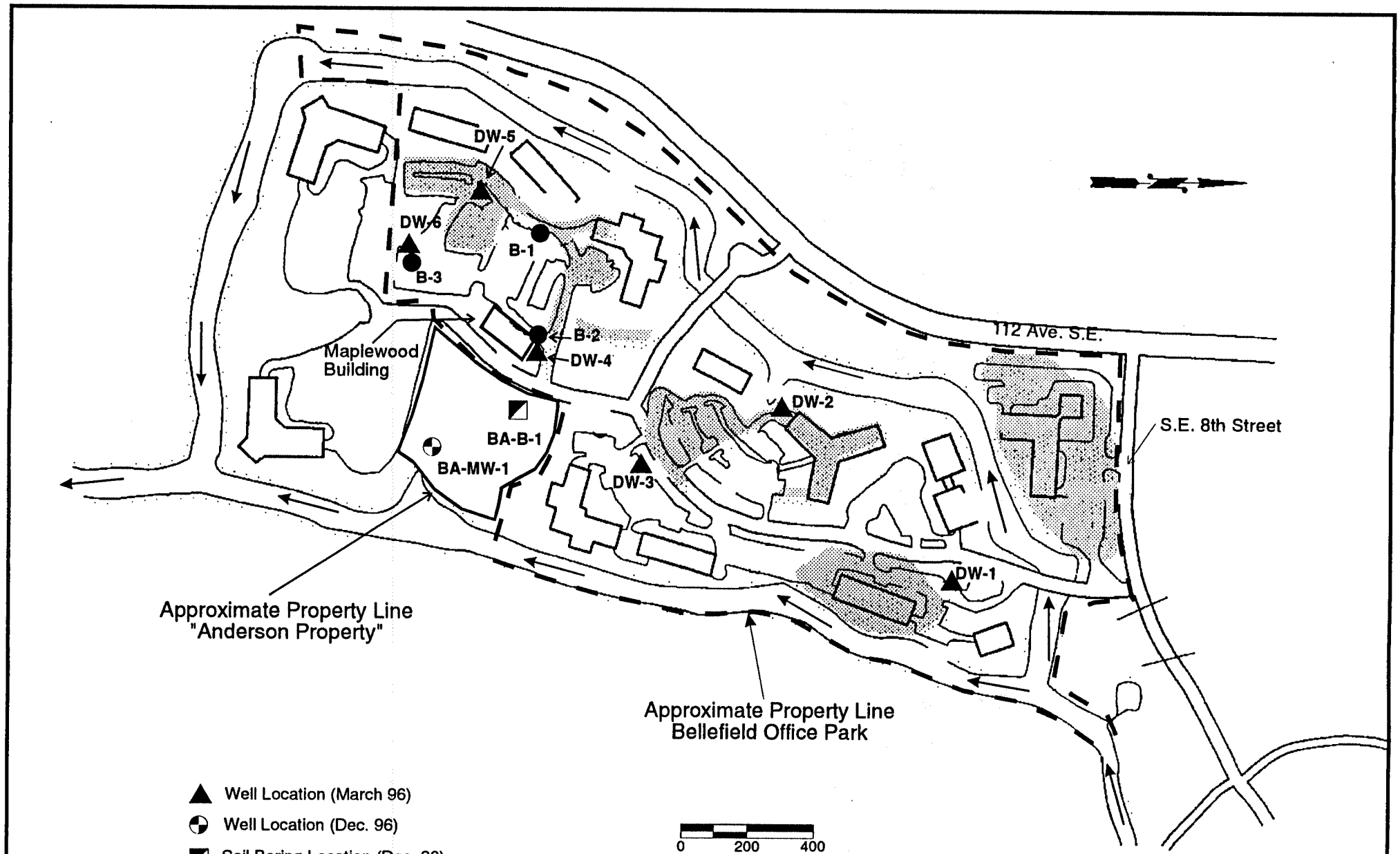


RZA-AGRA	W.O. ____
ENGINEERING & ENVIRONMENTAL SERVICES	DESIGN SST
11335 N.E. 122nd Way	DRAWN DMW
Suite 100	DATE JAN 1994
Kirkland, Washington	SCALE N.T.S.
98034-6918	

BELLEFIELD OFFICE PARK
11201 SOUTHEAST 8th STREET
BELLEVUE, WASHINGTON

LOCATION MAP

FIGURE 1



Bellefield Office Park
Bellevue, Washington

BORING/WELL LOCATIONS

HEW-020-02 **FIGURE 2** December 96

Dalton, Olmsted & Fuglevand, Inc.

baprop.cdr

ATTACHMENT 1
SOIL SAMPLING AND WELL INSTALLATION PROCEDURES AND GEOLOGIC/WELL LOGS

Two borings (BA-B-1 and BA-MW-1) were drilled on November 21 and 22, 1996 by Holt Drilling, Inc. using a hollow-stem auger (Drill Rig Specialties L10T Track) at the locations shown on Figure 2. Terry Olmsted, senior geologist of Dalton, Olmsted & Fuglevand, Inc., observed the drilling. During drilling, soil samples were obtained using a 3-inch split-spoon sampler. The sampler was washed with laboratory grade detergent and tap water between sampling runs. The number of blows to drive the samplers a distance of three successive 6-inch intervals were recorded.

Once the final drilling depth was reached at location BA-B-1, the boring was sealed with bentonite chips. At location BA-MW-1, the boring was converted into a monitoring well by lowering 2-inch diameter, Schedule 40 PVC screen and riser pipe through the auger center. A sand pack was installed around and above the screen as the auger was extracted. The well was finished by placing a bentonite chip seal above the sand pack and installing an above ground monument/protective casing.

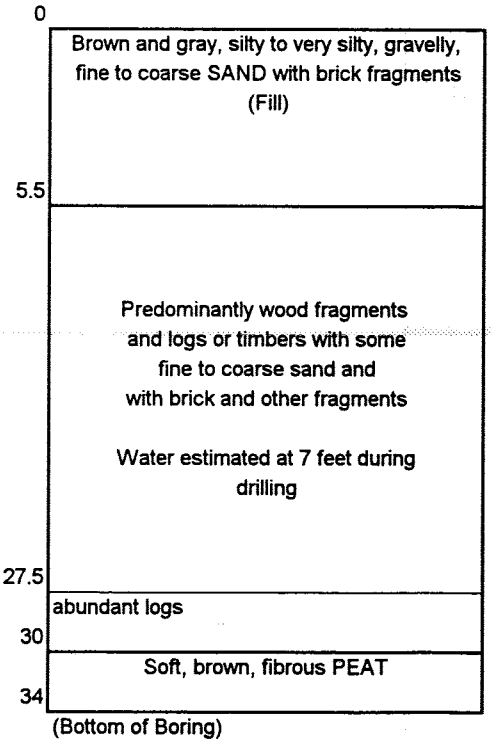
BORINGL NO. BA-B-1 - DESCRIPTION OF SAMPLES, TESTS, AND INSTALLATION

Field Rep: T. Olmsted
Drilling Co.: Holt Drilling
Driller: Mike Sharp
Drill Type: Drill Rig Specialties L1OT Track
Size/Type Casing: 4" I.D. Hollow-Stem Auger

Location: Northwest Corner of Property
Elevation (Ft.)
Date Completed: 11/22/96
Weather: Snowy & Cold

Spl.No.	Type (300# Hamme	Drill Action	Spl Depth (Ft.) From - To	Blows/ 6 inches	Spl length inches	Time	Sample Description
2.5	3" Drive	Smooth with rough/hard zones	2.5-4	4-6-8	12	11/21 1445	Brown and gray, very silty, fine to coarse SAND with gravel & brick (Fill)
5	3" Drive	"	5-6.5	4-6-8	6	1449	Top: Same as above Bot: Wood frags with brick (Fill)
7.5	3" Drive	"	7.5-9	3-3-3	6	1455	Gray wood fragments with some silty sand (Fill)
10	3" Drive	"	10-11.5	4-9-5	6	1502	Gray wood fragments with some silty sand and brick fragments (Fill)
12.5	3" Drive	"	12.5-14	10-3-5	8	1507	Gray wood fragments with some silty sand and brick fragments (Fill)
15	3" Drive	"	15-16	12-17	6	1515	Gray wood fragments with some silty sand and brick fragments - concrete in end (Fill)
17.5	3" Drive	"	17.5-19	6-8-11	8	1520	Gray wood fragments with some silty sand and brick fragments (Fill)
20	3" Drive	"	20-21.5	9-5-7	8	1530	Gray wood fragments with some silty sand and brick fragments and copper wire (Fill)
22.5	3" Drive	"	22.5-24	7-11-13	10	1542	Gray wood fragments with some silty sand and brick fragments- sheen on wood frags(Fill)
25	3" Drive	"	25-26.5	11-20-13	6	1555	Gray wood fragments with trace gravel (Fill)
27.5	3" Drive	Rough & slow (logs)	27.5	on log bouncing	0	1615	on log
30	3" Drive	"	30	on log bouncing	0	1630	on log
32.5	3" Drive	Smooth	32.5-34	1-2-1	8	11/22 0820	Brown, fibrous PEAT

Depth(ft.) **SUMMARY LOG**



(Bottom of Boring)

NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

MONITORING WELL NO. BA-MW-1 - DESCRIPTION OF SAMPLES, TESTS, AND INSTALLATION

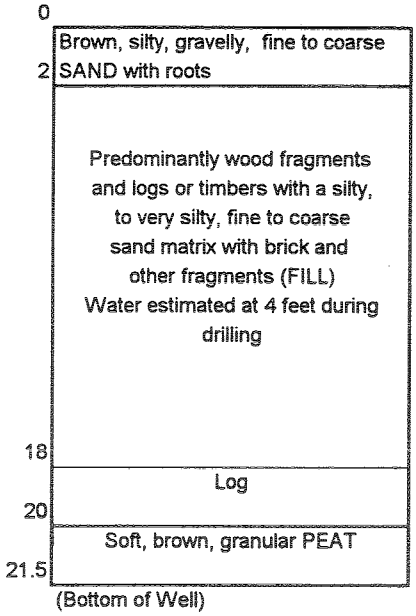
Field Rep: T. Olmsted
Drilling Co.: Holt Drilling
Driller: Mike Sharp
Drill Type: Drill Rig Specialties L1OT Track
Size/Type Casing: 4" I.D. Hollow-Stem Auger

Location: Southeast Corner of Property
Elevation (Ft.)
Date Completed: 11/21/96
Weather: Snowy & Cold

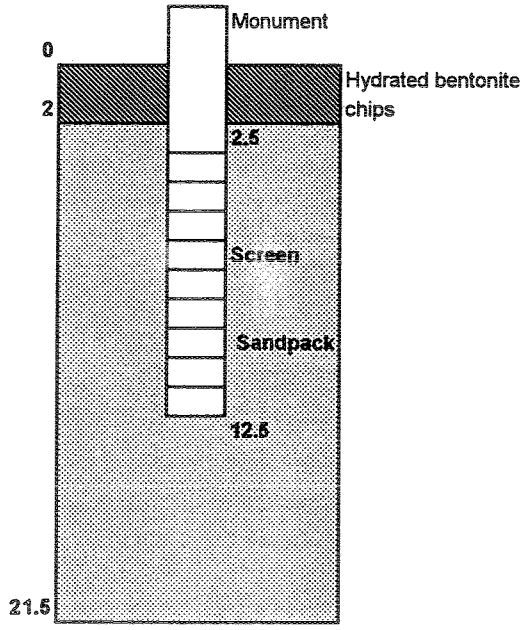
Spl.No.	Type (300# Hamme	Drill Action	Spl Depth (Ft.) From - To	Blows/ 6 inches	Spl length inches	Time	Sample Description
2.5	3" Drive	Smooth with rough zones	2.5-4	1-2-1	3	1043	Brown, wood fragments mixted with silty fine to coarse SAND (Fill)
5	3" Drive	"	5-6.5	1-1-1	4	1050	Brown, wood fragments mixted with silty fine to coarse SAND (Fill)
7.5	3" Drive	"	7.5-9	9-3-4	12	1057	Gray mixed wood, silty fine sand and sandy silt - solid wood on bottom of sampler (Fill)
10	3" Drive	Slow and hard at 11.5' to 12.5' (log)	10-11.5	5-6-6	12	1103	Gray wood fragments with some silty sand matrix (Fill)
12.5	3" Drive	"	12.5-14	5-6-3	12	1124	Gray wood fragments with silty fine to coarse sand matrix (Fill)
15	3" Drive	"	15-16.5	2-2-2	1	1130	Gray wood fragments with silty fine to coarse sand matrix (Fill)
17.5	3" Drive	Hard and very slow 18 to 20' (log)	17.5-18	20/6" (on wood)	6	1145	Gray wood fragments with silty fine to coarse sand matrix - solid wood on bottom
20	3" Drive	"	20-21.5	1-1/12"	3	1300	Brown, granular PEAT

MONITORING WELL DIAGRAM

Depth(ft.) **SUMMARY LOG**



NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.



MONITORING WELL INFORMATION (FT.)

Riser Length: 5.5'		Seal:	Bentonite/Concrete
Sandpack: 10-20 Colorado Sand			(top/bot) 0/2.0
	(top/bot) 2/12.5	Monument:	Steel - above-ground
Screen:	PVC/0.010"		monument
	length 10		
	(top/bot) 2.5-12.5		

ATTACHMENT 2
GROUND-WATER SAMPLING PROCEDURES
AND SOIL/GROUND WATER LABORATORY DATA SHEETS

Well BA-MW-1 was sampled by Terry Olmsted on November 25, 1996. Purging and sampling was conducted with a peristaltic pump at an approximate discharge rate of 0.5 liters per minute. During sampling, temperature, pH, electrical conductivity and turbidity were measured. These measurements are summarized in Table 1 attached to the main body of this report. The sample was obtained after the field parameters stabilized to within 10%. Approximately 3 casing volumes (approx. 12.5 gallons) were removed prior to obtaining the sample.

Samples were placed in containers provided by North Creek Analytical, Inc. After each container was filled, it was placed into a chilled cooler and was transported to the laboratory the same day using standard chain-of-custody procedures.

SOIL LABORATORY DATA SHEETS

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

)alton, Olmstead and Fuglevand	Project:	Spieker Properties - BA Prop.	Sampled: 11/21/96
11711 Northcreek Pkwy S, Ste # D101	Project Number:	HEW-020	Received: 11/22/96
Bothell, WA 98011	Project Manager:	Mathew Dalton	Reported: 12/3/96 17:20

ANALYTICAL REPORT FOR SAMPLES:

ample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
BA-MW1(7.5')	B611424-01	Soil	11/21/96
BA-MW1(17.5')	B611424-02	Soil	11/21/96
A-B1(2.5')	B611424-03	Soil	11/21/96
BA-B1(12.5')	B611424-04	Soil	11/21/96
A-B1(22.5')	B611424-05	Soil	11/21/96

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Dalton, Olmstead and Fuglevand	Project:	Spieker Properties - BA Prop.	Sampled:	11/21/96
11711 Northcreek Pkwy S, Ste # D101	Project Number:	HEW-020	Received:	11/22/96
Bothell, WA 98011	Project Manager:	Mathew Dalton	Reported:	12/3/96 17:20

Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended) with Silica Gel Clean-up
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
BA-MW1(7.5')			**B611424-01**				**Soil**	
Diesel Range Hydrocarbons	1160731	11/25/96	11/25/96		10.0	**19.4**	mg/kg dry	
Heavy Oil Range Hydrocarbons	"	"	"		25.0	**115**	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*75.3*	*%*	
BA-MW1(17.5')			**B611424-02**				**Soil**	
Diesel Range Hydrocarbons	1160731	11/25/96	11/25/96		10.0	**228**	mg/kg dry	
Heavy Oil Range Hydrocarbons	"	"	"		25.0	**1340**	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*62.3*	*%*	
BA-B1(2.5')			**B611424-03**				**Soil**	
Diesel Range Hydrocarbons	1160731	11/25/96	11/25/96		10.0	ND	mg/kg dry	
Heavy Oil Range Hydrocarbons	"	"	"		25.0	**51.9**	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*66.8*	*%*	
BA-B1(12.5')			**B611424-04**				**Soil**	
Diesel Range Hydrocarbons	1160731	11/25/96	11/25/96		10.0	**142**	mg/kg dry	
Heavy Oil Range Hydrocarbons	"	"	"		25.0	**721**	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*78.2*	*%*	
BA-B1(22.5')			**B611424-05**				**Soil**	
Diesel Range Hydrocarbons	1160731	11/25/96	11/25/96		10.0	**209**	mg/kg dry	
Heavy Oil Range Hydrocarbons	"	"	"		25.0	**451**	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*79.4*	*%*	

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Laura Dutton

Laura L Dutton, Project Manager

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alton, Olmstead and Fuglevand	Project:	Spieker Properties - BA Prop.	Sampled: 11/21/96
11711 Northcreek Pkwy S, Ste # D101	Project Number:	HEW-020	Received: 11/22/96
othell, WA 98011	Project Manager:	Mathew Dalton	Reported: 12/3/96 17:20

Polychlorinated Biphenyls by EPA Method 8081
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
A-MW1(7.5')			**B611424-01**				**Soil**	**1,2**
Aroclor 1016	1160726	11/25/96	11/26/96		50.0	ND	ug/kg dry	
roclor 1221	"	"	"		50.0	ND	"	
roclor 1232	"	"	"		50.0	ND	"	
Aroclor 1242	"	"	"		50.0	ND	"	
Aroclor 1248	"	"	"		50.0	ND	"	
roclor 1254	"	"	"		50.0	ND	"	
roclor 1260	"	"	"		50.0	ND	"	
Surrogate: TCX	"	"	"	*38.0-117*		*83.6*	*%*	
A-MW1(17.5')			**B611424-02**				**Soil**	**1,2**
Aroclor 1016	1160726	11/25/96	11/26/96		50.0	ND	ug/kg dry	
roclor 1221	"	"	"		50.0	ND	"	
roclor 1232	"	"	"		50.0	ND	"	
roclor 1242	"	"	"		50.0	ND	"	
Aroclor 1248	"	"	"		50.0	ND	"	
roclor 1254	"	"	"		50.0	ND	"	
roclor 1260	"	"	"		50.0	ND	"	
Surrogate: TCX	"	"	"	*38.0-117*		*83.1*	*%*	
A-B1(2.5')			**B611424-03**				**Soil**	**1,2**
Aroclor 1016	1160726	11/25/96	11/26/96		50.0	ND	ug/kg dry	
Aroclor 1221	"	"	"		50.0	ND	"	
roclor 1232	"	"	"		50.0	ND	"	
roclor 1242	"	"	"		50.0	ND	"	
Aroclor 1248	"	"	"		50.0	ND	"	
roclor 1254	"	"	"		50.0	ND	"	
roclor 1260	"	"	"		50.0	ND	"	
Surrogate: TCX	"	"	"	*38.0-117*		*78.1*	*%*	
A-B1(12.5')			**B611424-04**				**Soil**	**1,2**
Aroclor 1016	1160726	11/25/96	11/26/96		50.0	ND	ug/kg dry	
Aroclor 1221	"	"	"		50.0	ND	"	
roclor 1232	"	"	"		50.0	ND	"	
roclor 1242	"	"	"		50.0	ND	"	
Aroclor 1248	"	"	"		50.0	ND	"	
roclor 1254	"	"	"		50.0	ND	"	
roclor 1260	"	"	"		50.0	ND	"	
Surrogate: TCX	"	"	"	*38.0-117*		*85.8*	*%*	

orth Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Laura Dutton

aura L Dutton, Project Manager

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PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Dalton, Olmstead and Fuglevand	Project:	Spieker Properties - BA Prop.	Sampled:	11/21/96
11711 Northcreek Pkwy S, Ste # D101	Project Number:	HEW-020	Received:	11/22/96
Bothell, WA 98011	Project Manager:	Mathew Dalton	Reported:	12/3/96 17:20

Polychlorinated Biphenyls by EPA Method 8081
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
BA-B1(22.5')			**B611424-05**				**Soil**	**1,2**
Aroclor 1016	1160726	11/25/96	11/27/96		50.0	ND	ug/kg dry	
Aroclor 1221	"	"	"		50.0	ND	"	
Aroclor 1232	"	"	"		50.0	ND	"	
Aroclor 1242	"	"	"		50.0	ND	"	
Aroclor 1248	"	"	"		50.0	ND	"	
Aroclor 1254	"	"	"		50.0	ND	"	
Aroclor 1260	"	"	"		50.0	ND	"	
Surrogate: TCX	"	"	"	*38.0-117*		*63.4*	*%*	

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

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)alton. Olmstead and Fuglevand	Project:	Spieker Properties - BA Prop.	Sampled:	11/21/96
11711 Northcreek Pkwy S, Ste # D101	Project Number:	HEW-020	Received:	11/22/96
Bothell. WA 98011	Project Manager:	Mathew Dalton	Reported:	12/3/96 17:20

Dry Weight Determination
North Creek Analytical - Bothell

Sample Name	Lab ID	Matrix	Result	Units
BA-MW1(7.5')	B611424-01	Soil	72.6	%
BA-MW1(17.5')	B611424-02	Soil	43.2	%
BA-B1(2.5')	B611424-03	Soil	84.8	%
BA-B1(12.5')	B611424-04	Soil	47.2	%
BA-B1(22.5')	B611424-05	Soil	69.6	%

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Dalton. Olmstead and Fuglevand	Project:	Spieker Properties - BA Prop.	Sampled: 11/21/96
11711 Northcreek Pkwy S, Ste # D101	Project Number:	HEW-020	Received: 11/22/96
Bothell, WA 98011	Project Manager:	Mathew Dalton	Reported: 12/3/96 17:20

Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended) with Silica Gel Clean-up/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1160731	**Date Prepared: 11/25/96**					**Extraction Method: EPA 3550**				
Blank	**1160731-BLK1**									
Diesel Range Hydrocarbons	11/25/96			**ND**	mg/kg dry	**10.0**				
Heavy Oil Range Hydrocarbons	"			**ND**	"	**25.0**				
Surrogate: 2-FBP	"	*11.5*		*8.01*	"	*50.0-150*	*69.7*			
LCS	**1160731-BS1**									
Diesel Range Hydrocarbons	11/25/96	68.1		48.7	mg/kg dry	66.0-131	**71.5**			
Surrogate: 2-FBP	"	*11.5*		*7.58*	"	*50.0-150*	*65.9*			
Duplicate	**1160731-DUP1**		**B611437-02**							
Diesel Range Hydrocarbons	11/25/96		58.6	60.5	mg/kg dry			48.0	**3.19**	
Surrogate: 2-FBP	"	*15.8*		*11.7*	"	*50.0-150*	*74.1*			

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**Refer to end of report for text of notes and definitions.*

Laura L Dutton, Project Manager

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)alton, Olmstead and Fuglevand	Project:	Spieker Properties - BA Prop.	Sampled: 11/21/96
11711 Northcreek Pkwy S, Ste # D101	Project Number:	HEW-020	Received: 11/22/96
Bothell, WA 98011	Project Manager:	Mathew Dalton	Reported: 12/3/96 17:20

Polychlorinated Biphenyls by EPA Method 8081/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
atch: 1160726	**Date Prepared: 11/25/96**				**Extraction Method: EPA 3550**					
Blank	**1160726-BLK1**									1,2
Aroclor 1016	11/26/96			**ND**	ug/kg dry	**50.0**				
roclor 1221	"			**ND**	"	**50.0**				
Aroclor 1232	"			**ND**	"	**50.0**				
Aroclor 1242	"			**ND**	"	**50.0**				
roclor 1248	"			**ND**	"	**50.0**				
roclor 1254	"			**ND**	"	**50.0**				
Aroclor 1260	"			**ND**	"	**50.0**				
urrogate: TCX	"	*6.67*		*6.14*	"	*38.0-117*	*92.1*			
LCS	**1160726-BS1**									1,2
Aroclor 1260	11/26/96	333		208	ug/kg dry	37.0-98.0	**62.5**			
urrogate: TCX	"	*6.67*		*6.31*	"	*38.0-117*	*94.6*			
Matrix Spike	**1160726-MS1**		**B611422-06**							1,2,3
roclor 1260	11/26/96	408	ND	206	ug/kg dry	37.0-98.0	**50.5**			
urrogate: Decachlorobiphenyl	"	*8.17*		*5.24*	"	*50.0-150*	*64.1*			
Matrix Spike Dup	**1160726-MSD1**		**B611422-06**							1,2,3
roclor 1260	11/26/96	408	ND	222	ug/kg dry	37.0-98.0	**54.4**	38.0	**7.44**	
Surrogate: Decachlorobiphenyl	"	*8.17*		*5.36*	"	*50.0-150*	*65.6*			

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Dalton, Olmstead and Fuglevand		Project:	Spieker Properties - BA Prop.	Sampled:	11/21/96
11711 Northcreek Pkwy S, Ste # D101		Project Number:	HEW-020	Received:	11/22/96
Bothell, WA 98011		Project Manager:	Mathew Dalton	Reported:	12/3/96 17:20

Notes and Definitions

#	Note
1	To reduce matrix interference, the sample extract has undergone copper clean-up, method 3660, which is specific to sulfur contamination.
2	To reduce matrix interference, the sample extract has undergone sulfuric acid clean-up, method 3665, which is specific to hydrocarbon contamination.
3	Due to problems encountered with the use of the primary surrogate the results of the back-up surrogate have been used to control the analysis.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Laura Dutton

Laura L Dutton, Project Manager

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CHAIN OF CUSTODY REPORT

Work Order # B611424

REPORT TO: Matt Dalton
ATTENTION: Dalton, Olmsted & Fuglevand
ADDRESS: 11711 Northcreek Pkwy B. Suite 101D Bothell 98011
PHONE: 486-7705 FAX: 486-7605
PROJECT NAME: Spieker Properties - BA prop.
PROJECT NUMBER: #ELW-020
SAMPLED BY: T Olmsted

INVOICE TO:
ATTENTION:
ADDRESS:
P.O. NUMBER: acidwash & silica gel cleanup per T.O. Plan
NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 Standard | 7 | 5 | 4 | 3 | 2 | 1 | Same Day — NOTE: 5 for sure.
Fuels & Hydrocarbon Analyses: 5 Standard | 3-4 | 2 | 1 | Same Day
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

#	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Analysis Request: NWTPH-D X (silica gel)	PCB-8081	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1.	BA-MW1 (7.5')	11/21/96 1057	B611424-01	X	X			
2.	BA-MW1 (17.5')	" 1145	-02	X	X			
3.	BA-B1 (2.5')	" 1445	-03	X	X			
4.	BA-B1 (12.5')	" 1507	-04	X	X			
5.	BA-B1 (22.5')	" 1542	-05	X	X			
6.								
7.								
8.								
9.								
10.								

RELINQUISHED BY (Signature): T Olmsted — DATE: 11/22/96
PRINT NAME: — FIRM: DOF — TIME: 1050

RECEIVED BY (Signature): RG Kelley — DATE: 11/22/96
PRINT NAME: RG Kelley — FIRM: NCA — TIME: 1050

RELINQUISHED BY (Signature): — DATE:
PRINT NAME: — FIRM: — TIME:

RECEIVED BY (Signature): — DATE:
PRINT NAME: — FIRM: — TIME:

ADDITIONAL REMARKS:

GROUND WATER LABORATORY DATA SHEETS

NORTH CREEK ANALYTICAL
Environmental Laboratory Services

BOTHELL ■ (206) 481-9200 ■ FAX 485-2992
SPOKANE ■ (509) 924-9200 ■ FAX 924-9290
PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Dalton, Olmstead and Fuglevand	Project:	Speiker Properties - BA Prop.	Sampled: 11/25/96
11711 Northcreek Pkwy S, Ste # D101	Project Number:	HEW-020	Received: 11/25/96
Bothell, WA 98011	Project Manager:	Mathew Dalton	Reported: 12/5/96 08:41

ANALYTICAL REPORT FOR SAMPLES:

Sample Description	Laboratory Sample Number	Sample Matrix	Date Sampled
BA-MW-1	B611442-01	Water	11/25/96

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Dalton, Olmstead and Fuglevand	Project:	Speiker Properties - BA Prop.	Sampled: 11/25/96
11711 Northcreek Pkwy S, Ste # D101	Project Number:	HEW-020	Received: 11/25/96
Bothell, WA 98011	Project Manager:	Mathew Dalton	Reported: 12/5/96 08:41

Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended) with Silica Gel Clean-up
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
BA-MW-1			**B611442-01**				**Water**	
Diesel Range Hydrocarbons	1160746	11/25/96	11/28/96		0.250	ND	mg/l	
Heavy Oil Range Hydrocarbons	"	"	"		0.750	ND	"	
Surrogate: 2-FBP	"	"	"	*50.0-150*		*75.3*	*%*	

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Laura L Dutton, Project Manager

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Dalton, Olmstead and Fuglevand	Project:	Speiker Properties - BA Prop.	Sampled: 11/25/96
11711 Northcreek Pkwy S, Ste # D101	Project Number:	HEW-020	Received: 11/25/96
Bothell, WA 98011	Project Manager:	Mathew Dalton	Reported: 12/5/96 08:41

Metals by EPA 6010/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Specific Method	Reporting Limit	Result	Units	Notes*
BA-MW-1			**B611442-01**				**Water**	
Zinc	1260125	12/3/96	12/5/96	EPA 6010A	0.0200	ND	mg/l	
Arsenic	1260037	12/2/96	12/3/96	EPA 7060A	0.00400	ND	"	
Lead	"	"	12/2/96	EPA 7421	0.00200	**0.00695**	"	

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Dalton, Olmstead and Fuglevand	Project:	Speiker Properties - BA Prop.	Sampled: 11/25/96
11711 Northcreek Pkwy S, Ste # D101	Project Number:	HEW-020	Received: 11/25/96
Bothell, WA 98011	Project Manager:	Mathew Dalton	Reported: 12/5/96 08:41

Polychlorinated Biphenyls by EPA Method 8081
North Creek Analytical - Bothell

Analyte	Batch Number	Date Prepared	Date Analyzed	Surrogate Limits	Reporting Limit	Result	Units	Notes*
BA-MW-1			**B611442-01**				**Water**	**1,2**
Aroclor 1016	1160744	11/25/96	11/27/96		0.100	ND	ug/l	
Aroclor 1221	"	"	"		0.100	ND	"	
Aroclor 1232	"	"	"		0.100	ND	"	
Aroclor 1242	"	"	"		0.100	ND	"	
Aroclor 1248	"	"	"		0.100	ND	"	
Aroclor 1254	"	"	"		0.100	ND	"	
Aroclor 1260	"	"	"		0.100	ND	"	
Surrogate: TCX	"	"	"	*40.0-130*		*87.3*	*%*	

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Laura Dutton

Laura L Dutton, Project Manager

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Dalton, Olmstead and Fuglevand	Project:	Speiker Properties - BA Prop.	Sampled: 11/25/96
11711 Northcreek Pkwy S, Ste # D101	Project Number:	HEW-020	Received: 11/25/96
Bothell, WA 98011	Project Manager:	Mathew Dalton	Reported: 12/5/96 08:41

Diesel Hydrocarbons (C12-C24) and Heavy Oil (C24-C40) by WTPH-D (extended) with Silica Gel Clean-up/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1160746	**Date Prepared: 11/25/96**					**Extraction Method: EPA 3520/600 Series**				
Blank	**1160746-BLK1**									
Diesel Range Hydrocarbons	11/28/96			**ND**	mg/l	**0.250**				
Heavy Oil Range Hydrocarbons	"			**ND**	"	**0.750**				
Surrogate: 2-FBP	"	*0.344*		*0.259*	"	*50.0-150*	*75.3*			
LCS	**1160746-BS1**									
Diesel Range Hydrocarbons	11/28/96	2.04		1.41	mg/l	54.0-121	**69.1**			
Surrogate: 2-FBP	"	*0.344*		*0.225*	"	*50.0-150*	*65.4*			
Duplicate	**1160746-DUP1**	**B611442-01**								
Diesel Range Hydrocarbons	11/28/96		ND	ND	mg/l			44.0		3
Surrogate: 2-FBP	"	*0.648*		*0.455*	"	*50.0-150*	*70.2*			

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Laura Dutton

Laura L Dutton, Project Manager

18939 120th Avenue N.E., Suite 101, Bothell, WA 98011-9508
East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
9405 S.W. Nimbus Avenue, Beaverton, OR 97008-7132

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Environmental Laboratory Services

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SPOKANE ▪ (509) 924-9200 ▪ FAX 924-9290
PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Dalton, Olmstead and Fuglevand	Project:	Speiker Properties - BA Prop.	Sampled: 11/25/96
11711 Northcreek Pkwy S, Ste # D101	Project Number:	HEW-020	Received: 11/25/96
Bothell, WA 98011	Project Manager:	Mathew Dalton	Reported: 12/5/96 08:41

Metals by EPA 6010/7000 Series Methods/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1260037	**Date Prepared: 12/2/96**					**Extraction Method: EPA 3020**				
Blank	**1260037-BLK1**									
Arsenic	12/3/96			**ND**	mg/l	**0.00400**				
Lead	12/2/96			**ND**	"	**0.00200**				
LCS	**1260037-BS1**									
Arsenic	12/3/96	0.0500		0.0527	mg/l	70.0-130	**105**			
Lead	12/2/96	0.0250		0.0250	"	70.0-130	**100**			
Duplicate	**1260037-DUP1**		**B611442-01**							
Arsenic	12/3/96		ND	ND	mg/l			20.0		3
Lead	12/2/96		0.00695	0.00693	"			20.0	**0.288**	
Matrix Spike	**1260037-MS1**		**B611442-01**							
Arsenic	12/3/96	0.0500	ND	0.0499	mg/l	75.0-125	**99.8**			
Lead	12/2/96	0.0250	0.00695	0.0338	"	75.0-125	**107**			
Matrix Spike Dup	**1260037-MSD1**		**B611442-01**							
Arsenic	12/3/96	0.0500	ND	0.0513	mg/l	75.0-125	**103**	20.0	**3.16**	
Lead	12/2/96	0.0250	0.00695	0.0325	"	75.0-125	**102**	20.0	**4.78**	
Batch: 1260125	**Date Prepared: 12/3/96**					**Extraction Method: EPA 3010**				
Blank	**1260125-BLK1**									
Zinc	12/5/96			**ND**	mg/l	**0.0200**				
LCS	**1260125-BS1**									
Zinc	12/5/96	1.00		0.951	mg/l	70.0-130	**95.1**			
Duplicate	**1260125-DUP1**		**B611330-03**							
Zinc	12/5/96		ND	ND	mg/l			20.0		3
Matrix Spike	**1260125-MS1**		**B611330-03**							
Zinc	12/5/96	1.00	ND	0.931	mg/l	75.0-125	**93.1**			
Matrix Spike Dup	**1260125-MSD1**		**B611330-03**							
Zinc	12/5/96	1.00	ND	0.992	mg/l	75.0-125	**99.2**	20.0	**6.34**	

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Laura L Dutton, Project Manager

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PORTLAND ■ (503) 643-9200 ■ FAX 644-2202

Dalton, Olmstead and Fuglevand	Project:	Speiker Properties - BA Prop.	Sampled: 11/25/96
11711 Northcreek Pkwy S, Ste # D101	Project Number:	HEW-020	Received: 11/25/96
Bothell, WA 98011	Project Manager:	Mathew Dalton	Reported: 12/5/96 08:41

Polychlorinated Biphenyls by EPA Method 8081/Quality Control
North Creek Analytical - Bothell

Analyte	Date Analyzed	Spike Level	Sample Result	QC Result	Units	Reporting Limit / Recov. Limits	Recov. %	RPD Limit	RPD %	Notes*
Batch: 1160744	**Date Prepared: 11/25/96**					**Extraction Method: EPA 3520/600 Series**				
Blank	**1160744-BLK1**									1,2
Aroclor 1016	11/27/96			**ND**	ug/l	**0.100**				
Aroclor 1221	"			**ND**	"	**0.100**				
Aroclor 1232	"			**ND**	"	**0.100**				
Aroclor 1242	"			**ND**	"	**0.100**				
Aroclor 1248	"			**ND**	"	**0.100**				
Aroclor 1254	"			**ND**	"	**0.100**				
Aroclor 1260	"			**ND**	"	**0.100**				
Surrogate: TCX	"	*0.200*		*0.182*	"	*40.0-130*	*91.0*			
LCS	**1160744-BS1**									1,2
Aroclor 1260	11/27/96	10.0		6.23	ug/l	33.0-122	**62.3**			
Surrogate: TCX	"	*0.200*		*0.188*	"	*40.0-130*	*94.0*			
LCS Dup	**1160744-BSD1**									1,2
Aroclor 1260	11/27/96	10.0		6.32	ug/l	33.0-122	**63.2**	21.0	**1.43**	
Surrogate: TCX	"	*0.200*		*0.188*	"	*40.0-130*	*94.0*			

North Creek Analytical, Inc.

**Refer to end of report for text of notes and definitions.*

Laura Dutton

Laura L Dutton, Project Manager

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PORTLAND ▪ (503) 643-9200 ▪ FAX 644-2202

Dalton, Olmstead and Fuglevand	Project:	Speiker Properties - BA Prop.	Sampled: 11/25/96
11711 Northcreek Pkwy S, Ste # D101	Project Number:	HEW-020	Received: 11/25/96
Bothell, WA 98011	Project Manager:	Mathew Dalton	Reported: 12/5/96 08:41

Notes and Definitions

#	Note
1	To reduce matrix interference, the sample extract has undergone copper clean-up, method 3660, which is specific to sulfur contamination.
2	To reduce matrix interference, the sample extract has undergone sulfuric acid clean-up, method 3665, which is specific to hydrocarbon contamination.
3	Analyses are not controlled on RPD values from sample concentrations less than 10 times the reporting limit.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
Recov.	Recovery
RPD	Relative Percent Difference

North Creek Analytical, Inc.

Laura L Dutton, Project Manager

NORTH CREEK ANALYTICAL
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CHAIN OF CUSTODY REPORT

Work Order # B611442

REPORT TO:
ATTENTION: DOE M. Sexton
ADDRESS:
PHONE: FAX:
PROJECT NAME: Speiker BA
PROJECT NUMBER: HEW-020-02
SAMPLED BY: T. Olmsted

INVOICE TO:
ATTENTION: DOE
ADDRESS:
P.O. NUMBER: w/SG cleanup NCA QUOTE #:

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 Standard | 7 | 5 (X) | 4 | 3 | 2 | 1 | Same Day
Fuels & Hydrocarbon Analyses: 5 Standard | 3-4 | 2 | 1 | Same Day
OTHER Specify
* Turnaround Requests less than standard may incur Rush Charges

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NCA SAMPLE ID (Laboratory Use Only)	Analysis Request: WTPH-D X	PCB 8082 X	As Pb Cd ZN X	MATRIX (W, S, A, O)	# OF CONTAINERS	COMMENTS
1.	BA-MW-1	11/25/96 1100	B611442-01	X	X	X	W	3	
2.									
3.									
4.									
5.									
6.									
7.									
8.									
9.									
10.									

RELINQUISHED BY (Signature): T. Olmsted DATE: 11/25/96
PRINT NAME: T. Olmsted FIRM: DOE TIME: 1245
RECEIVED BY (Signature): Lisa Hurley DATE: 11-25-96
PRINT NAME: Lisa Hurley FIRM: NCA TIME: 12:45

RELINQUISHED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:
RECEIVED BY (Signature): DATE:
PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS:

PAGE 1 OF 1