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REPORTS

Supplemental Environmental Site Assessment

**Decommissioned Chevron Bulk Terminal
No. 61001351
1310 Highland Avenue
Bremerton, Washington**

Prepared for

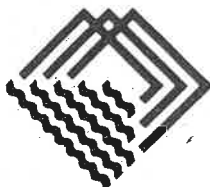
Chevron U.S.A. Products Company

March 10, 1994

Prepared by

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Project 520-041.01



**PACIFIC
ENVIRONMENTAL
GROUP, INC.**

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EXECUTIVE SUMMARY

At the request of Chevron U.S.A. Products Company, Pacific Environmental Group, Inc. (PACIFIC) performed a supplemental environmental investigation at decommissioned Chevron Bulk Terminal No. 61001351 in Bremerton, Washington. PACIFIC performed investigation activities between August 23, 1993 and September 21, 1993. Findings of this project are summarized below:

- In general, soils encountered during drilling consisted of silts and silty sands to the total depth explored of 46.5 feet below grade.
- The presence of two distinct separate water-bearing units was not confirmed during this investigation.
- Depth to groundwater at the site on September 20, 1993 ranged from approximately 8 feet to 16.2 feet below top of casing in the wells screened shallow in the water-bearing unit. The inferred groundwater migration direction in the shallowest water-bearing unit was towards the northwest, at an approximate gradient of 0.039 feet vertical per foot horizontal (ft/ft) as measured between groundwater monitoring Wells MW-10 and MW-18.
- Depth to groundwater on September 20, 1993 ranged from approximately 10.5 feet to 19.4 feet below top of casing in the wells screened deeper in the water-bearing unit. Because it is not likely that the deeper groundwater unit encountered in Wells MW-17, MW-23, and MW-24 represents a distinct second water-bearing zone, groundwater data from these wells were not used in potentiometric surface calculations.
- Soil samples submitted for analyses from Borings MW-19 (13.5') and MW-22 (10') exceeded Washington State Model Toxics Control Act (MTCA) Method A cleanup levels for TPH-gasoline.
- Soil samples submitted for analysis from Borings MW-19 (13.5') and MW-22 (10') exceeded the MTCA Method A cleanup level for TPH-diesel.
- Concentrations of benzene detected in the 10 foot soil sample submitted from Boring MW-22 exceeded the MTCA Method A cleanup level.

- Concentrations of TPH-oil detected in the 21.5 foot sample from Boring MW-24 exceeded the MTCA Method A cleanup level.
- No soil samples submitted for analysis exceeded the MTCA Method A cleanup level of 1 part per million (ppm) for total carcinogenic polynuclear aromatic hydrocarbons (PAHs), or total lead. Concentrations of PAHs were detected but they were not carcinogenic PAHs.
- Concentrations of TPH-gasoline detected in the groundwater samples from Wells MW-13 through MW-15, and MW-21 exceeded the MTCA Method A cleanup level.
- Concentrations of one or more BTEX compounds detected in the groundwater samples from Wells MW-13 through MW-15, and MW-21 through MW-23, exceeded the MTCA Method A cleanup levels.
- Groundwater samples from Wells MW-13 through MW-15, MW-17, MW-18, MW-21, MW-22, and MW-24 contained concentrations of total lead which equaled or exceeded the MTCA Method A cleanup level.
- No concentrations of TPH-diesel or TPH-oil detected in the groundwater samples from any well exceeded the MTCA Method A cleanup levels.
- Concentrations of PAHs detected in Wells MW-13, MW-14, and MW-22 exceeded the MTCA Method A cleanup level of 0.1 parts per billion (ppb) for total carcinogenic PAHs.
- Groundwater monitoring Wells MW-4, MW-9, MW-10 and MW-20 contained measurable amounts of phase-separate hydrocarbons on September 20, 1993.

This summary is provided as an introduction to the site investigation report. The information presented should only be used in conjunction with the entire report document. A detailed description of the investigation including background, site conditions, investigative procedures, findings and conclusions are presented in the report.

1.0 INTRODUCTION

1.1 Purpose and Scope of Work

This report documents a supplemental environmental site assessment conducted by Pacific Environmental Group, Inc. (PACIFIC) at decommissioned Chevron Bulk Terminal # 61001351 located at 1310 Highland Avenue in Bremerton, Washington. The purpose of this investigation was to assess and document soil and groundwater quality with respect to hydrocarbons at the site. Services were provided by PACIFIC under Chevron Contract No CB6C930532NWX, Release # 9863440.

The scope of work for the investigation consisted of the following tasks as outlined in PACIFIC's workplan dated August 3, 1993:

- Prepare a site safety plan.
- Drill nine exploratory soil borings (MW-16 through MW-24).
- Install and develop a two-inch diameter groundwater monitoring well within Borings MW-16 through MW-24. Completing six of these borings (MW-16, and MW-18 through MW-22) in the shallow, unconfined water bearing unit, and three of the borings (MW-17, MW-23, and MW-24) in the suspected deeper water-bearing unit previously identified in existing monitoring Well MW-12.
- Screen soil samples for organic vapors using a portable photoionization detector (PID).
- Abandon monitoring Well MW-12 which was suspected to be screened across two water-bearing zones.
- Survey the elevations of the newly installed and previously existing monitoring wells.
- Submit selected soil and groundwater samples for laboratory analysis.
- Prepare this report.

2.0 BACKGROUND

2.1 Site Description

Decommissioned Chevron Bulk Terminal # 61001351 is situated on a 1.5 acre parcel on the west side of the Port Washington Narrows approximately one-third mile north of the Manette Bridge in Bremerton, Washington. The site location is shown on Figures 1 and 2. The site has been divided into the upper yard, where above ground storage tanks were formerly located, and the lower yard, where petroleum dispensing and handling operations formerly took place (Figure 2). Land use in the vicinity of the site is both residential and commercial consisting of homes, apartment complexes, small businesses, and a city park being located just north of the site.

2.2 Geologic Setting

The site is located on the west side of the Port Washington Narrows in Bremerton, Washington. The area is located in the Puget Sound Lowland geomorphic province, which consists mainly of glacially-deposited sediments. The Puget Sound Lowland is a basin lying between the Cascade Mountains to the east and the Olympic Mountains (coastal range) to the west. At least five major advances of continental glacial ice have been identified as having occurred in the Puget Sound Lowland. Geologic units resulting from these glacial events include complex sequences of lacustrine deposits, advance outwash, glaciomarine drift, till, and recessional outwash. The area beneath the upper yard at the site consists of Vashon till, which is a Pleistocene glacial deposit consisting mainly of gravelly, sandy silt to silty sand with varied quantities of clay and scattered cobbles and boulders (Galster et Al, 1991). This till, which is the "hardpan" commonly referred to in drilling and construction parlance, is underlain by interfingering silts and silty sands. The area beneath the lower yard at the site consists primarily of imported fill material. According to information from previous investigations, the fill is approximately 18 feet thick.

2.3 Previous Investigations

Hart Crowser, Inc., GeoEngineers, Inc., and Groundwater Technology, Inc. have performed a number of environmental investigations at the site since September 1988. These

investigations consisted of such tasks as drilling exploratory soil borings, installing groundwater monitoring wells and vapor extraction (VE) wells, excavating exploratory test pits, collecting and analyzing soil and groundwater samples, conducting slug tests in on-site wells to assess hydraulic conductivity, and the installation and startup of a soil vapor extraction system (SVE).

Prior to activities conducted on-site by PACIFIC, eleven groundwater monitoring wells and eleven VE wells existed on-site. Selected VE wells were on-line with the operational SVE system. Monitoring Well MW-7 could not be located during the investigation by PACIFIC.

3.0 METHODS

3.1 Soil Borings

Nine exploratory soil borings (MW-16 through MW-24) were drilled by PACIFIC to depths ranging from approximately 15 feet to 46.5 feet between August 23, 1993 and September 13, 1993. The exploratory soil borings were located in accordance with PACIFIC's workplan dated August 3, 1993. Four-inch and eight-inch inside diameter hollow-stem auger drilling equipment was used and the borings were logged by a PACIFIC geologist using the Unified Soil Classification System. Soil Borings MW-16 through MW-24 were converted to groundwater monitoring wells. Investigative procedures are presented in Appendix A.

3.2 Soil Sampling

Initial soil samples were collected at approximately five feet below grade, and sampling continued thereafter at five-foot intervals to the total depth explored. Additional samples were collected in some borings to document zones separating shallow and deeper water-bearing units. Soil samples for chemical analysis were retained in stainless steel liners, covered with Teflon® squares, capped with plastic end caps, and sealed in ziplock bags. The samples were placed on ice for transport to Analytical Technologies, Inc. accompanied by chain-of-custody documentation. Sample preservation techniques are presented in Appendix A.

Soil samples were field screened for the presence of organic vapors using a Thermo Environmental Instruments Inc. Model 580B PID with a 10.0 electron volt (eV) lamp. The PID test procedures are described in Appendix A. It should be noted that the PID measurements are considered semi-quantitative data since the instrument detects all organic compounds with ionization potentials less than 10 eV. The results of this screening are recorded on the exploratory boring logs in Appendix B.

3.3 Monitoring Well Installation

Borings MW-16 through MW-24 were converted to groundwater monitoring wells by the installation of 2-inch diameter, Schedule 40 PVC casing with 0.010-inch factory slotted

screen. Screened intervals for wells completed in the shallow water-bearing unit (MW-16, and MW-18 through MW-22) ranged from 5 to 24 feet below grade. Screened intervals for wells completed in the deep water-bearing zone (MW-17, MW-23, and MW-24) ranged from 30 to 44 feet below grade. These three wells were installed by drilling into a silt, thought to represent a confining layer, and setting a 10" steel conductor casing (12" in MW-17) in place using a cement/bentonite grout. After allowing the grout to set overnight, the three wells were installed by drilling through the conductor casing which sealed off the shallow water-bearing unit, and into the next water-bearing unit, where the wells were completed. The annular space of each of the nine wells was packed with a graded 10x20 silica sand. The sand pack was placed across the entire screened interval, extending approximately two feet above the top of the screens. The annular space of each well was then sealed with hydrated bentonite chips to approximately three feet below grade. A plug-type locking device, a well identification tag, and a waterproof monument set in concrete were installed at the top of each monitoring well.

The elevations of monitoring Wells MW-4 through MW-6, MW-8 through MW-11, and MW-13 through MW-24 were surveyed to the nearest 0.01 foot with respect to the elevation of an arbitrary datum established at the southernmost corner of the existing concrete pad closest to Well MW-14. A survey reference mark was scribed on the lip of each monitoring well casing with a permanent marker. The datum point was assigned an elevation of 100.00 feet. Surveyed elevations are presented in Table 1. The survey field data sheet is included in Appendix C.

3.4 Monitoring Well Development

Monitoring Wells MW-16 through MW-24 were developed between August 24, 1993 and September 14, 1993 by surging and bailing. Well development procedures and records are presented in Appendix A.

3.5 Well Abandonment

Monitoring Well MW-12 was abandoned on August 23, 1993 by drilling out the well casing and removing the monument and all construction materials. The borehole was then sealed with bentonite in accordance with Chapter 173-160 of the Washington Administrative Code.

3.6 Groundwater Sampling

Water level measurements were performed on September 20, 1993. Groundwater sampling was performed on September 21, 1993. Groundwater samples were collected from monitoring Wells MW-11, MW-13 through MW-19, and MW-21 through MW-24. Monitoring Wells MW-4, MW-9, MW-10, and MW-20 were not sampled due to the presence

of phase-separate hydrocarbons in the wells on September 20, 1993. Monitoring Wells MW-5 and MW-8 were dry on September 20, 1993. Monitoring Well MW-6 was not sampled due to the presence of a black, viscous, odorous substance in the bottom of the well. Monitoring Well MW-7 could not be located. Well locations are shown on Figures 3 through 6. Groundwater elevations are presented in Table 1.

Prior to sampling, each well was visually checked for the presence of phase-separate hydrocarbons using a clear single-use disposable polyethylene bailer. The wells were then purged of a minimum of three casing volumes of water by bailing. Groundwater samples were collected after the wells recovered to at least 80 percent of the pre-purge static water level. Samples were collected with a single-use disposable bailer. Groundwater sampling procedures are described in detail in Appendix A. Field sampling data sheets and water levels are presented in Appendix C.

3.7 Analytical Program

All soil and groundwater samples were analyzed by Analytical Technologies, Inc. of Renton, Washington. Soil sample locations are shown on the boring logs contained in Appendix B. The results of these analyses are presented in Tables 2 through 5. Laboratory analytical reports and chain-of-custody documentation are presented in Appendix C.

Laboratory analyses were performed on thirteen selected soil samples collected from Borings MW-16 through MW-24 and twelve groundwater samples collected from Wells MW-11, MW-13 through MW-19, and MW-21 through MW-24. In addition, laboratory analyses were performed on one water trip blank sample. The analytical tests performed on selected samples are described below:

- Total Petroleum Hydrocarbons as Gasoline with BTEX distinction by Methods WTPH-G/EPA 8020,
- Total Petroleum Hydrocarbons as Diesel and Oil by Method WTPH-D plus extended,
- Total lead by EPA Methods 7420 and 7421,
- Polynuclear Aromatic Hydrocarbons by EPA Method 8310.

4.0 RESULTS

4.1 Subsurface Soil Conditions

4.1.1 Upper Yard

In general, soils encountered during drilling in the upper yard consisted of very dense, silty sands with gravel which is interpreted as glacial till. Underlying the till at depths ranging from 19.5 feet to 31 feet below grade is a series of interbedded units consisting of very hard silt layers interbedded with silty sands to the total depth explored of 46.5 feet below grade. Silty sand was not observed in samples from Boring MW-17 below 31 feet in depth. Groundwater in the upper yard monitoring wells was first encountered at depths ranging from approximately 15 feet to 26.5 feet below grade. While the silt layers underlying the shallower glacial till contained very little moisture, the interbedded silty sands appeared to be water-bearing. The interbedded units observed in Borings MW-23 and MW-24 and the lack of silty sand being observed in Boring MW-17 suggest the deeper water-bearing zone may be discontinuous. Soil boring logs are presented in Appendix B.

4.1.2 Lower Yard

In general, soils encountered during drilling in the lower yard consisted of silty, gravelly sand, interpreted as fill materials, to the total explored depth of 15 feet below grade. Groundwater in the lower yard monitoring wells was first encountered at a depth of approximately 10 feet.

4.2 Soil Analytical Results

Thirteen soil samples from soil Borings MW-16 through MW-24 were analyzed for TPH-gasoline, BTEX compounds, TPH-diesel and oil, PAHs, and total lead. The soil analytical results are summarized in Tables 2 and 3. Laboratory analytical reports and chain-of-custody documentation are included in Appendix C. Figure 3 and the boring logs contained in Appendix B of this report should be referenced for sample locations and descriptions. Following is a summary of soil analytical results:

- Concentrations of TPH-gasoline were detected in four of the soil samples analyzed, two of which, MW-19(13.5'), and MW-22(10'), contained concentrations exceeding the MTCA Method A cleanup level.
- While concentrations of BTEX compounds were detected in five of the soil samples analyzed, only one, MW-22(10'), contained a BTEX compound concentration (benzene) which exceeded the MTCA Method A cleanup level.
- Eight soil samples analyzed contained concentrations of TPH-diesel, two of which, MW-19(13.5') and MW-22(10'), contained concentrations exceeding the MTCA Method A cleanup level.
- While TPH-oil concentrations were detected in four of the samples analyzed, only one, MW-24(21.5'), contained concentrations exceeding the MTCA Method A cleanup level.
- Total lead was detected in seven of the soil samples analyzed at concentrations ranging from 2.8 ppm to 49 ppm, none of which exceeded the MTCA Method A cleanup level of 250 ppm.
- Concentrations of PAHs were detected in soil samples MW-21(10'), MW-22(10'), and MW-19(13.5'). Concentrations of PAHs detected in these three samples ranged from 0.013 to 65 ppm. Concentrations of PAHs detected in these three samples did not include any known carcinogenic PAHs, and are therefore below the MTCA Method A cleanup level of 1 ppm.

4.3 Groundwater Conditions

On September 20, 1993, depth to groundwater in the wells completed in the shallow water-bearing unit at the site ranged from approximately 8 feet to 16.2 feet below top of casing. Groundwater elevation contours are presented on Figure 4. The inferred direction of groundwater migration on September 20, 1993 was to the northwest at an approximate gradient of 0.039 ft/ft as measured between Wells MW-18 and MW-10.

On September 20, 1993, depth to groundwater in the wells completed deeper in the water-bearing unit at the site ranged from approximately 10.5 feet to 19.4 feet below top of casing. Because it is suspected that monitoring Wells MW-17, MW-23, and MW-24 may not be screened across a continuous water-bearing unit, these wells were not included in developing the groundwater elevation contours nor were they utilized in calculating the potentiometric surface at the site.

4.4 Groundwater Analytical Results

Groundwater samples were collected from monitoring Wells MW-11, MW-13 through MW-19, and MW-21 through MW-24. Monitoring Wells MW-4, MW-9, MW-10, and MW-20 were not sampled due to the presence of phase-separate hydrocarbons on September 20, 1993. Monitoring Wells MW-5 and MW-8 were dry on September 20, 1993. Monitoring Well MW-6 was not sampled due to the presence of a black, viscous, odorous substance in the bottom of the well. Monitoring Well MW-7 could not be located. A trip blank sample was also submitted for analysis. The groundwater analytical results are summarized in Tables 4 and 5. Laboratory analytical reports and chain-of-custody documentation are included in Appendix C.

The groundwater samples from all monitoring wells sampled were analyzed for TPH-gasoline, BTEX compounds, TPH-diesel and oil, PAHs, and total lead. The trip blank sample was analyzed for TPH-gasoline and BTEX compounds. Following is a summary of analytical results:

- Concentrations of TPH-gasoline were detected in nine of the twelve wells analyzed for this parameter. Four of these wells (MW-13 through MW-15, and MW-21) contained concentrations of TPH-gasoline which exceeded the MTCA Method A cleanup level.
- Concentrations of one or more BTEX compounds were detected in eleven of the twelve wells analyzed for these parameters. Six of these wells (MW-13 through MW-15, and MW-21 through MW-23) contained concentrations of one or more BTEX compounds exceeding the MTCA Method A cleanup levels.
- Concentrations of TPH-diesel were detected in all twelve wells analyzed at concentrations ranging from 0.28 ppb to 95 ppb, none of which exceed the MTCA Method A cleanup level of 1,000 ppb.
- Concentrations of TPH-oil were detected in seven of the twelve wells analyzed at concentrations ranging from 0.97 ppb to 15 ppb, none of which exceed the MTCA Method A cleanup level of 1,000 ppb.
- Concentrations of total lead were detected in nine of the twelve wells analyzed for this parameter. Eight of these wells (MW-13 through MW-15, MW-17, MW-18, MW-21, MW-22, and MW-24) contained concentrations of total lead which equaled or exceeded the MTCA Method A cleanup level.

- Concentrations of PAHs were detected in ten of the twelve wells analyzed for these parameters. Three of these wells (MW-13, MW-14, and MW-22) contained concentrations of PAHs exceeding the MTCA Method A cleanup level of 0.1 ppb for total carcinogenic PAHs.
- Concentrations of TPH-gasoline and BTEX compounds in the trip blank sample were not detected at the method reporting limits. A TPH-gasoline/benzene concentration map is included on Figure 5.

5.0 CONCLUSIONS

In general, soils encountered during drilling consisted of silts and silty sands to the total explored depth of 46.5 feet below grade.

The presence of two distinct separate water-bearing units was not confirmed during this investigation.

Depth to groundwater in the wells completed in the shallow water-bearing unit at the site on September 20, 1993 ranged from approximately 8 feet to 16.2 feet below top of casing. The inferred groundwater migration direction at the site on September 20, 1993 was towards the northwest at an approximate gradient of 0.039 ft/ft as measured between monitoring Wells MW-10 and MW-18. Depth to groundwater in the wells completed deeper in the water-bearing unit at the site on September 20, 1993 ranged from approximately 10.5 feet to 19.4 feet below top of casing. Because it is not likely that the groundwater unit encountered in Wells MW-17, MW-23, and MW-24 represents a distinctly separate water-bearing zone, groundwater data from these wells were not included in the groundwater calculations. It is possible that these wells are constructed in a semi-confined water bearing zone.

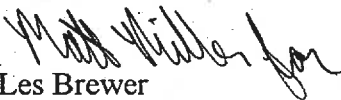
On September 20, 1993, groundwater monitoring Wells MW-4, MW-9, MW-10, and MW-20 contained measurable phase-separate hydrocarbons, and monitoring Well MW-6 contained a black, viscous, odorous substance in the bottom of the well. Concentrations of TPH-gasoline detected in the soil samples from soil Borings MW-19, MW-21, and MW-22 exceeded the MTCA Method A cleanup level. Concentrations of TPH-diesel detected in the soil samples from soil Borings MW-19 and MW-22 contained concentrations exceeding the MTCA Method A cleanup level. Although concentrations of BTEX compounds were detected in five of the soil samples analyzed, only one, MW-22(10'), contained a BTEX compound concentration (benzene) which exceeded the MTCA Method A cleanup level. Although TPH-oil concentrations were detected in four of the soil samples analyzed, only one, MW-24(21.5'), contained concentrations exceeding the MTCA Method A cleanup level. Total lead was detected in seven of the soil samples analyzed at concentrations below the MTCA Method A cleanup level. Concentrations of PAHs were detected in soil samples MW-21(10'), MW-22(10'), and MW-19(13.5'). Concentrations of PAHs detected in these three samples did not include any known carcinogenic PAHs, and are therefore below the MTCA Method A cleanup level.

Concentrations of TPH-gasoline detected in the groundwater samples from Wells MW-13 through MW-15, and MW-21 exceeded the MTCA Method A cleanup level. Concentrations of one or more BTEX compounds detected in the groundwater samples from Wells MW-13 through MW-15, and MW-21 through MW-23, exceeded the MTCA Method A cleanup levels. No concentrations of TPH-diesel or TPH-oil detected in the groundwater samples from any well exceeded the MTCA Method A cleanup levels. Groundwater samples from Wells MW-13 through MW-15, MW-17, MW-18, MW-21, MW-22, and MW-24 contained concentrations of total lead which equaled or exceeded the MTCA Method A cleanup level.

PACIFIC appreciates the opportunity to be of continuing service. If you have any questions regarding the contents of this report, please call.

Sincerely,

Pacific Environmental Group, Inc.



Les Brewer
Staff Geologist



John Johnson
Project Manager
CHHM, REP

6.0 REFERENCES

Galster, Richard W. and Laprade, William T., Geology of Seattle, Washington, United States of America; Bulletin of the Association of Engineering Geologists, Volume XXVII, No. 3, 1991, pp 235-302.

TABLE 1
GROUNDWATER ELEVATIONS
DECOMMISSIONED CHEVRON BULK TERMINAL # 61001351

Well I.D.	Date	Casing Elevation (feet)	Depth to Liquid (feet)	Depth to Groundwater (feet)	Groundwater Elevation (feet)	Product Thickness (feet)
MW-4	9/20/93	98.46	9.97	10.36	88.36*	0.39
MW-5	9/20/93	95.96	DRY	DRY	NA	NA
MW-6	9/20/93	98.40	9.99	9.99	88.41	0.00
MW-7	9/20/93	NS	NS	NS	NS	NS
MW-8	9/20/93	95.18	NA	DRY	NA	NA
MW-9	9/20/93	98.50	10.14	10.15	88.35	0.01
MW-10	9/20/93	98.45	9.86	9.97	88.56*	0.11
MW-11	9/20/93	98.11	8.62	8.62	89.49	Sheen
MW-13	9/20/93	97.11	8.13	8.13	88.98	Sheen
MW-14	9/20/93	97.58	8.85	8.85	88.73	0.00
MW-15	9/20/93	97.46	9.22	9.22	88.24	0.00
MW-16	9/20/93	108.03	16.23	16.23	91.80	0.00
MW-17	9/20/93	108.97	19.38	19.38	89.59 (D)	0.00
MW-18	9/20/93	104.88	11.67	11.67	93.21	0.00
MW-19	9/20/93	107.39	15.73	15.73	91.66	0.00
MW-20	9/20/93	97.25	8.85	8.86	88.39	0.01
MW-21	9/20/93	97.27	9.10	9.10	88.17	0.00
MW-22	9/20/93	96.47	8.04	8.04	88.43	0.00
MW-23	9/20/93	108.07	18.22	18.22	89.85 (D)	0.00
MW-24	9/20/93	100.65	10.53	10.53	90.12 (D)	0.00

NOTES: NA - Not Applicable

NS - Not Surveyed - Well not located on 9-20-93

* - Groundwater elevation corrected for the presence of
phase-separate hydrocarbons.

Elevations surveyed to an arbitrary datum of 100.00 feet

(D) Elevation representative of the wells deeper in the water bearing unit

TABLE 2

SOIL ANALYTICAL RESULTS
DECOMMISSIONED CHEVRON BULK TERMINAL 61001351

TPH as Gasoline-Method WTPH-G

TPH as Diesel and Oil-Method WTPH-D+extended

BTX Compounds-Method 8020

Total Lead-Method 7420

Concentrations in mg/kg (ppm)

Sample I.D.	Date	PARAMETER							Total Lead
		TPH- Gasoline	TPH- Diesel	TPH- Oil	Benzene	Toluene	Ethyl- benzene	Xylenes	
MW-16 (20')	8/23/93	ND	ND	ND	ND	ND	ND	ND	ND
MW-17 (27')	8/24/93	ND	13	ND	ND	ND	ND	ND	8.2
MW-17 (30')	8/24/93	ND	ND	ND	ND	ND	ND	ND	ND
MW-18 (15.5')	8/25/93	ND	ND	ND	ND	ND	ND	ND	ND
MW-19 (13.5')	8/25/93	420	630	ND	ND	0.12	0.38	1.4	ND
MW-20 (11.5')	8/25/93	69	34	110	ND	0.26	0.24	0.42	26
MW-21 (10')	8/26/93	120	170	ND	0.43	2.2	1.8	12	ND
MW-22 (10')	8/26/93	1,300	11,000	ND	3.7	4.1	17	21	49
MW-23 (25.5')	9/13/93	ND	ND	ND	ND	ND	ND	ND	ND

(continued)

TABLE 2
SOIL ANALYTICAL RESULTS
DECOMMISSIONED CHEVRON BULK TERMINAL 61001351

TPH as Gasoline-Method WTPH-G
 TPH as Diesel and Oil-Method WTPH-D+extended
 BTEX Compounds-Method 8020
 Total Lead-Method 7420
 Concentrations in mg/kg (ppm)

Sample I.D.	Date	PARAMETER							Total Lead
		TPH- Gasoline	TPH- Diesel	TPH- Oil	Benzene	Toluene	Ethyl- benzene	Xylenes	
MW-23 (35')	9/13/93	ND	ND	ND	ND	ND	ND	ND	2.8
MW-23 (42')	9/14/93	ND	38	74	ND	ND	ND	ND	5.7
MW-24 (21.5')	9/13/93	ND	44	210	0.12	ND	ND	0.047	14
MW-24 (34')	9/14/93	ND	42	120	ND	ND	ND	ND	4.3
MTCA Method A Cleanup Level:	-	100.0	200.0	200.0	0.5	40.0	20.0	20.0	250.0
Reporting Limit:	-	5 - 7	10 - 13	40 - 49	0.027 - 0.033	0.027 - 0.033	0.027 - 0.033	0.027 - 0.033	1.5 - 6.2

NOTES: ND - Not Detected

TABLE 3
SOIL ANALYTICAL RESULTS
DECOMMISSIONED CHEVRON BULK TERMINAL # 61001351

Polynuclear Aromatic Hydrocarbons (PAHs) - EPA Method 8310
 Concentrations in mg/kg (ppm)

Sample I.D.	Date	PARAMETER						
		Naphthalene	1-Methyl- naphthalene	2-Methyl- naphthalene	Fluorene	Phenanthrene	Anthracene	Fluoranthene
MW-16 (20')	8/23/93	ND	ND	ND	ND	ND	ND	ND
MW-17 (27')	8/24/93	ND	ND	ND	ND	ND	ND	ND
MW-17 (30')	8/24/93	ND	ND	ND	ND	ND	ND	ND
MW-18 (15.5')	8/25/93	ND	ND	ND	ND	ND	ND	ND
MW-19 (13.5')	8/25/93	ND	2.7	0.27	0.76	1.2	ND	ND
MW-20 (11.5')	8/25/93	ND	ND	ND	ND	ND	ND	ND
MW-21 (10')	8/26/93	0.15	ND	0.31	0.031	0.075	0.013	0.14
MW-22 (10')	8/26/93	24	65	53	5.7	14	1.2	ND
MW-23 (25.5')	9/13/93	ND	ND	ND	ND	ND	ND	ND

(continued)

TABLE 3
SOIL ANALYTICAL RESULTS
DECOMMISSIONED CHEVRON BULK TERMINAL # 61001351

Polynuclear Aromatic Hydrocarbons (PAHs) - EPA Method 8310
Concentrations in mg/kg (ppm)

Sample I.D.	Date	PARAMETER					
		1-Methyl- Naphthalene	2-Methyl- Naphthalene	Phenanthrene	Anthracene	Fluoranthene	Pyrene
MW-23 (35')	9/13/93	ND	ND	ND	ND	ND	ND
MW-23 (42')	9/14/93	ND	ND	ND	ND	ND	ND
MW-24 (21.5')	9/13/93	ND	ND	ND	ND	ND	ND
MW-24 (34')	9/14/93	ND	ND	ND	ND	ND	ND
Reporting Limits:	-	0.083-	0.17-	0.0083-	0.0083-	0.017-	0.017-
		0.11	0.22	0.011	0.011	0.022	0.022

NOTES: ND - Not Detected

Detected concentrations of PAHs are non-carcinogenic PAHs only.

See CARs for reporting limits for MW-22 (10') and for PAHs analyzed for not shown on this table.

The MTCA Method A cleanup level for total carcinogenic PAHs is 1 ppm.

Certified Analytical Results are attached

TABLE 4
GROUNDWATER ANALYTICAL RESULTS
DECOMM. CHEVRON BULK TERMINAL 61001351

TPH as Gasoline-Method WTPH-G
TPH as Diesel and Oil-Method WTPH-D+extended
BTEX Compounds- Method 8020
Total Lead- Method 7421
Concentrations in ug/L(ppb)

Sample ID.	Sample Date	PARAMETER							Total Lead
		TPH-Gasoline	TPH-Diesel	TPH-Oil	Benzene	Toluene	Ethyl-benzene	Xylenes	
MW-4	9/21/93	NS*	NS*	NS*	NS*	NS*	NS*	NS*	NS*
MW-5	9/21/93	NS**	NS**	NS**	NS**	NS**	NS**	NS**	NS**
MW-6	9/21/93	NS*	NS*	NS*	NS*	NS*	NS*	NS*	NS*
MW-7	9/21/93	NS	NS	NS	NS	NS	NS	NS	NS
MW-8	9/21/93	NS**	NS**	NS**	NS**	NS**	NS**	NS**	NS**
MW-9	9/21/93	NS*	NS*	NS*	NS*	NS*	NS*	NS*	NS*
MW-10	9/21/93	NS*	NS*	NS*	NS*	NS*	NS*	NS*	NS*
MW-11	9/21/93	600	20	4.0	ND	0.7	ND	2.7	ND
MW-13	9/21/93	2,800	22	8.2	33	6.4	58	95	100
MW-14	9/21/93	8,700	27	2.7	330	570	350	1,000	46
MW-15	9/21/93	4,600	7.0	ND	67	24	360	77	14
MW-16	9/21/93	670	6.2	1.4	ND	1.1	1.7	4.1	3.7
MW-17	9/21/93	ND	0.28	ND	ND	ND	ND	ND	16
MW-18	9/21/93	ND	2.5	ND	ND	ND	ND	1.2	46
MW-19	9/21/93	400	4.9	1.2	4.1	1.0	1.3	3.1	ND
MW-20	9/21/93	NS*	NS*	NS*	NS*	NS*	NS*	NS*	NS*

(continued)

TABLE 4
GROUNDWATER ANALYTICAL RESULTS
DECOMM. CHEVRON BULK TERMINAL 61001351

TPH as Gasoline-Method WTPH-G
TPH as Diesel and Oil-Method WTPH-D+extended
BTEX Compounds- Method 8020
Total Lead- Method 7421
Concentrations in ug/L(ppb)

Sample I.D.	Sample Date	PARAMETER							Total Lead
		TPH-Gasoline	TPH-Diesel	TPH-Oil	Benzene	Toluene	Ethyl-benzene	Xylenes	
MW-21	9/21/93	45,000	2.2	ND	470	8,300	890	6,500	49
MW-22	9/21/93	450	95	15	24	1.3	2.6	3.4	30
MW-23	9/21/93	900	4.3	0.97	20	2.6	4.0	2.8	ND
MW-24	9/21/93	ND	0.34	ND	0.6	ND	ND	ND	5
MTCA Method A									
Cleanup Level:		1,000	1,000	1,000	1	40	30	20	5
Reporting Limit:		100	0.25	0.75	0.5	0.5	0.5	0.5	0

NOTES: ND - Not detected

NS - Not Sampled - Well could not be located on 9-20-93.

NS* - Not Sampled due to the presence of hydrocarbons.

NS** - Not Sampled - Well dry on 9-21-93.

Sample locations are shown on Figures 3, 4 and 5

Certified Analytical Results are attached

TABLE 5
GROUNDWATER ANALYTICAL RESULTS
DECOMMISSIONED CHEVRON BULK TERMINAL # 61001351
(Non-Carcinogenic PAHs Only)

Polynuclear Aromatic Hydrocarbons (PAHs) - EPA Method 8310
Concentrations in Ug/L (ppb)

Sample I.D.	Date	PARAMETER									
		Benzo (A) Anthracene	Chrysene	Benzo (B) Fluoranthene	Benzo (K) Fluoranthene	Benzo (A) Pyrene	Dibenzo (A,H) Anthracene	Benzo (G,H,I) Perylene	Indeno (1,2,3- CD) Pyrene	Other PAHs	
MW-4	9/21/93	NS*	NS*	NS*	NS*	NS*	NS*	NS*	NS*	NS*	
MW-5	9/21/93	NS**	NS**	NS**	NS**	NS**	NS**	NS**	NS**	NS**	
MW-6	9/21/93	NS*	NS*	NS*	NS*	NS*	NS*	NS*	NS*	NS*	
MW-7	9/21/93	NS	NS	NS	NS	NS	NS	NS	NS	NS	
MW-8	9/21/93	NS**	NS**	NS**	NS**	NS**	NS**	NS**	NS**	NS**	
MW-9	9/21/93	NS*	NS*	NS*	NS*	NS*	NS*	NS*	NS*	NS*	
MW-10	9/21/93	NS*	NS*	NS*	NS*	NS*	NS*	NS*	NS*	NS*	
MW-11	9/21/93	ND	ND	ND	ND	ND	ND	ND	ND	0.48	
MW-13	9/21/93	1.0	0.72	0.43	0.19	0.54	ND	0.32	0.32	115.57	
MW-14	9/21/93	ND	ND	0.32	0.22	0.63	ND	0.29	0.21	205.4	
MW-15	9/21/93	ND	ND	ND	ND	ND	ND	ND	ND	25.46	

(continued)

TABLE 5
GROUNDWATER ANALYTICAL RESULTS
DECOMMISSIONED CHEVRON BULK TERMINAL # 61001351
(Non-Carcinogenic PAHs Only)

Polynuclear Aromatic Hydrocarbons (PAHs) - EPA Method 8310
 Concentrations in Ug/L (ppb)

Sample I.D.	Date	PARAMETER									
		Benzo (A) Anthracene	Chrysene	Benzo (B) Fluoranthene	Benzo (K) Fluoranthene	Benzo (A) Pyrene	Dibenzo (A,H) Anthracene	Benzo (G,H,I) Perylene	Indeno (1,2,3-CD) Pyrene	Other PAHs	
MW-16	9/21/93	ND	ND	ND	ND	ND	ND	ND	ND	0.61	
MW-17	9/21/93	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MW-18	9/21/93	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MW-19	9/21/93	ND	ND	ND	ND	ND	ND	ND	ND	ND	
MW-20	9/21/93	NS*	NS*	NS*	NS*	NS*	NS*	NS*	NS*	NS*	
MW-21	9/21/93	ND	ND	ND	ND	ND	ND	ND	ND	289.31	
MW-22	9/21/93	ND	ND	0.21	ND	0.42	ND	ND	ND	92.9	
MW-23	9/21/93	ND	ND	ND	ND	ND	ND	ND	ND	13.43	
MW-24	9/21/93	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Reporting Limits:	-	0.095-0.10	0.095-0.10	0.095-0.10	0.095-0.10	0.095-0.10	0.095-0.10	0.19-0.21	0.095-0.10	See CARs	

NOTES: ND - Not Detected
 NS - Not Sampled - Well could not be located on 9-20-93.
 NS* - Not Sampled due to the presence of hydrocarbons.
 NS** - Not Sampled - Well dry on 9-21-93
 See attached CARs for PAHs analyzed for not shown on this table.
 The MTCA Method A cleanup level for total carcinogenic PAHs is 0.1 ppb.



REFERENCES

USGS 7.5 x 7.5 Minute Topographic Maps
 Bremerton East, Washington 1953 (photorevised 1981)
 Bremerton West, Washington 1953 (photorevised 1981)

SCALE: 1" = 2,000 feet



MAP LOCATION

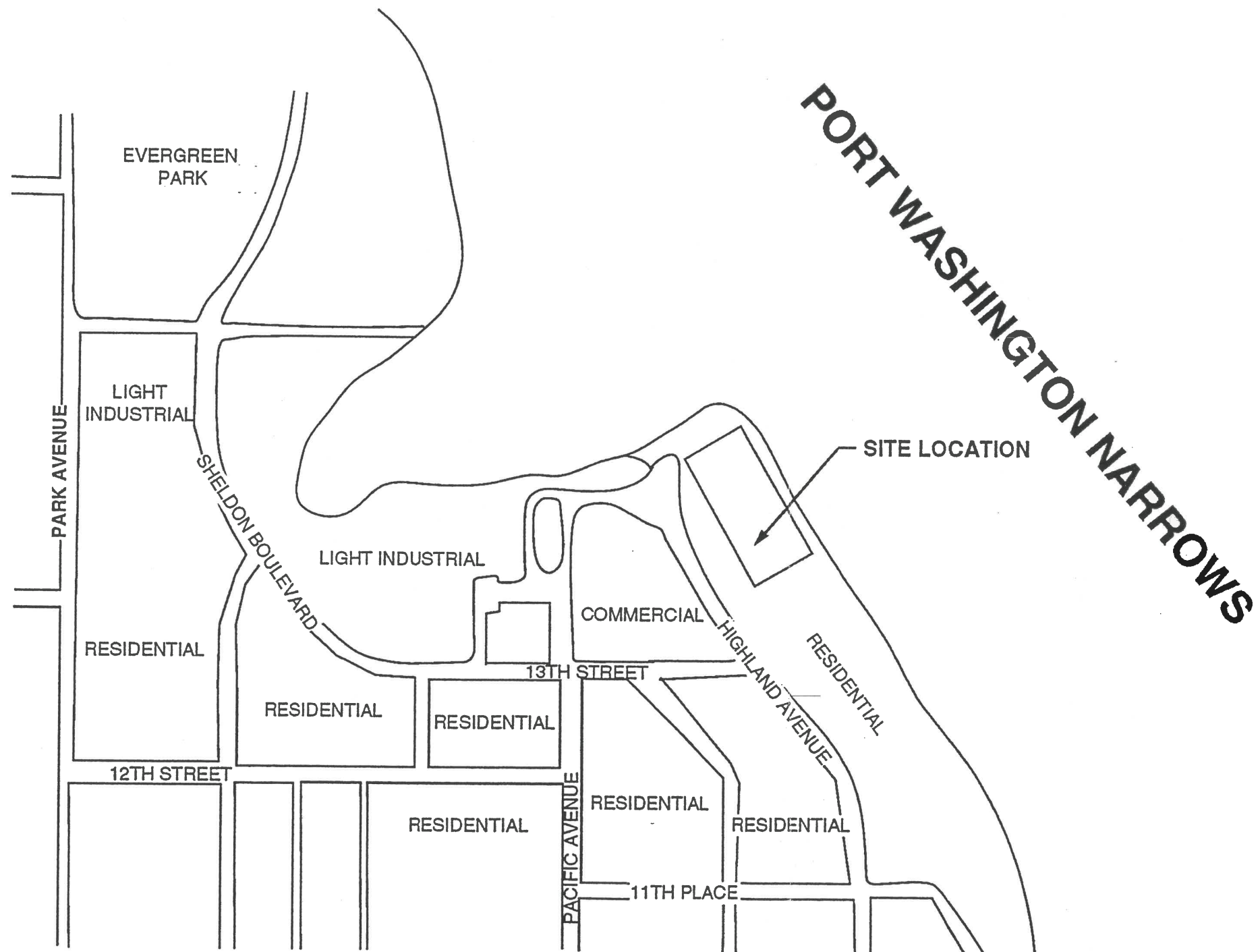


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DECOMMISSIONED CHEVRON BULK TERMINAL #61001351
 1310 Highland Avenue
 Bremerton, Washington

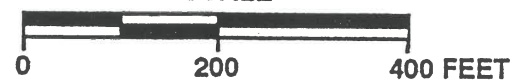
SITE LOCATION MAP

FIGURE:
 1
 PROJECT:
 520-41.01



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SCALE



DECOMMISSIONED CHEVRON BULK TERMINAL #61001351

1310 Highland Avenue
Bremerton, Washington

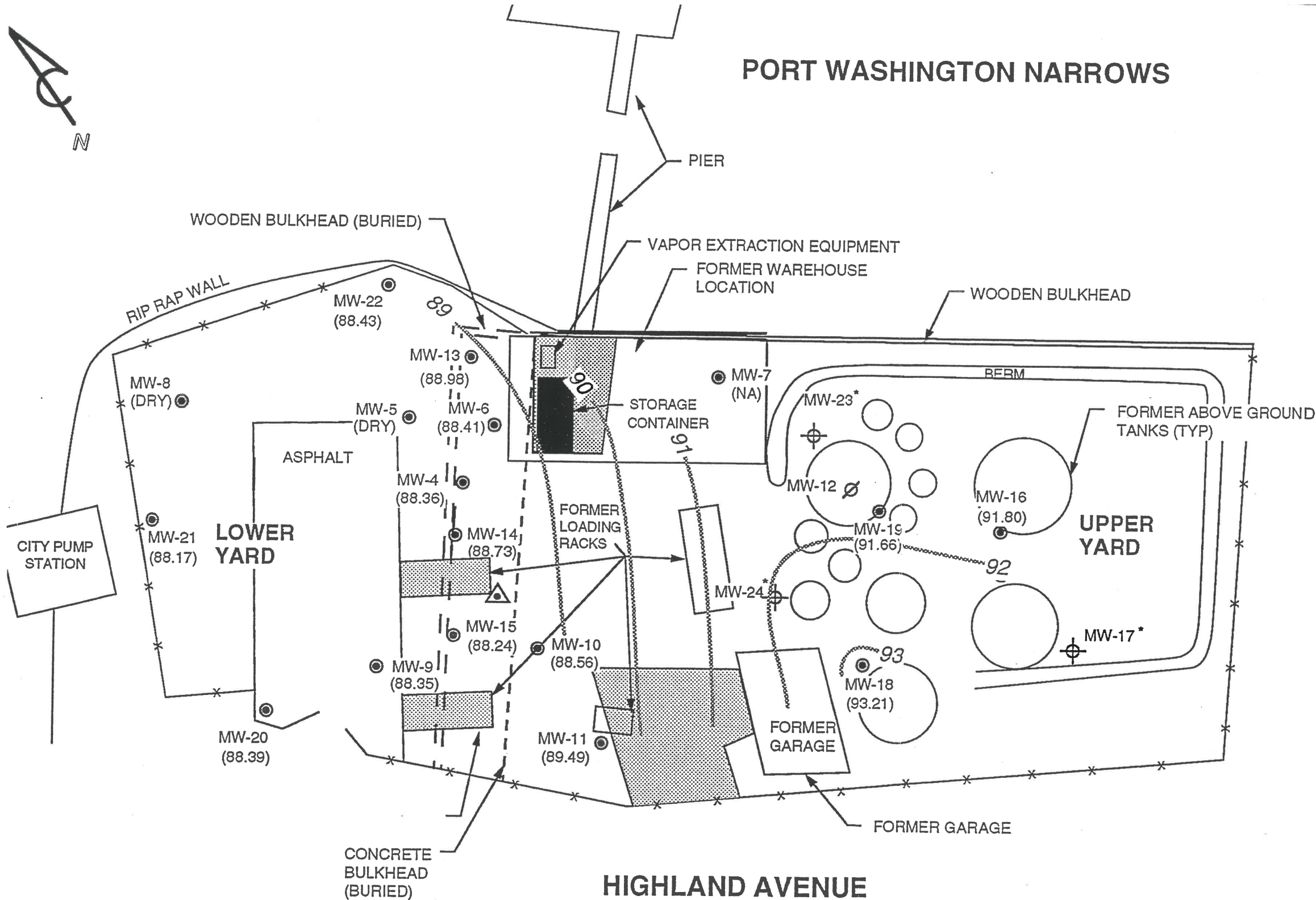
EXTENDED SITE MAP

FIGURE:

2

PROJECT:

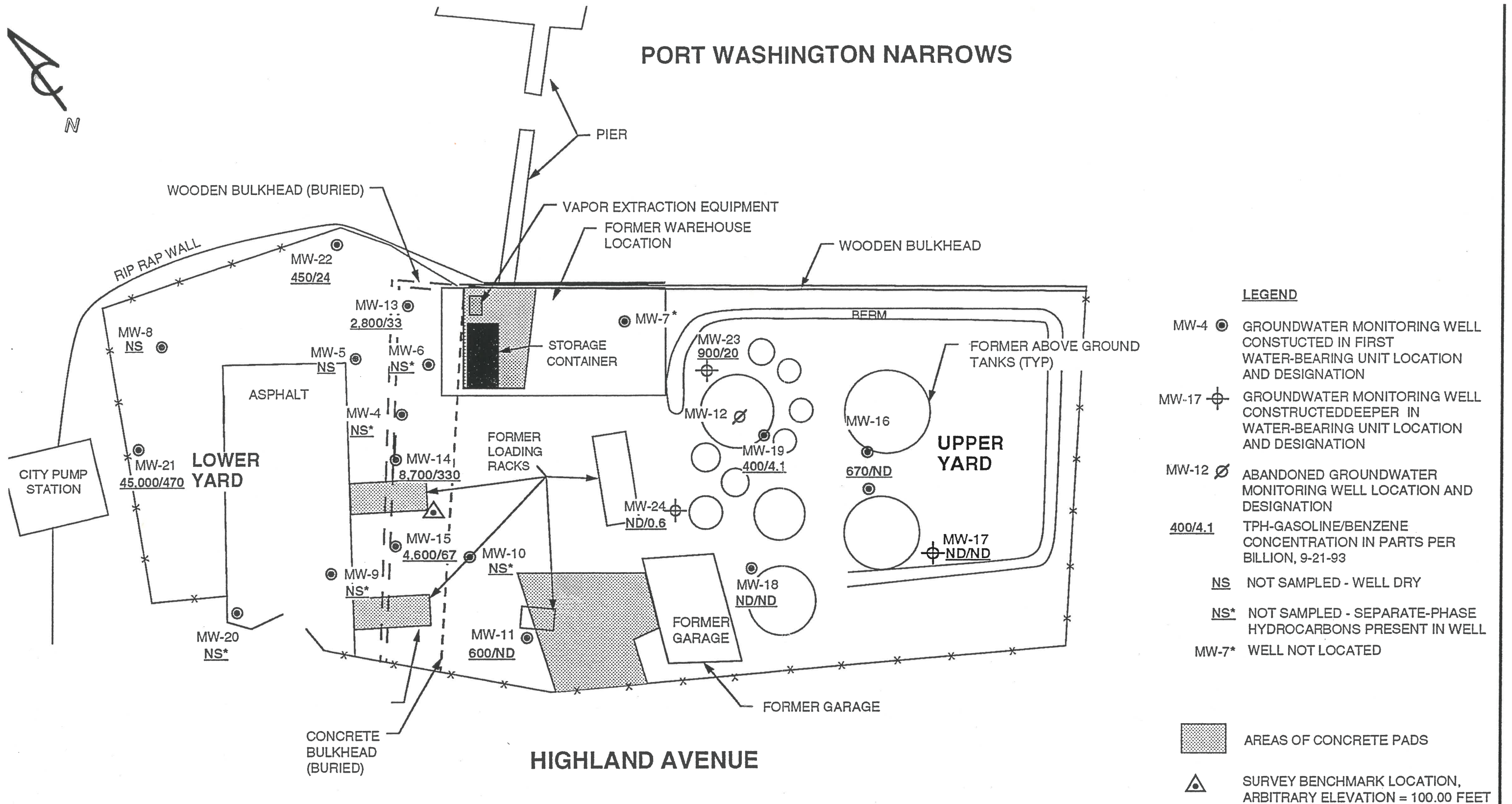
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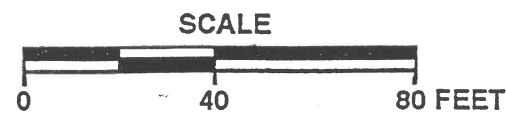
- LEGEND**
- MW-4 ● GROUNDWATER MONITORING WELL CONSTRUCTED IN FIRST WATER-BEARING UNIT LOCATION AND DESIGNATION
 - MW-17 ⊕ GROUNDWATER MONITORING WELL CONSTRUCTED DEEPER IN WATER-BEARING UNIT LOCATION AND DESIGNATION
 - MW-12 ∅ ABANDONED GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
 - (88.36) GROUNDWATER ELEVATION IN FEET, PROJECT DATUM, 9-20-93
 - (NA) WELL INACCESSIBLE, 9-20-93
 - 91 ~ GROUNDWATER ELEVATION IN FEET, PROJECT DATUM, 9-20-93
 - MW-17 * DUE TO SCREENING PLACEMENT, THESE WELLS WERE NOT USED FOR CONTOURING
 - ▨ AREAS OF CONCRETE PADS
 - △ SURVEY BENCHMARK LOCATION, ARBITRARY ELEVATION = 100.00 FEET



PORT WASHINGTON NARROWS



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DECOMMISSIONED CHEVRON BULK TERMINAL 61001351
1310 Highland Avenue
Bremerton, Washington

TPH-GASOLINE/BENZENE CONCENTRATION MAP

FIGURE:
4
PROJECT:
520-41.01

APPENDIX A
INVESTIGATIVE PROCEDURES
WELL DEVELOPMENT RECORDS

APPENDIX A

Soil Sampling

Borings MW-16 through MW-24 were drilled by Hayes Drilling of Bow, Washington. The borings were drilled using four-inch and eight-inch inside diameter hollow-stem auger drilling equipment. The borings were logged by a PACIFIC geologist using the Unified Soil Classification System and standard geologic techniques. Boring logs are presented in Appendix B. Samples were collected by advancing a 1.5-inch inside diameter split-spoon sampler with stainless steel liners into undisturbed soil beyond the tip of the auger. The sampler was driven a maximum of 18 inches using a 140-pound hammer falling from a height of 30-inches. One sample liner taken from the bottom of the split-spoon sampler at each sampling interval was retained for laboratory analysis. Soil samples for chemical analysis were retained in stainless steel liners, covered with Teflon® squares, capped with plastic end caps, and sealed in ziplock bags. The samples were then placed on ice for transport to the lab accompanied by chain-of-custody documentation. Each sample was affixed with a waterproof label showing project identification, boring designation, approximate depth, date, and the sampler's initials. The split-spoon sampler was cleaned between samples by washing in a trisodium phosphate detergent solution followed by a potable water rinse and distilled water rinse. All drilling equipment was steam-cleaned between each boring location. Rinsate water was contained and placed into 55-gallon drums and transferred to Chevron's Point Wells Terminal for disposal.

Organic Vapor Screening

Soil samples were screened in the field for ionizable organic compounds using a Thermo Environmental Instruments Inc. Model 580B photo-ionization detector with a 10.0 electron volts (eV) lamp. The test procedure involved measuring approximately 30 grams from an undisturbed soil sample, placing this sub-sample in a zip-lock bag. The bag was allowed to warm to ambient temperature for approximately twenty minutes, then the bag was pierced and the head-space within the bag was tested for total organic vapor, measured in parts per million, (ppm; volume/volume). The instrument was calibrated daily using a 100 ppm isobutylene standard (in air) and a sensitivity factor which relates the photo-ionization sensitivity of benzene to the sensitivity of isobutylene. The detection limit of the instrument

ranges from 0.1 ppm to 2,000 ppm. The results of these tests are recorded on the boring logs in Appendix B. It should be noted that the PID measurements are considered semi-quantitative data since the instrument detects all organic compounds with ionization potentials less than 10 eV.

Well Development

The development procedure for groundwater monitoring wells MW-16 through MW-24 consisted of allowing a bailer to fall freely through the well until striking the surface of the water. The contact of the bailer produces an outward surge of water that is forced from the borehole through the well screen and into the formation. This tends to break up any bridging that has developed within the formation. As the water is bailed out of the well, the surging action created in the borehole causes the particulate matter outside the well intake to flow into the well. Continued bailing removes the particulate matter from the well. During development, the wells were purged of approximately ten casing volumes, or until the wells bailed dry. Groundwater was placed into a 55-gallon drum and transported to Chevron's Point Wells Terminal for disposal. Well development data sheets are included in this section.

Groundwater Sampling

The groundwater sampling procedure employed by PACIFIC consisted of first measuring the water level and visually checking for the presence of separate-phase hydrocarbons or sheens using a clear disposable polyethylene bailer. Each well was then purged of a minimum of three casing volumes of water (or until dry) by bailing. Groundwater samples were collected using disposable polyethylene bailers after the wells recovered to at least 80 percent of the pre-purge static water level. The samples were placed into appropriate EPA-approved containers, labeled, logged onto chain-of-custody documents, and transported on ice to Analytical Technologies, Inc. laboratory. Purge water was placed into 55-gallon drums and transported to Chevron's Point Wells Terminal for disposal. Chain-of-Custody documentation and field data sheets are presented in Appendix C.

WELL DEVELOPMENT DATA SHEETS

Project #: 520-41.01

Field Dates: 9-14-93

Location: Bremerton, WA

Client: Chevron

Field Tech:

LB

[illegible]

WELL DEVELOPMENT DATA SHEETS

Project #: 520-41,01

Field Dates:

8/31/93

Location:

Bremerston

Client: Chevron

Field Tech:

MA

[illegible]

Project #: 520-41-01

Field Dates: 8/24/93 - 8/27/93

Location: BREMER TON, WA

client: CHEVRON

Field Tech: LB

[illegible]

APPENDIX B
BORING AND MONITOR WELL CONSTRUCTION LOGS

WELL LOG KEY TO ABBREVIATIONS

Drilling Method

HSA - Hollow stem auger
CFA - Continuous flight auger
Air - Reverse air circulation

Gravel Pack

CA - Coarse aquarium sand

Sampling Method

SS - Split-spoon sampler (1.5" inner diameter) driven 18" by a 140-pound hammer having a 30" drop. Where penetration resistance is designated "P", sampler was instead pushed by drill rig.

Disturbed - Sample taken from drill-return materials as they surfaced.

Shelby - Shelby Tube thin-walled sampler (3" diameter), where sampler is pushed by drill-rig.

Moisture Content

Dry - Dry
Dp - Damp
Mst - Moist
Wt - Wet

Sorting

PS - Poorly sorted
MS - Moderately sorted
WS - Well sorted

Plasticity

L - Low
M - Moderate
H - High

PID (ppm)

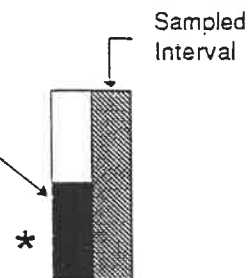
ND - No detection

Symbols

▽ - First encountered ground water

▼ - Static ground water level

Sample Recovery
* Sample submitted for laboratory analysis



Density (Blows/Foot - Split Spoon Sampler)

Sands and gravels

0 - 4 - Very Loose
4 - 10 - Loose
10 - 30 - Medium dense
30 - 50 - Dense
over 50 - Very dense

Silts and Clays

0 - 2 - Very Soft
2 - 4 - Soft
4 - 8 - Firm
8 - 16 - Stiff
16 - 32 - Very Stiff
32 - 50 - Hard
over 50 - Very Hard

GRAIN - SIZE SCALE

GRADE LIMITS

U.S. Standard

GRADE NAME

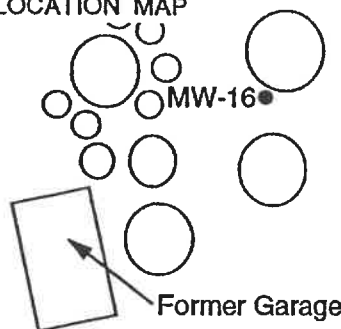
inch	sieve size	
12.0		Boulders
3.0	3.0 in.	Cobbles
0.19	No. 4	Gravels
0.08	No. 10	coarse
	No. 40	medium
	No. 200	fine
		Silt
		Clay Size

Unified Soil Classification System

Primary Divisions		Group		Symbol/Graphic		Typical Names	
COARSE GRAINED SOILS more than half is larger than #200 sieve	GRAVELS half of coarse fraction larger than #4 sieve	CLEAN GRAVELS (less than 5% fines)	GW		Well graded gravels, gravel-sand mixtures; little or no fines		
			GP		Poorly graded gravels or gravel-sand mixtures; little or no fines		
		GRAVEL WITH FINES	GM		Silty gravels, gravel-sand-silt mixtures		
			GC		Clayey gravels, gravel-sand-clay mixtures		
	SANDS half of coarse fraction smaller than #4 sieve	CLEAN SANDS (less than 5% fines)	SW		Well graded sands, gravelly sands, little or no fines		
			SP		Poorly graded sands or gravelly sands, little or no fines		
		SANDS WITH FINES	SM		Silty sands, sand-silt mixtures		
			SC		Clayey sands, sand-clay mixtures, plastic fines		
FINE GRAINED SOILS more than half is smaller than #200 sieve	SILTS AND CLAYS liquid limit less than 50%	ML		Inorganic silts and very fine sand, rock flour, silty or clayey fine sands or clayey silts, with slight plasticity			
		CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays			
		OL		Organic silts and organic silty clays of low plasticity			
	SILTS AND CLAYS liquid limit more than 50%	MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts			
		CH		Inorganic clays of high plasticity, fat clays			
		OH		Organic clays of medium to high plasticity, organic silts			
		HIGHLY ORGANIC SOILS		Pt		Peat and other highly organic soils	

Pacific Environmental Group, Inc.

LOCATION MAP



PACIFIC ENVIRONMENTAL GROUP, INC.

WELL NO. MW-16

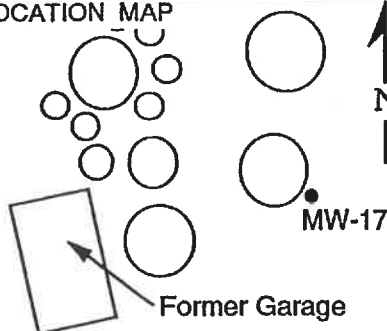
PAGE 1 OF 1

PROJECT NO. 520-41.01
 LOGGED BY: LB
 DRILLER: HAYES
 DRILLING METHOD: HSA
 SAMPLING METHOD: SS
 CASING TYPE: Sch 40 PVC
 SLOT SIZE: 0.010"
 GRAVEL PACK: 10 x 20 SAND

CLIENT: CHEVRON
 DATE DRILLED: 8-23-93
 LOCATION: Bremerton
 HOLE DIAMETER: 7"
 HOLE DEPTH: 29.5'
 WELL DIAMETER: 2"
 WELL DEPTH: 28.5'
 CASING STICKUP: NA

WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
CEMENT				2			SM	SILTY SAND: gravelly; surface cover (fill).
	Dp	0	67	4				SILTY SAND: gray; 20-30% fines; very fine to fine sand; 20-30% fine to medium sand; trace gravel; very dense; no hydrocarbon odor.
	Dp	0	62	8				
				10				@10': slight hydrocarbon odor; minimal sample recovery.
	Dp	8	89	14				@15': moderate hydrocarbon odor; minimal sample recovery.
				16				@16-18': a very soft layer was noted by the driller; subsequent cuttings revealed a very silty medium grained sand.
	Mst	1	96	* 20				@20': as above.
				22				
	Mst	2	73	24				
	Wet	2	97	26				@25': decreasing hydrocarbon odor.
				28				@26.5': as above.
	Wet	0	64	30			ML	SILT: very dark gray; low plasticity; very hard; no hydrocarbon odor.
				32				
				34				
				36				
				38				
				40				
				42				
				44				
								BOTTOM OF BORING AT 29.5'

LOCATION MAP



PACIFIC ENVIRONMENTAL GROUP, INC.

WELL NO. MW-17

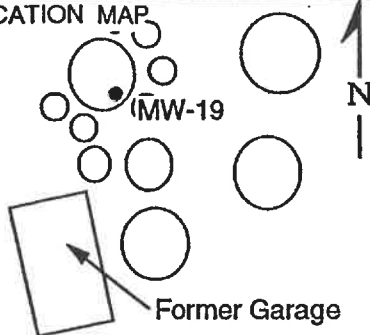
PAGE 1 OF 2

PROJECT NO. 520-41.01
 LOGGED BY: LB
 DRILLER: HAYES
 DRILLING METHOD: HSA
 SAMPLING METHOD: SS
 CASING TYPE: Sch 40 PVC
 SLOT SIZE: 0.010"
 GRAVEL PACK: 10 x 20 SAND

CLIENT: CHEVRON
 DATE DRILLED: 8-24 and 26-93
 LOCATION: Bremerton
 HOLE DIAMETER: 12" to 34/7" to 46
 HOLE DEPTH: 46.5'
 WELL DIAMETER: 2"
 WELL DEPTH: 44'
 CASING STICKUP: NA

WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
CEMENT 12" CONDUCTOR CASING SAND BENTONITE				2			SM	SILTY SAND: gravelly; hydrocarbon odor and staining noted at 1.5; surface cover (fill).
	Dp	4	72	4				SILTY SAND: gray; 30-40% fines; very fine to fine sand; 10-20% medium sand; very dense; slight hydrocarbon odor.
				6				
	Dp	2	65	8				@ 10': trace coarse sand; trace gravel.
				10				
				12				
	Mst	0	39	14				@ 15.5': dense.
	Mst	0	40	16				@ 17': as above.
			85	18				@ 18.5': no sample recovery
				20				
				22				
				24				SILT: dark gray; low plasticity; very hard; no hydrocarbon odor.
	Mst	0	73	26			ML	SILTY SAND: dark gray; 20-30% silt; very fine to fine sand; trace medium sand; dense; no hydrocarbon odor.
	Wet	0	44	*			SM	SILT: dark gray; low plasticity; very hard; no hydrocarbon odor.
	Mst	1	39	28			ML	SILTY SAND: dark gray; 20-30 % silt; very fine to fine sand; very dense; no hydrocarbon odor.
	Wet	1	53	* 30			SM	SILT: dark gray; low plasticity; very hard; no hydrocarbon odor.
	Mst	0	84	32			ML	@ 32.5': dark gray; low plasticity; 20-30% very fine sand; very hard; no hydrocarbon odor.
	Mst	0	84					@ 34': dark gray; low plasticity; very hard; no hydrocarbon odor.
	Mst	0	62	34				@ 35.5': dark gray; low plasticity; 20-30% very fine to fine sand; very hard; no hydrocarbon odor; minimal sample recovery.
	Mst	0	73	36				@ 40': dark grayish brown; high plasticity; 10-20% fine gravel and coarse sand; very hard; no hydrocarbon odor.
				38				
	Mst	0	75	40				
				42				
				44				

LOCATION MAP



PACIFIC ENVIRONMENTAL GROUP, INC.

WELL NO. MW-19

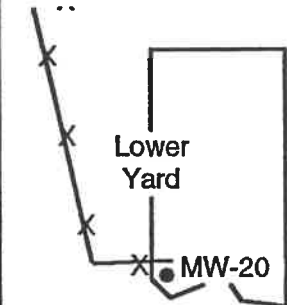
PAGE 1 OF 1

PROJECT NO. 520-41.01
 LOGGED BY: LB
 DRILLER: HAYES
 DRILLING METHOD: HSA
 SAMPLING METHOD: SS
 CASING TYPE: Sch 40 PVC
 SLOT SIZE: 0.010"
 GRAVEL PACK: 10 x 20 SAND

CLIENT: CHEVRON
 DATE DRILLED: 8-25-93
 LOCATION: Bremerton
 HOLE DIAMETER: 7"
 HOLE DEPTH: 26.5'
 WELL DIAMETER: 2"
 WELL DEPTH: 24'
 CASING STICKUP: NA

WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
CEMENT BENTONITE SAND							SM	SILTY SAND: gravelly; surface cover (fill). @5': gray; 30-40% fines; trace to 10% very fine sand; fine to medium sand; trace coarse sand; very dense; hydrocarbon odor and staining. @13.5': decreasing fines; increasing coarse sand; very dense; strong hydrocarbon staining and odor (resembles diesel). @16.5': increasing fines. @20.5': increasing fines; minimal sample recovery.
	Mst	28	60	2				
				4				
				6				
				8				
				10				
	Mst	517	81	12	*			
				14				
	Wet	24	97	16				
				18				
	Wet	45	77	20				
				22				
	Mst	3	49	24			ML	SILT: dark gray; low plasticity; very hard; no hydrocarbon odor. BOTTOM OF BORING AT 26.5'
				26				
				28				
				30				
				32				
				34				
				36				
				38				
				40				
				42				
				44				

LOCATION MAP



PACIFIC ENVIRONMENTAL GROUP, INC.

WELL NO. MW-20

PAGE 1 OF 1

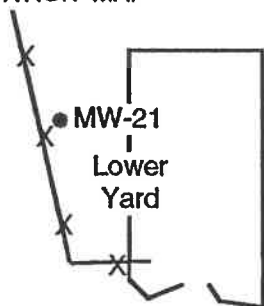
PROJECT NO. 520-41.01
 LOGGED BY: LB
 DRILLER: HAYES
 DRILLING METHOD: HSA
 SAMPLING METHOD: SS
 CASING TYPE: Sch 40 PVC
 SLOT SIZE: 0.010"
 GRAVEL PACK: 10 x 20 SAND

CLIENT: CHEVRON
 DATE DRILLED: 8-25-93
 LOCATION: Bremerton
 HOLE DIAMETER: 7"
 HOLE DEPTH: 15.5'
 WELL DIAMETER: 2"
 WELL DEPTH: 15'
 CASING STICKUP: NA

WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
	Dp	43	15	2			SM	SILTY SAND: 3" surface cover; 2" asphalt: gravelly (fill); hydrocarbon odor.
				4				@4.5': gravelly; gray; 10-20% fines; 10-20% very fine to fine sand; medium sand; trace coarse sand and gravel; medium density; hydrocarbon odor and staining.
				6				@8.5': no recovery - move down.
				8				
				10				
	Wet	109	9	12				@11.5': very dark grayish brown; 30-40% fines; very fine to fine sand; trace to 10% medium to coarse sand; loose; strong hydrocarbon odor; (resembles diesel).
	Wet	3	6	14				@15.5': 20-30% medium to coarse sand; hydrocarbon odor.
				16				
				18				
				20				
				22				
				24				
				26				
				28				
				30				
				32				
				34				
				36				
				38				
				40				
				42				
				44				

BOTTOM OF BORING AT 15.5'

LOCATION MAP



PACIFIC ENVIRONMENTAL GROUP, INC.

WELL NO. MW-21

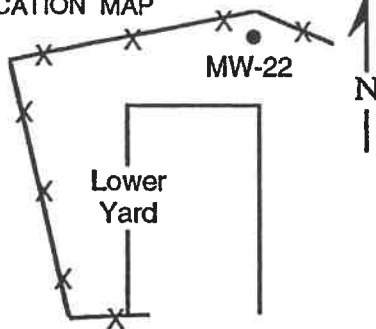
PAGE 1 OF 1

PROJECT NO. 520-41.01
 LOGGED BY: LB
 DRILLER: HAYES
 DRILLING METHOD: HSA
 SAMPLING METHOD: SS
 CASING TYPE: Sch 40 PVC
 SLOT SIZE: 0.010"
 GRAVEL PACK: 10 x 20 SAND

CLIENT: CHEVRON
 DATE DRILLED: 8-26-93
 LOCATION: Bremerton
 HOLE DIAMETER: 7"
 HOLE DEPTH: 15'
 WELL DIAMETER: 2"
 WELL DEPTH: 15'
 CASING STICKUP: NA

WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
	Dp	15	19	2			SM	SILTY SAND: gravelly; hydrocarbon odor; surface cover (fill).
				4				@4.5': gravelly (fill); olive gray; trace to 10% fines; med. sand; 10-20% gravel; medium density; hydrocarbon odor; minimal sample recovery.
	Wet	280	7	* 10				@10': 10-20% very fine to fine sand; no gravel; loose; strong hydrocarbon odor (resembles diesel).
	Wet	30	6	14				@15': very loose; minimal sample recovery.
				16				BOTTOM OF BORING AT 15'
				18				
				20				
				22				
				24				
				26				
				28				
				30				
				32				
				34				
				36				
				38				
				40				
				42				
				44				

LOCATION MAP



PACIFIC ENVIRONMENTAL GROUP, INC.

WELL NO. MW-22

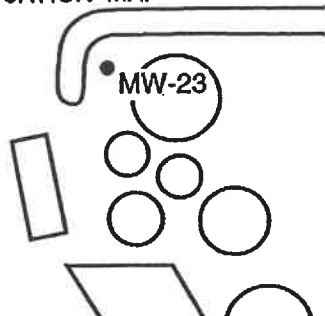
PAGE 1 OF 1

PROJECT NO. 520-41.01
 LOGGED BY: LB
 DRILLER: HAYES
 DRILLING METHOD: HSA
 SAMPLING METHOD: SS
 CASING TYPE: Sch 40 PVC
 SLOT SIZE: 0.010"
 GRAVEL PACK: 10 x 20 SAND

CLIENT: CHEVRON
 DATE DRILLED: 8-26-93
 LOCATION: Bremerton
 HOLE DIAMETER: 7"
 HOLE DEPTH: 15'
 WELL DIAMETER: 2"
 WELL DEPTH: 15'
 CASING STICKUP: NA

WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
				2			SM	SILTY SAND: gravelly; surface cover (fill).
	Mst	0	14	4				@4.5': gravelly (fill); very dark grayish brown; 20-30% fines; 10-20% very fine to medium sand; coarse sand; 20-30% gravel; medium density; no hydrocarbon odor; minimal sample recovery.
	Wet	468	9	* 10				@10': black; trace to 10% fines; fine to medium sand; loose; strong hydrocarbon odor (resembles diesel).
	Wet	116	36	14				@15': olive gray; 10-20% fines; 10-20% very fine to fine sand; medium to coarse sand; dense; strong hydrocarbon odor.
				16				BOTTOM OF BORING AT 15'
				18				
				20				
				22				
				24				
				26				
				28				
				30				
				32				
				34				
				36				
				38				
				40				
				42				
				44				

LOCATION MAP



PACIFIC ENVIRONMENTAL GROUP, INC.

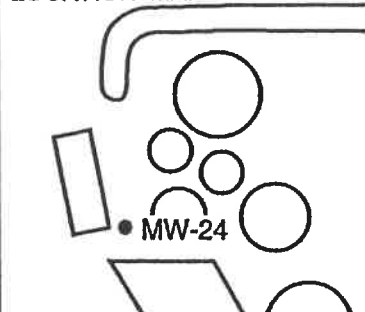
WELL NO. MW-23

PAGE 1 OF 1

PROJECT NO. 520-41.01
 LOGGED BY: LB
 DRILLER: HAYES
 DRILLING METHOD: HSA
 SAMPLING METHOD: SS
 CASING TYPE: Sch 40 PVC
 SLOT SIZE: 0.010"
 GRAVEL PACK: 10 x 20 SAND

CLIENT: CHEVRON
 DATE DRILLED: 9-13-93 & 9-14-93
 LOCATION: Bremerton
 HOLE DIAMETER: 11.5" to 34"; 7.5' to 41'
 HOLE DEPTH: 42.5'
 WELL DIAMETER: 2"
 WELL DEPTH: 41'
 CASING STICKUP: NA

WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
CEMENT 10" CONDUCTOR CASING SAND BENTONITE							SM	SILTY SAND: (fill) surface cover.
	Dp	0	110	2				
				4				@4.5': light brown; 20-30% fines; very fine to fine sand; trace to 5% medium to coarse sand; very dense; no hydrocarbon odor.
	Mst	0	94	6				
				8				
	Wet	0	110	10				@10.5': gray; increasing medium sand; trace gravel; slight hydrocarbon odor.
				12				
				14				@15.5': as above.
	Wet	0	67	16				
				18				
	Wet	0	67	20				@20.5': as above.
				22				
	Wet	20	84	24	*			@25.5': increasing hydrocarbon odor.
				26				
				28				
	Dp	5	54	30			ML	SILT: dark gray; low plasticity; very hard; no hydrocarbon odor.
	Wet	0	33	32			SM	SILTY SAND: dark gray; trace 10% fines; fine to medium sand; dense; slight hydrocarbon odor.
	Dp	0	39	34	*		ML	SILT: as above.
	Wet	0	39	36			SM	SILTY SAND: increasing fines; as above.
				38				
	Wet	5	117	40			ML	SILT: dark gray; low plasticity; very hard; no hydrocarbon odor.
	Dp	5	117	42	*		SM	SILTY SAND: as above; minimal sample recovery.
	Wet	0	81	44				@41.5': gravelly; gray; 20-30% fines; 10-20% fine to medium sand; coarse sand; 30% gravel; very dense; hydrocarbon odor.
	Mst	0	81				ML	SILT: low plasticity; very hard; no hydrocarbon odor.
								BOTTOM OF BORING AT 42.5'



PROJECT NO. 520-41.01
LOGGED BY: LB
DRILLER: HAYES
DRILLING METHOD: HSA
SAMPLING METHOD: SS
CASING TYPE: Sch 40 PVC
SLOT SIZE: 0.010"
GRAVEL PACK: 10 x 20 SAND

CLIENT: CHEVRON
DATE DRILLED: 9-13-93 & 9-14-93
LOCATION: Bremerton
HOLE DIAMETER: 11.5" to 28"; 7.5' to 35'
HOLE DEPTH: 35'
WELL DIAMETER: 2"
WELL DEPTH: 35'
CASING STICKUP: NA

WELL COMPLETION	MOISTURE CONTENT	PID	PENETRATION (BLOWS/FT)	DEPTH (FEET)	RECOVERY SAMPLE INTERVAL	GRAPHIC	SOIL TYPE	LITHOLOGY / REMARKS
				2			SM	SILTY SAND: (fill) surface cover; gravelly; hydrocarbon odor noted at 2.5'.
				4				
	Mst	2	54	6				@5': light olive gray; 20-30% fines; fine sand; 10% med. to coarse sand; trace gravel; very dense; hydrocarbon odor.
				8				
	Mst	0	66	10				@11.5': light brown; no hydrocarbon odor.
				12				
				14				
	Wet	0	80	16				@16.5': as above.
				18				
				20			ML	SILT: dark gray; low plasticity; hard; no hydrocarbon odor.
	Dp	2	49	22			SM	SILTY SAND: dark gray; 30-40% fines; very fine to fine sand; hydrocarbon odor.
	Dp	0	87	24			ML	SILT: dark gray; low plasticity; very hard; no hydrocarbon odor.
				26			SM	SILTY SAND: dark gray; 20-30% fines; 10-20% very fine to fine sand; medium sand; no hydrocarbon odor.
	Dp	0	135	28			ML	SILT: dark gray; low plasticity; very hard; no hydrocarbon odor.
	Dp	0	109	30				@28': as above.
				32			SM	SILTY SAND: dark gray; trace to 10% fines; 10-20% medium sand; coarse sand; very dense; no hydrocarbon odor.
	Wet	0	103	34				
				36				
				38				
				40				
			42					
			44					
								BOTTOM OF BORING AT 35'

APPENDIX C
LABORATORY ANALYTICAL REPORTS
CHAIN-OF-CUSTODY DOCUMENTATION
FIELD DATA SHEETS

Analytical**Technologies, Inc.**

560 Naches Avenue, S.W., Suite 101, Renton, WA 98055 (206) 228-8335

Karen L. Mixon, Laboratory Manager

ATI I.D. # 9309-006

September 15, 1993

Pacific Environmental Group
4020 148th Avenue N.E.
Suite B
Redmond WA 98052

Attention : John Johnson

Project Number : 520-41.01

Project Name : Chevron/Bremerton

Dear Mr. Johnson:

On September 1, 1993, Analytical Technologies, Inc. (ATI), received eight samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and quality control data are enclosed.

Please note that this report has a summary report for the fuels analyses. If you have any questions, please call.

Sincerely,

Donna M. McKinney
Senior Project Manager

DMM/hal/ff

Enclosure

ATI I.D. # 9309-006

SAMPLE CROSS REFERENCE SHEET

CLIENT : PACIFIC ENVIRONMENTAL GROUP
 PROJECT # : 520-41.01
 PROJECT NAME : CHEVRON/BREMERTON

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9309-006-1	MW-17 (30')	08/24/93	SOIL
9309-006-2	MW-22 (10')	08/26/93	SOIL
9309-006-3	MW-16 (20')	08/23/93	SOIL
9309-006-4	MW-18 (15.5')	08/25/93	SOIL
9309-006-5	MW-20 (11.5')	08/25/93	SOIL
9309-006-6	MW-19 (13.5')	08/25/93	SOIL
9309-006-7	MW-21 (10')	08/26/93	SOIL
9309-006-8	MW-17 (27')	08/24/93	SOIL

=====

----- TOTALS -----

MATRIX	# SAMPLES
SOIL	8

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of the report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

ATI I.D. # 9309-006

ANALYTICAL SCHEDULE

CLIENT : PACIFIC ENVIRONMENTAL GROUP
 PROJECT # : 520-41.01
 PROJECT NAME : CHEVRON/BREMERTON

ANALYSIS	TECHNIQUE	REFERENCE	LAB
POLYNUCLEAR AROMATIC HYDROCARBONS	HPLC/UV/FLUOR	EPA 8310	R
BETX	GC/PID	EPA 8020	R
TOTAL PETROLEUM HYDROCARBONS	GC/FID	WA DOE WTPH-G	R
TOTAL PETROLEUM HYDROCARBONS	GC/FID	WA DOE WTPH-D	R
LEAD	AA/F	EPA 7420	R
MOISTURE	GRAVIMETRIC	CLP SOW ILM01.0	R

R = ATI - Renton
 SD = ATI - San Diego
 PHX = ATI - Phoenix
 PNR = ATI - Pensacola
 FC = ATI - Fort Collins
 SUB = Subcontract

ATI I.D. # 9309-006

CASE NARRATIVE

CLIENT : PACIFIC ENVIRONMENTAL GROUP
PROJECT # : 520-41.01
PROJECT NAME : CHEVRON-BREMERTON

CASE NARRATIVE: POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS

Eight (8) soil samples were received by ATI on September 1, 1993, for the following analysis: EPA method 8310.

Sample 9309-006-2 (MW-22(10')) required a five fold diluted analysis due to high amounts of analytes present in the sample. The surrogate percent recovery for this sample was outside ATI limits due to high matrix interference. The result was flagged with an "F"; out of limits due to matrix interference.

All other corresponding quality assurance and quality control results defined as matrix spike/matrix spike duplicate (MS/MSD), blank spike (BS), method blank, and surrogate recoveries were within the established control limits.

ATI I.D. # 9309-006

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT : PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED : N/A
PROJECT # : 520-41.01	DATE RECEIVED : N/A
PROJECT NAME : CHEVRON/BREMERTON	DATE EXTRACTED : 09/03/93
CLIENT I.D. : METHOD BLANK	DATE ANALYZED : 09/08/93
SAMPLE MATRIX : SOIL	UNITS : mg/Kg
EPA METHOD : 8310	DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS

RESULTS

NAPHTHALENE	<0.083
ACENAPHTHYLENE	<0.17
1-METHYLNAPHTHALENE	<0.17
2-METHYLNAPHTHALENE	<0.17
ACENAPHTHENE	<0.17
FLUORENE	<0.017
PHENANTHRENE	<0.0083
ANTHRACENE	<0.0083
FLUORANTHENE	<0.017
PYRENE	<0.017
BENZO (A) ANTHRACENE	<0.017
CHRYSENE	<0.017
BENZO (B) FLUORANTHENE	<0.017
BENZO (K) FLUORANTHENE	<0.017
BENZO (A) PYRENE	<0.017
DIBENZO (A, H) ANTHRACENE	<0.034
BENZO (G, H, I) PERYLENE	<0.017
INDENO (1, 2, 3-CD) PYRENE	<0.017

SURROGATE PERCENT RECOVERY

LIMITS

2-CHLOROANTHRACENE	88	25 - 134
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ATI I.D. # 9309-006-1

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT : PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED : 08/24/93
PROJECT # : 520-41.01	DATE RECEIVED : 09/01/93
PROJECT NAME : CHEVRON/BREMERTON	DATE EXTRACTED : 09/03/93
CLIENT I.D. : MW-17(30')	DATE ANALYZED : 09/08/93
SAMPLE MATRIX : SOIL	UNITS : mg/Kg
EPA METHOD : 8310	DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
-----------	---------

NAPHTHALENE	<0.10
ACENAPHTHYLENE	<0.20
1-METHYLNAPHTHALENE	<0.20
2-METHYLNAPHTHALENE	<0.20
ACENAPHTHENE	<0.20
FLUORENE	<0.020
PHENANTHRENE	<0.010
ANTHRACENE	<0.010
FLUORANTHENE	<0.020
PYRENE	<0.020
BENZO (A) ANTHRACENE	<0.020
CHRYSENE	<0.020
BENZO (B) FLUORANTHENE	<0.020
BENZO (K) FLUORANTHENE	<0.020
BENZO (A) PYRENE	<0.020
DIBENZO (A, H) ANTHRACENE	<0.041
BENZO (G, H, I) PERYLENE	<0.020
INDENO (1, 2, 3-CD) PYRENE	<0.020

SURROGATE PERCENT RECOVERY

LIMITS

2-CHLOROANTHRACENE	73	25 - 134
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ATI I.D. # 9309-006-2

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT : PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED : 08/26/93
PROJECT # : 520-41.01	DATE RECEIVED : 09/01/93
PROJECT NAME : CHEVRON/BREMERTON	DATE EXTRACTED : 09/03/93
CLIENT I.D. : MW-22 (10')	DATE ANALYZED : 09/08/93
SAMPLE MATRIX : SOIL	UNITS : mg/Kg
EPA METHOD : 8310	DILUTION FACTOR : 5

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
NAPHTHALENE	24
ACENAPHTHYLENE	<0.98
1-METHYLNAPHTHALENE	65
2-METHYLNAPHTHALENE	53
ACENAPHTHENE	<0.98
FLUORENE	5.7
PHENANTHRENE	14
ANTHRACENE	1.2
FLUORANTHENE	<0.098
PYRENE	2.2
BENZO (A) ANTHRACENE	<0.098
CHRYSENE	<0.098
BENZO (B) FLUORANTHENE	<0.098
BENZO (K) FLUORANTHENE	<0.098
BENZO (A) PYRENE	<0.098
DIBENZO (A, H) ANTHRACENE	<0.20
BENZO (G, H, I) PERYLENE	<0.098
INDENO (1, 2, 3-CD) PYRENE	<0.098

SURROGATE PERCENT RECOVERY

LIMITS

2-CHLOROANTHRACENE	F	25 - 134
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F = Out of limits due to matrix interference.

ATI I.D. # 9309-006-3

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT	: PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED	: 08/23/93
PROJECT #	: 520-41.01	DATE RECEIVED	: 09/01/93
PROJECT NAME	: CHEVRON/BREMERTON	DATE EXTRACTED	: 09/03/93
CLIENT I.D.	: MW-16(20')	DATE ANALYZED	: 09/08/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8310	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
NAPHTHALENE	<0.091
ACENAPHTHYLENE	<0.19
1-METHYLNAPHTHALENE	<0.19
2-METHYLNAPHTHALENE	<0.19
ACENAPHTHENE	<0.19
FLUORENE	<0.019
PHENANTHRENE	<0.0091
ANTHRACENE	<0.0091
FLUORANTHENE	<0.019
PYRENE	<0.019
BENZO (A) ANTHRACENE	<0.019
CHRYSENE	<0.019
BENZO (B) FLUORANTHENE	<0.019
BENZO (K) FLUORANTHENE	<0.019
BENZO (A) PYRENE	<0.019
DIBENZO (A, H) ANTHRACENE	<0.037
BENZO (G, H, I) PERYLENE	<0.019
INDENO (1, 2, 3-CD) PYRENE	<0.019

SURROGATE PERCENT RECOVERY		LIMITS
2-CHLOROANTHRACENE	85	25 - 134

ATI I.D. # 9309-006-4

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT : PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED : 08/25/93
PROJECT # : 520-41.01	DATE RECEIVED : 09/01/93
PROJECT NAME : CHEVRON/BREMERTON	DATE EXTRACTED : 09/03/93
CLIENT I.D. : MW-18(15.5')	DATE ANALYZED : 09/08/93
SAMPLE MATRIX : SOIL	UNITS : mg/Kg
EPA METHOD : 8310	DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
NAPHTHALENE	<0.091
ACENAPHTHYLENE	<0.19
1-METHYLNAPHTHALENE	<0.19
2-METHYLNAPHTHALENE	<0.19
ACENAPHTHENE	<0.19
FLUORENE	<0.019
PHENANTHRENE	<0.0091
ANTHRACENE	<0.0091
FLUORANTHENE	<0.019
PYRENE	<0.019
BENZO (A) ANTHRACENE	<0.019
CHRYSENE	<0.019
BENZO (B) FLUORANTHENE	<0.019
BENZO (K) FLUORANTHENE	<0.019
BENZO (A) PYRENE	<0.019
DIBENZO (A, H) ANTHRACENE	<0.037
BENZO (G, H, I) PERYLENE	<0.019
INDENO (1, 2, 3-CD) PYRENE	<0.019

SURROGATE PERCENT RECOVERY	LIMITS
2-CHLOROANTHRACENE	83 25 - 134

ATI I.D. # 9309-006-5

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT : PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED : 08/25/93
PROJECT # : 520-41.01	DATE RECEIVED : 09/01/93
PROJECT NAME : CHEVRON/BREMERTON	DATE EXTRACTED : 09/03/93
CLIENT I.D. : MW-20 (11.5')	DATE ANALYZED : 09/08/93
SAMPLE MATRIX : SOIL	UNITS : mg/Kg
EPA METHOD : 8310	DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
NAPHTHALENE	<0.10
ACENAPHTHYLENE	<0.20
1-METHYLNAPHTHALENE	<0.20
2-METHYLNAPHTHALENE	<0.20
ACENAPHTHENE	<0.20
FLUORENE	<0.020
PHENANTHRENE	<0.010
ANTHRACENE	<0.010
FLUORANTHENE	<0.020
PYRENE	<0.020
BENZO (A) ANTHRACENE	<0.020
CHRYSENE	<0.020
BENZO (B) FLUORANTHENE	<0.020
BENZO (K) FLUORANTHENE	<0.020
BENZO (A) PYRENE	<0.020
DIBENZO (A, H) ANTHRACENE	<0.041
BENZO (G, H, I) PERYLENE	<0.020
INDENO (1, 2, 3-CD) PYRENE	<0.020

SURROGATE PERCENT RECOVERY		LIMITS
2-CHLOROANTHRACENE	85	25 - 134



ATI I.D. # 9309-006-6

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT	: PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED	: 08/25/93
PROJECT #	: 520-41.01	DATE RECEIVED	: 09/01/93
PROJECT NAME	: CHEVRON/BREMERTON	DATE EXTRACTED	: 09/03/93
CLIENT I.D.	: MW-19 (13.5')	DATE ANALYZED	: 09/09/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8310	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
NAPHTHALENE	<0.091
ACENAPHTHYLENE	<0.19
1-METHYLNAPHTHALENE	2.7
2-METHYLNAPHTHALENE	0.27
ACENAPHTHENE	<0.19
FLUORENE	0.76
PHENANTHRENE	1.2
ANTHRACENE	<0.0092
FLUORANTHENE	<0.019
PYRENE	<0.019
BENZO (A) ANTHRACENE	<0.019
CHRYSENE	<0.019
BENZO (B) FLUORANTHENE	<0.019
BENZO (K) FLUORANTHENE	<0.019
BENZO (A) PYRENE	<0.019
DIBENZO (A, H) ANTHRACENE	<0.037
BENZO (G, H, I) PERYLENE	<0.019
INDENO (1, 2, 3-CD) PYRENE	<0.019

SURROGATE PERCENT RECOVERY		LIMITS
2-CHLOROANTHRACENE	104	25 - 134

ATI I.D. # 9309-006-7

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT : PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED : 08/26/93
PROJECT # : 520-41.01	DATE RECEIVED : 09/01/93
PROJECT NAME : CHEVRON/BREMERTON	DATE EXTRACTED : 09/03/93
CLIENT I.D. : MW-21(10')	DATE ANALYZED : 09/08/93
SAMPLE MATRIX : SOIL	UNITS : mg/Kg
EPA METHOD : 8310	DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
NAPHTHALENE	0.15
ACENAPHTHYLENE	<0.20
1-METHYLNAPHTHALENE	<0.20
2-METHYLNAPHTHALENE	0.31
ACENAPHTHENE	<0.20
FLUORENE	0.031
PHENANTHRENE	0.075
ANTHRACENE	0.013
FLUORANTHENE	0.14
PYRENE	0.087
BENZO (A) ANTHRACENE	<0.020
CHRYSENE	<0.020
BENZO (B) FLUORANTHENE	<0.020
BENZO (K) FLUORANTHENE	<0.020
BENZO (A) PYRENE	<0.020
DIBENZO (A, H) ANTHRACENE	<0.040
BENZO (G, H, I) PERYLENE	<0.020
INDENO (1, 2, 3-CD) PYRENE	<0.020

SURROGATE PERCENT RECOVERY		LIMITS
2-CHLOROANTHRACENE	87	25 - 134

ATI I.D. # 9309-006-8

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT : PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED : 08/24/93
PROJECT # : 520-41.01	DATE RECEIVED : 09/01/93
PROJECT NAME : CHEVRON/BREMERTON	DATE EXTRACTED : 09/03/93
CLIENT I.D. : MW-17(27')	DATE ANALYZED : 09/08/93
SAMPLE MATRIX : SOIL	UNITS : mg/Kg
EPA METHOD : 8310	DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
NAPHTHALENE	<0.10
ACENAPHTHYLENE	<0.21
1-METHYLNAPHTHALENE	<0.21
2-METHYLNAPHTHALENE	<0.21
ACENAPHTHENE	<0.21
FLUORENE	<0.021
PHENANTHRENE	<0.010
ANTHRACENE	<0.010
FLUORANTHENE	<0.021
PYRENE	<0.021
BENZO (A) ANTHRACENE	<0.021
CHRYSENE	<0.021
BENZO (B) FLUORANTHENE	<0.021
BENZO (K) FLUORANTHENE	<0.021
BENZO (A) PYRENE	<0.021
DIBENZO (A, H) ANTHRACENE	<0.042
BENZO (G, H, I) PERYLENE	<0.021
INDENO (1, 2, 3-CD) PYRENE	<0.021

SURROGATE PERCENT RECOVERY	LIMITS
2-CHLOROANTHRACENE	71 25 - 134

ATI I.D. # 9309-006

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
QUALITY CONTROL DATA

CLIENT	: PACIFIC ENVIRONMENTAL GROUP	SAMPLE I.D. #	: 9309-006-1
PROJECT #	: 520-41.01	DATE EXTRACTED	: 09/03/93
PROJECT NAME	: CHEVRON/BREMERTON	DATE ANALYZED	: 09/08/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8310		

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
ACENAPHTHYLENE	<0.170	3.33	2.33	70	2.38	71	2
PHENANTHRENE	<0.00833	0.333	0.283	85	0.284	85	0
PYRENE	<0.0170	0.333	0.277	83	0.267	80	4
BENZO (K) FLUORANTHENE	<0.0170	0.333	0.335	101	0.312	94	7
DIBENZO (A, H) ANTHRACENE	<0.0340	0.333	0.276	83	0.247	74	11

CONTROL LIMITS

% REC.

RPD

ACENAPHTHYLENE	50 - 136	20
PHENANTHRENE	14 - 162	35
PYRENE	25 - 143	34
BENZO (K) FLUORANTHENE	36 - 143	34
DIBENZO (A, H) ANTHRACENE	34 - 152	33

SURROGATE RECOVERIES

SPIKE

DUP. SPIKE

LIMITS

2-CHLOROANTHRACENE	73	73	25 - 134
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ATI I.D. # 9309-006

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
QUALITY CONTROL DATA

CLIENT : PACIFIC ENVIRONMENTAL GROUP	SAMPLE I.D. # : BLANK
PROJECT # : 520-41.01	DATE EXTRACTED : 09/03/93
PROJECT NAME : CHEVRON/BREMERTON	DATE ANALYZED : 09/08/93
SAMPLE MATRIX : SOIL	UNITS : mg/Kg
EPA METHOD : 8310	

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
ACENAPHTHYLENE	<0.170	3.33	2.45	74	N/A	N/A	N/A
PHENANTHRENE	<0.00833	0.333	0.300	90	N/A	N/A	N/A
PYRENE	<0.0170	0.333	0.293	88	N/A	N/A	N/A
BENZO (K) FLUORANTHENE	<0.0170	0.333	0.400	120	N/A	N/A	N/A
DIBENZO (A, H) ANTHRACENE	<0.0340	0.333	0.339	102	N/A	N/A	N/A

CONTROL LIMITS	% REC.	RPD
ACENAPHTHYLENE	48 - 145	20
PHENANTHRENE	47 - 137	35
PYRENE	59 - 122	34
BENZO (K) FLUORANTHENE	50 - 126	34
DIBENZO (A, H) ANTHRACENE	54 - 138	33

SURROGATE RECOVERIES	SPIKE	DUP. SPIKE	LIMITS
2-CHLOROANTHRACENE	88	N/A	25 - 134



ATI I.D. # 9309-006

METALS ANALYSIS

CLIENT : PACIFIC ENVIRONMENTAL GROUP
PROJECT # : 520-41.01
PROJECT NAME : CHEVRON/BREMERTON

MATRIX : SOIL

ELEMENT

DATE PREPARED

DATE ANALYZED

LEAD

09/07/93

09/08/93

ATI I.D. # 9309-006

METALS ANALYSIS
DATA SUMMARY

CLIENT : PACIFIC ENVIRONMENTAL GROUP
PROJECT # : 520-41.01
PROJECT NAME : CHEVRON/BREMERTON
RESULTS ARE CORRECTED FOR MOISTURE CONTENT

MATRIX : SOIL

UNITS : mg/Kg

ATI I.D. #	CLIENT I.D.	LEAD
9309-006-1	MW-17(30')	<6.2
9309-006-2	MW-22(10')	49
9309-006-3	MW-16(20')	<5.5
9309-006-4	MW-18(15.5')	<5.4
9309-006-5	MW-20(11.5')	26
9309-006-6	MW-19(13.5')	<5.5
9309-006-7	MW-21(10')	<5.9
9309-006-8	MW-17(27')	8.2
METHOD BLANK	-	<5.0

ATI I.D. # 9309-006

METALS ANALYSIS
QUALITY CONTROL DATA

CLIENT : PACIFIC ENVIRONMENTAL GROUP
PROJECT # : 520-41.01
PROJECT NAME : CHEVRON/BREMERTON

MATRIX : SOIL

UNITS : mg/Kg

ELEMENT	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
LEAD	9309-006-8	8.2	8.4	2	78.8	64.1	110
LEAD	BLANK	<5.0	N/A	N/A	54.5	50.0	109

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$



ATI I.D. # 9309-006

GENERAL CHEMISTRY ANALYSIS

CLIENT : PACIFIC ENVIRONMENTAL GROUP
PROJECT # : 520-41.01
PROJECT NAME : CHEVRON/BREMERTON

MATRIX : SOIL

PARAMETER DATE ANALYZED

MOISTURE 09/03/93

ATI I.D. # 9309-006

GENERAL CHEMISTRY ANALYSIS
DATA SUMMARY

CLIENT : PACIFIC ENVIRONMENTAL GROUP
PROJECT # : 520-41.01
PROJECT NAME : CHEVRON/BREMERTON

MATRIX : SOIL

UNITS : %

ATI I.D. #	CLIENT I.D.	MOISTURE
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9309-006-1	MW-17(30')	17
9309-006-2	MW-22(10')	13
9309-006-3	MW-16(20')	8.6
9309-006-4	MW-18(15.5')	8.3
9309-006-5	MW-20(11.5')	17
9309-006-6	MW-19(13.5')	9.0
9309-006-7	MW-21(10')	15
9309-006-8	MW-17(27')	19

ATI I.D. # 9309-006

GENERAL CHEMISTRY ANALYSIS
QUALITY CONTROL DATA

CLIENT : PACIFIC ENVIRONMENTAL GROUP MATRIX : SOIL
PROJECT # : 520-41.01
PROJECT NAME : CHEVRON/BREMERTON UNITS : %

PARAMETER	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
MOISTURE	9309-006-8	19	19	0	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Client: Pacific Environmental Group

Project: Chevron/Bremerton (520-41.01)

Analytical Summary Report

Analysis: W/A DOE WTPH-G/8020(BETX)

Matrix: SOIL

Units: mg/Kg (Dry Weight Basis)

ATI Sample #:	0	1	2	3	4	5
Client ID:	Method Blank	MW-17(30')	MW-22(10')	MW-16(20')	MW-18(15.5')	MW-20(11.5')
Date Sampled:	N/A	08/24/93	08/26/93	08/23/93	08/25/93	08/25/93
Date Extracted:	09/02/93	09/02/93	09/02/93	09/02/93	09/02/93	09/02/93
Date Analyzed:	09/02/93	09/03/93	09/03/93	09/03/93	09/03/93	09/03/93
Benzene	<0.025	<0.030	3.7	<0.027	<0.027	<0.030
Ethylbenzene	<0.025	<0.030	17	<0.027	<0.027	0.24
Toluene	<0.025	<0.030	4.1	<0.027	<0.027	0.26
Total Xylenes	<0.025	<0.030	21	<0.027	<0.027	0.42
Gasoline (Toluene to Dodecane)	<5	<6	1300	<5	<5	69

Surrogate Recoveries (%)

Bromofluorobenzene	107	81	F	96	96	102
Trifluorotoluene	92	76	88	79	78	78

ATI Sample #:	6	7	8
Client ID:	MW-19(13.5')	MW-21(10')	MW-17(27')
Date Sampled:	08/25/93	08/26/93	08/24/93
Date Extracted:	09/02/93	09/02/93	09/02/93
Date Analyzed:	09/03/93	09/03/93	09/03/93
Benzene	<0.027	0.43	<0.031
Ethylbenzene	0.38	1.8	<0.031
Toluene	0.12	2.2	<0.031
Total Xylenes	1.4	12	<0.031
Gasoline (Toluene to Dodecane)	420	120	<6

Surrogate Recoveries (%)

Bromofluorobenzene	151	F	93	D3	91
Trifluorotoluene	78	D3	76	D3	76

Surrogate Limits: (BFB:52-116 TFT:50-150)
D3 Value from a five fold diluted analysis.
F Out of limits due to matrix interference.



Quality Control Summary Report

Analysis: WA DOE WTPH-G/8020(BETX)

Matrix: SOIL

Units: mg/Kg

Matrix Spike/Matrix Spike Duplicate

Extracted: 09/02/93

Analyzed: 09/03/93

Sample ID: 9309-006-8

Compound	Sample Result	Duplicate Result	RPD	Spike Added	Spike Result	Spike %Rec	Spike Dup. Result	Spike Dup. %Rec	RPD	Limits %Rec	Limits RPD
BENZENE	<0.0250	N/A	N/A	1.00	0.825	83	0.827	83	0	35-113	20
TOLUENE	<0.0250	N/A	N/A	1.00	0.876	88	0.893	89	2	43-107	20
TOTAL XYLENES	<0.0250	N/A	N/A	2.00	1.78	89	1.84	92	3	46-114	20
GASOLINE	<5.00	<5.00	NC	50.0	46.5	93	49.1	98	5	50-112	20

Quality Control Surrogate Recoveries (%)

Compound	Sample	Spike	Spike Dup.	Limits
BROMOFLUOROBENZENE	91	84	81	52-116
TRIFLUOROTOLUENE	76	66	68	50-150

Analysis: WA DOE WTPH-G/8020(BETX)

Matrix: SOIL

Units: mg/Kg

Blank Spike/Blank Spike Duplicate

Extracted: 09/02/93

Analyzed: 09/02/93

Sample ID: Blank

Compound	Sample Result	Duplicate Result	RPD	Spike Added	Spike Result	Spike %Rec	Spike Dup. Result	Spike Dup. %Rec	RPD	Limits %Rec	Limits RPD
BENZENE	<0.0250	N/A	N/A	1.00	0.988	99	N/A	N/A	N/A	63-115	20
TOLUENE	<0.0250	N/A	N/A	1.00	1.05	105	N/A	N/A	N/A	75-110	20
TOTAL XYLENES	<0.0250	N/A	N/A	2.00	2.14	107	N/A	N/A	N/A	79-109	20
GASOLINE	<5.00	N/A	N/A	50.0	52.2	104	N/A	N/A	N/A	80-119	20

Quality Control Surrogate Recoveries (%)

Compound	Sample	Spike	Spike Dup.	Limits
BROMOFLUOROBENZENE	107	107	N/A	52-116
TRIFLUOROTOLUENE	92	94	N/A	50-150

Client: Pacific Environmental Group

Project: Chevron/Bremerton (520-41.01)

Analytical Summary Report

Analysis: W/A DOE WTPH-D

Matrix: SOIL

Units: mg/Kg (Dry Weight Basis)

ATI Sample #:	0	1	2	3	4	5
Client ID:	Method Blank	MW-17(30')	MW-22(10')	MW-16(20')	MW-18(15.5')	MW-20(11.5')
Date Sampled:	N/A	08/24/93	08/26/93	08/23/93	08/25/93	08/25/93
Date Extracted:	09/07/93	09/07/93	09/07/93	09/07/93	09/07/93	09/07/93
Date Analyzed:	09/07/93	09/08/93	09/08/93	09/08/93	09/07/93	09/08/93
Diesel (C12-C24)	<10	<12	11000	<11	<11	34
Motor Oil (C24-C34)	<40	<48	<2300	<44	<44	110

Surrogate Recoveries (%)

O-Terphenyl	81	82	175	1	D6	86	84	87
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ATI Sample #:	6	7	8
Client ID:	MW-19(13.5')	MW-21(10')	MW-17(27')
Date Sampled:	08/25/93	08/26/93	08/24/93
Date Extracted:	09/07/93	09/07/93	09/07/93
Date Analyzed:	09/08/93	09/08/93	09/08/93

Diesel (C12-C24)	630	170	13
Motor Oil (C24-C34)	<44	<47	<49

Surrogate Recoveries (%)

O-Terphenyl	90	86	86
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Surrogate Limits: (O-T:50-150)

D6 Value from a 50 fold diluted analysis.

1 Surrogate out of limits due to sample dilution.

Quality Control Summary Report

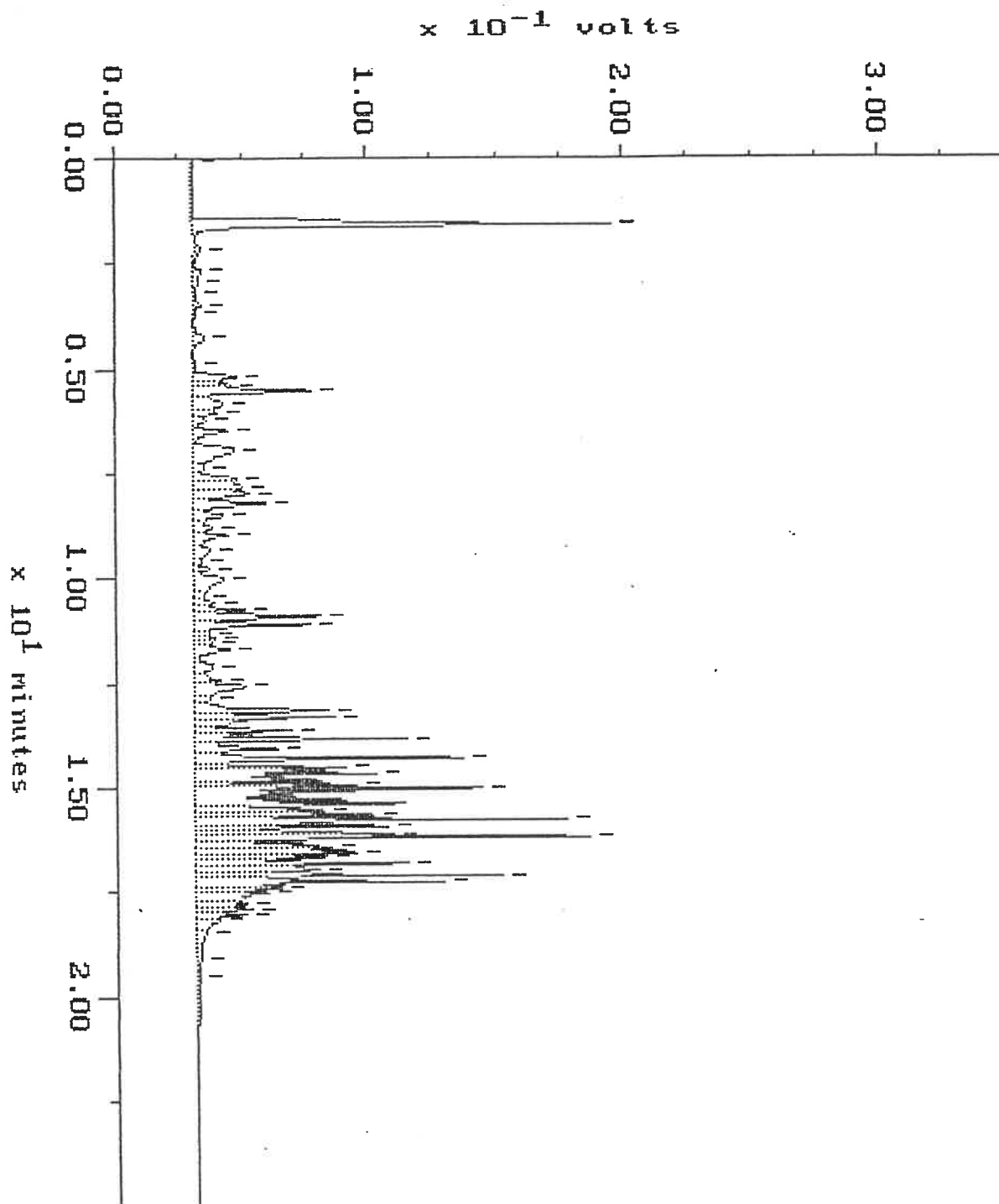
Project: Chevron/Bremerton (520-41.01)

Analysis: WA DOE WTPH-D				Matrix: SOIL		Units: mg/Kg		Matrix Spike/Matrix Spike Duplicate			
Extracted: 09/07/93		Analyzed: 09/07/93		Sample ID: 9309-070-3							
Compound	Sample Result	Duplicate Result	RPD	Spike Added	Spike Result	Spike %Rec	Spike Dup. Result	Spike Dup. %Rec	RPD	Limits %Rec	Limits RPD
DIESEL	<10.0	<10.0	NC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20
Quality Control Surrogate Recoveries (%)											
Compound	Sample	Sample Dup.		Spike Dup.		Limits					
O-TERPHENYL	85	82		N/A		50-150					
Analysis: WA DOE WTPH-D				Matrix: SOIL		Units: mg/Kg		Matrix Spike/Matrix Spike Duplicate			
Extracted: 09/07/93		Analyzed: 09/07/93		Sample ID: 9309-006-4							
Compound	Sample Result	Duplicate Result	RPD	Spike Added	Spike Result	Spike %Rec	Spike Dup. Result	Spike Dup. %Rec	RPD	Limits %Rec	Limits RPD
DIESEL	<10.0	<10.0	NC	200	181	91	173	87	5	63-131	20
Quality Control Surrogate Recoveries (%)											
Compound	Sample	Spike		Spike Dup.		Limits					
O-TERPHENYL	84	87		84		50-150					
Analysis: WA DOE WTPH-D				Matrix: SOIL		Units: mg/Kg		Blank Spike/Blank Spike Duplicate			
Extracted: 09/07/93		Analyzed: 09/07/93		Sample ID: Blank							
Compound	Sample Result	Duplicate Result	RPD	Spike Added	Spike Result	Spike %Rec	Spike Dup. Result	Spike Dup. %Rec	RPD	Limits %Rec	Limits RPD
DIESEL	<10.0	N/A	N/A	200	163	82	N/A	N/A	N/A	69-122	20
Quality Control Surrogate Recoveries (%)											
Compound	Sample	Spike		Spike Dup.		Limits					
O-TERPHENYL	81	86		N/A		50-150					

WA DOE WTPH-G

Sample: 9309-006-2 DIL Channel: FID
Acquired: 03-SEP-93 12:56 Method: F:\BRO2\MAXDATA\GLAD\0903936S
Dilution: 1 : 5.000
Comments: ATI : A COMMITMENT TO QUALITY

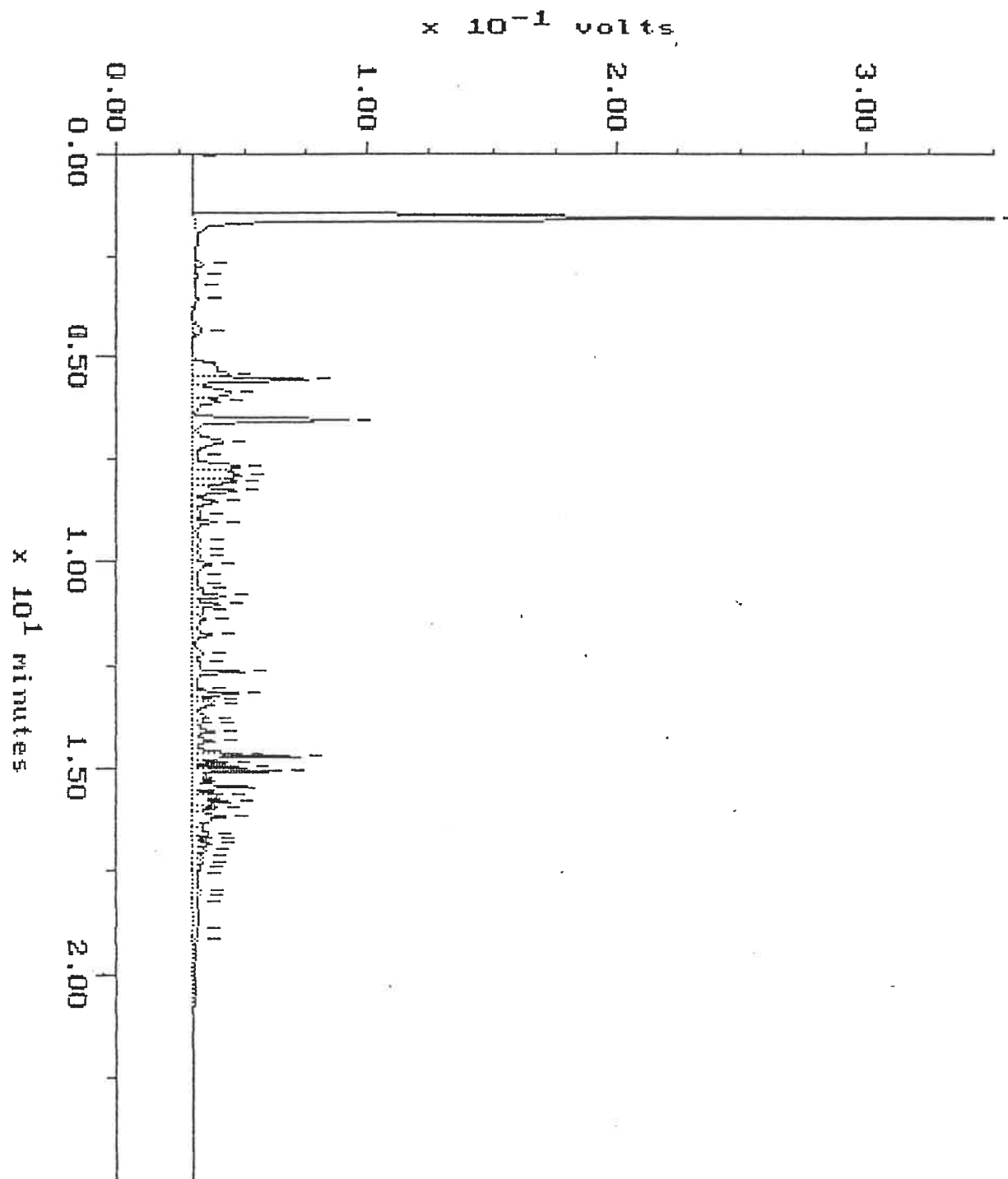
Filename: R9039607
Operator: ATI



WADUE WITH-G

Sample: 9309-006-5 Channel: FID
 Acquired: 03-SEP-93 6:41 Method: F:\BRO2\MAXDATA\GLAD\0902936S
 Comments: ATI : A COMMITMENT TO QUALITY

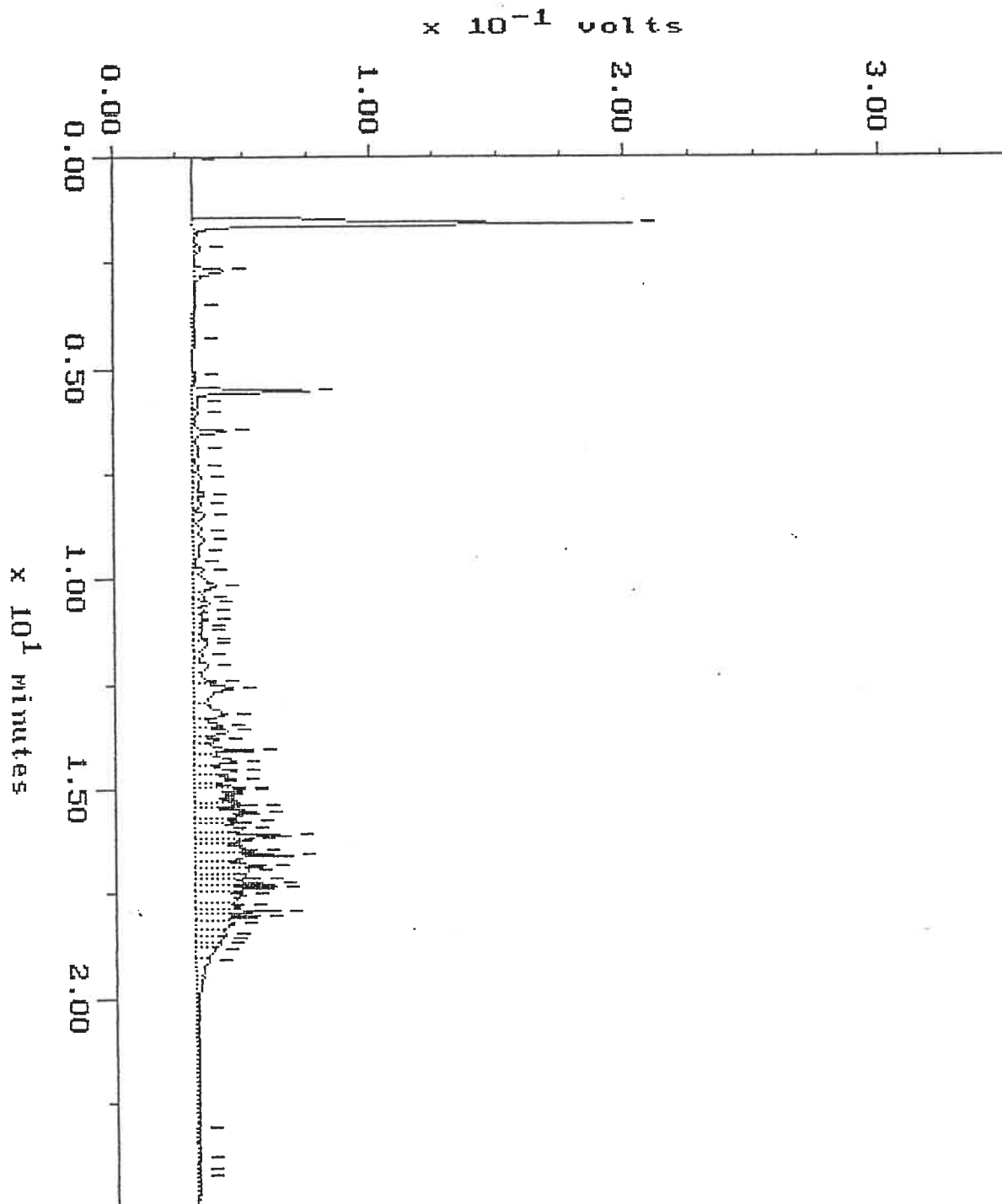
Filename: R9029645
 Operator: ATI



WA DOE WTPH-G

Sample: 9309-006-6 DIL Channel: FID
Acquired: 03-SEP-93 13:25 Method: F:\BR02\MAXDATA\GLAD\090393GS
Dilution: 1 : 5.000
Comments: ATI : A COMMITMENT TO QUALITY

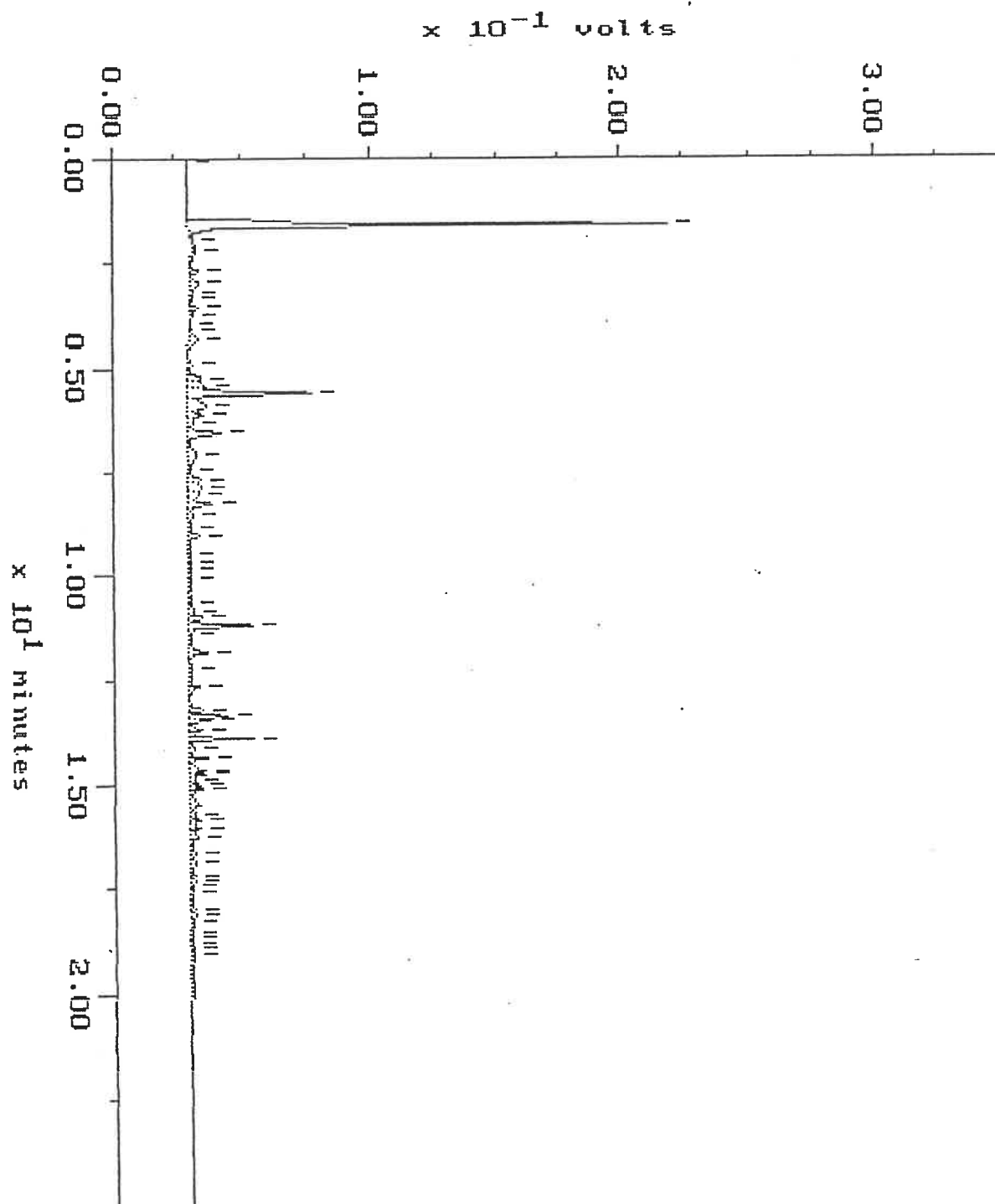
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Operator: ATI



WA DOE WTPH-G

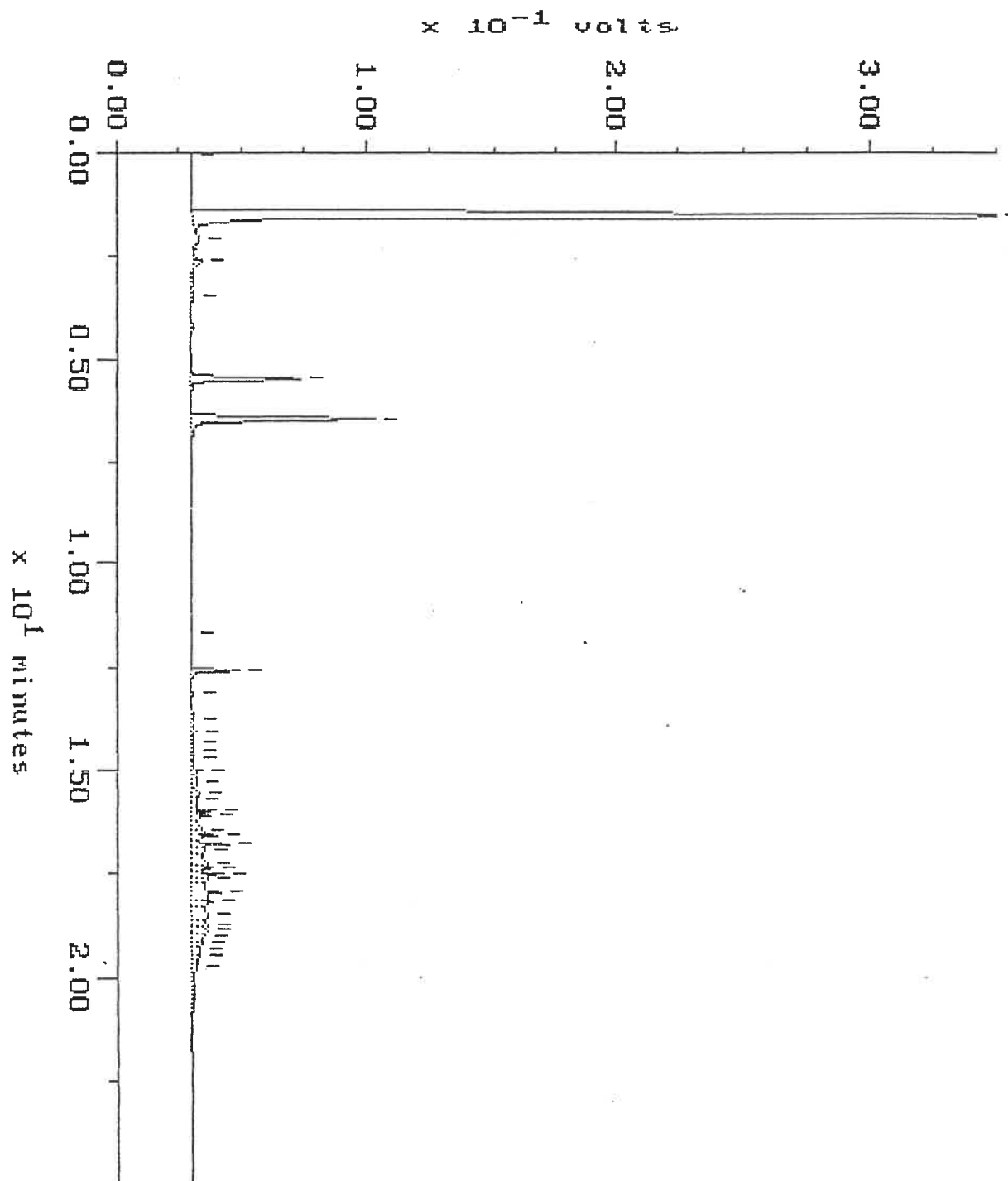
Sample: 9309-006-7 DIL Channel: FID
Acquired: 03-SEP-93 6:12 Method: F:\BRO2\MAXDATA\GLAD\09029365
Dilution: 1 : 5.000
Comments: ATI : A COMMITMENT TO QUALITY

Filename: R9029G44
Operator: ATI



Sample: SRB-A 9-2 Channel: FID
Acquired: 02-SEP-93 21:05 Method: F:\BR02\MAXDATA\GLAD\090293GS
Comments: ATI : A COMMITMENT TO QUALITY

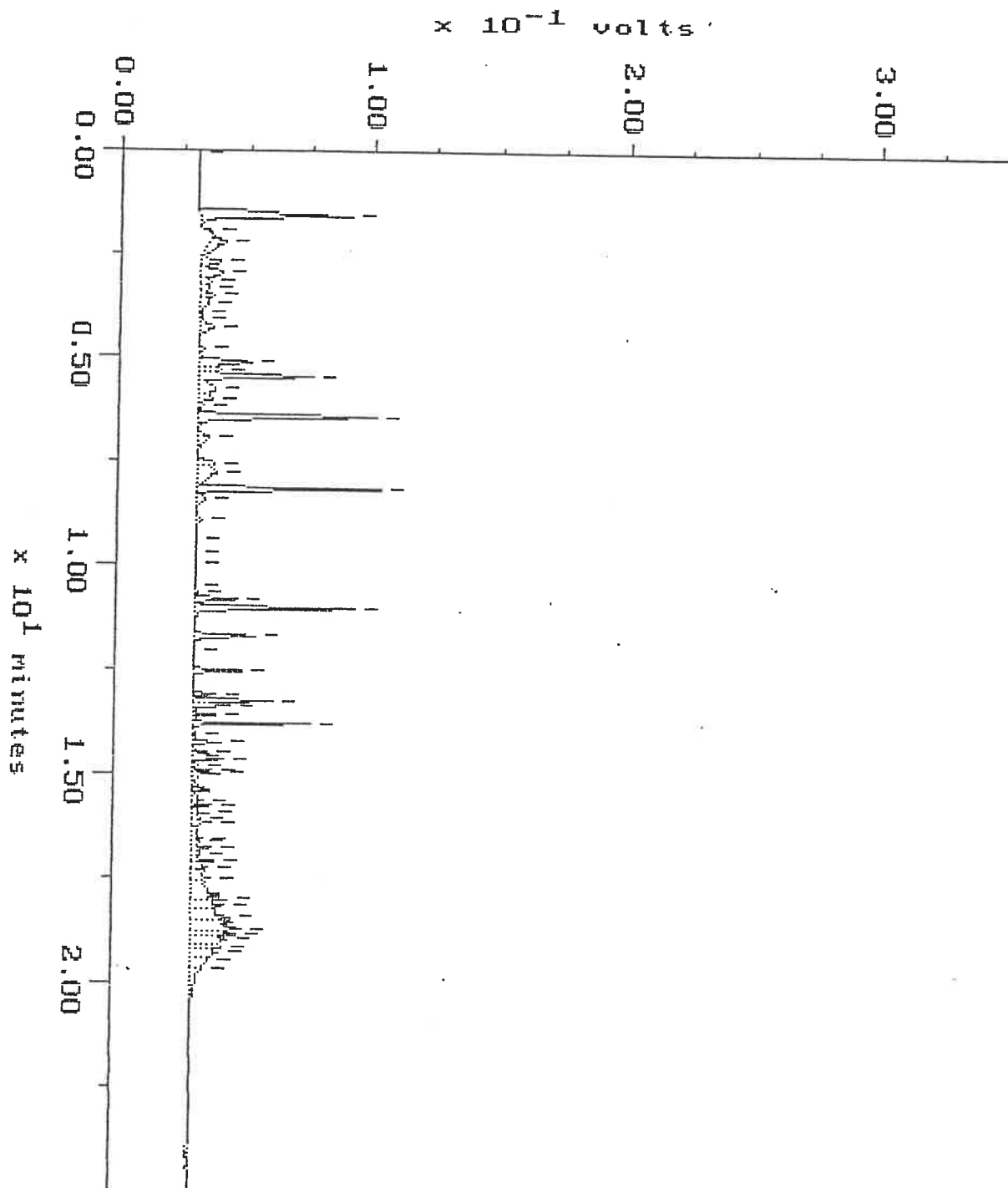
Filename: R9029625
Operator: ATI



Continuing Calibration

Sample: STD C G Channel: FID
Acquired: 02-SEP-93 15:44 Method: F:\BRO2\MAXDATA\GLAD\090293GS
Comments: ATI : A COMMITMENT TO QUALITY

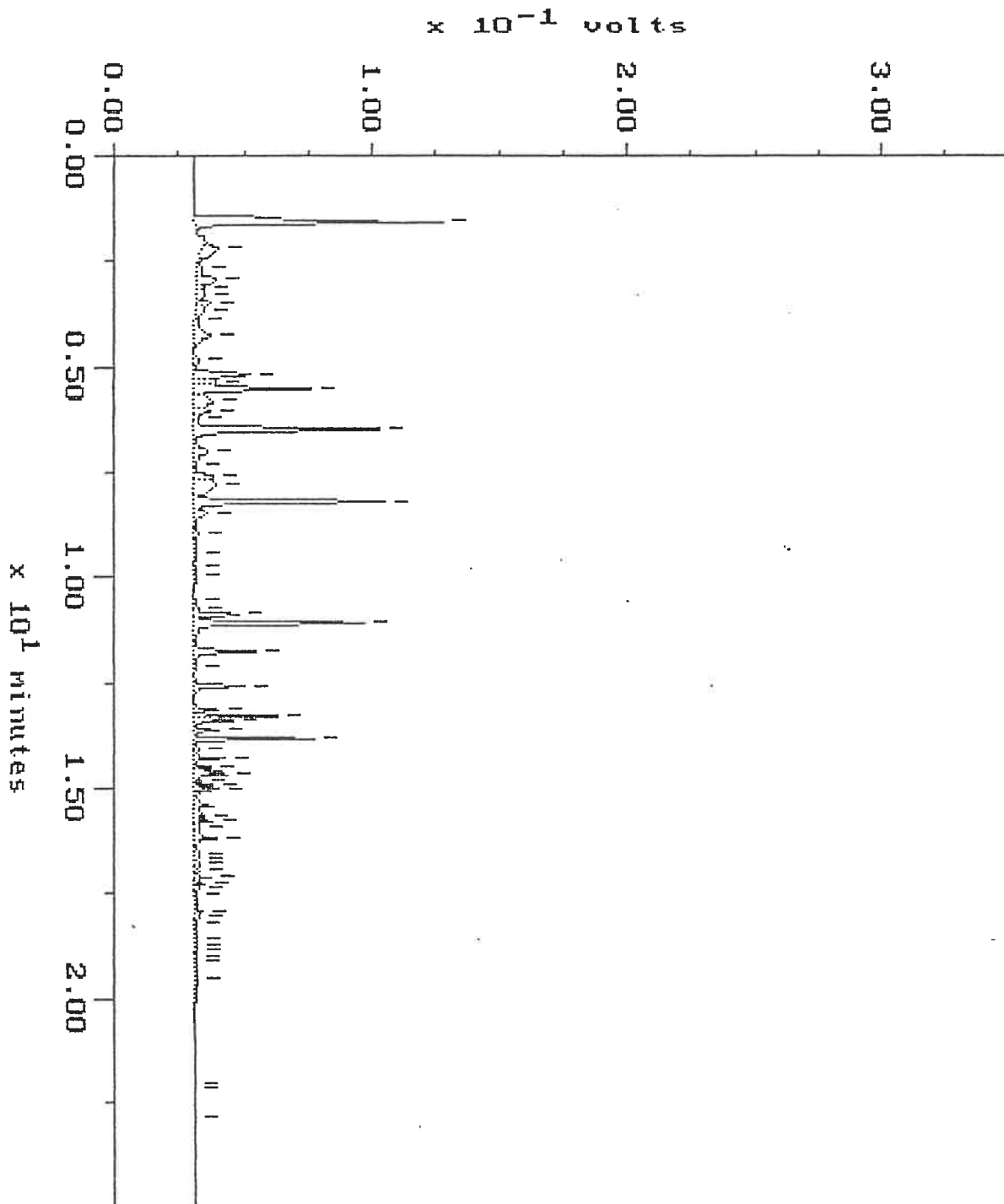
Filename: R9029615
Operator: ATI



Continuing Calibration

Sample: STD-C 6 Channel: FID
Acquired: 03-SEP-93 13:55 Method: F:\BRO2\MAXDATA\GLAD\090393GS
Comments: ATI : A COMMITMENT TO QUALITY

Filename: R9039609
Operator: ATI



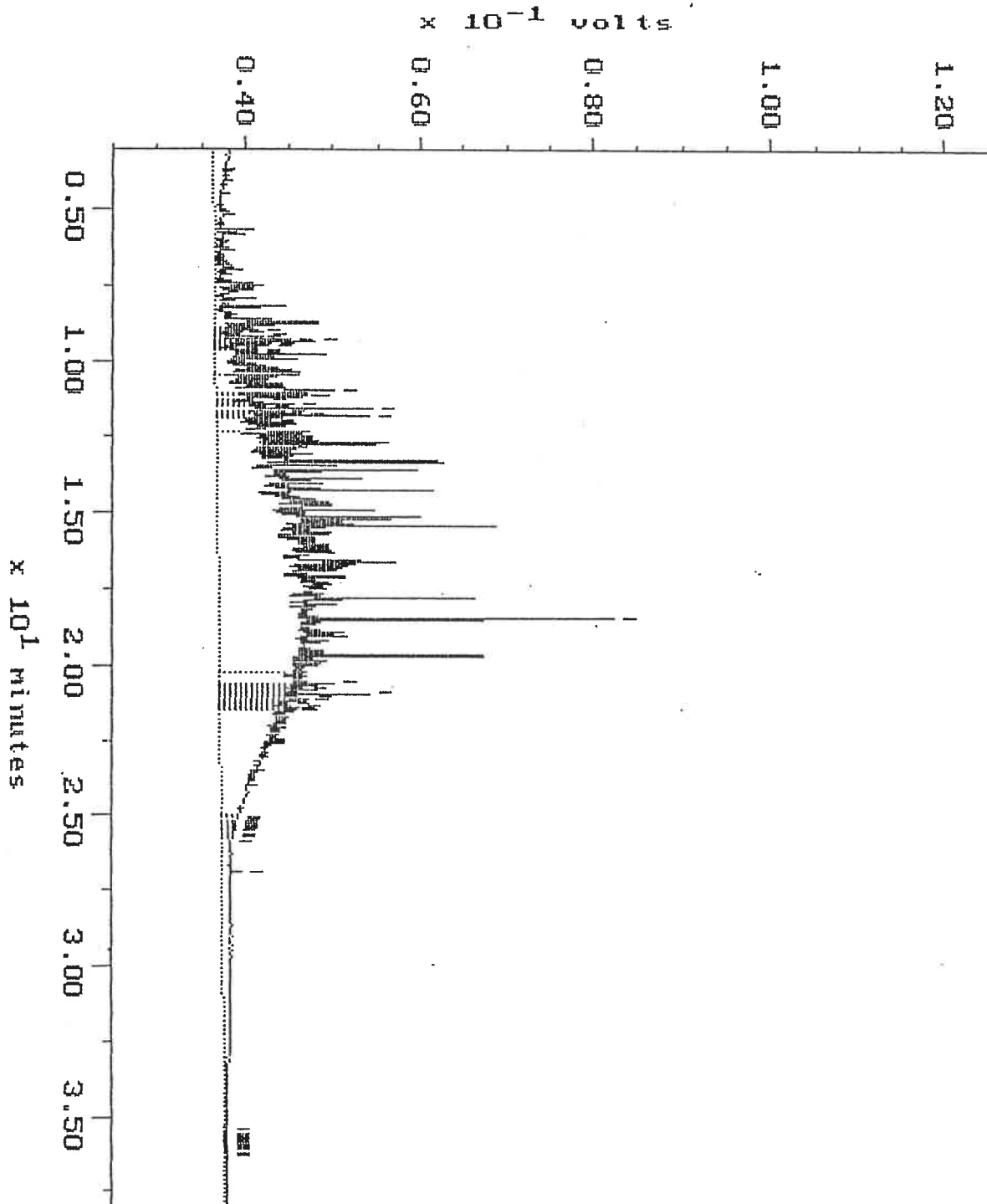
WA DOE WTPH-D

Sample: 9309-006-2D1L
Acquired: 08-SEP-93 8:30
Dilution: 1 : 50.000

Channel: DEMITRI
Method: F:\BRO2\MAXDATA\SERGE-D\WATPHD07

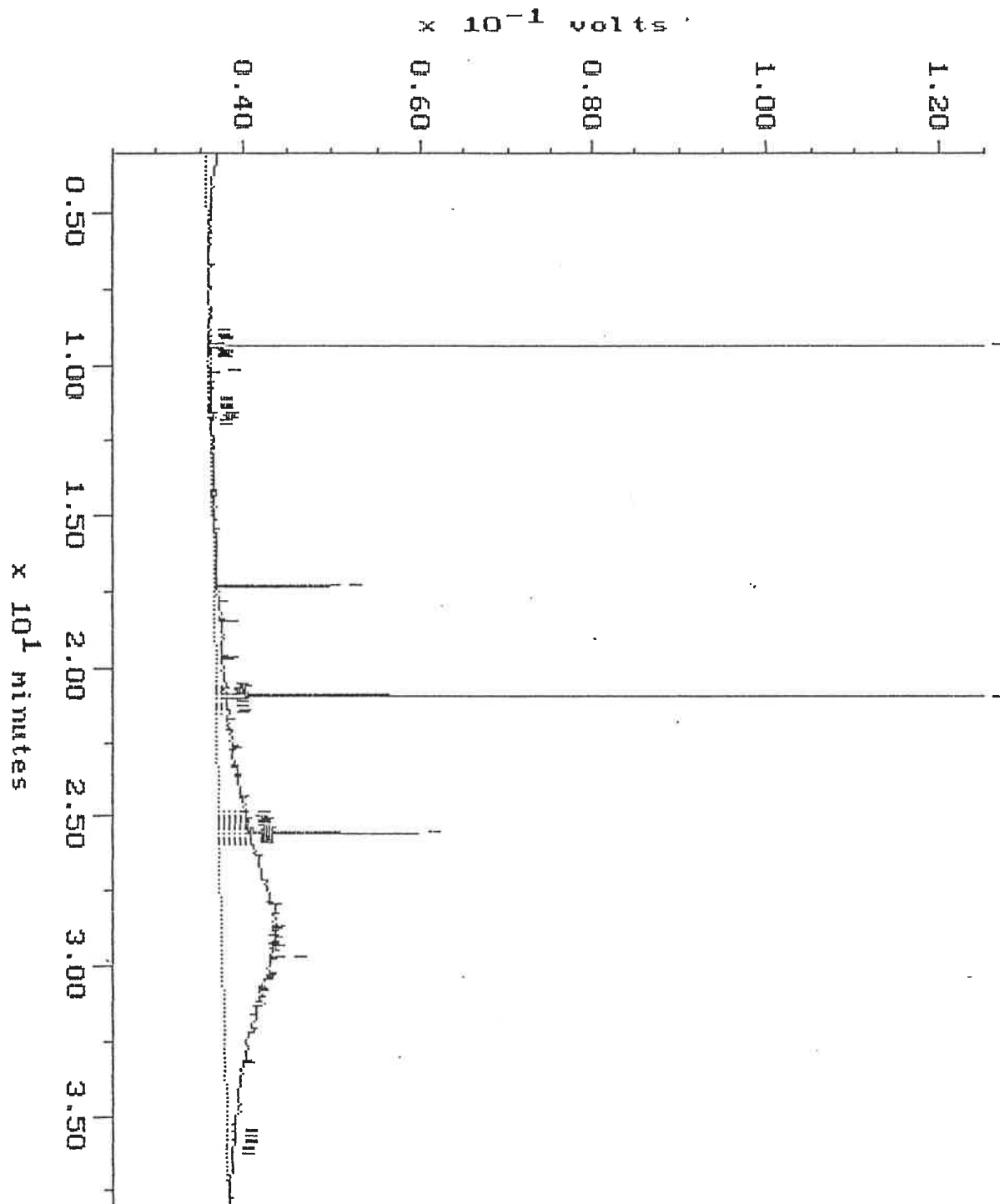
Filename: R9078D28
Operator: ATI

Comments: ATI RUSH FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY



WA DOE WTPH-D

Sample: 9309-006-5 Channel: DEMITRI
Acquired: 08-SEP-93 3:09 Method: F:\BRO2\MAXDATA\SERGE-D\WATPHD07
Comments: ATI RUSH FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY
Filename: 89078021
Operator: ATI

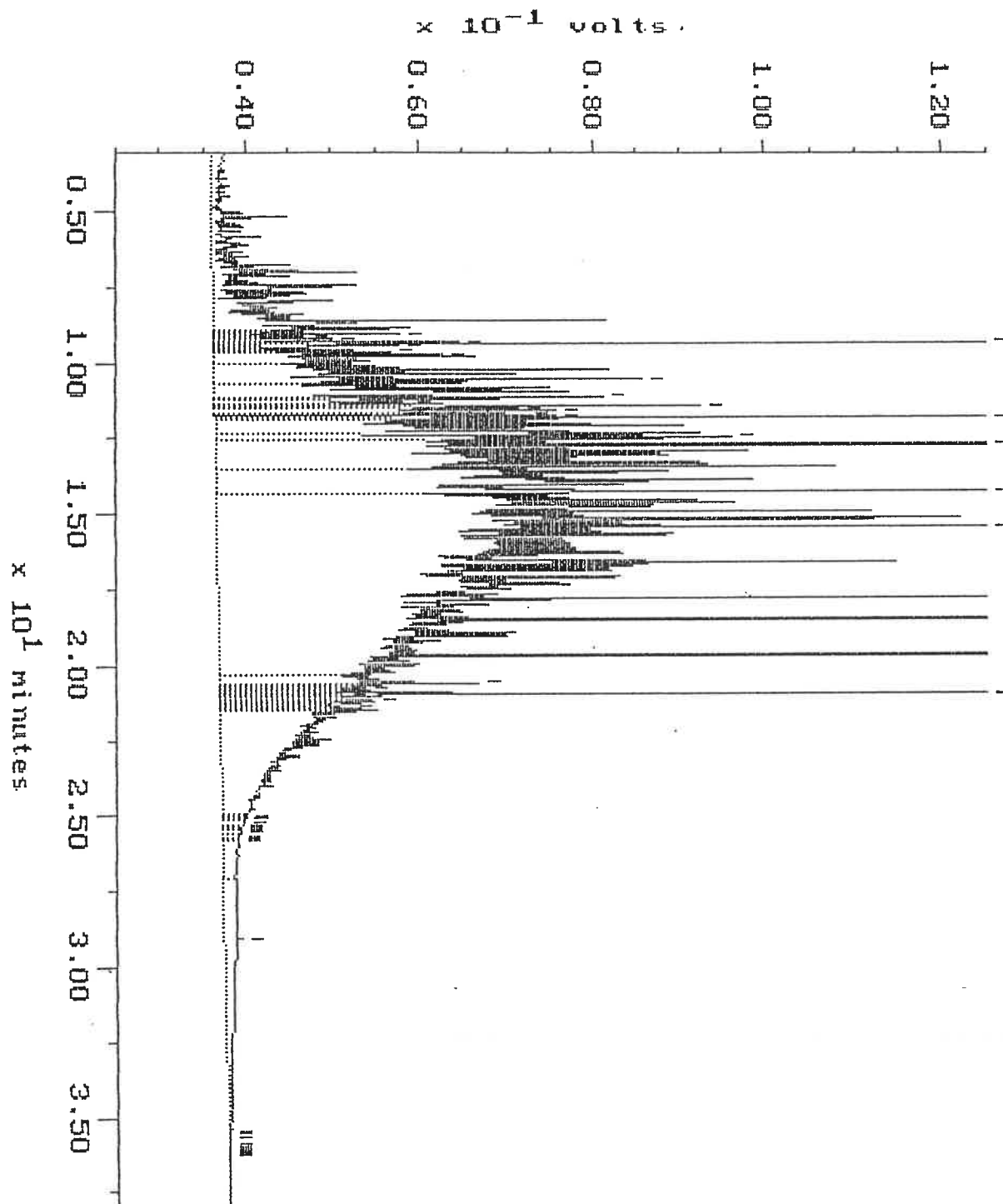


Sample: 9309-006-6
Acquired: 08-SEP-93 3:55

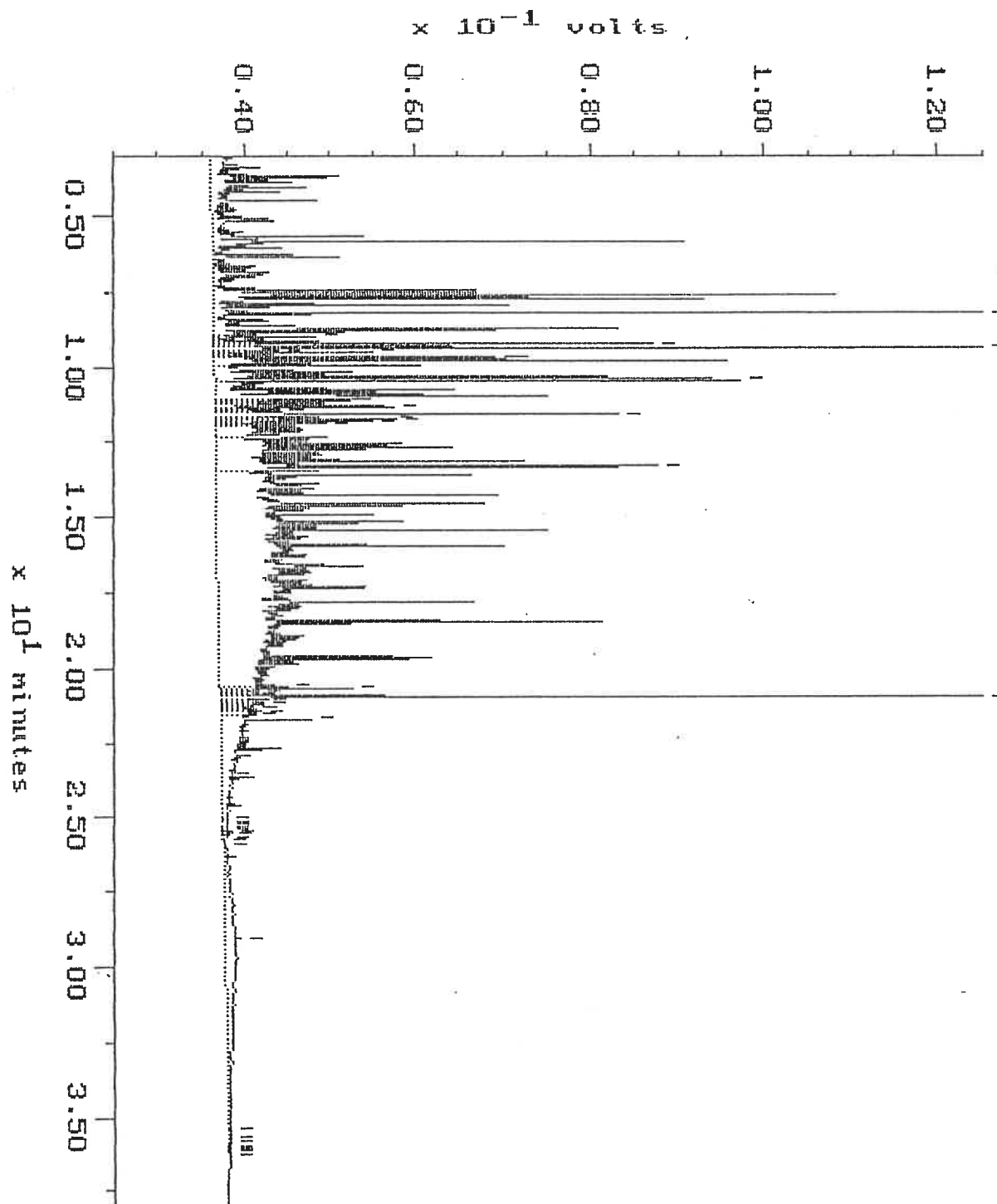
Channel: DEMITRI
Method: F:\BRO2\MAXDATA\SERGE-D\WATPHD07

Filename: R9078D22
Operator: ATI

Comments: ATI RUSH FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY



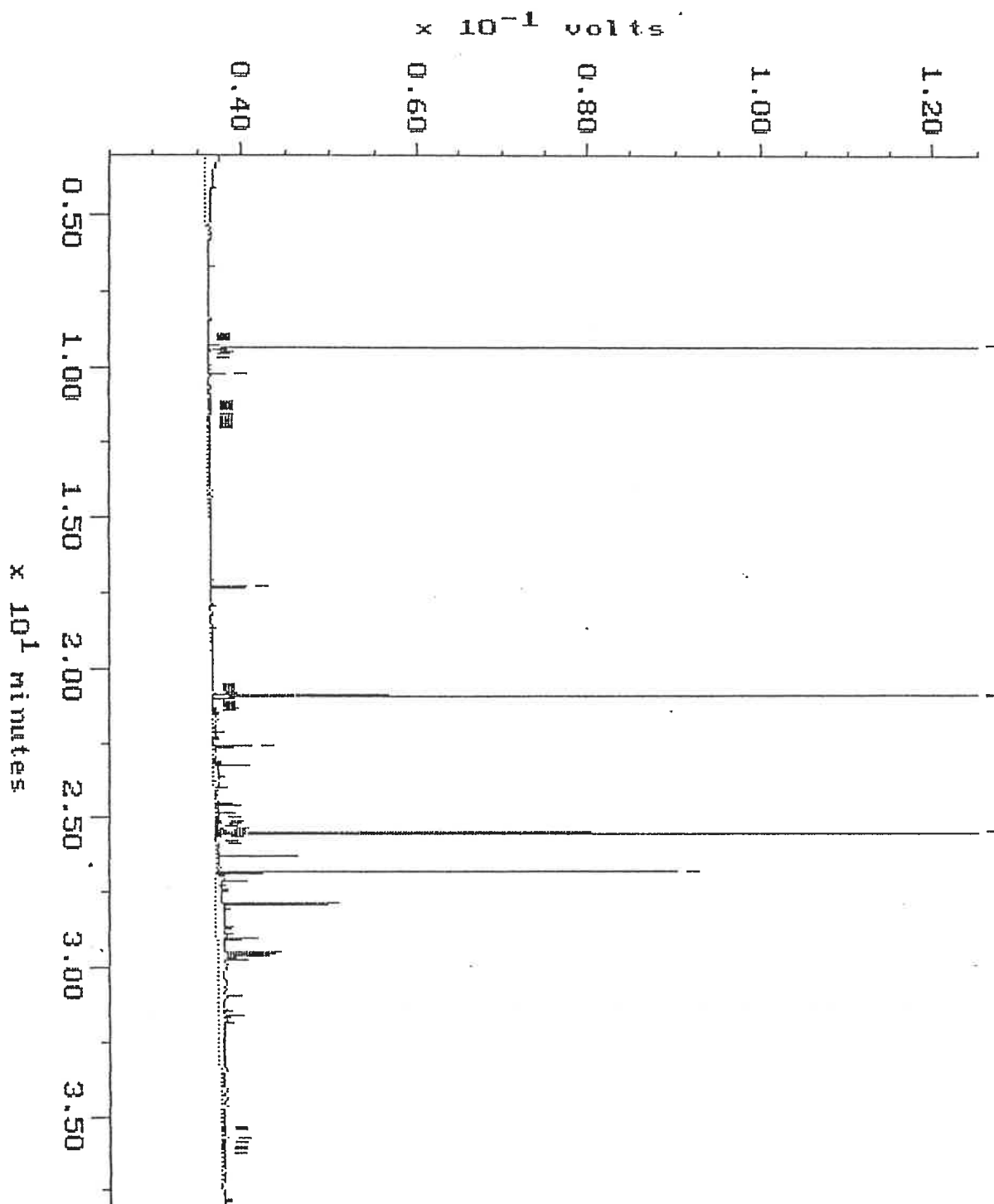
Sample: 9309-006-7 Channel: DEMITRI Filename: R9078D23
Acquired: 08-SEP-93 4:41 Method: F:\BRO2\MAXDATA\SERGE-D\WATPHD07 Operator: ATI
Comments: ATI RUSH FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY



Sample: 9309-006-8
Acquired: 08-SEP-93 5:27
Dilutions: 1 : 1.000
Comments: ATI RUSH FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY

Channel: DEMITRI
Method: F:\BRO2\MAXDATA\SERGE-D\WATPHD07

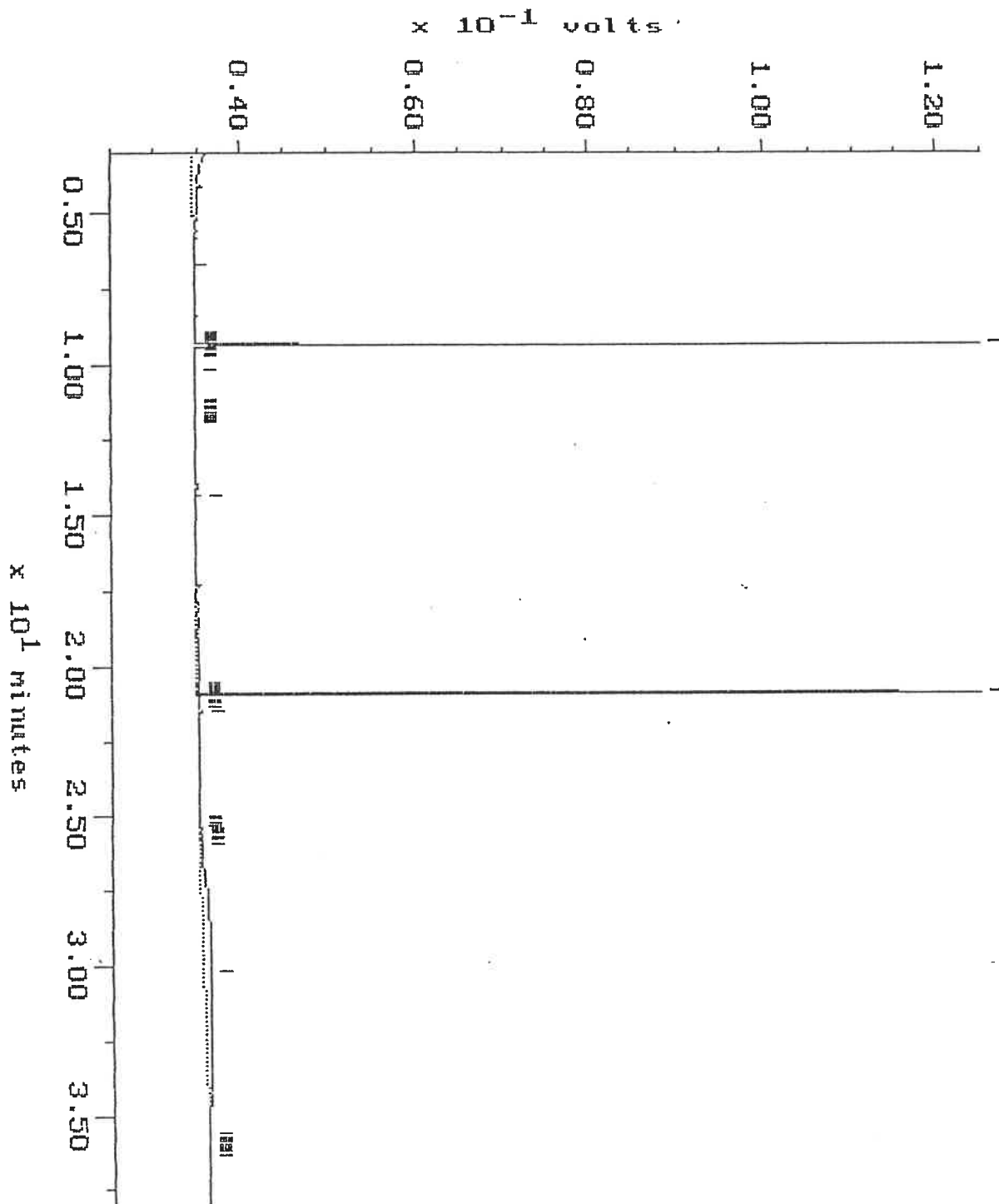
Filename: R9078D24
Operator: ATI



WA DOE WTPH-D

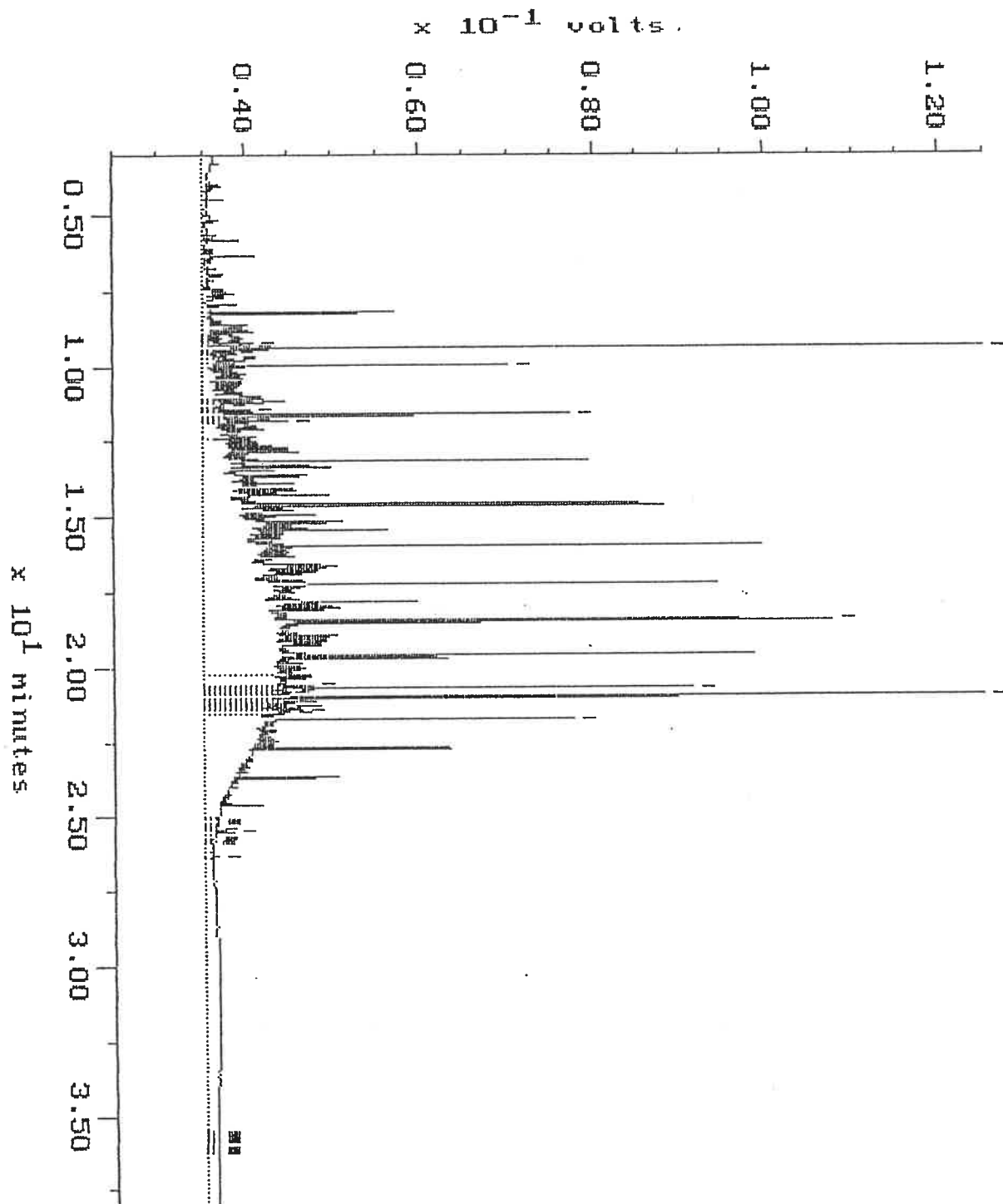
Blank

Sample: SRB 9-7 Channel: DEMITRI
 Acquired: 07-SEP-93 14:43 Method: F:\BRO2\MAXDATA\SERGE-D\WATPHD07
 Comments: ATI RUSH FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY
 Filename: R9078D05
 Operator: ATI



Continuing Calibration

Sample: D 500 Channel: DEMITRI Filename: R9078D02
Acquired: 07-SEP-93 11:52 Method: F:\BRO2\MAXDATA\SERGE-D\WATPHD07 Operator: ATI
Comments: ATI RUSH FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY



Continuing Calibration

Sample: MO 500

Channel: DEMITRI

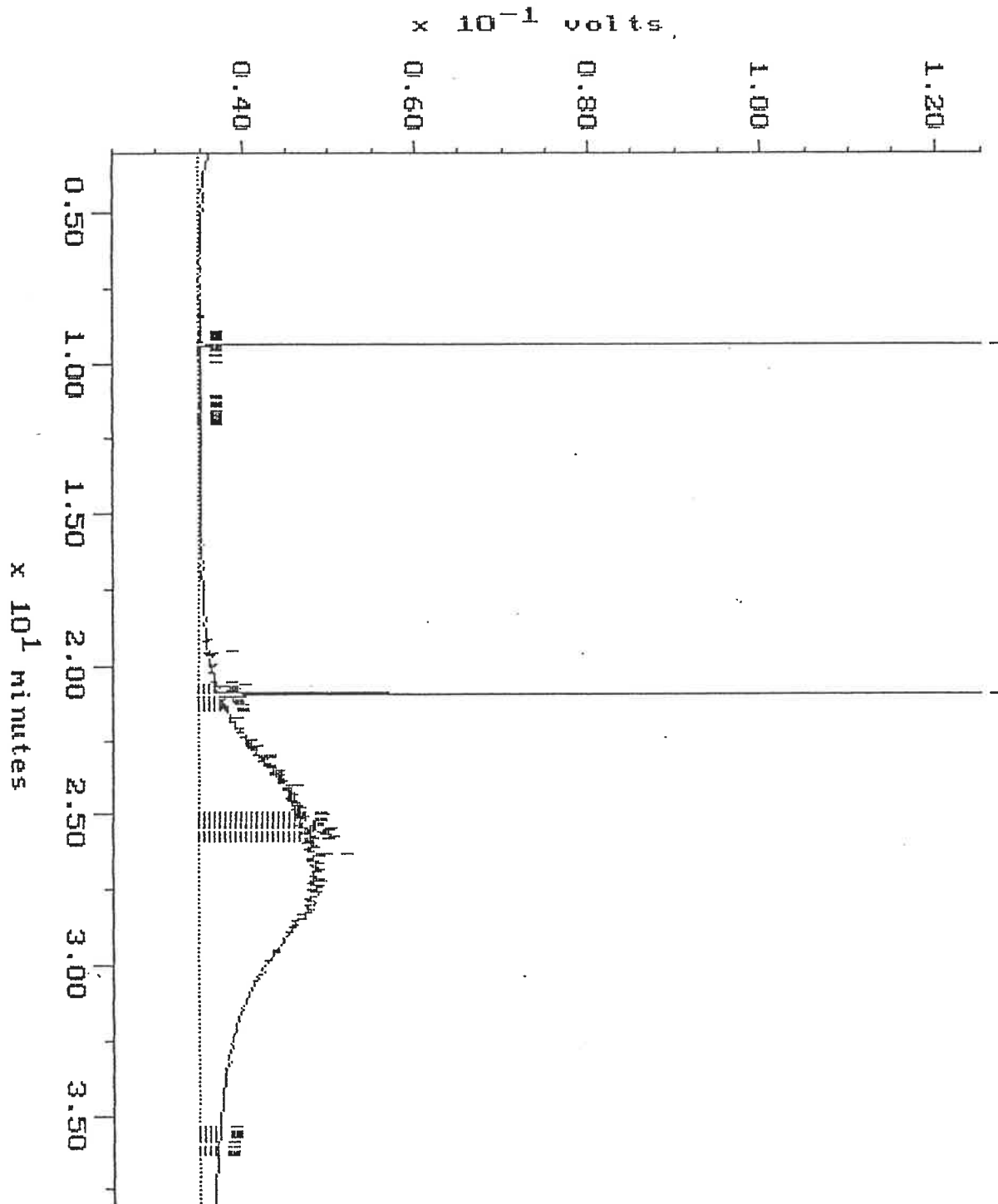
Filename: R9078D03

Acquired: 07-SEP-93 12:39

Method: F:\BRO2\MAXDATA\SERGE-D\WATPHD07

Operator: ATI

Comments: ATI RUSH FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY

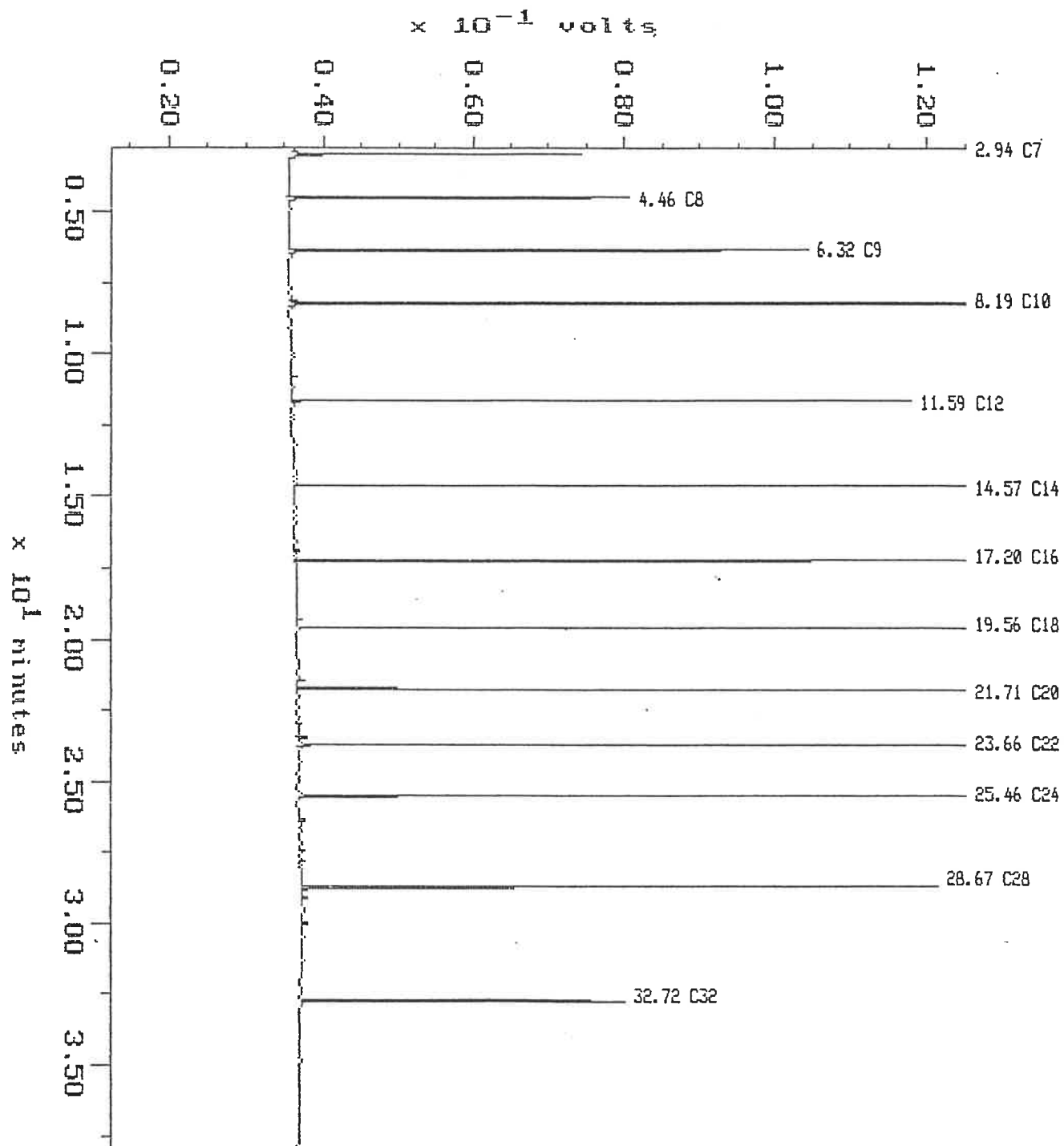


Alkane

Sample: ALKANE
Acquired: 07-SEP-93 11:05
Inj Vol: 1.00

Channel: DEMITRI
Method: F:\BR02\MAXDATA\SERGE-D\WATPHD07

Filename: R9078D01
Operator: ATI



PROJECT NO. 520-41.01

Chain of Custody



PACIFIC ENVIRONMENTAL GROUP, INC.

4020 148th Avenue N.E., Suite B
Redmond, WA 98052
(206) 869-5099 FAX (206) 869-5639

Facility no.

61001351

Facility Address:

1310 Highland Ave, Bremerton, WA

Billing reference number

8908010

CLIENT engineer:

Tim Johnson

PACIFIC Project Contact:

John P. Johnson

Sampler:

Les Brewer

Laboratory name

A.T.I.

Sample I.D.	Lab No.	Container no.	Container type/size	Sample Preservation	Matrix S = Soil A = Air W = Water C = Charcoal	TYPE G = Grab C = Comp. D = Discrete	Sampling date	Sampling time	TPH-Gasoline/BTEX (WTPH-G/8015/8020)	TPH Diesel (WTPH-D/Mod. EPA 8015)	TPH-418.1 (EPA 418.1)	Polychlorinated Biphenyls (EPA 8080)	Hydrocarbon Identification (TPH-HCID)	Volatile Organics (EPA 624/8240)	Polynuclear Aromatics (PAHs-EPA 8100/610) (8310) B	Metals Total ☐ Dissolved ☐	Total Lead (EPA 7420/7421)	WTPH-D + Extended
MW-17 (30')	1	1	5.5 Tube	ICE	S	D	8/24/93		X						X		X	
MW-22 (10')	2						8-26-93											
MW-16 (20')	3						8-23-93											
MW-18 (15.5')	4						8-25-93											
MW-20 (11.5')	5						8-25-93											
MW-19 (13.5')	6						8-25-93											
MW-21 (10')	7						8-26-93											
MW-17 (27')	8						8-24-93											

Comments:

9309-006

Condition of sample:

See log-in checklist sheet

Temperature received:

"

Relinquished by Sampler

(Les Brewer)

Date 9-1-93

Time 5:51

Received by

Les Brewer 345

Date 9/1/93

Time 8:52

Relinquished by

Les Brewer 345

Date 9/1/93

Time 10:34

Received by

Les Brewer

Date 9/1/93

Time 10:30a.

Relinquished by

Received by laboratory

Date

Time

Turnaround time

Priority Rush 1 Business Day

Rush 2 Business Days

Expedited 5 Business Days

Standard 10 Business Days

As Contracted

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Analytical**Technologies, Inc.**

560 Naches Avenue, S.W., Suite 101, Renton, WA 98055 (206) 228-8335

Karen L. Mixon, Laboratory Manager

ATI I.D. # 9309-166

September 29, 1993

Pacific Environmental Group
4020 148th Avenue N.E.
Suite B
Redmond WA 98052

Attention : John Johnson

Project Number : 520-41.01

Project Name : Chevron/Bremerton

Dear Mr. Johnson:

On September 15, 1993, Analytical Technologies, Inc. (ATI), received five samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and quality control data are enclosed.

Please note that this report has a summary report for the fuels analyses. If you have any questions, please call.

Sincerely,

Donna M. McKinney
Senior Project Manager

DM/hal/ms

Enclosure

ATI I.D. # 9309-166

SAMPLE CROSS REFERENCE SHEET

CLIENT : PACIFIC ENVIRONMENTAL GROUP
PROJECT # : 520-41.01
PROJECT NAME : CHEVRON/BREMERTON

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9309-166-1	MW-23 (25.5')	09/13/93	SOIL
9309-166-2	MW-24 (21.5')	09/13/93	SOIL
9309-166-3	MW-24 (34')	09/14/93	SOIL
9309-166-4	MW-23 (42')	09/14/93	SOIL
9309-166-5	MW-23 (35')	09/13/93	SOIL

----- TOTALS -----

MATRIX	# SAMPLES
SOIL	5

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of the report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

ATI I.D. # 9309-166

ANALYTICAL SCHEDULE

CLIENT : PACIFIC ENVIRONMENTAL GROUP
PROJECT # : 520-41.01
PROJECT NAME : CHEVRON/BREMERTON

ANALYSIS	TECHNIQUE	REFERENCE	LAB
POLYNUCLEAR AROMATIC HYDROCARBONS	HPLC/UV/FLUOR	EPA 8310	R
BETX	GC/PID	EPA 8020	R
TOTAL PETROLEUM HYDROCARBONS	GC/FID	WA DOE WTPH-G	R
TOTAL PETROLEUM HYDROCARBONS	GC/FID	WA DOE WTPH-D	R
LEAD	ICAP	EPA 6010	R
MOISTURE	GRAVIMETRIC	CLP SOW ILM01.0	R

R = ATI - Renton
SD = ATI - San Diego
PHX = ATI - Phoenix
PNR = ATI - Pensacola
FC = ATI - Fort Collins
SUB = Subcontract

ATI I.D. # 9309-166

CASE NARRATIVE

CLIENT : PACIFIC ENVIRONMENTAL GROUP
PROJECT # : 520-41.01
PROJECT NAME : CHEVRON/BREMERTON

CASE NARRATIVE: POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS

Five (5) soil samples were received by ATI on September 15, 1993, for the following analysis: EPA method 8310.

All corresponding quality assurance and quality control results defined as matrix spike/matrix spike duplicate (MS/MSD), blank spike (BS), method blank, and surrogate recoveries were within the established control limits.

ATI I.D. # 9309-166

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT : PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED : N/A
PROJECT # : 520-41.01	DATE RECEIVED : N/A
PROJECT NAME : CHEVRON/BREMERTON	DATE EXTRACTED : 09/16/93
CLIENT I.D. : METHOD BLANK	DATE ANALYZED : 09/17/93
SAMPLE MATRIX : SOIL	UNITS : mg/Kg
EPA METHOD : 8310	DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
NAPHTHALENE	<0.083
ACENAPHTHYLENE	<0.17
1-METHYLNAPHTHALENE	<0.17
2-METHYLNAPHTHALENE	<0.17
ACENAPHTHENE	<0.17
FLUORENE	<0.017
PHENANTHRENE	<0.0083
ANTHRACENE	<0.0083
FLUORANTHENE	<0.017
PYRENE	<0.017
BENZO (A) ANTHRACENE	<0.017
CHRYSENE	<0.017
BENZO (B) FLUORANTHENE	<0.017
BENZO (K) FLUORANTHENE	<0.017
BENZO (A) PYRENE	<0.017
DIBENZO (A, H) ANTHRACENE	<0.034
BENZO (G, H, I) PERYLENE	<0.017
INDENO (1, 2, 3-CD) PYRENE	<0.017

SURROGATE PERCENT RECOVERY		LIMITS
2-CHLOROANTHRACENE	85	25 - 134



ATI I.D. # 9309-166-1

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT	: PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED	: 09/13/93
PROJECT #	: 520-41.01	DATE RECEIVED	: 09/15/93
PROJECT NAME	: CHEVRON/BREMERTON	DATE EXTRACTED	: 09/16/93
CLIENT I.D.	: MW-23 (25.5')	DATE ANALYZED	: 09/17/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8310	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
NAPHTHALENE	<0.090
ACENAPHTHYLENE	<0.18
1-METHYLNAPHTHALENE	<0.18
2-METHYLNAPHTHALENE	<0.18
ACENAPHTHENE	<0.18
FLUORENE	<0.018
PHENANTHRENE	<0.0090
ANTHRACENE	<0.0090
FLUORANTHENE	<0.018
PYRENE	<0.018
BENZO (A) ANTHRACENE	<0.018
CHRYSENE	<0.018
BENZO (B) FLUORANTHENE	<0.018
BENZO (K) FLUORANTHENE	<0.018
BENZO (A) PYRENE	<0.018
DIBENZO (A,H) ANTHRACENE	<0.037
BENZO (G,H,I) PERYLENE	<0.018
INDENO (1,2,3-CD) PYRENE	<0.018

SURROGATE PERCENT RECOVERY		LIMITS
2-CHLOROANTHRACENE	83	25 - 134



ATI I.D. # 9309-166-2

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT : PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED : 09/13/93
PROJECT # : 520-41.01	DATE RECEIVED : 09/15/93
PROJECT NAME : CHEVRON/BREMERTON	DATE EXTRACTED : 09/16/93
CLIENT I.D. : MW-24(21.5')	DATE ANALYZED : 09/17/93
SAMPLE MATRIX : SOIL	UNITS : mg/Kg
EPA METHOD : 8310	DILUTION FACTOR : 1
RESULTS ARE CORRECTED FOR MOISTURE CONTENT	

COMPOUNDS	RESULTS
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NAPHTHALENE	<0.11
ACENAPHTHYLENE	<0.22
1-METHYLNAPHTHALENE	<0.22
2-METHYLNAPHTHALENE	<0.22
ACENAPHTHENE	<0.22
FLUORENE	<0.022
PHENANTHRENE	<0.011
ANTHRACENE	<0.011
FLUORANTHENE	<0.022
PYRENE	<0.022
BENZO (A) ANTHRACENE	<0.022
CHRYSENE	<0.022
BENZO (B) FLUORANTHENE	<0.022
BENZO (K) FLUORANTHENE	<0.022
BENZO (A) PYRENE	<0.022
DIBENZO (A, H) ANTHRACENE	<0.045
BENZO (G, H, I) PERYLENE	<0.022
INDENO (1, 2, 3-CD) PYRENE	<0.022

SURROGATE PERCENT RECOVERY

LIMITS

2-CHLOROANTHRACENE	71	25 - 134
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ATI I.D. # 9309-166-3

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT	: PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED	: 09/14/93
PROJECT #	: 520-41.01	DATE RECEIVED	: 09/15/93
PROJECT NAME	: CHEVRON/BREMERTON	DATE EXTRACTED	: 09/16/93
CLIENT I.D.	: MW-24 (34')	DATE ANALYZED	: 09/17/93
SAMPLE MATRIX	: SOIL	UNITS	: mg/Kg
EPA METHOD	: 8310	DILUTION FACTOR	: 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
NAPHTHALENE	<0.10
ACENAPHTHYLENE	<0.20
1-METHYLNAPHTHALENE	<0.20
2-METHYLNAPHTHALENE	<0.20
ACENAPHTHENE	<0.20
FLUORENE	<0.020
PHENANTHRENE	<0.010
ANTHRACENE	<0.010
FLUORANTHENE	<0.020
PYRENE	<0.020
BENZO (A) ANTHRACENE	<0.020
CHRYSENE	<0.020
BENZO (B) FLUORANTHENE	<0.020
BENZO (K) FLUORANTHENE	<0.020
BENZO (A) PYRENE	<0.020
DIBENZO (A, H) ANTHRACENE	<0.041
BENZO (G, H, I) PERYLENE	<0.020
INDENO (1, 2, 3-CD) PYRENE	<0.020

SURROGATE PERCENT RECOVERY		LIMITS
2-CHLOROANTHRACENE	75	25 - 134

ATI I.D. # 9309-166-4

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT : PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED : 09/14/93
PROJECT # : 520-41.01	DATE RECEIVED : 09/15/93
PROJECT NAME : CHEVRON/BREMERTON	DATE EXTRACTED : 09/16/93
CLIENT I.D. : MW-23 (42')	DATE ANALYZED : 09/17/93
SAMPLE MATRIX : SOIL	UNITS : mg/Kg
EPA METHOD : 8310	DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
-----------	---------

NAPHTHALENE	<0.10
ACENAPHTHYLENE	<0.21
1-METHYLNAPHTHALENE	<0.21
2-METHYLNAPHTHALENE	<0.21
ACENAPHTHENE	<0.21
FLUORENE	<0.021
PHENANTHRENE	<0.010
ANTHRACENE	<0.010
FLUORANTHENE	<0.021
PYRENE	<0.021
BENZO (A) ANTHRACENE	<0.021
CHRYSENE	<0.021
BENZO (B) FLUORANTHENE	<0.021
BENZO (K) FLUORANTHENE	<0.021
BENZO (A) PYRENE	<0.021
DIBENZO (A, H) ANTHRACENE	<0.042
BENZO (G, H, I) PERYLENE	<0.021
INDENO (1, 2, 3-CD) PYRENE	<0.021

SURROGATE PERCENT RECOVERY

LIMITS

2-CHLOROANTHRACENE	73	25 - 134
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ATI I.D. # 9309-166-5

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT : PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED : 09/13/93
PROJECT # : 520-41.01	DATE RECEIVED : 09/15/93
PROJECT NAME : CHEVRON/BREMERTON	DATE EXTRACTED : 09/16/93
CLIENT I.D. : MW-23(35')	DATE ANALYZED : 09/17/93
SAMPLE MATRIX : SOIL	UNITS : mg/Kg
EPA METHOD : 8310	DILUTION FACTOR : 1

RESULTS ARE CORRECTED FOR MOISTURE CONTENT

COMPOUNDS	RESULTS
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NAPHTHALENE	<0.10
ACENAPHTHYLENE	<0.21
1-METHYLNAPHTHALENE	<0.21
2-METHYLNAPHTHALENE	<0.21
ACENAPHTHENE	<0.21
FLUORENE	<0.021
PHENANTHRENE	<0.010
ANTHRACENE	<0.010
FLUORANTHENE	<0.021
PYRENE	<0.021
BENZO (A) ANTHRACENE	<0.021
CHRYSENE	<0.021
BENZO (B) FLUORANTHENE	<0.021
BENZO (K) FLUORANTHENE	<0.021
BENZO (A) PYRENE	<0.021
DIBENZO (A, H) ANTHRACENE	<0.042
BENZO (G, H, I) PERYLENE	<0.021
INDENO (1, 2, 3-CD) PYRENE	<0.021

SURROGATE PERCENT RECOVERY

LIMITS

2-CHLOROANTHRACENE	76	25 - 134
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ATI I.D. # 9309-166

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
QUALITY CONTROL DATA

CLIENT : PACIFIC ENVIRONMENTAL GROUP	SAMPLE I.D. # : 9309-166-5
PROJECT # : 520-41.01	DATE EXTRACTED : 09/16/93
PROJECT NAME : CHEVRON/BREMERTON	DATE ANALYZED : 09/17/93
SAMPLE MATRIX : SOIL	UNITS : mg/Kg
EPA METHOD : 8310	

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
ACENAPHTHYLENE	<0.170	3.33	2.22	67	2.36	71	6
PHENANTHRENE	<0.00833	0.333	0.268	80	0.279	84	4
PYRENE	<0.0170	0.333	0.246	74	0.251	75	2
BENZO (K) FLUORANTHENE	<0.0170	0.333	0.326	98	0.322	97	1
DIBENZO (A, H) ANTHRACENE	<0.0340	0.333	0.280	84	0.278	83	1

CONTROL LIMITS

	% REC.	RPD
ACENAPHTHYLENE	50 - 136	20
PHENANTHRENE	14 - 162	35
PYRENE	25 - 143	34
BENZO (K) FLUORANTHENE	36 - 143	34
DIBENZO (A, H) ANTHRACENE	34 - 152	33

SURROGATE RECOVERIES

	SPIKE	DUP. SPIKE	LIMITS
2-CHLOROANTHRACENE	74	75	25 - 134

ATI I.D. # 9309-166

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
QUALITY CONTROL DATA

CLIENT : PACIFIC ENVIRONMENTAL GROUP	SAMPLE I.D. # : BLANK
PROJECT # : 520-41.01	DATE EXTRACTED : 09/16/93
PROJECT NAME : CHEVRON/BREMERTON	DATE ANALYZED : 09/17/93
SAMPLE MATRIX : SOIL	UNITS : mg/Kg
EPA METHOD : 8310	

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
ACENAPHTHYLENE	<0.170	3.33	2.43	73	N/A	N/A	N/A
PHENANTHRENE	<0.00833	0.333	0.287	86	N/A	N/A	N/A
PYRENE	<0.0170	0.333	0.265	80	N/A	N/A	N/A
BENZO (K) FLUORANTHENE	<0.0170	0.333	0.351	105	N/A	N/A	N/A
DIBENZO (A, H) ANTHRACENE	<0.0340	0.333	0.303	91	N/A	N/A	N/A

CONTROL LIMITS

	% REC.	RPD
ACENAPHTHYLENE	48 - 145	20
PHENANTHRENE	47 - 137	35
PYRENE	59 - 122	34
BENZO (K) FLUORANTHENE	50 - 126	34
DIBENZO (A, H) ANTHRACENE	54 - 138	33

SURROGATE RECOVERIES

	SPIKE	DUP. SPIKE	LIMITS
2-CHLOROANTHRACENE	81	N/A	25 - 134

ATI I.D. # 9309-166

METALS ANALYSIS

CLIENT : PACIFIC ENVIRONMENTAL GROUP
PROJECT # : 520-41.01
PROJECT NAME : CHEVRON/BREMERTON

MATRIX : SOIL

ELEMENT	DATE PREPARED	DATE ANALYZED
LEAD	09/20/93	09/21/93

ATI I.D. # 9309-166

METALS ANALYSIS
DATA SUMMARY

CLIENT : PACIFIC ENVIRONMENTAL GROUP
PROJECT # : 520-41.01
PROJECT NAME : CHEVRON/BREMERTON
RESULTS ARE CORRECTED FOR MOISTURE CONTENT

MATRIX : SOIL

UNITS : mg/Kg

ATI I.D. #	CLIENT I.D.	LEAD
9309-166-1	MW-23 (25.5')	<1.6
9309-166-2	MW-24 (21.5')	14
9309-166-3	MW-24 (34')	4.3
9309-166-4	MW-23 (42')	5.7
9309-166-5	MW-23 (35')	2.8
METHOD BLANK	-	<1.5

ATI I.D. # 9309-166

METALS ANALYSIS
QUALITY CONTROL DATA

CLIENT : PACIFIC ENVIRONMENTAL GROUP
PROJECT # : 520-41.01
PROJECT NAME : CHEVRON/BREMERTON

MATRIX : SOIL

UNITS : mg/Kg

ELEMENT	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
LEAD	9309-157-9	6.1	4.7	26	47.3	51.4	80
LEAD	BLANK	<1.5	N/A	N/A	44.5	50.0	89

CONTROL LIMITS

% REC.

RPD

LEAD (MS/MSD)

65 - 125

35

LEAD (BS/BSD)

80 - 120

N/A



ATI I.D. # 9309-166

GENERAL CHEMISTRY ANALYSIS

CLIENT : PACIFIC ENVIRONMENTAL GROUP
PROJECT # : 520-41.01
PROJECT NAME : CHEVRON/BREMERTON

MATRIX : SOIL

PARAMETER DATE ANALYZED

MOISTURE 09/16/93



ATI I.D. # 9309-166

GENERAL CHEMISTRY ANALYSIS
DATA SUMMARY

CLIENT : PACIFIC ENVIRONMENTAL GROUP
PROJECT # : 520-41.01
PROJECT NAME : CHEVRON/BREMERTON

MATRIX : SOIL

UNITS : %

ATI I.D. # CLIENT I.D. MOISTURE

9309-166-1	MW-23 (25.5')	7.3
9309-166-2	MW-24 (21.5')	24
9309-166-3	MW-24 (34')	17
9309-166-4	MW-23 (42')	19
9309-166-5	MW-23 (35')	19

ATI I.D. # 9309-166

GENERAL CHEMISTRY ANALYSIS
QUALITY CONTROL DATA

CLIENT : PACIFIC ENVIRONMENTAL GROUP
PROJECT # : 520-41.01
PROJECT NAME : CHEVRON/BREMERTON

MATRIX : SOIL

UNITS : %

PARAMETER	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
MOISTURE	9309-162-5	1.3	1.4	7	N/A	N/A	N/A

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$



Analytical Technologies, Inc. ATL Reference: 9309-166

Analytical Summary Report

Client: Pacific Environmental Group

Project: Chevron/Bremerton

Analysis: WA DOE WTPH-G/8020(BETX)

Matrix: SOIL

Units: mg/Kg (Dry Weight Basis)

ATL Sample #:	0	1	2	3	4	5
Client ID:	Method Blank	MW-23(25.5')	MW-24(21.5')	MW-24(34')	MW-23(42')	MW-23(35')
Date Sampled:	N/A	09/13/93	09/13/93	09/14/93	09/14/93	09/13/93
Date Extracted:	09/16/93	09/16/93	09/16/93	09/16/93	09/16/93	09/16/93
Date Analyzed:	09/17/93	09/18/93	09/18/93	09/18/93	09/20/93	09/20/93
Benzene	<0.025	<0.027	0.12	<0.030	<0.031	<0.031
Ethylbenzene	<0.025	<0.027	<0.033	<0.030	<0.031	<0.031
Toluene	<0.025	<0.027	<0.033	<0.030	<0.031	<0.031
Total Xylenes	<0.025	<0.027	0.047	<0.030	<0.031	<0.031
Gasoline (Toluene to Dodecane)	<5	<5	<7	<6	<6	<6

Surrogate Recoveries (%)

Bromofluorobenzene	83	77	72	73	87	84
Trifluorotoluene	80	69	68	71	80	78

Surrogate Limits: (BFB:52-116 TFT:50-150)



Client: Pacific Environmental Group

Project: Chevron/Bremerton

Quality Control Summary Report

Analysis: WA DOE WTPH-G/8020(BETX)

Matrix: SOIL

Units: mg/Kg

Matrix Spike/Matrix Spike Duplicate

Extracted: 09/16/93

Analyzed: 09/17/93

Sample ID: 9309-156-6

Compound	Sample Result	Duplicate Result	Spike Added	Spike Result	Spike %Rec	Spike Dup. Result	Spike Dup. %Rec	RPD	Limits %Rec	Limits RPD
GASOLINE	<5.00	<5.00	NC	N/A	N/A	N/A	N/A	N/A	N/A	20

Quality Control Surrogate Recoveries (%)

Compound	Sample	Sample Dup.	Spike Dup.	Limits
TRIFLUOROTOLUENE	65	69	N/A	50-150

Analysis: WA DOE WTPH-G/8020(BETX)

Matrix: SOIL

Units: mg/Kg

Matrix Spike/Matrix Spike Duplicate

Extracted: 09/16/93

Analyzed: 09/18/93

Sample ID: 9309-143-2

Compound	Sample Result	Duplicate Result	Spike Added	Spike Result	Spike %Rec	Spike Dup. Result	Spike Dup. %Rec	RPD	Limits %Rec	Limits RPD
BENZENE	<0.0250	N/A	1.00	0.866	87	0.872	87	1	35-113	20
TOLUENE	<0.0250	N/A	1.00	0.811	81	0.822	82	1	43-107	20
TOTAL XYLENES	<0.0250	N/A	2.00	1.64	82	1.66	83	1	46-114	20
GASOLINE	<5.00	<5.00	50.0	38.2	76	37.7	75	0	50-112	20

Quality Control Surrogate Recoveries (%)

Compound	Sample	Spike	Spike Dup.	Limits
BROMOFLUOROBENZENE	77	76	76	52-116
TRIFLUOROTOLUENE	62	53	65	50-150

Analysis: WA DOE WTPH-G/8020(BETX)

Matrix: SOIL

Units: mg/Kg

Blank Spike/Blank Spike Duplicate

Extracted: 09/16/93

Analyzed: 09/17/93

Sample ID: Blank

Compound	Sample Result	Duplicate Result	Spike Added	Spike Result	Spike %Rec	Spike Dup. Result	Spike Dup. %Rec	RPD	Limits %Rec	Limits RPD
BENZENE	<0.0250	N/A	1.00	0.961	96	1.01	101	5	63-115	20
TOLUENE	<0.0250	N/A	1.00	0.899	90	0.922	92	3	75-110	20
TOTAL XYLENES	<0.0250	N/A	2.00	1.78	89	1.81	91	2	79-109	20
GASOLINE	<5.00	N/A	50.0	42.5	85	41.3	83	3	80-119	20

Quality Control Surrogate Recoveries (%)

Compound	Sample	Spike	Spike Dup.	Limits
BROMOFLUOROBENZENE	83	82	87	52-116
TRIFLUOROTOLUENE	80	81	79	50-150



Client: Pacific Environmental Group

Project: Chevron/Bremerton

Analysis: WA DOE WTPH-D

Matrix: SOIL

Units: mg/Kg (Dry Weight Basis)

ATI Sample #: 0
Client ID: Method Blank
Date Sampled: N/A
Date Extracted: 09/22/93
Date Analyzed: 09/22/93

1
MW-23(25.5')
09/13/93
09/22/93
09/23/93

2
MW-24(21.5')
09/13/93
09/22/93
09/23/93

3
MW-24(34')
09/14/93
09/22/93
09/23/93

4
MW-23(42')
09/14/93
09/22/93
09/23/93

5
MW-23(35')
09/13/93
09/22/93
09/23/93

Diesel (C12-C24)
Motor Oil (C24-C34)

<10
<40

<11
<43

44
210

42
120

38
74

<12
<49

Surrogate Recoveries (%)

O-Terphenyl 85

84

83

82

84

83

Surrogate Limits: (O-T:50-150)



Analytical Technologies, Inc.

ATI Reference: 9309-166

Client: Pacific Environmental Group

Project: Chevron/Bremerton

Quality Control Summary Report

Analysis: W/A DOE WTPH-D		Matrix: SOIL		Units: mg/Kg		Matrix Spike/Matrix Spike Duplicate			
Extracted: 09/22/93		Analyzed: 09/22/93		Sample ID: 9309-130-28					
Compound	Sample Result	Duplicate Result	RPD	Spike Added	Spike Result	Spike %Rec	Spike Dup. Result	Spike Dup. %Rec	Limits RPD
DIESEL	114	127	11	N/A	N/A	N/A	N/A	N/A	20
Quality Control Surrogate Recoveries (%)									
Compound	Sample	Sample Dup.	Spike Dup.	Limits					
O-TERPHENYL	87	85	N/A	50-150					
Analysis: W/A DOE WTPH-D		Matrix: SOIL		Units: mg/Kg		Matrix Spike/Matrix Spike Duplicate			
Extracted: 09/22/93		Analyzed: 09/22/93		Sample ID: 9309-196-6					
Compound	Sample Result	Duplicate Result	RPD	Spike Added	Spike Result	Spike %Rec	Spike Dup. Result	Spike Dup. %Rec	Limits RPD
DIESEL	<10.0	<10.0	NC	200	167	84	161	81	4
Quality Control Surrogate Recoveries (%)									
Compound	Sample	Spike	Spike Dup.	Limits					
O-TERPHENYL	83	86	82	50-150					
Analysis: W/A DOE WTPH-D		Matrix: SOIL		Units: mg/Kg		Blank Spike/Blank Spike Duplicate			
Extracted: 09/22/93		Analyzed: 09/22/93		Sample ID: Blank					
Compound	Sample Result	Duplicate Result	RPD	Spike Added	Spike Result	Spike %Rec	Spike Dup. Result	Spike Dup. %Rec	Limits RPD
DIESEL	<10.0	N/A	N/A	200	169	85	171	86	1
Quality Control Surrogate Recoveries (%)									
Compound	Sample	Spike	Spike Dup.	Limits					
O-TERPHENYL	85	85	87	50-150					

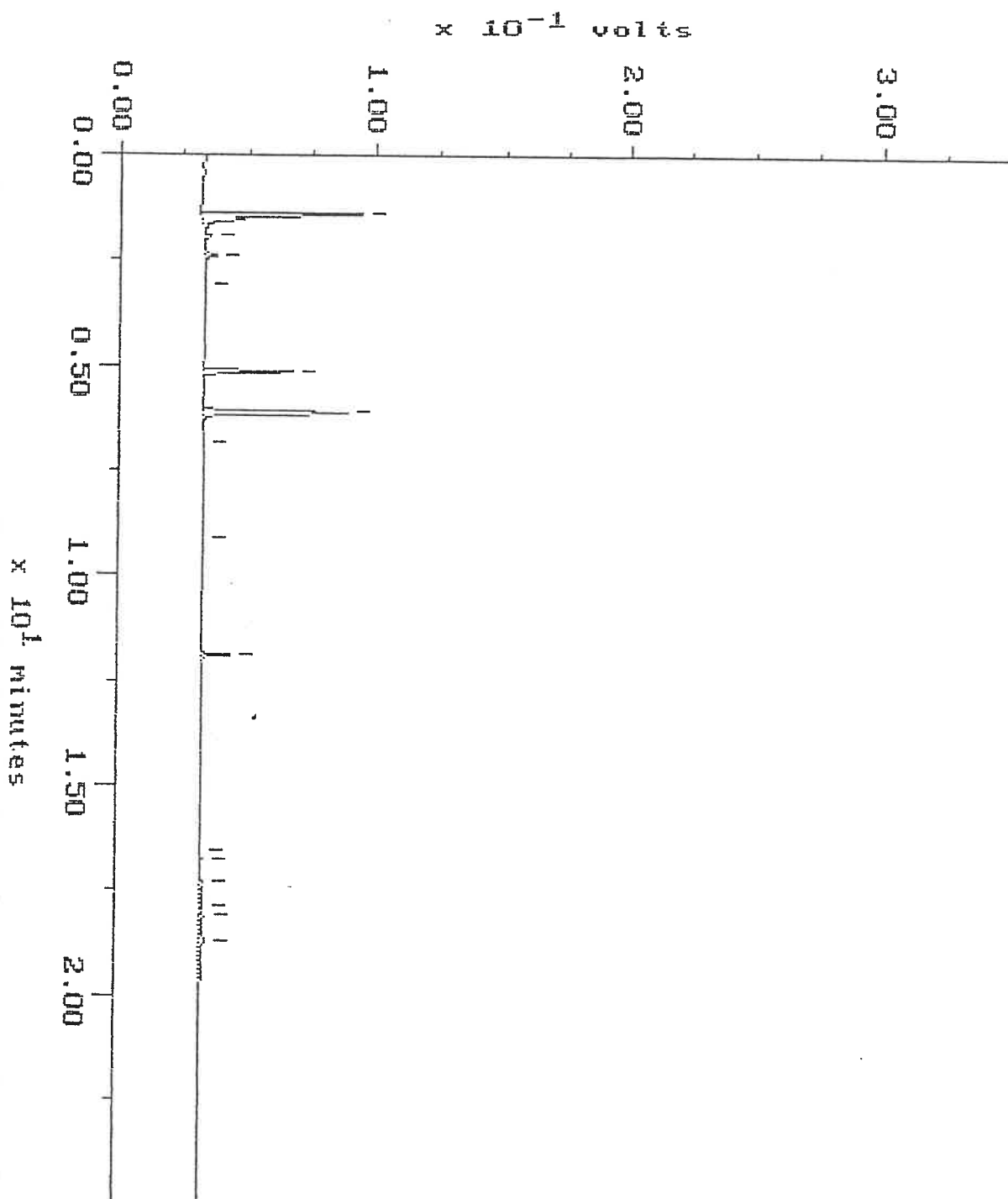
Blank

WA DOE WTPH-G

Sample: SRB-A 9-16
Acquired: 17-SEP-93 20:46

Channel: JEROME-FID
Method: F:\BRO2\MAXDATA\JEROME\091793JR

Filename: R9179J24
Operator:



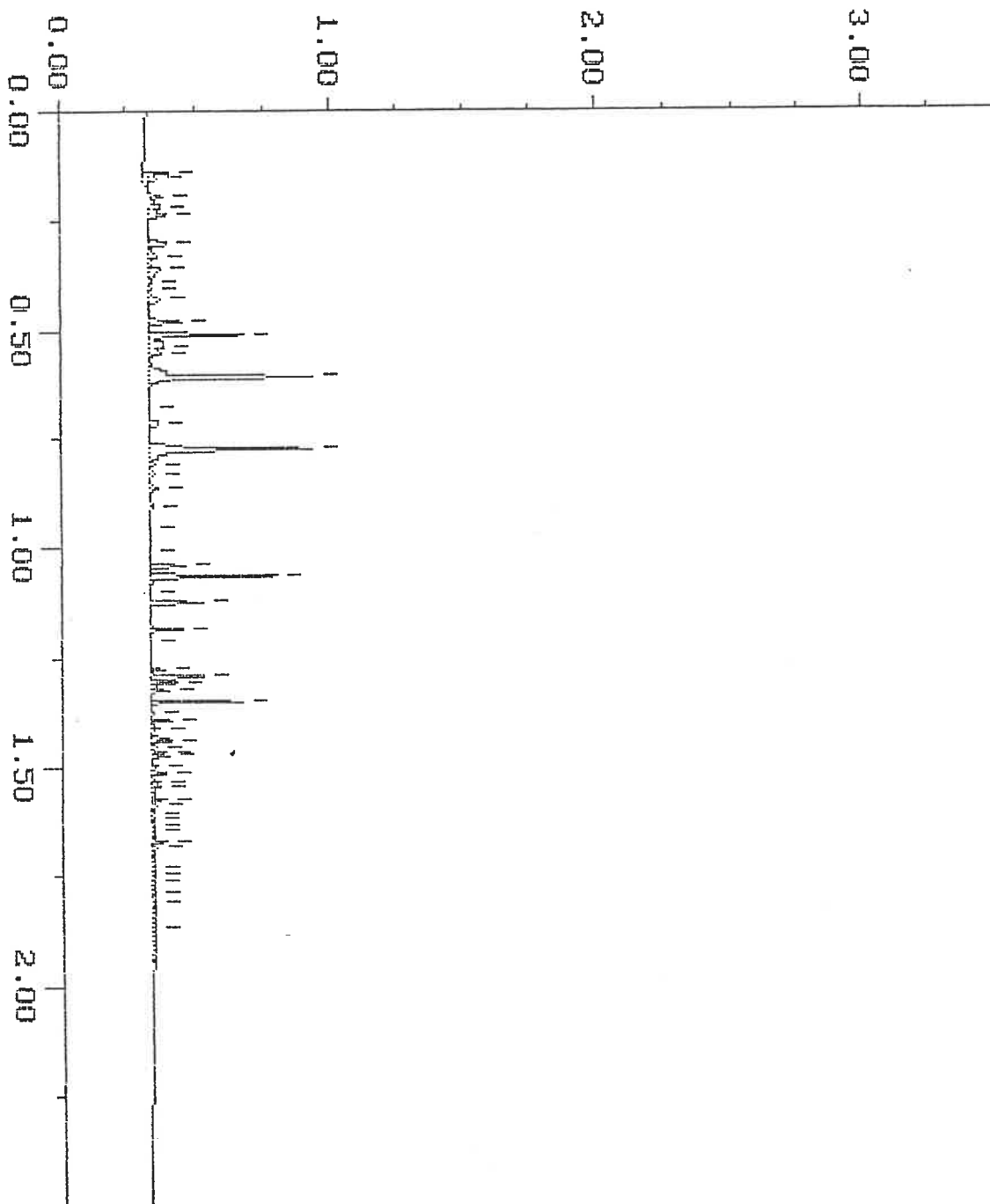
Continuing Calibration

Sample: STD-C 6
Acquired: 17-SEP-93 16:13

Channel: JEROME-FID
Method: F:\BRO2\MAXDATA\JEROME\091793JR

Filename: R9179J15
Operator:

$\times 10^{-1}$ volts

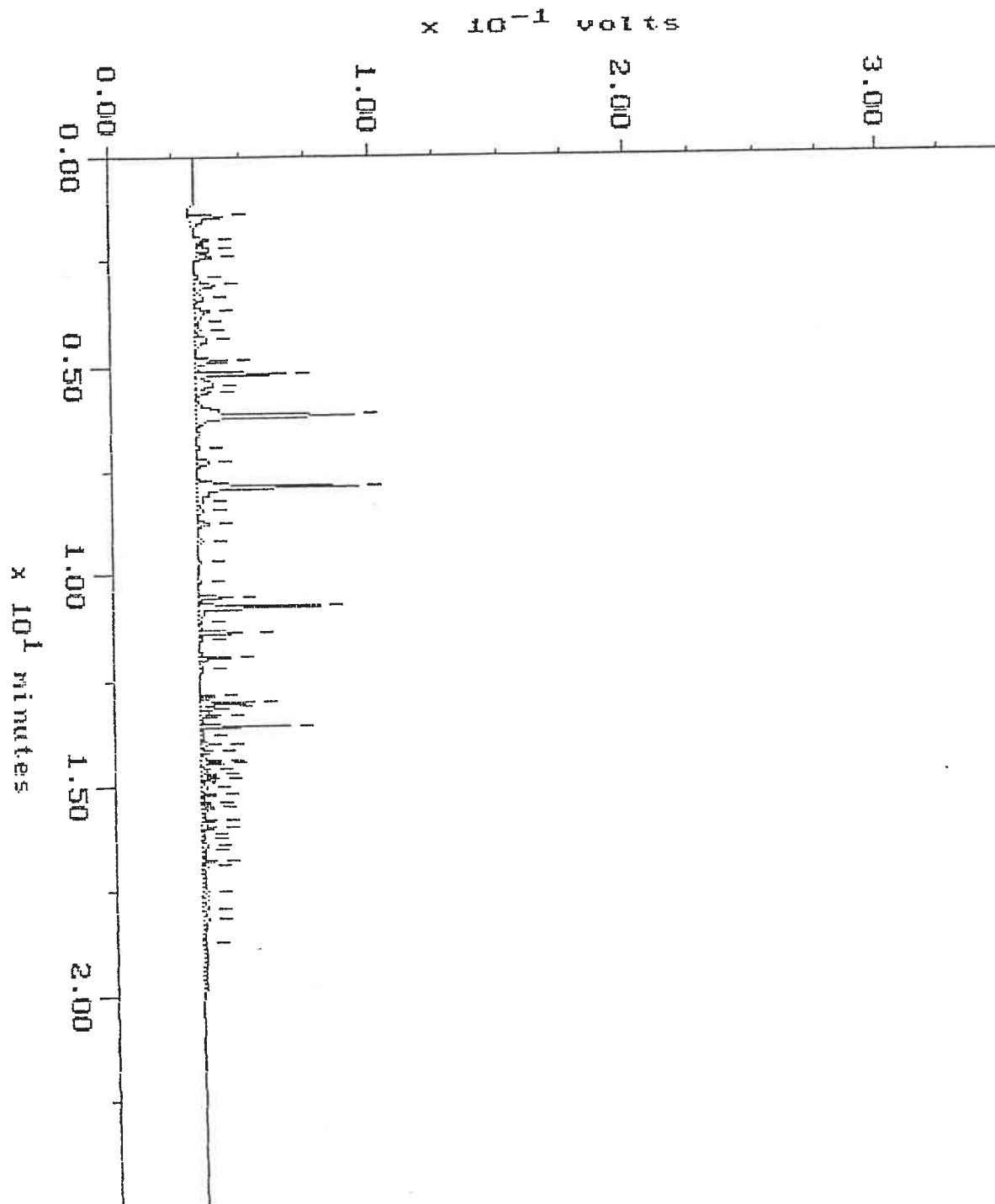


Continuing Calibration

Sample: STD-C 6
Acquired: 20-SEP-93 8:13

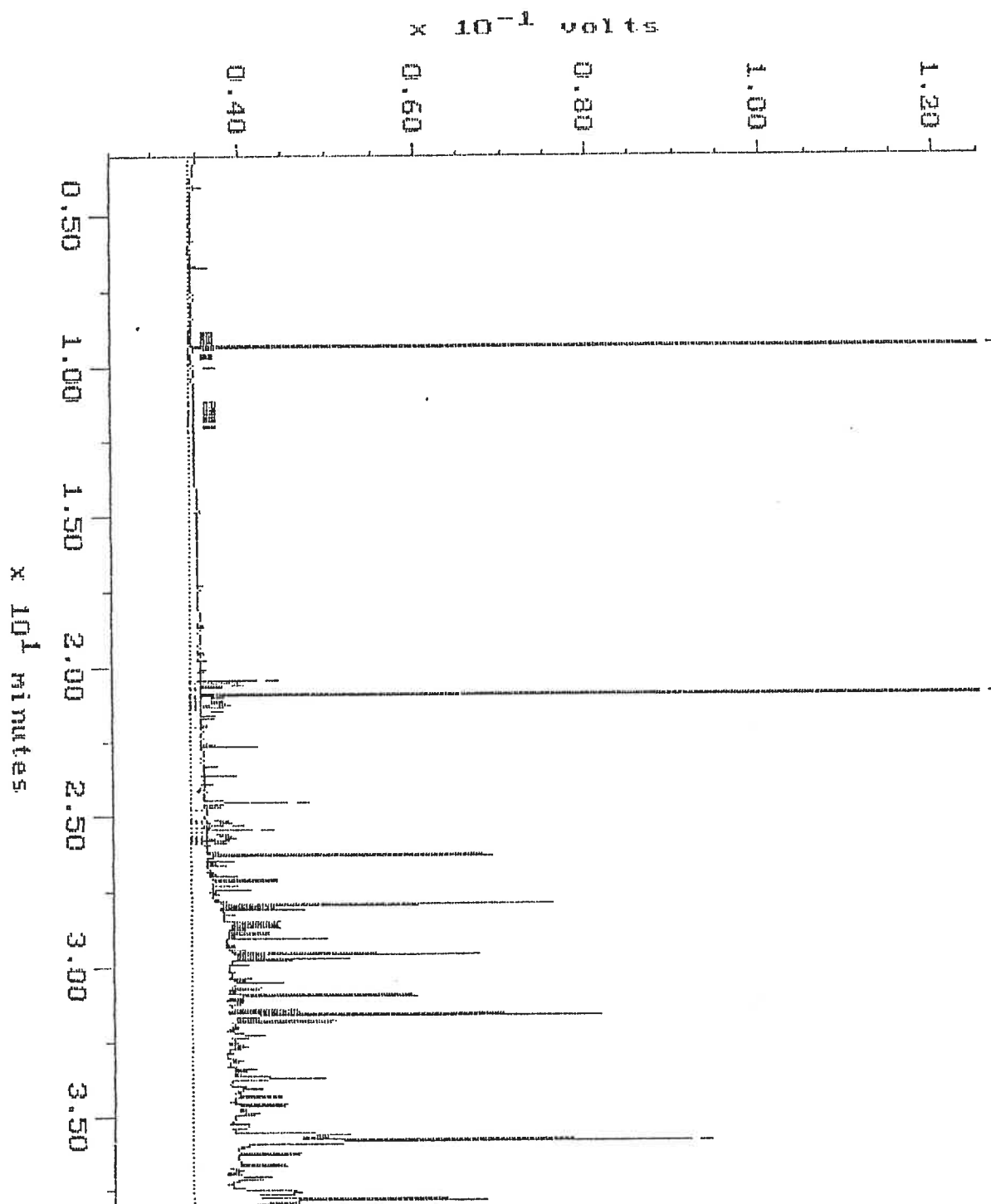
Channel: JEROME-FID
Method: F:\BRO2\MAXDATA\JEROME\092093JR

Filename: R9209J01
Operator:



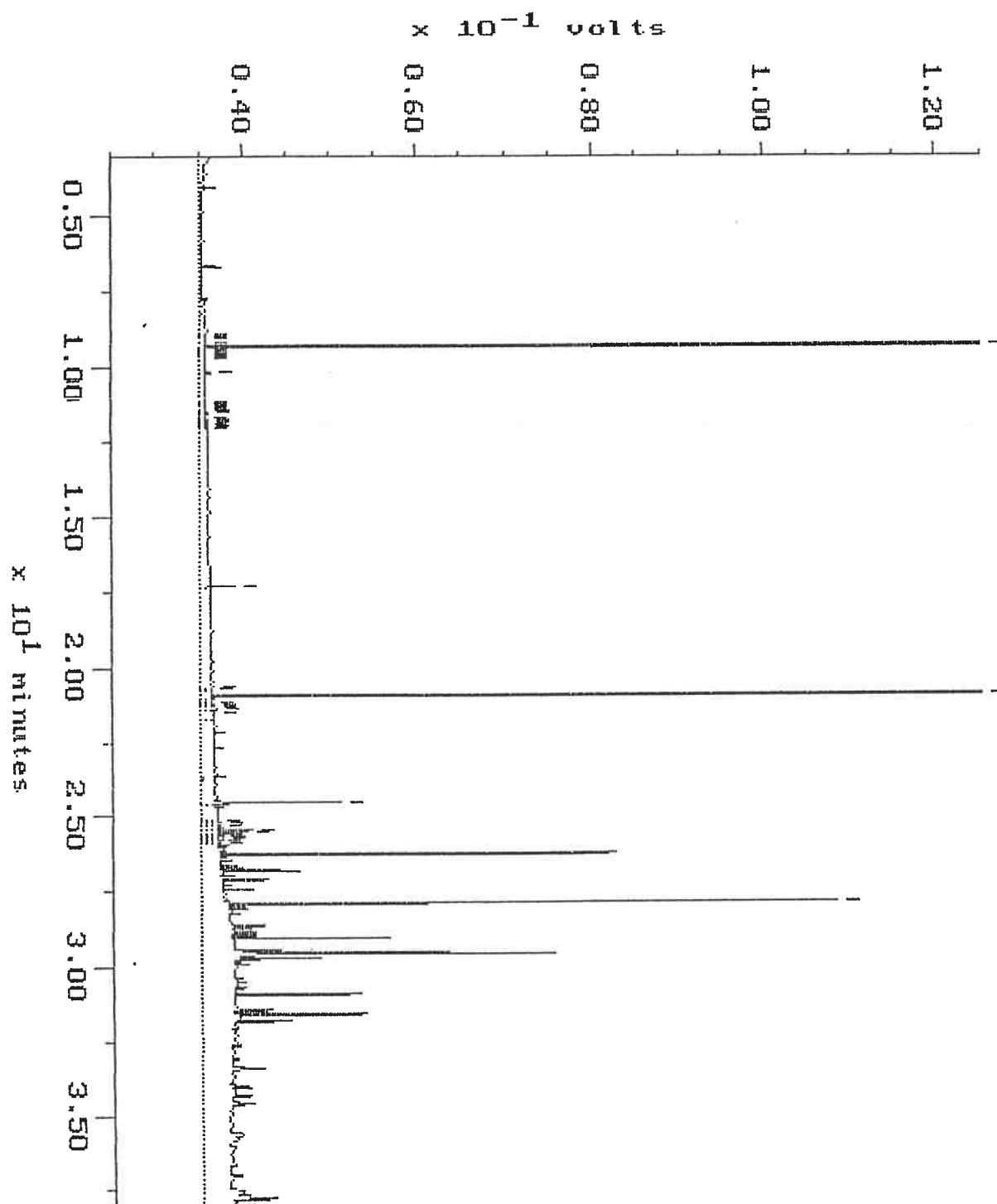
WA DOE WTPH-D

Sample: 9309-166-2 Channel: DEMITRI Filename: R9228016
Acquired: 23-SEP-93 1:23 Method: F:\BRO2\MAXDATA\SERGE-D\FUEL0922 Operator: ATI
Comments: ATI RUSH FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY



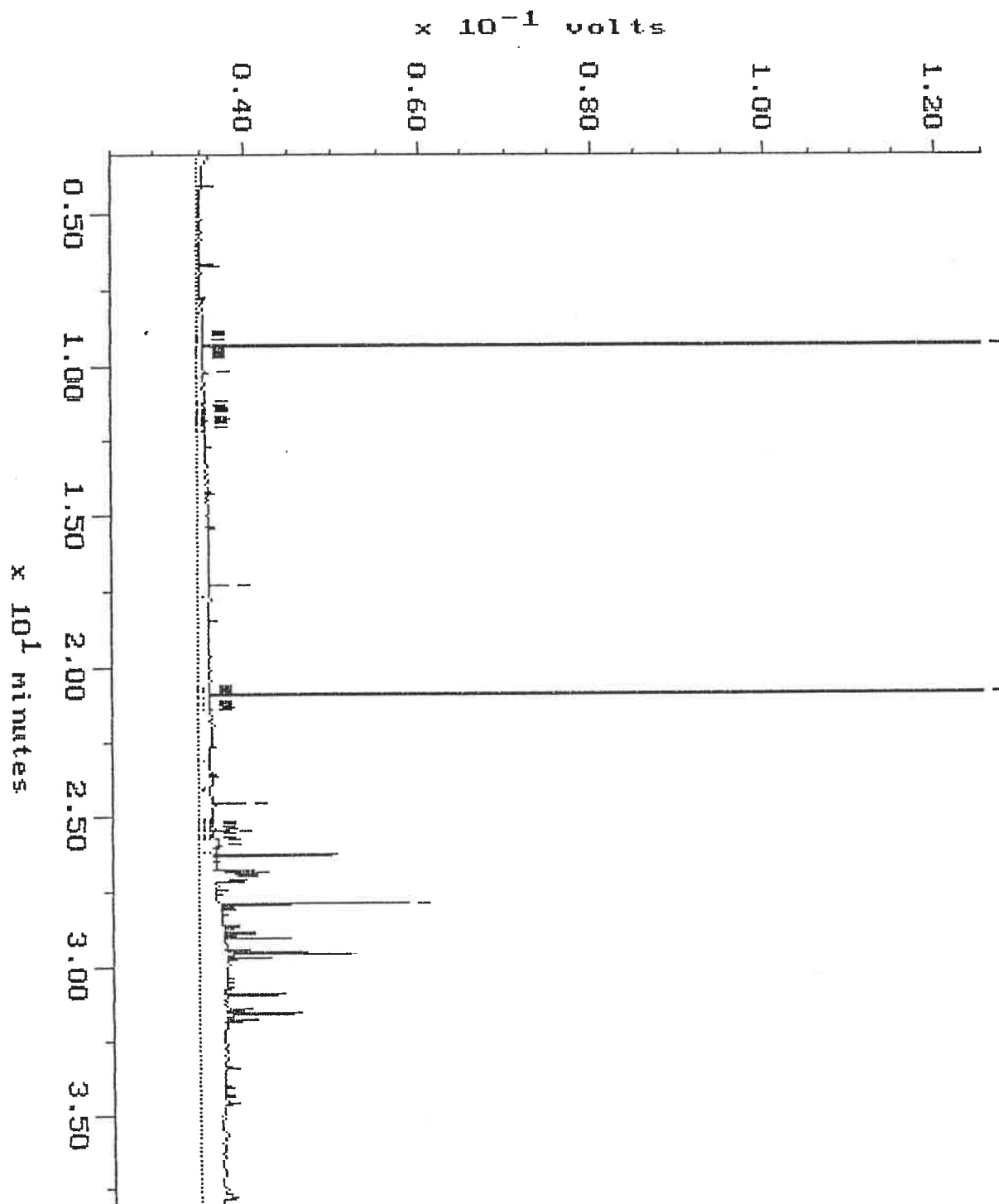
WA DOE WTPH-D

Sample: 9309-166-3 Channel: DEMITRI Filename: R9228027
Acquired: 23-SEP-93 9:52 Method: F:\BRO2\MAXDATA\SERGE-D\FUEL0922 Operator: ATI
Comments: ATI RUSH FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY



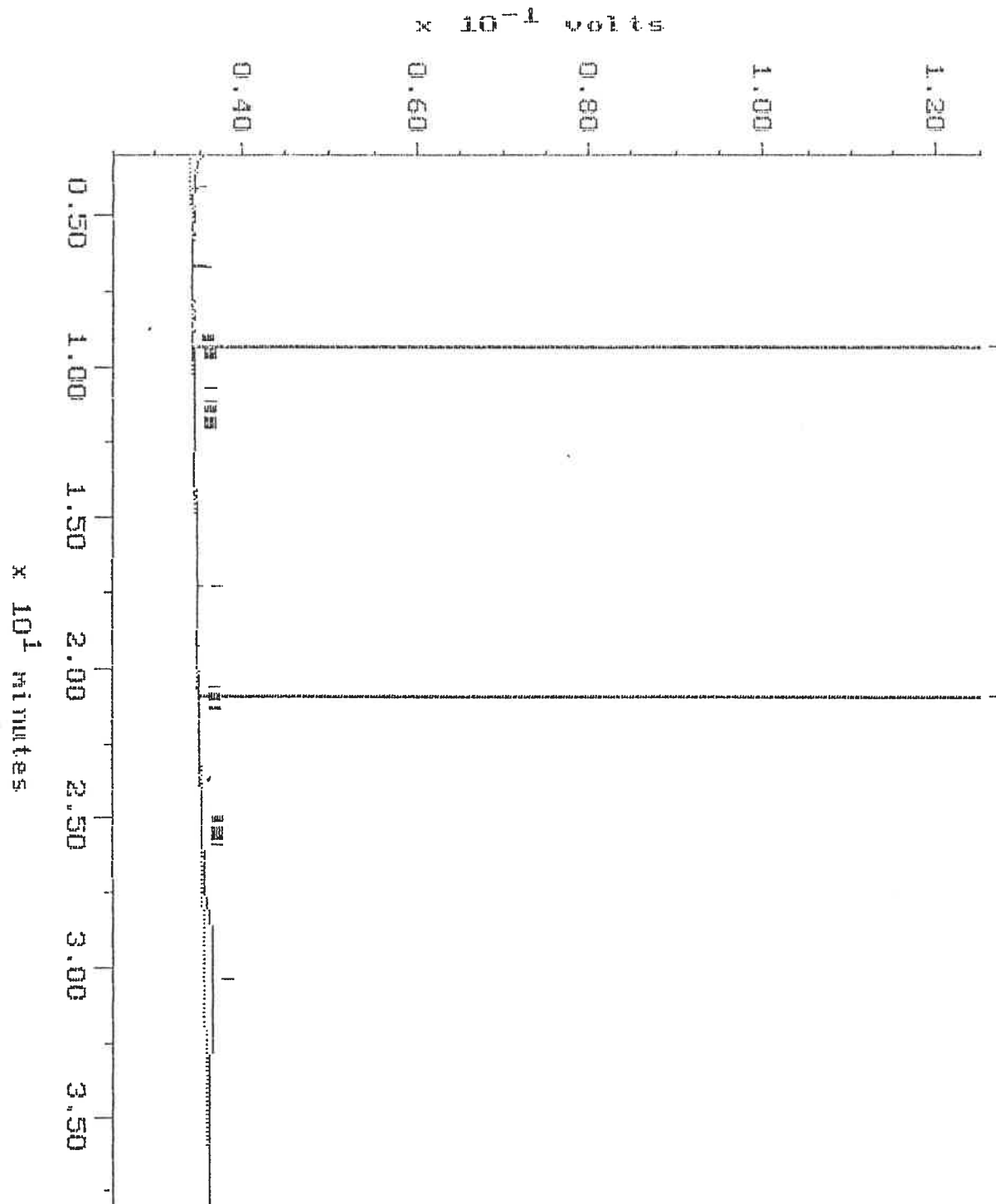
WA DOE WTPH-D

Sample: 9309-166-4 Channel: DEMITRI Filename: R9228028
Acquired: 23-SEP-93 10:39 Method: F:\BRO2\MAXDATA\SERGE-D\FUEL0922 Operator: ATI
Comments: ATI RUSH FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY



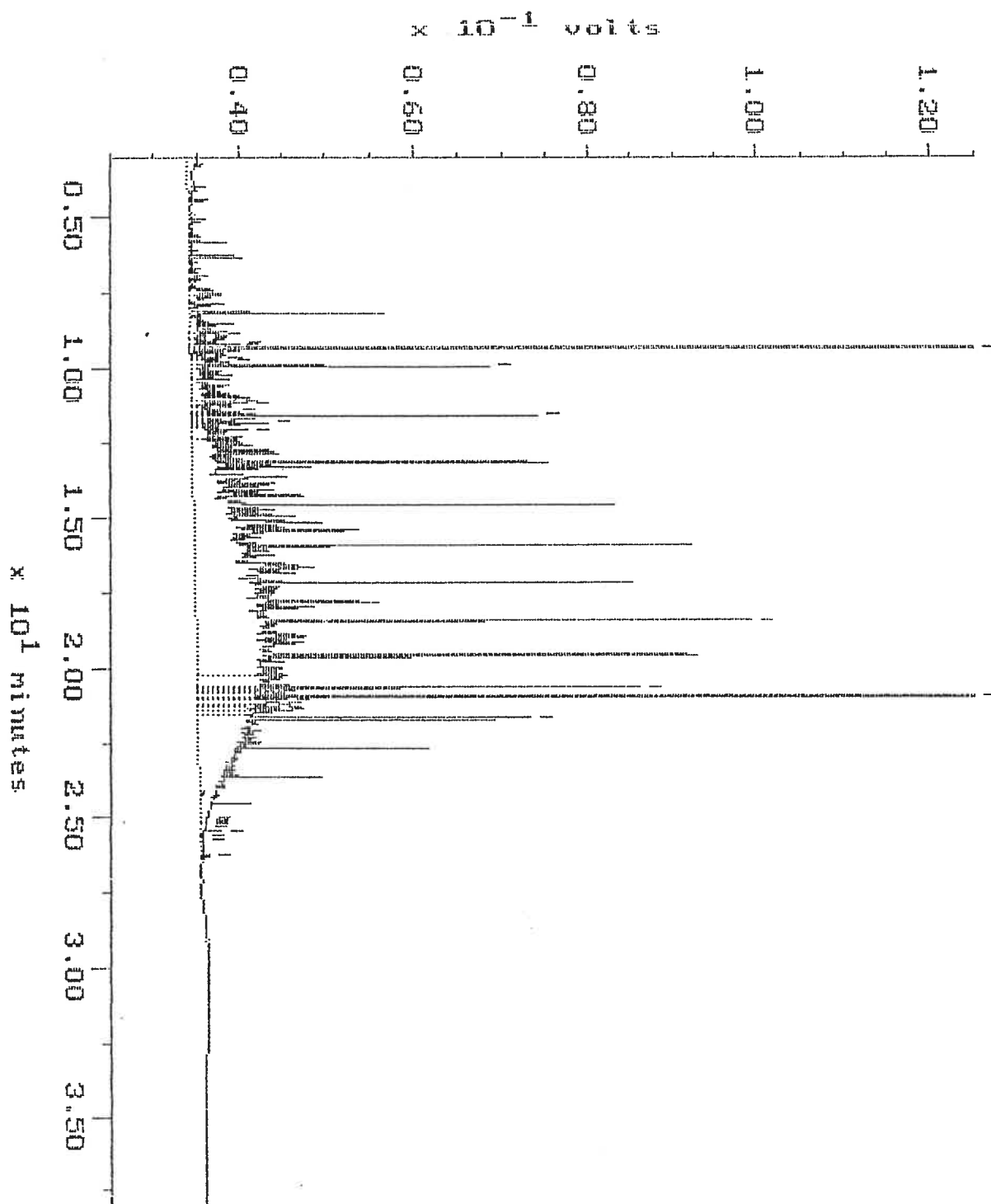
Blank

Sample: SRB 9-22 Channel: DEMITRI Filename: R9228D04
Acquired: 22-SEP-93 16:05 Method: F:\BRO2\MAXDATA\SERGE-D\FUEL0922 Operator: ATI
Comments: ATI RUSH FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY



Continuing Calibration

Sample: D 500 Channel: DEMITRI Filename: R9228D02
Acquired: 22-SEP-93 14:32 Method: F:\BRO2\MAXDATA\SERGE-DA\FUEL0922 Operator: ATI
Comments: ATI RUSH FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY

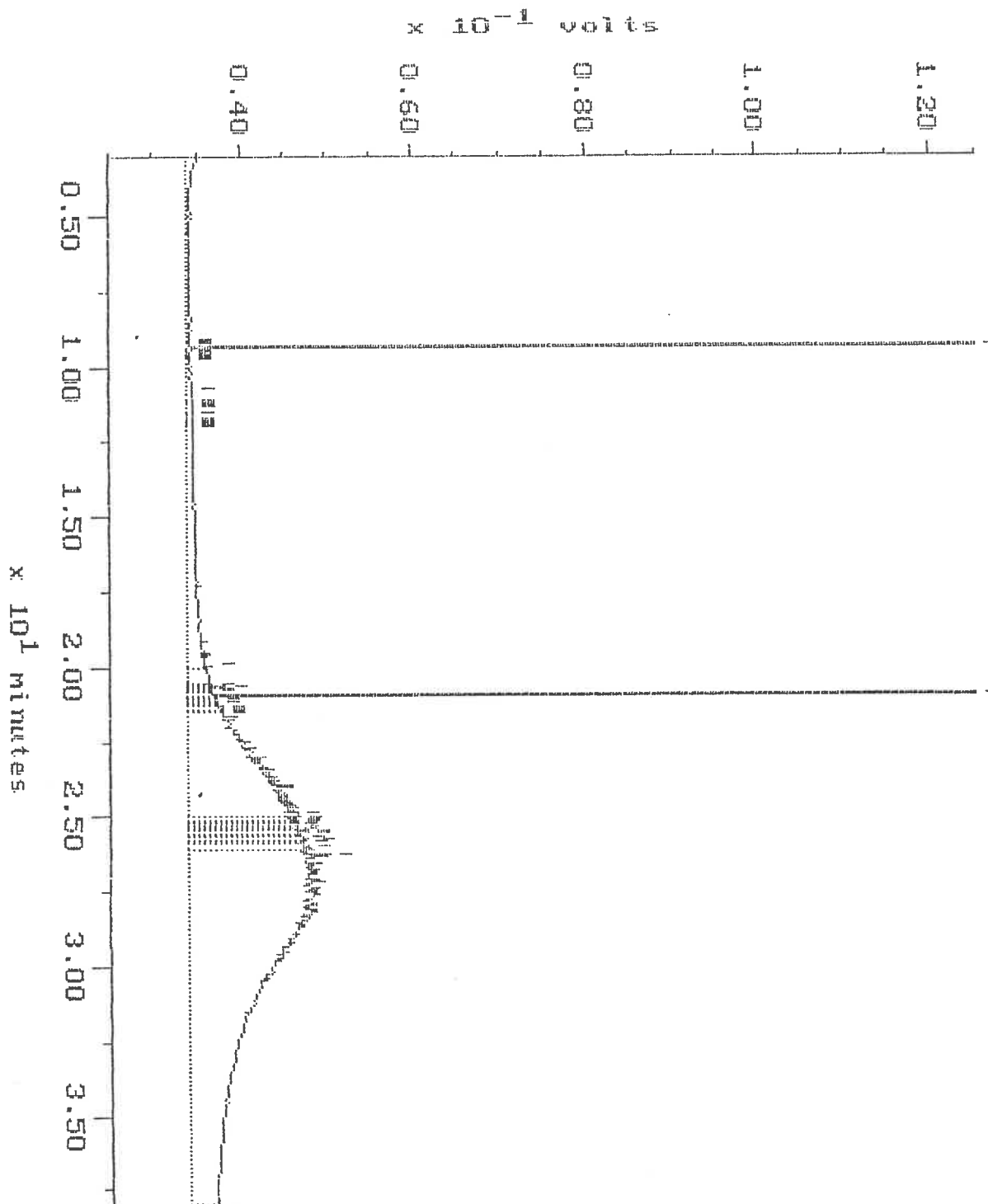


Continuing Calibration

Sample: MO 503
Acquired: 22-SEP-93 15:19
Comments: ATI RUSH FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY

Channel: DEMITRI
Method: F:\BRO2\MAXDATA\SERGE-DA\FUEL0922

Filename: R9228D03
Operator: ATI

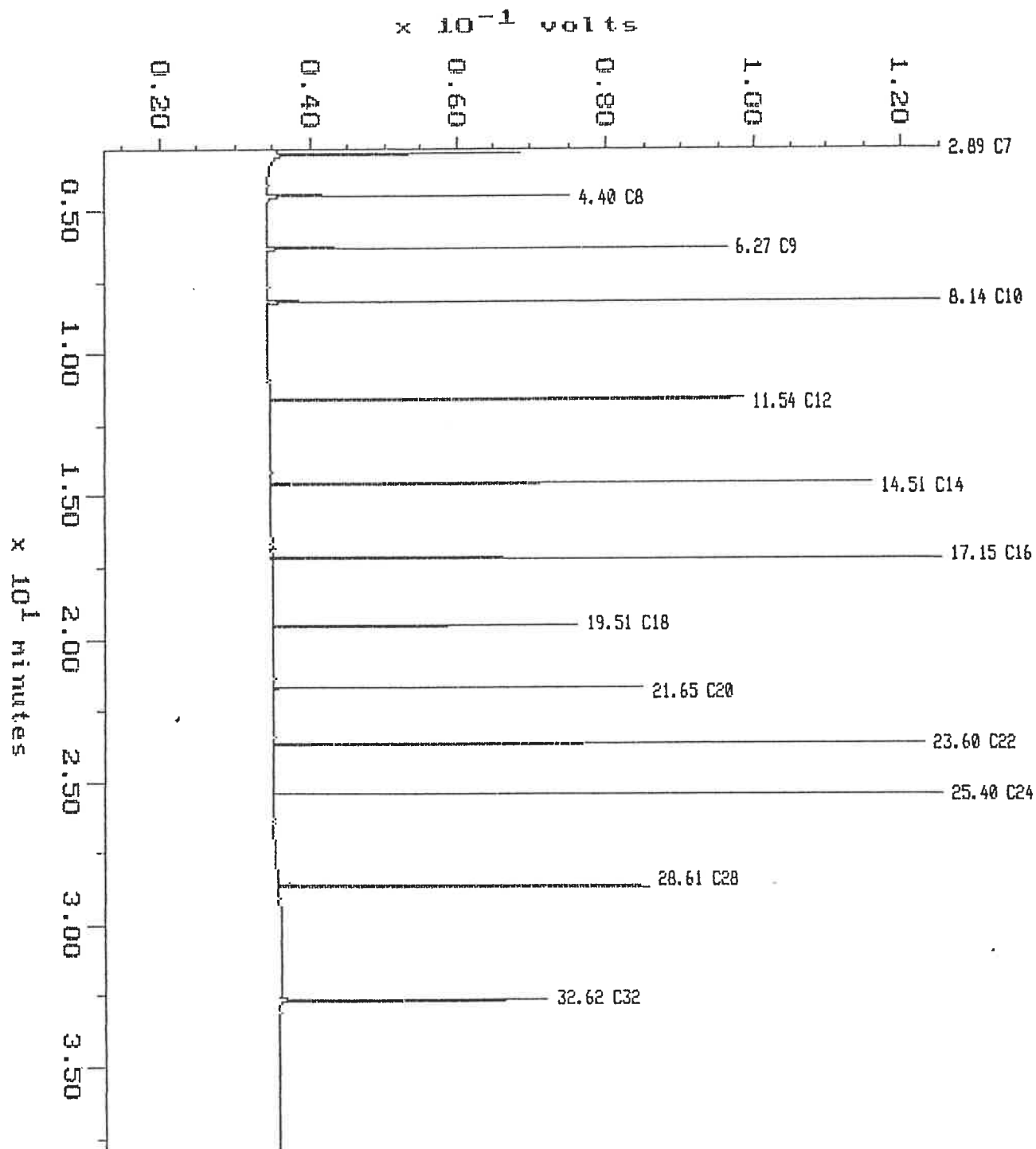


Alkane

Sample: ALKANE
Acquired: 20-SEP-93 13:57
Inj Vol: 1.00

Channel: DEMITRI
Method: F:\BRO2\MAXDATA\SERGE-D\FUEL0920

Filename: R9208D02
Operator: ATI



PROJECT No. 520-41.01

Chain of Custody



PACIFIC
ENVIRONMENTAL
GROUP, INC.

Facility no. 6001351		Facility Address: 1310 Highland Ave Bremerton WA		Billing reference number 8908010														
CLIENT engineer: Tim Johnson		PACIFIC Project Contact: John P. Johnson		Sampler: LB														
				Laboratory name A.T.I.														
Sample I.D.	Lab No.	Container no.	Container type/size	Sample Preservation	Matrix S = Soil A = Air W = Water C = Charcoal	TYPE G = Grab C = Comp. D = Discrete	Sampling date	Sampling time	TPH-Gasoline/BTEX (WTPH-G/8015/8020)	TPH Diesel (WTPH-D/Mod. EPA 8015)	TPH-418.1 (EPA 418.1)	Polychlorinated Biphenyls (EPA 8080)	Hydrocarbon Identification (TPH-HCID)	Volatile Organics (EPA 624/8240)	Polynuclear Aromatics (PAHs-EPA 8100/610)	Metals Total ☐ Dissolved ☐	Total Lead (EPA 7420/7421)	WTPH-D + Extended
Mw-23(25')	1	1	Sample Tubes	ICE	S	D	9-13-93		X						X		X	
Mw-24(24')	2						9-13-93											
Mw-23(42')	4						9-14-93											
Mw-23(35')	5						9-12-93											
Comments: 19309-166																		
Condition of sample:																		
Temperature received:																		
Relinquished by Sampler																		
Date 9-15-93 Time Received by EPH/Rosen Date 9/15 Time 1540																		
Relinquished by Date Time Received by laboratory Date 9/15/93 Time 1705																		
Relinquished by Date Time As Contracted ☒																		
Turnaround time																		
Priority Rush 1 Business Day ☐																		
Rush 2 Business Days ☐																		
Expedited 5 Business Days ☐																		
Standard 10 Business Days ☐																		



Analytical**Technologies**, Inc.

560 Naches Avenue, S.W., Suite 101, Renton, WA 98055 (206) 228-8335

Karen L. Mixon, Laboratory Manager

ATI I.D. # 9309-246

October 6, 1993

Pacific Environmental Group
4020 148th Avenue N.E.
Suite B
Redmond WA 98052

Attention : John Johnson

Project Number : 520-41.01

Project Name : Chevron/Bremerton

Dear Mr. Johnson:

On September 22, 1993, Analytical Technologies, Inc. (ATI), received 14 samples for analysis. The samples were analyzed with EPA methodology or equivalent methods as specified in the attached analytical schedule. The results, sample cross reference, and quality control data are enclosed.

Please note that this report has a summary report for the fuels analyses. If you have any questions, please call.

Sincerely,


Donna M. McKinney
Senior Project Manager

DM/hal/elf

Enclosure

ATI I.D. # 9309-246

SAMPLE CROSS REFERENCE SHEET

CLIENT : PACIFIC ENVIRONMENTAL GROUP
PROJECT # : 520-41.01
PROJECT NAME : CHEVRON/BREMERTON

ATI #	CLIENT DESCRIPTION	DATE SAMPLED	MATRIX
9309-246-1	MW-11	09/21/93	WATER
9309-246-2	MW-13	09/21/93	WATER
9309-246-3	MW-14	09/21/93	WATER
9309-246-4	TRIP BLANK	N/A	WATER
9309-246-5	MW-15	09/21/93	WATER
9309-246-6	MW-16	09/21/93	WATER
9309-246-7	MW-17	09/21/93	WATER
9309-246-8	QC-1	09/21/93	WATER
9309-246-9	MW-18	09/21/93	WATER
9309-246-10	MW-19	09/21/93	WATER
9309-246-11	MW-21	09/21/93	WATER
9309-246-12	NO SAMPLE RECEIVED		
9309-246-13	MW-22	09/21/93	WATER
9309-246-14	MW-23	09/21/93	WATER
9309-246-15	MW-24	09/21/93	WATER

----- TOTALS -----

MATRIX	# SAMPLES
WATER	14

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of the report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

ATI I.D. # 9309-246

ANALYTICAL SCHEDULE

CLIENT : PACIFIC ENVIRONMENTAL GROUP
PROJECT # : 520-41.01
PROJECT NAME : CHEVRON/BREMERTON

ANALYSIS	TECHNIQUE	REFERENCE	LAB
POLYNUCLEAR AROMATIC HYDROCARBONS	HPLC/UV/FLUOR	EPA 8310	R
BETX	GC/PID	EPA 8020	R
TOTAL PETROLEUM HYDROCARBONS	GC/FID	WA DOE WTPH-G	R
TOTAL PETROLEUM HYDROCARBONS	GC/FID	WA DOE WTPH-D	R
LEAD	AA/GF	EPA 7421	R

R = ATI - Renton
SD = ATI - San Diego
PHX = ATI - Phoenix
PNR = ATI - Pensacola
FC = ATI - Fort Collins
SUB = Subcontract

ATI I.D. # 9309-246

CASE NARRATIVE

CLIENT : PACIFIC ENVIRONMENTAL GROUP
PROJECT # : 520-41.01
PROJECT NAME : CHEVRON/BREMERTON

CASE NARRATIVE: POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS

Thirteen (13) water samples were received by ATI on September 22, 1993, for the following analysis: EPA method 8310.

The surrogate percent recovery for sample 9309-246-8 (QC-1) was outside ATI control limits due to an interference in the matrix. The result was flagged with an "F"; out of limits due to matrix interference.

All other corresponding quality assurance and quality control results defined as blank spike/blank spike duplicate (BS/BSD), method blank, and surrogate recoveries were within the established control limits.

ATI I.D. # 9309-246

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT	: PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED	: N/A
PROJECT #	: 520-41.01	DATE RECEIVED	: N/A
PROJECT NAME	: CHEVRON/BREMERTON	DATE EXTRACTED	: 09/23/93
CLIENT I.D.	: METHOD BLANK	DATE ANALYZED	: 09/26/93
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8310	DILUTION FACTOR	: 1

----- COMPOUNDS	RESULTS -----
--------------------	------------------

NAPHTHALENE	<0.50
ACENAPHTHYLENE	<1.0
1-METHYLNAPHTHALENE	<0.50
2-METHYLNAPHTHALENE	<0.50
ACENAPHTHENE	<0.50
FLUORENE	<0.10
PHENANTHRENE	<0.050
ANTHRACENE	<0.050
FLUORANTHENE	<0.10
PYRENE	<0.10
BENZO (A) ANTHRACENE	<0.10
CHRYSENE	<0.10
BENZO (B) FLUORANTHENE	<0.10
BENZO (K) FLUORANTHENE	<0.10
BENZO (A) PYRENE	<0.10
DIBENZO (A, H) ANTHRACENE	<0.20
BENZO (G, H, I) PERYLENE	<0.10
INDENO (1, 2, 3-CD) PYRENE	<0.10

SURROGATE PERCENT RECOVERY

LIMITS

2-CHLOROANTHRACENE	92	33 - 123
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ATI I.D. # 9309-246-1

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT	: PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED	: 09/21/93
PROJECT #	: 520-41.01	DATE RECEIVED	: 09/22/93
PROJECT NAME	: CHEVRON/BREMERTON	DATE EXTRACTED	: 09/23/93
CLIENT I.D.	: MW-11	DATE ANALYZED	: 09/26/93
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8310	DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
NAPHTHALENE	<0.48
ACENAPHTHYLENE	<0.95
1-METHYLNAPHTHALENE	<0.48
2-METHYLNAPHTHALENE	<0.48
ACENAPHTHENE	<0.48
FLUORENE	0.48
PHENANTHRENE	<0.048
ANTHRACENE	<0.048
FLUORANTHENE	<0.095
PYRENE	<0.095
BENZO (A) ANTHRACENE	<0.095
CHRYSENE	<0.095
BENZO (B) FLUORANTHENE	<0.095
BENZO (K) FLUORANTHENE	<0.095
BENZO (A) PYRENE	<0.095
DIBENZO (A, H) ANTHRACENE	<0.19
BENZO (G, H, I) PERYLENE	<0.095
INDENO (1, 2, 3-CD) PYRENE	<0.095

SURROGATE PERCENT RECOVERY	LIMITS
2-CHLOROANTHRACENE	82 33 - 123

ATI I.D. # 9309-246-2

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT	: PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED	: 09/21/93
PROJECT #	: 520-41.01	DATE RECEIVED	: 09/22/93
PROJECT NAME	: CHEVRON/BREMERTON	DATE EXTRACTED	: 09/23/93
CLIENT I.D.	: MW-13	DATE ANALYZED	: 09/26/93
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8310	DILUTION FACTOR	: 1

COMPOUNDS

RESULTS

NAPHTHALENE	27
ACENAPHTHYLENE	<0.95
1-METHYLNAPHTHALENE	28
2-METHYLNAPHTHALENE	31
ACENAPHTHENE	4.7
FLUORENE	4.1
PHENANTHRENE	7.5
ANTHRACENE	0.97
FLUORANTHENE	7.7
PYRENE	4.6
BENZO (A) ANTHRACENE	1.0
CHRYSENE	0.72
BENZO (B) FLUORANTHENE	0.43
BENZO (K) FLUORANTHENE	0.19
BENZO (A) PYRENE	0.54
DIBENZO (A, H) ANTHRACENE	<0.19
BENZO (G, H, I) PERYLENE	0.32
INDENO (1, 2, 3-CD) PYRENE	0.22

SURROGATE PERCENT RECOVERY

LIMITS

2-CHLOROANTHRACENE	75	33 - 123
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ATI I.D. # 9309-246-3

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT	: PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED	: 09/21/93
PROJECT #	: 520-41.01	DATE RECEIVED	: 09/22/93
PROJECT NAME	: CHEVRON/BREMERTON	DATE EXTRACTED	: 09/23/93
CLIENT I.D.	: MW-14	DATE ANALYZED	: 09/26/93
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8310	DILUTION FACTOR	: 1

COMPOUNDS

RESULTS

NAPHTHALENE	100
ACENAPHTHYLENE	<0.95
1-METHYLNAPHTHALENE	33
2-METHYLNAPHTHALENE	51
ACENAPHTHENE	<0.48
FLUORENE	3.6
PHENANTHRENE	4.0
ANTHRACENE	<0.048
FLUORANTHENE	7.8
PYRENE	6.0
BENZO (A) ANTHRACENE	<0.095
CHRYSENE	<0.095
BENZO (B) FLUORANTHENE	0.32
BENZO (K) FLUORANTHENE	0.22
BENZO (A) PYRENE	0.63
DIBENZO (A, H) ANTHRACENE	<0.19
BENZO (G, H, I) PERYLENE	0.29
INDENO (1, 2, 3-CD) PYRENE	0.21

SURROGATE PERCENT RECOVERY

LIMITS

2-CHLOROANTHRACENE	91	33 - 123
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ATI I.D. # 9309-246-5

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT	: PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED	: 09/21/93
PROJECT #	: 520-41.01	DATE RECEIVED	: 09/22/93
PROJECT NAME	: CHEVRON/BREMERTON	DATE EXTRACTED	: 09/23/93
CLIENT I.D.	: MW-15	DATE ANALYZED	: 09/26/93
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8310	DILUTION FACTOR	: 1

COMPOUNDS

RESULTS

NAPHTHALENE	4.7
ACENAPHTHYLENE	<0.95
1-METHYLNAPHTHALENE	20
2-METHYLNAPHTHALENE	<0.48
ACENAPHTHENE	0.76
FLUORENE	<0.095
PHENANTHRENE	<0.048
ANTHRACENE	<0.048
FLUORANTHENE	<0.095
PYRENE	<0.095
BENZO (A) ANTHRACENE	<0.095
CHRYSENE	<0.095
BENZO (B) FLUORANTHENE	<0.095
BENZO (K) FLUORANTHENE	<0.095
BENZO (A) PYRENE	<0.095
DIBENZO (A, H) ANTHRACENE	<0.19
BENZO (G, H, I) PERYLENE	<0.095
INDENO (1, 2, 3-CD) PYRENE	<0.095

SURROGATE PERCENT RECOVERY

LIMITS

2-CHLOROANTHRACENE	61	33 - 123
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ATI I.D. # 9309-246-6

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT	: PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED	: 09/21/93
PROJECT #	: 520-41.01	DATE RECEIVED	: 09/22/93
PROJECT NAME	: CHEVRON/BREMERTON	DATE EXTRACTED	: 09/23/93
CLIENT I.D.	: MW-16	DATE ANALYZED	: 09/26/93
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8310	DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
NAPHTHALENE	<0.49
ACENAPHTHYLENE	<0.98
1-METHYLNAPHTHALENE	<0.49
2-METHYLNAPHTHALENE	<0.49
ACENAPHTHENE	<0.49
FLUORENE	0.61
PHENANTHRENE	<0.049
ANTHRACENE	<0.049
FLUORANTHENE	<0.098
PYRENE	<0.098
BENZO (A) ANTHRACENE	<0.098
CHRYSENE	<0.098
BENZO (B) FLUORANTHENE	<0.098
BENZO (K) FLUORANTHENE	<0.098
BENZO (A) PYRENE	<0.098
DIBENZO (A, H) ANTHRACENE	<0.20
BENZO (G, H, I) PERYLENE	<0.098
INDENO (1, 2, 3-CD) PYRENE	<0.098

SURROGATE PERCENT RECOVERY	LIMITS
2-CHLOROANTHRACENE	78 33 - 123

ATI I.D. # 9309-246-7

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT	: PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED	: 09/21/93
PROJECT #	: 520-41.01	DATE RECEIVED	: 09/22/93
PROJECT NAME	: CHEVRON/BREMERTON	DATE EXTRACTED	: 09/23/93
CLIENT I.D.	: MW-17	DATE ANALYZED	: 09/27/93
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8310	DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
NAPHTHALENE	<0.52
ACENAPHTHYLENE	<1.0
1-METHYLNAPHTHALENE	<0.52
2-METHYLNAPHTHALENE	<0.52
ACENAPHTHENE	<0.52
FLUORENE	<0.10
PHENANTHRENE	<0.052
ANTHRACENE	<0.052
FLUORANTHENE	<0.10
PYRENE	<0.10
BENZO (A) ANTHRACENE	<0.10
CHRYSENE	<0.10
BENZO (B) FLUORANTHENE	<0.10
BENZO (K) FLUORANTHENE	<0.10
BENZO (A) PYRENE	<0.10
DIBENZO (A, H) ANTHRACENE	<0.21
BENZO (G, H, I) PERYLENE	<0.10
INDENO (1, 2, 3-CD) PYRENE	<0.10

SURROGATE PERCENT RECOVERY	LIMITS
2-CHLOROANTHRACENE	56 33 - 123

ATI I.D. # 9309-246-8

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT	: PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED	: 09/21/93
PROJECT #	: 520-41.01	DATE RECEIVED	: 09/22/93
PROJECT NAME	: CHEVRON/BREMERTON	DATE EXTRACTED	: 09/23/93
CLIENT I.D.	: QC-1	DATE ANALYZED	: 09/27/93
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8310	DILUTION FACTOR	: 1

COMPOUNDS

RESULTS

NAPHTHALENE	51
ACENAPHTHYLENE	<0.98
1-METHYLNAPHTHALENE	49
2-METHYLNAPHTHALENE	62
ACENAPHTHENE	9.1
FLUORENE	9.5
PHENANTHRENE	17
ANTHRACENE	2.8
FLUORANTHENE	29
PYRENE	18
BENZO (A) ANTHRACENE	4.2
CHRYSENE	2.8
BENZO (B) FLUORANTHENE	1.6
BENZO (K) FLUORANTHENE	0.73
BENZO (A) PYRENE	2.3
DIBENZO (A, H) ANTHRACENE	<0.20
BENZO (G, H, I) PERYLENE	1.4
INDENO (1, 2, 3-CD) PYRENE	0.84

SURROGATE PERCENT RECOVERY

LIMITS

2-CHLOROANTHRACENE	165 F	33 - 123
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F = Out of limits due to matrix interference.



ATI I.D. # 9309-246-9

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT	: PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED	: 09/21/93
PROJECT #	: 520-41.01	DATE RECEIVED	: 09/22/93
PROJECT NAME	: CHEVRON/BREMERTON	DATE EXTRACTED	: 09/23/93
CLIENT I.D.	: MW-18	DATE ANALYZED	: 09/27/93
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8310	DILUTION FACTOR	: 1

----- COMPOUNDS	RESULTS -----
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NAPHTHALENE	<0.48
ACENAPHTHYLENE	<0.95
1-METHYLNAPHTHALENE	<0.48
2-METHYLNAPHTHALENE	<0.48
ACENAPHTHENE	<0.48
FLUORENE	<0.095
PHENANTHRENE	<0.048
ANTHRACENE	<0.048
FLUORANTHENE	<0.095
PYRENE	<0.095
BENZO (A) ANTHRACENE	<0.095
CHRYSENE	<0.095
BENZO (B) FLUORANTHENE	<0.095
BENZO (K) FLUORANTHENE	<0.095
BENZO (A) PYRENE	<0.095
DIBENZO (A, H) ANTHRACENE	<0.19
BENZO (G, H, I) PERYLENE	<0.095
INDENO (1, 2, 3-CD) PYRENE	<0.095

SURROGATE PERCENT RECOVERY

LIMITS

2-CHLOROANTHRACENE	73	33 - 123
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ATI I.D. # 9309-246-10

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT	: PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED	: 09/21/93
PROJECT #	: 520-41.01	DATE RECEIVED	: 09/22/93
PROJECT NAME	: CHEVRON/BREMERTON	DATE EXTRACTED	: 09/23/93
CLIENT I.D.	: MW-19	DATE ANALYZED	: 09/27/93
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8310	DILUTION FACTOR	: 1

COMPOUNDS

RESULTS

NAPHTHALENE	<0.48
ACENAPHTHYLENE	<0.95
1-METHYLNAPHTHALENE	<0.48
2-METHYLNAPHTHALENE	<0.48
ACENAPHTHENE	<0.48
FLUORENE	<0.095
PHENANTHRENE	<0.048
ANTHRACENE	<0.048
FLUORANTHENE	<0.095
PYRENE	<0.095
BENZO (A) ANTHRACENE	<0.095
CHRYSENE	<0.095
BENZO (B) FLUORANTHENE	<0.095
BENZO (K) FLUORANTHENE	<0.095
BENZO (A) PYRENE	<0.095
DIBENZO (A, H) ANTHRACENE	<0.19
BENZO (G, H, I) PERYLENE	<0.095
INDENO (1, 2, 3-CD) PYRENE	<0.095

SURROGATE PERCENT RECOVERY

LIMITS

2-CHLOROANTHRACENE	64	33 - 123
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ATI I.D. # 9309-246-11

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT	: PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED	: 09/21/93
PROJECT #	: 520-41.01	DATE RECEIVED	: 09/22/93
PROJECT NAME	: CHEVRON/BREMERTON	DATE EXTRACTED	: 09/23/93
CLIENT I.D.	: MW-21	DATE ANALYZED	: 09/27/93
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8310	DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
NAPHTHALENE	170
ACENAPHTHYLENE	<0.95
1-METHYLNAPHTHALENE	47
2-METHYLNAPHTHALENE	63
ACENAPHTHENE	2.9
FLUORENE	2.8
PHENANTHRENE	2.5
ANTHRACENE	0.20
FLUORANTHENE	0.91
PYRENE	<0.095
BENZO (A) ANTHRACENE	<0.095
CHRYSENE	<0.095
BENZO (B) FLUORANTHENE	<0.095
BENZO (K) FLUORANTHENE	<0.095
BENZO (A) PYRENE	<0.095
DIBENZO (A, H) ANTHRACENE	<0.19
BENZO (G, H, I) PERYLENE	<0.095
INDENO (1, 2, 3-CD) PYRENE	<0.095

SURROGATE PERCENT RECOVERY	LIMITS
2-CHLOROANTHRACENE	73 33 - 123

ATI I.D. # 9309-246-12

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT	: PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED	: 09/21/93
PROJECT #	: 520-41.01	DATE RECEIVED	: 09/22/93
PROJECT NAME	: CHEVRON/BREMERTON	DATE EXTRACTED	: 09/23/93
CLIENT I.D.	: MW-15 DUP	DATE ANALYZED	: 09/27/93
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8310	DILUTION FACTOR	: 1

COMPOUNDS

RESULTS

NAPHTHALENE	6.1
ACENAPHTHYLENE	<0.95
1-METHYLNAPHTHALENE	18
2-METHYLNAPHTHALENE	<0.48
ACENAPHTHENE	0.73
FLUORENE	<0.095
PHENANTHRENE	<0.048
ANTHRACENE	<0.048
FLUORANTHENE	<0.095
PYRENE	<0.095
BENZO (A) ANTHRACENE	<0.095
CHRYSENE	<0.095
BENZO (B) FLUORANTHENE	<0.095
BENZO (K) FLUORANTHENE	<0.095
BENZO (A) PYRENE	<0.095
DIBENZO (A, H) ANTHRACENE	<0.19
BENZO (G, H, I) PERYLENE	<0.095
INDENO (1, 2, 3-CD) PYRENE	<0.095

SURROGATE PERCENT RECOVERY

LIMITS

2-CHLOROANTHRACENE	55	33 - 123
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ATI I.D. # 9309-246-13

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT	: PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED	: 09/21/93
PROJECT #	: 520-41.01	DATE RECEIVED	: 09/22/93
PROJECT NAME	: CHEVRON/BREMERTON	DATE EXTRACTED	: 09/23/93
CLIENT I.D.	: MW-22	DATE ANALYZED	: 09/27/93
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8310	DILUTION FACTOR	: 1

COMPOUNDS

RESULTS

NAPHTHALENE	10
ACENAPHTHYLENE	<0.95
1-METHYLNAPHTHALENE	35
2-METHYLNAPHTHALENE	27
ACENAPHTHENE	6.1
FLUORENE	5.4
PHENANTHRENE	9.4
ANTHRACENE	<0.048
FLUORANTHENE	<0.095
PYRENE	<0.095
BENZO (A) ANTHRACENE	<0.095
CHRYSENE	<0.095
BENZO (B) FLUORANTHENE	0.21
BENZO (K) FLUORANTHENE	<0.095
BENZO (A) PYRENE	0.42
DIBENZO (A, H) ANTHRACENE	<0.19
BENZO (G, H, I) PERYLENE	<0.095
INDENO (1, 2, 3-CD) PYRENE	<0.095

SURROGATE PERCENT RECOVERY

LIMITS

2-CHLOROANTHRACENE	118	33 - 123
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ATI I.D. # 9309-246-14

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT	: PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED	: 09/21/93
PROJECT #	: 520-41.01	DATE RECEIVED	: 09/22/93
PROJECT NAME	: CHEVRON/BREMERTON	DATE EXTRACTED	: 09/23/93
CLIENT I.D.	: MW-23	DATE ANALYZED	: 09/27/93
SAMPLE MATRIX	: WATER	UNITS	: ug/L
EPA METHOD	: 8310	DILUTION FACTOR	: 1

COMPOUNDS

RESULTS

NAPHTHALENE	1.5
ACENAPHTHYLENE	<0.95
1-METHYLNAPHTHALENE	9.8
2-METHYLNAPHTHALENE	0.83
ACENAPHTHENE	<0.48
FLUORENE	0.80
PHENANTHRENE	0.50
ANTHRACENE	<0.048
FLUORANTHENE	<0.095
PYRENE	<0.095
BENZO (A) ANTHRACENE	<0.095
CHRYSENE	<0.095
BENZO (B) FLUORANTHENE	<0.095
BENZO (K) FLUORANTHENE	<0.095
BENZO (A) PYRENE	<0.095
DIBENZO (A, H) ANTHRACENE	<0.19
BENZO (G, H, I) PERYLENE	<0.095
INDENO (1, 2, 3-CD) PYRENE	<0.095

SURROGATE PERCENT RECOVERY

LIMITS

2-CHLOROANTHRACENE	63	33 - 123
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ATI I.D. # 9309-246-15

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
DATA SUMMARY

CLIENT : PACIFIC ENVIRONMENTAL GROUP	DATE SAMPLED : 09/21/93
PROJECT # : 520-41.01	DATE RECEIVED : 09/22/93
PROJECT NAME : CHEVRON/BREMERTON	DATE EXTRACTED : 09/23/93
CLIENT I.D. : MW-24	DATE ANALYZED : 09/27/93
SAMPLE MATRIX : WATER	UNITS : ug/L
EPA METHOD : 8310	DILUTION FACTOR : 1

COMPOUNDS	RESULTS
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NAPHTHALENE	<0.48
ACENAPHTHYLENE	<0.95
1-METHYLNAPHTHALENE	<0.48
2-METHYLNAPHTHALENE	<0.48
ACENAPHTHENE	<0.48
FLUORENE	<0.095
PHENANTHRENE	<0.048
ANTHRACENE	<0.048
FLUORANTHENE	<0.095
PYRENE	<0.095
BENZO (A) ANTHRACENE	<0.095
CHRYSENE	<0.095
BENZO (B) FLUORANTHENE	<0.095
BENZO (K) FLUORANTHENE	<0.095
BENZO (A) PYRENE	<0.095
DIBENZO (A, H) ANTHRACENE	<0.19
BENZO (G, H, I) PERYLENE	<0.095
INDENO (1, 2, 3-CD) PYRENE	<0.095

SURROGATE PERCENT RECOVERY

LIMITS

2-CHLOROANTHRACENE	42	33 - 123
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ATI I.D. # 9309-246

POLYNUCLEAR AROMATIC HYDROCARBON ANALYSIS
QUALITY CONTROL DATA

CLIENT : PACIFIC ENVIRONMENTAL GROUP	SAMPLE I.D. # : BLANK
PROJECT # : 520-41.01	DATE EXTRACTED : 09/23/93
PROJECT NAME : CHEVRON/BREMERTON	DATE ANALYZED : 09/26/93
SAMPLE MATRIX : WATER	UNITS : ug/L
EPA METHOD : 8310	

COMPOUNDS	SAMPLE RESULT	SPIKE ADDED	SPIKED RESULT	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
ACENAPHTHYLENE	<1.00	20.0	15.1	76	14.0	70	8
PHENANTHRENE	<0.0500	2.00	1.54	77	1.49	75	3
PYRENE	<0.100	2.00	1.67	84	1.70	85	2
BENZO (K) FLUORANTHENE	<0.100	2.00	1.78	89	1.80	90	1
DIBENZO (A, H) ANTHRACENE	<0.200	2.00	1.72	86	1.76	88	2

CONTROL LIMITS

	% REC.	RPD
ACENAPHTHYLENE	32 - 131	32
PHENANTHRENE	58 - 120	30
PYRENE	50 - 120	30
BENZO (K) FLUORANTHENE	50 - 120	29
DIBENZO (A, H) ANTHRACENE	56 - 129	26

SURROGATE RECOVERIES

	SPIKE	DUP. SPIKE	LIMITS
2-CHLOROANTHRACENE	83	83	33 - 123



ATI I.D. # 9309-246

METALS ANALYSIS

CLIENT : PACIFIC ENVIRONMENTAL GROUP
PROJECT # : 520-41.01
PROJECT NAME : CHEVRON/BREMERTON

MATRIX : WATER

ELEMENT

DATE PREPARED

DATE ANALYZED

LEAD

09/29/93

10/01/93

ATI I.D. # 9309-246

METALS ANALYSIS
DATA SUMMARY

CLIENT : PACIFIC ENVIRONMENTAL GROUP
PROJECT # : 520-41.01
PROJECT NAME : CHEVRON/BREMERTON

MATRIX : WATER

UNITS : mg/L

ATI I.D. #	CLIENT I.D.	LEAD
9309-246-1	MW-11	<0.0030
9309-246-2	MW-13	0.100*
9309-246-3	MW-14	0.046
9309-246-5	MW-15	0.014
9309-246-6	MW-16	0.0037
9309-246-7	MW-17	0.016
9309-246-9	MW-18	0.046
9309-246-10	MW-19	<0.0030
9309-246-11	MW-21	0.049
9309-246-13	MW-22	0.030*
9309-246-14	MW-23	<0.0030
9309-246-15	MW-24	0.0050
METHOD BLANK	-	<0.0030

* This result was calculated from an MSA.

ATI I.D. # 9309-246

METALS ANALYSIS
QUALITY CONTROL DATACLIENT : PACIFIC ENVIRONMENTAL GROUP
PROJECT # : 520-41.01
PROJECT NAME : CHEVRON/BREMERTON

MATRIX : WATER

UNITS : mg/L

ELEMENT	ATI I.D.	SAMPLE RESULT	DUP RESULT	RPD	SPIKED RESULT	SPIKE ADDED	% REC
LEAD	9309-246-5	0.014	0.011	24	0.0361	0.0250	88
LEAD	9309-246-14	<0.0030	<0.0030	NC	0.0244	0.0250	98
LEAD	BLANK	<0.0030	N/A	N/A	0.0261	0.0250	104

CONTROL LIMITS

LEAD (MATRIX SPIKE/MATRIX SPIKE DUPLICATE)
LEAD (BLANK SPIKE/BLANK SPIKE DUPLICATE)

% REC.

RPD

74 - 123

20

77 - 121

N/A

NC = Not Calculable.



Analytical Technologies, Inc.

ATI Reference: 9309-246

Client: Pacific Environmental Group

Project: Chevron/Bremerton

Analytical Summary Report

Analysis: WA DOE WTPH-G/8020(BETX)

Matrix: WATER Units: ug/L

ATI Sample #:	0	0	1	2	3	4
Client ID:	Method Blank	Method Blank	MW-11	MW-13	MW-14	TRIP BLANK
Date Sampled:	N/A	N/A	09/21/93	09/21/93	09/21/93	N/A
Date Extracted:	N/A	N/A	N/A	N/A	N/A	N/A
Date Analyzed:	09/27/93	09/28/93	09/28/93	09/28/93	09/28/93	09/27/93
Benzene	<0.5	<0.5	<0.5	33	330	<0.5
Ethylbenzene	<0.5	<0.5	<0.5	58	350	<0.5
Toluene	<0.5	<0.5	0.7	6.4	570	<0.5
Total Xylenes	<0.5	<0.5	2.7	95	1000	<0.5
Gasoline (Toluene to Dodecane)	<100	<100	600	2800	8700	<100

Surrogate Recoveries (%)

Bromofluorobenzene	108	108	108	111	108	109
Trifluorotoluene	102	106	101	103	97	102
				D3	D5	

ATI Sample #:	5	6	7	9	10	11
Client ID:	MW-15	MW-16	MW-17	MW-18	MW-19	MW-21
Date Sampled:	09/21/93	09/21/93	09/21/93	09/21/93	09/21/93	09/21/93
Date Extracted:	N/A	N/A	N/A	N/A	N/A	N/A
Date Analyzed:	09/28/93	09/28/93	09/28/93	09/27/93	09/27/93	09/28/93
Benzene	67	<0.5	<0.5	<0.5	4.1	470
Ethylbenzene	360	1.7	<0.5	<0.5	1.3	890
Toluene	24	1.1	<0.5	<0.5	1.0	8300
Total Xylenes	77	4.1	<0.5	1.2	3.1	6500
Gasoline (Toluene to Dodecane)	4600	670	<100	<100	400	45000
						D7

Surrogate Recoveries (%)

Bromofluorobenzene	112	D4	114	107	108	108	112	D7
Trifluorotoluene	103	D4	101	99	100	100	98	D7

Surrogate Limits: (BFB:76-120 TFI:50-150)
D3 Value from a five fold diluted analysis.
D4 Value from a ten fold diluted analysis.
D5 Value from a 20 fold diluted analysis.
D7 Value from a 100 fold diluted analysis.



Analytical Technologies, Inc.

ATI Reference: 9309-246

Analytical Summary Report

Client: Pacific Environmental Group

Project: Chevron/Bremerton

Analysis: W/A DOE WTPH-G/8020(BETX)

Matrix: WATER

Units: ug/L

ATI Sample #: 13	14	15
Client ID: MW-22	MW-23	MW-24
Date Sampled: 09/21/93	09/21/93	09/21/93
Date Extracted: N/A	N/A	N/A
Date Analyzed: 09/27/93	09/27/93	09/28/93
Benzene	24	0.6
Ethylbenzene	2.6	<0.5
Toluene	1.3	<0.5
Total Xylenes	3.4	<0.5
Gasoline (Toluene to Dodecane)	450	<100

Surrogate Recoveries (%)

Bromofluorobenzene	109	111	106
Trifluorotoluene	101	101	103

Surrogate Limits: (BFB:76-120 TFT:50-150)

Analysis: W/A DOE WTPH-G/8020(BETX)

Matrix: WATER Units: ug/L

Matrix Spike/Matrix Spike Duplicate

Extracted: N/A

Analyzed: 09/28/93

Sample ID: 9309-246-15

Compound	Sample Result	Duplicate Result	RPD	Spike Added	Spike Result	Spike %Rec	Spike Dup. Result	Spike Dup. %Rec	RPD	Limits %Rec	Limits RPD
----------	---------------	------------------	-----	-------------	--------------	------------	-------------------	-----------------	-----	-------------	------------

GASOLINE	<100	<100	NC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	20
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Quality Control Surrogate Recoveries (%)

Compound	Sample	Sample Dup.	Spike Dup.	Limits
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TRIFLUOROTOLUENE	103	100	N/A	50-150
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Analysis: W/A DOE WTPH-G/8020(BETX)

Matrix: WATER Units: ug/L

Matrix Spike/Matrix Spike Duplicate

Extracted: N/A

Analyzed: 09/28/93

Sample ID: 9309-246-7

Compound	Sample Result	Duplicate Result	RPD	Spike Added	Spike Result	Spike %Rec	Spike Dup. Result	Spike Dup. %Rec	RPD	Limits %Rec	Limits RPD
----------	---------------	------------------	-----	-------------	--------------	------------	-------------------	-----------------	-----	-------------	------------

BENZENE	<0.500	N/A	N/A	20.0	19.5	98	19.5	98	0	77-112	20
TOLUENE	<0.500	N/A	N/A	20.0	20.0	100	20.1	101	0	72-113	20
TOTAL XYLENES	<0.500	N/A	N/A	40.0	39.7	99	39.8	100	0	80-110	20
GASOLINE	<100	<100	NC	1000	1020	102	987	99	3	58-127	20

Quality Control Surrogate Recoveries (%)

Compound	Sample	Spike	Spike Dup.	Limits
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BROMOFLUOROBENZENE	107	105	105	76-120
TRIFLUOROTOLUENE	99	100	100	50-150

Analysis: W/A DOE WTPH-G/8020(BETX)

Matrix: WATER Units: ug/L

Blank Spike/Blank Spike Duplicate

Extracted: N/A

Analyzed: 09/27/93

Sample ID: Blank

Compound	Sample Result	Duplicate Result	RPD	Spike Added	Spike Result	Spike %Rec	Spike Dup. Result	Spike Dup. %Rec	RPD	Limits %Rec	Limits RPD
----------	---------------	------------------	-----	-------------	--------------	------------	-------------------	-----------------	-----	-------------	------------

BENZENE	<0.500	N/A	N/A	20.0	20.1	101	19.6	98	3	80-111	20
TOLUENE	<0.500	N/A	N/A	20.0	20.7	103	20.5	102	1	78-111	20
TOTAL XYLENES	<0.500	N/A	N/A	40.0	41.7	104	41.5	104	0	80-114	20
GASOLINE	<100	N/A	N/A	1000	1070	107	1060	106	1	75-120	20

Quality Control Surrogate Recoveries (%)

Compound	Sample	Spike	Spike Dup.	Limits
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BROMOFLUOROBENZENE	108	108	111	76-120
TRIFLUOROTOLUENE	102	107	103	50-150



Analytical Technologies, Inc.

ATI Reference: 9309-246

Client: Pacific Environmental Group

Project: Chevron/Bremerton

Quality Control Summary Report

Analysis: WA DOE WTPH-G/8020(BEIX)

Matrix: WATER Units: ug/L

Blank Spike/Blank Spike Duplicate

Extracted: N/A

Analyzed: 09/28/93

Sample ID: Blank

Compound	Sample		Duplicate		RPD	Spike Added		Spike Result		Spike %Rec	Spike Dup. Result		Spike Dup. %Rec	RPD	Limits %Rec		Limits RPD
	Result		Result														
BENZENE	<0.500		N/A		N/A	20.0		19.8		99	19.7		99	1	80-111		20
TOLUENE	<0.500		N/A		N/A	20.0		20.5		102	20.3		102	1	78-111		20
TOTAL XYLENES	<0.500		N/A		N/A	40.0		41.0		102	40.8		102	0	80-114		20
GASOLINE	<100		N/A		N/A	1000		1080		108	N/A		N/A	N/A	75-120		20

Quality Control Surrogate Recoveries (%)

Compound	Sample	Spike	Spike Dup.	Limits
BROMOFLUOROBENZENE	108	108	106	76-120
TRIFLUOROTOLUENE	106	107	NA	50-150



Analytical Technologies, Inc.

ATI Reference: 9309-246

Client: Pacific Environmental Group

Project: Chevron/Bremerton

Analytical Summary Report

Analysis: WA DOE WTPH-D

Matrix: WATER Units: mg/L

ATI Sample #: 0	1	2	3	5	6
Client ID: Method Blank	MW-11	MW-13	MW-14	MW-15	MW-16
Date Sampled: N/A	09/21/93	09/21/93	09/21/93	09/21/93	09/21/93
Date Extracted: 09/25/93	09/25/93	09/25/93	09/25/93	09/25/93	09/25/93
Date Analyzed: 09/27/93	09/28/93	09/28/93	09/28/93	09/27/93	09/28/93
Diesel (C12-C24)	<0.25	22	27	7.0	6.2
Motor Oil (C24-C34)	<0.75	4.0	8.2	D4	2.7
				D4	D4
				<0.75	1.4

Surrogate Recoveries (%)

O-Terphenyl	101	127	146	D4	132	106	118
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ATI Sample #: 7	8	9	10	11	13
Client ID: MW-17	QC-1	MW-18	MW-19	MW-21	MW-22
Date Sampled: 09/21/93	09/21/93	09/21/93	09/21/93	09/21/93	09/21/93
Date Extracted: 09/25/93	09/25/93	09/25/93	09/25/93	09/25/93	09/25/93
Date Analyzed: 09/28/93	09/28/93	09/28/93	09/28/93	09/28/93	09/28/93
Diesel (C12-C24)	0.28	11	4.9	2.2	95
Motor Oil (C24-C34)	<0.75	2.6	1.2	<0.75	15
		D1	D1		D5

Surrogate Recoveries (%)

O-Terphenyl	113	130	D1	98	116	113	360	ID5
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Surrogate Limits: (O-T:50-150)

I Surrogate out of limits due to sample dilution.

D1 Value from a two fold diluted analysis.

D4 Value from a ten fold diluted analysis.

D5 Value from a 20 fold diluted analysis.

Client: Pacific Environmental Group

Project: Chevron/Bremerton

Analytical Summary Report

Analysis: WA DOE WTPH-D

ATI Sample #:	14	15
Client ID:	MW-23	MW-24
Date Sampled:	09/21/93	09/21/93
Date Extracted:	09/25/93	09/25/93
Date Analyzed:	09/28/93	09/28/93
Diesel (C12-C24)	4.3	0.34
Motor Oil (C24-C34)	0.97	<0.75

Surrogate Recoveries (%)

	14	15
O-Terphenyl	112	105
Surrogate Limits: (O-T:50-150)		



Analytical Technologies, Inc.

ATI Reference: 9309-246

Client: Pacific Environmental Group

Project: Chevron/Bremerton

Quality Control Summary Report

Analysis: WA DOE WTPH-D									
		Matrix: WATER		Units: mg/L		Matrix Spike/Matrix Spike Duplicate			
Extracted: 09/25/93		Analyzed: 09/28/93		Sample ID: 9309-246-8					
Compound	Sample Result	Duplicate Result	RPD	Spike Added	Spike Result	Spike %Rec	Spike Dup. Result	Spike Dup. %Rec	Limits RPD
DIESEL	11.0	34.3	103F	N/A	N/A	N/A	N/A	N/A	20
Quality Control Surrogate Recoveries (%)									
Compound	Sample	Sample Dup.	Spike Dup.	Limits					
O-TERPHENYL	130	139	-	50-150					
Analysis: WA DOE WTPH-D									
		Matrix: WATER		Units: mg/L		Matrix Spike/Matrix Spike Duplicate			
Extracted: 09/25/93		Analyzed: 09/27/93		Sample ID: 9309-246-5					
Compound	Sample Result	Duplicate Result	RPD	Spike Added	Spike Result	Spike %Rec	Spike Dup. Result	Spike Dup. %Rec	Limits RPD
DIESEL	6.97	7.44	7	2.40	14.3C	G	8.66	70	49F 50-150 20
Quality Control Surrogate Recoveries (%)									
Compound	Sample	Spike	Spike Dup.	Limits					
O-TERPHENYL	106	82	100	50-150					
Analysis: WA DOE WTPH-D									
		Matrix: WATER		Units: mg/L		Blank Spike/Blank Spike Duplicate			
Extracted: 09/25/93		Analyzed: 09/27/93		Sample ID: Blank					
Compound	Sample Result	Duplicate Result	RPD	Spike Added	Spike Result	Spike %Rec	Spike Dup. Result	Spike Dup. %Rec	Limits RPD
DIESEL	<0.250	N/A	N/A	2.50	2.58	103	2.64	106	2 70-115 20
Quality Control Surrogate Recoveries (%)									
Compound	Sample	Spike	Spike Dup.	Limits					
O-TERPHENYL	101	104	109	50-150					
C Estimated, value above linear range.									
F Out of limits due to matrix interference.									
G Out of limits due to high levels of target analytes in sample.									

C Estimated, value above linear range.

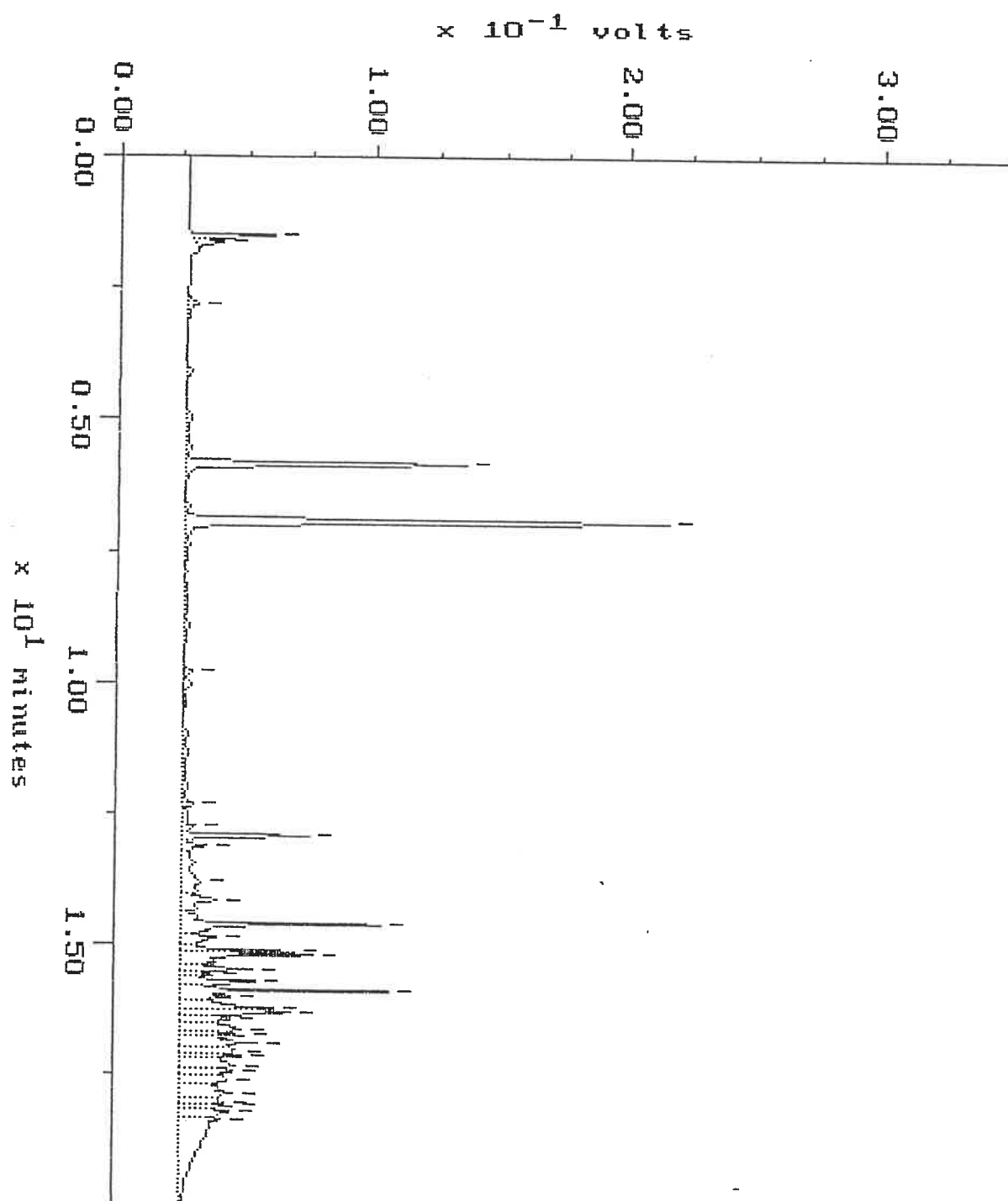
F Out of limits due to matrix interference.

G Out of limits due to high levels of target analytes in sample.

WA DOE WTPH-G

Sample: 9309-246-1 Channel: FID
Acquired: 28-SEP-93 14:59 Method: F:\BRO2\MAXDATA\PICARD\092893PC
Comments: ATI FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY.

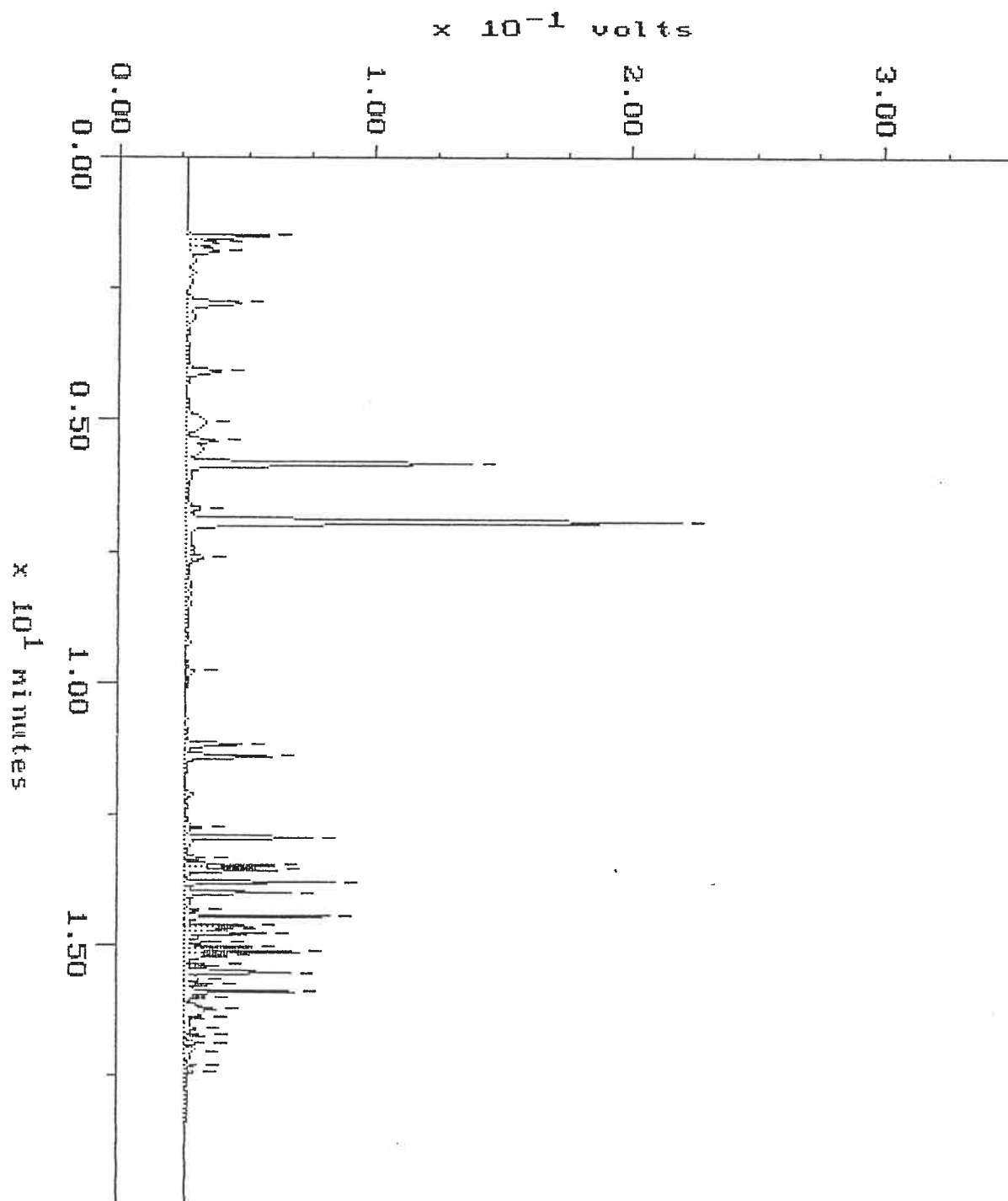
Filename: R9289P09
Operator: ATI



WA DOE WTPH-G

Sample: 9309-246-2 DIL Channel: FID
Acquired: 28-SEP-93 18:03 Method: F:\BRO2\MAXDATA\PICARD\092893PC
Dilution: 1 : 5.000
Comments: ATI FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY.

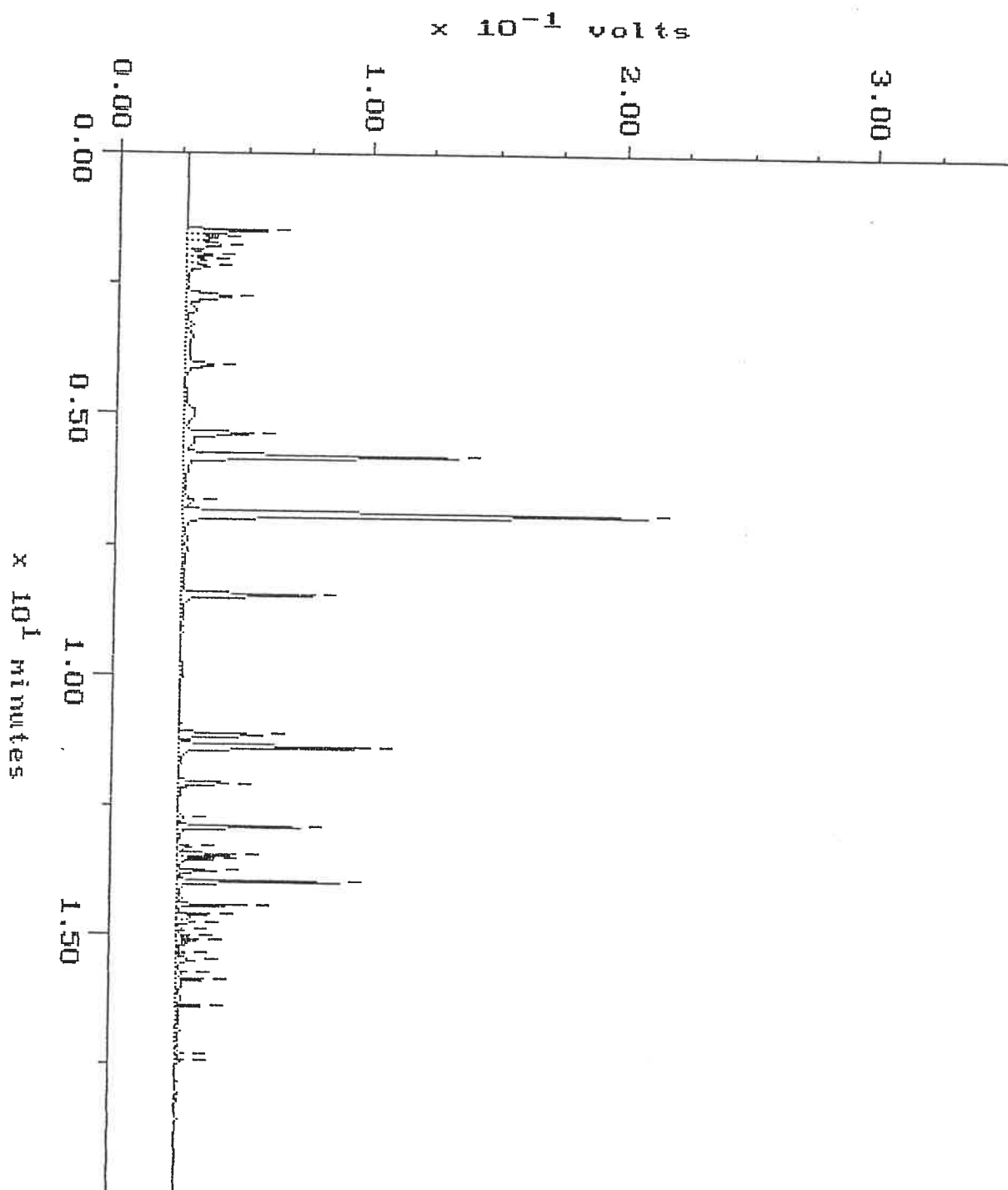
Filename: R9289P15
Operator: ATI



WA DOE WTPH-G

Sample: 9309-246-3 DIL Channel: FID
Acquired: 28-SEP-93 1:47 Method: F:\BRO2\MAXDATA\PICARD\092793PC
Dilution: 1 : 20.000
Comments: ATI FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY.

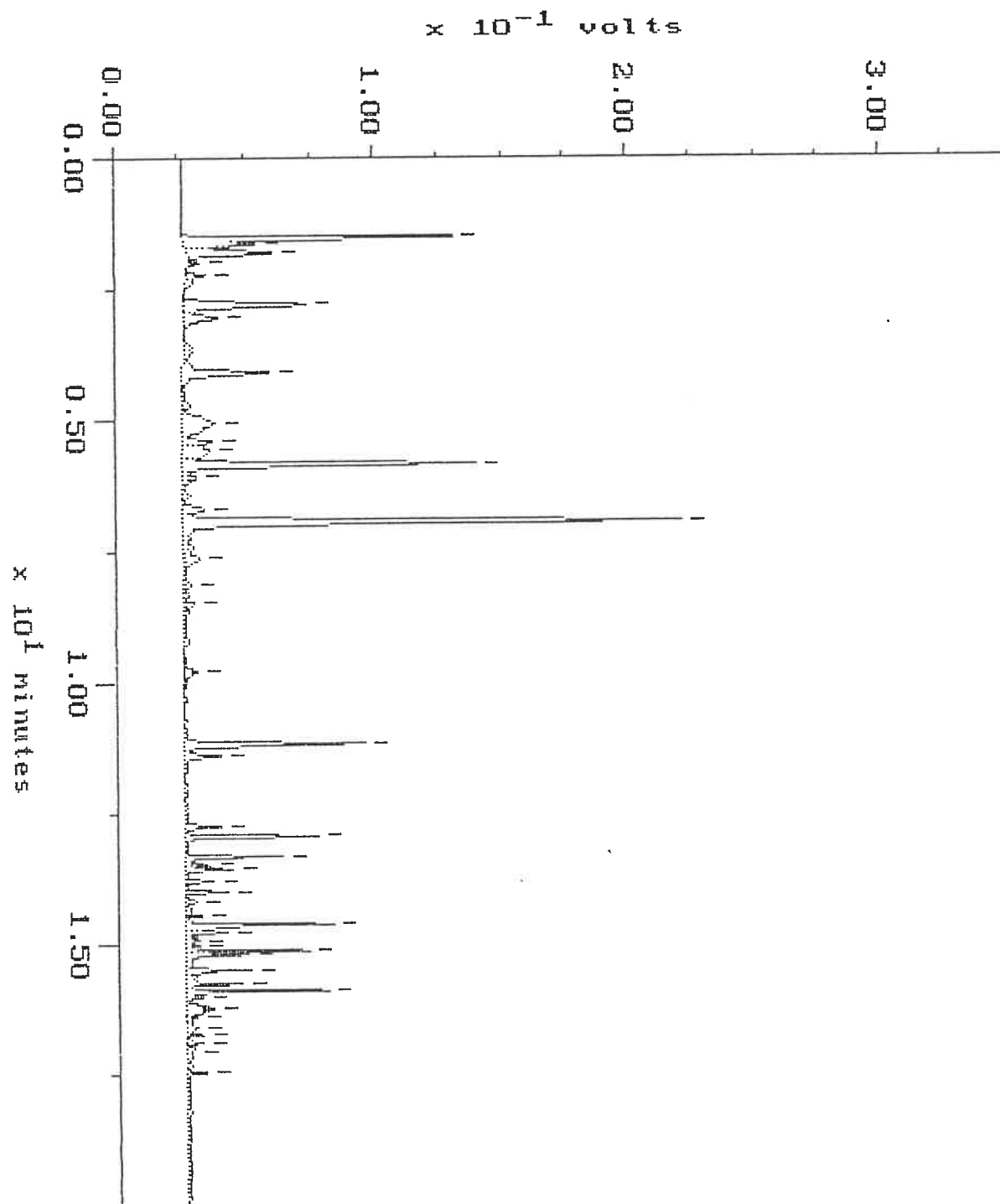
Filename: R9279P34
Operator: ATI



WA DOE WTPH-G

Sample: 9309-246-5 DIL Channel: FID
Acquired: 28-SEP-93 16:01 Method: F:\BRO2\MAXDATA\PICARD\092893PC
Dilution: 1 : 10.000
Comments: ATI FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY.

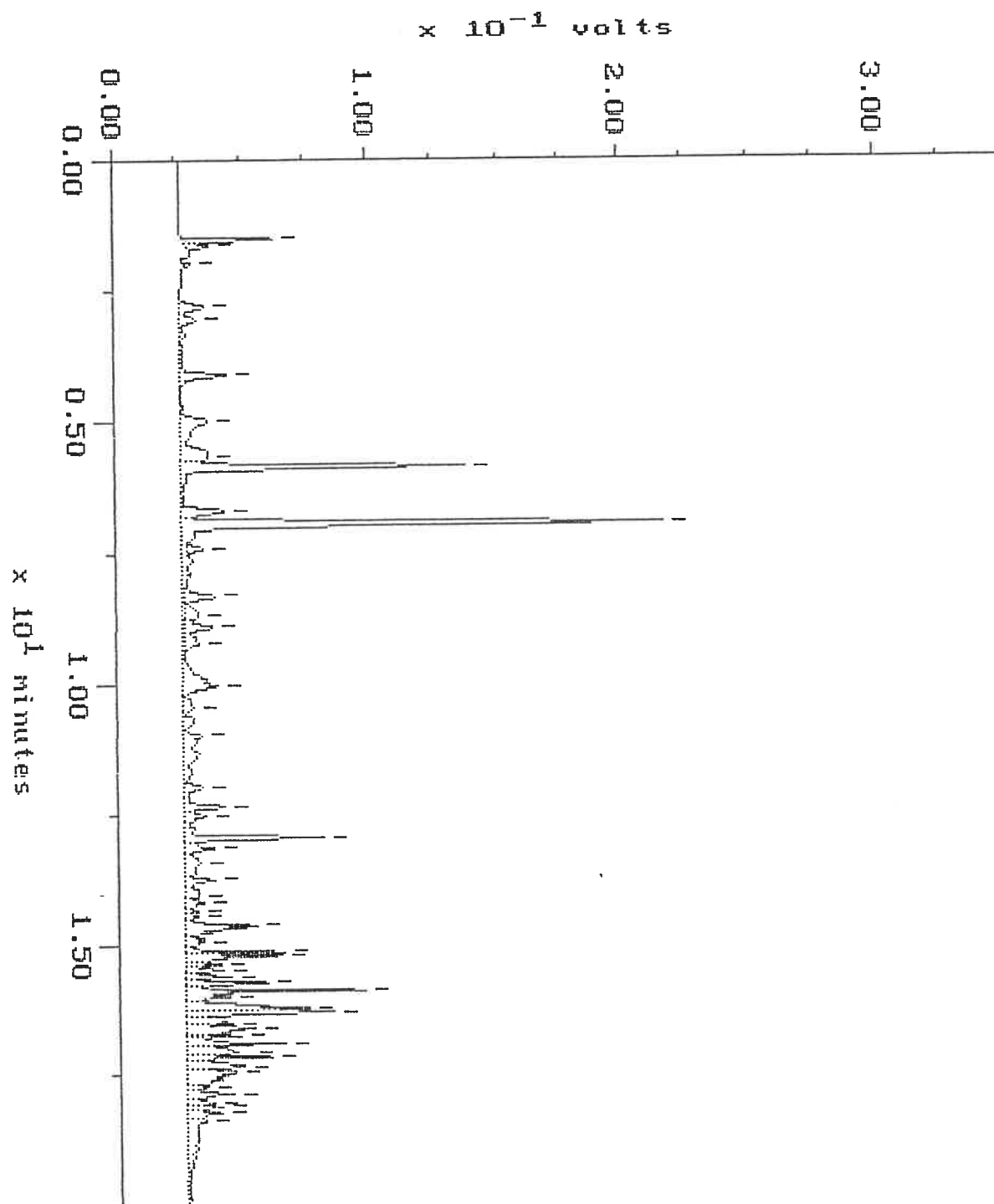
Filename: R9289P11
Operator: ATI



WA DOE WTPH-G

Sample: 9309-246-6 Channel: FID
Acquired: 28-SEP-93 16:31 Method: F:\BR02\MAXDATA\PICARD\092893PC
Comments: ATI FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY.

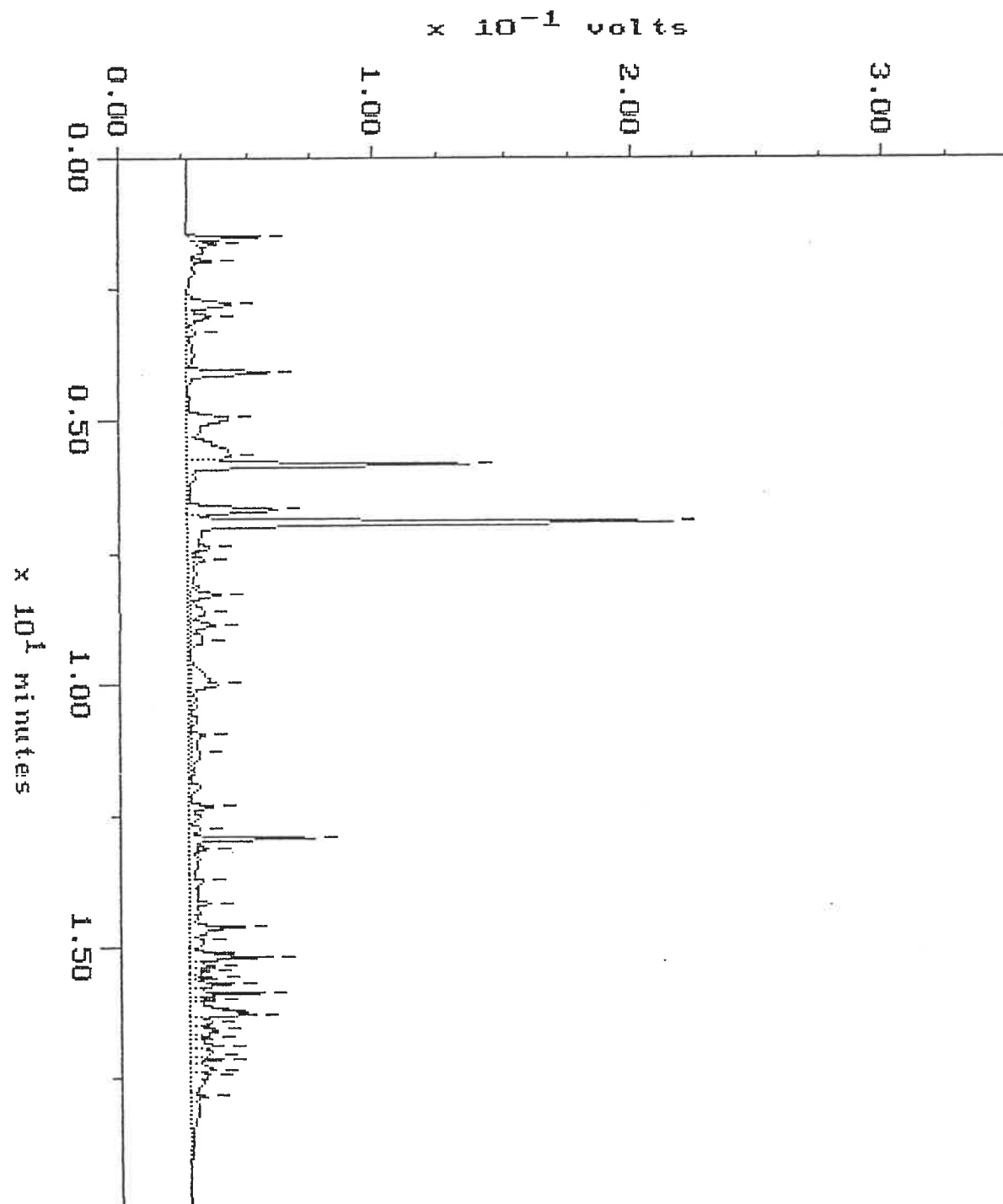
Filename: R9289P12
Operator: ATI



WA DOE WTPH-G

Sample: 9309-246-10 Channel: FID
Acquired: 27-SEP-93 22:13 Method: F:\BRO2\MAXDATA\PICARD\092793PC
Comments: ATI FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY.

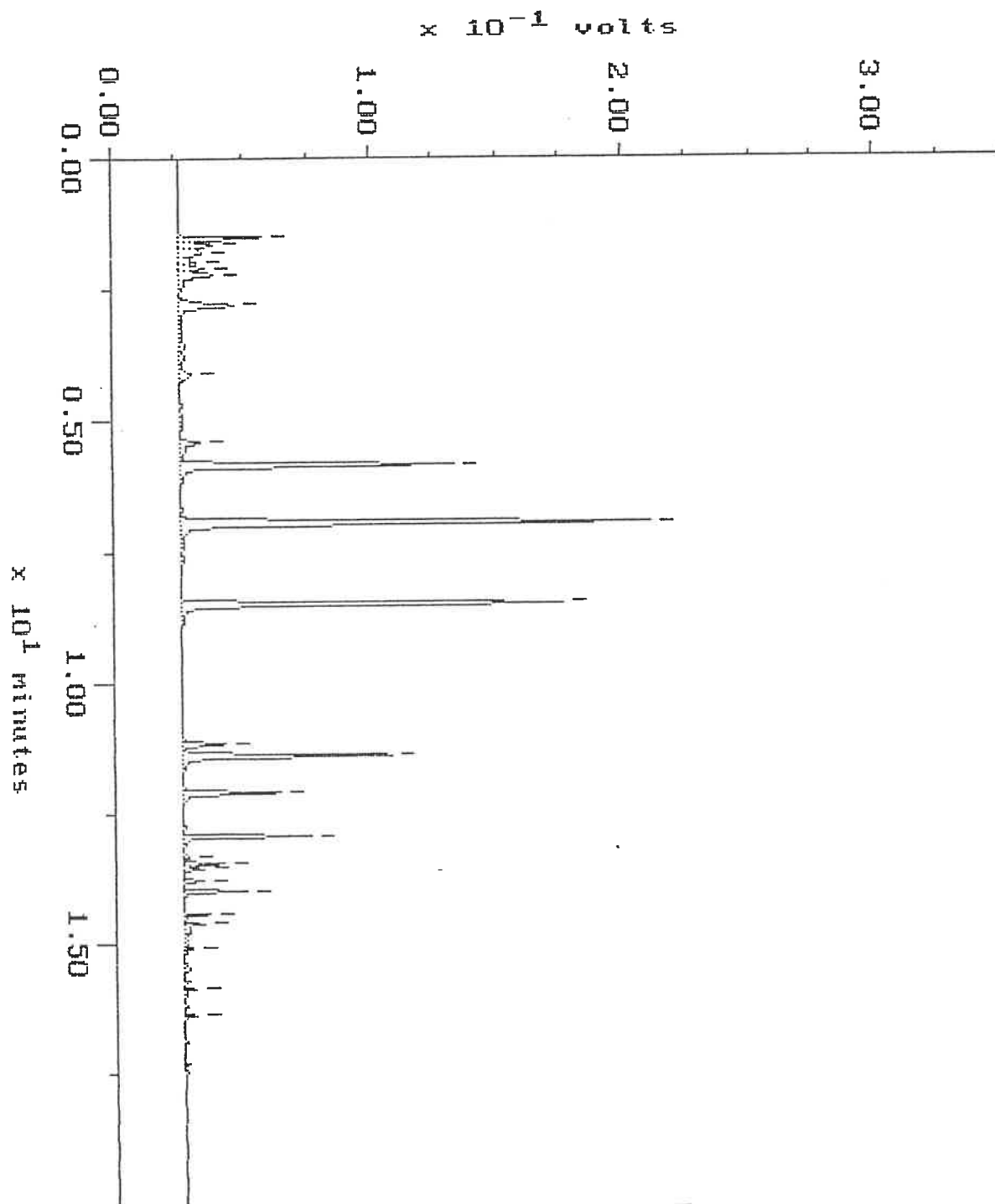
Filename: R9279P27
Operator: ATI



WA DOE WTPH-G

Sample: 9309-246-11 DIL Channel: FID
Acquired: 28-SEP-93 19:05 Method: F:\BR02\MAXDATA\PICARD\092893PC
Dilution: 1 : 100.000
Comments: ATI FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY.

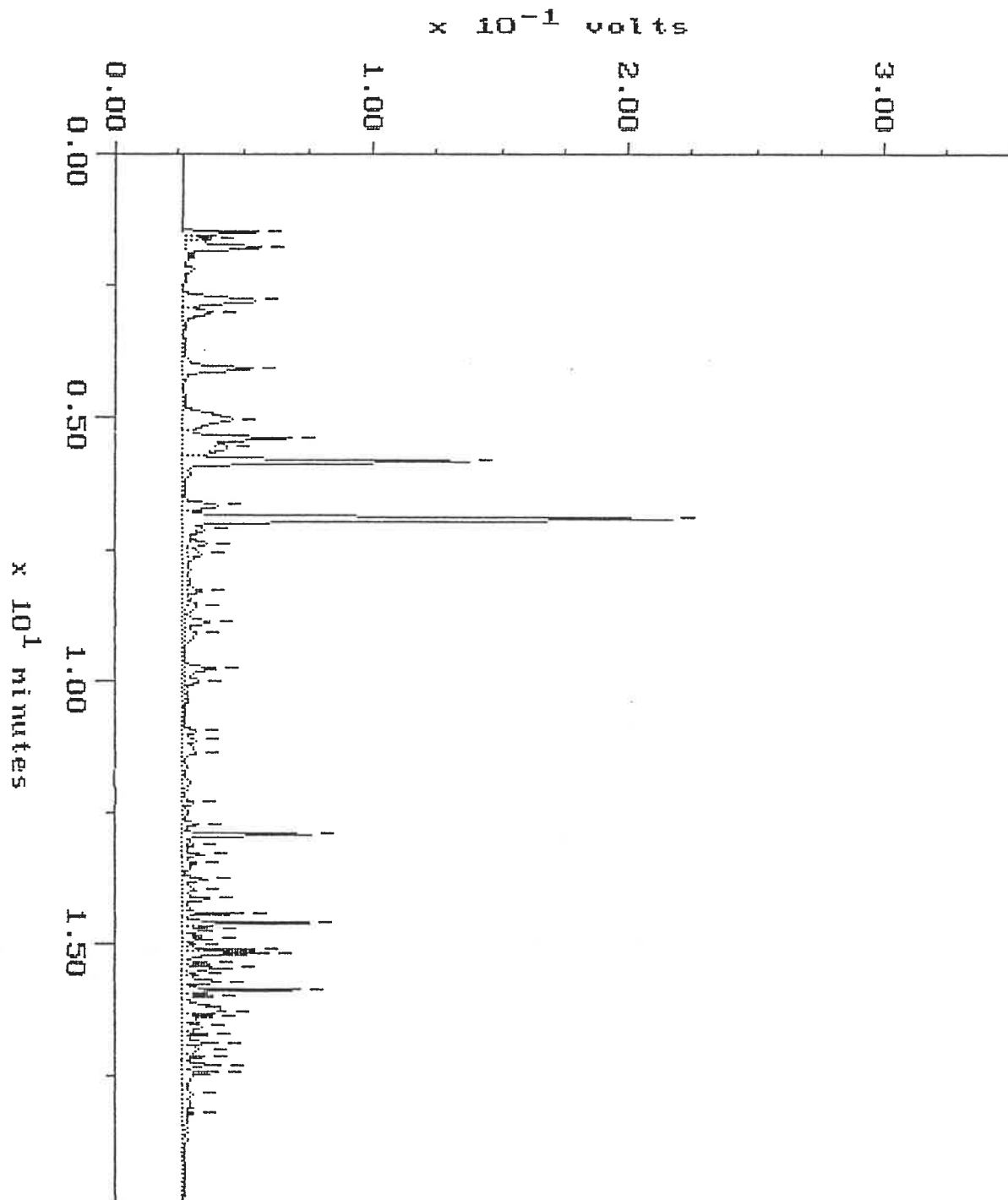
Filename: R9289P17
Operator: ATI



WA DOE WTPH-G

Sample: 9309-246-13 Channel: FID
Acquired: 27-SEP-93 23:14 Method: F:\BRO2\MAXDATA\PICARD\092793PC
Comments: ATI FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY.

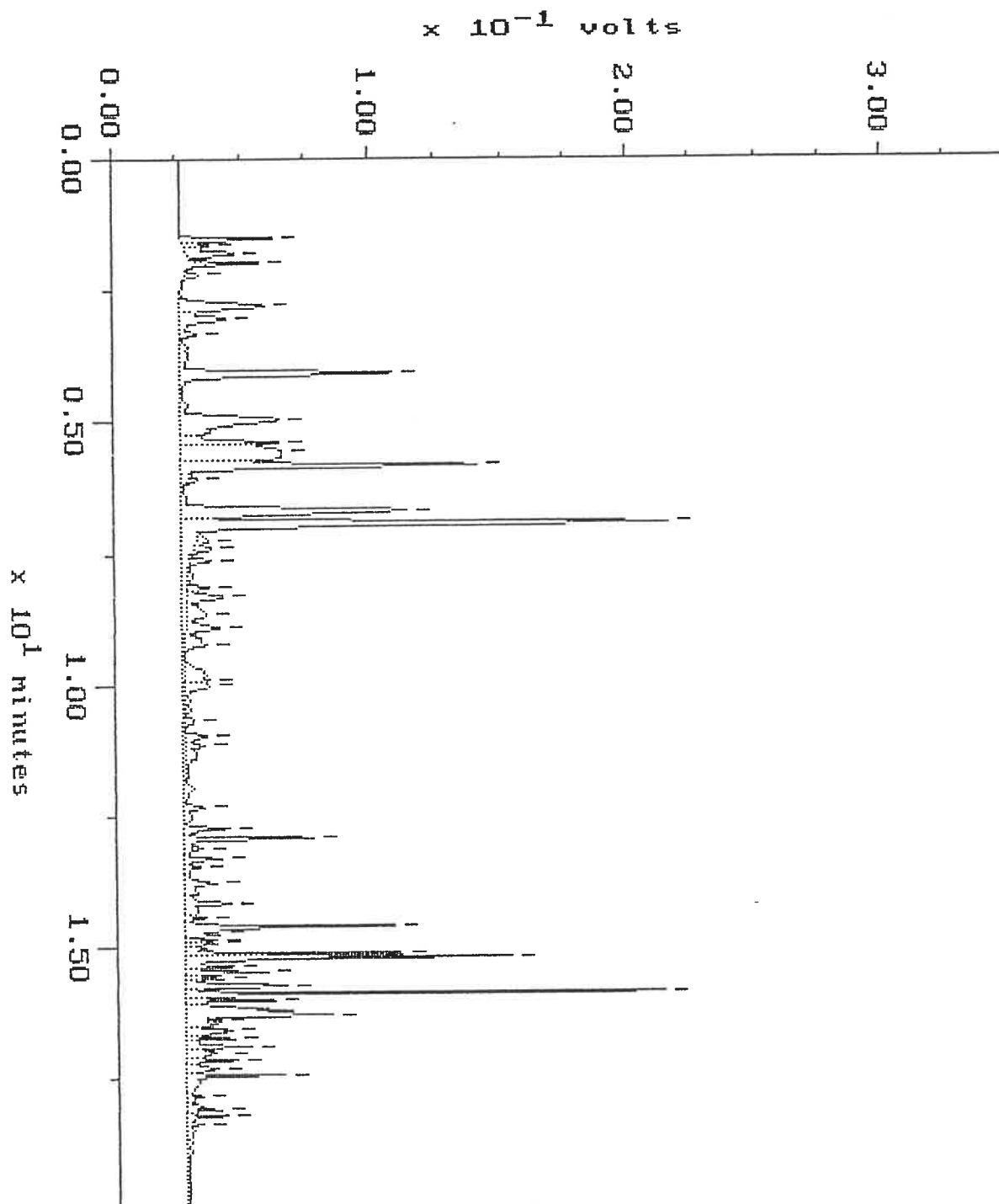
Filename: R9279P29
Operator: ATI



WA DOE WTPH-G

Sample: 9309-246-14 Channel: FID
Acquired: 27-SEP-93 23:45 Method: F:\BRO2\MAXDATA\PICARD\092793PC
Comments: ATI FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY.

Filename: R9279P30
Operator: ATI



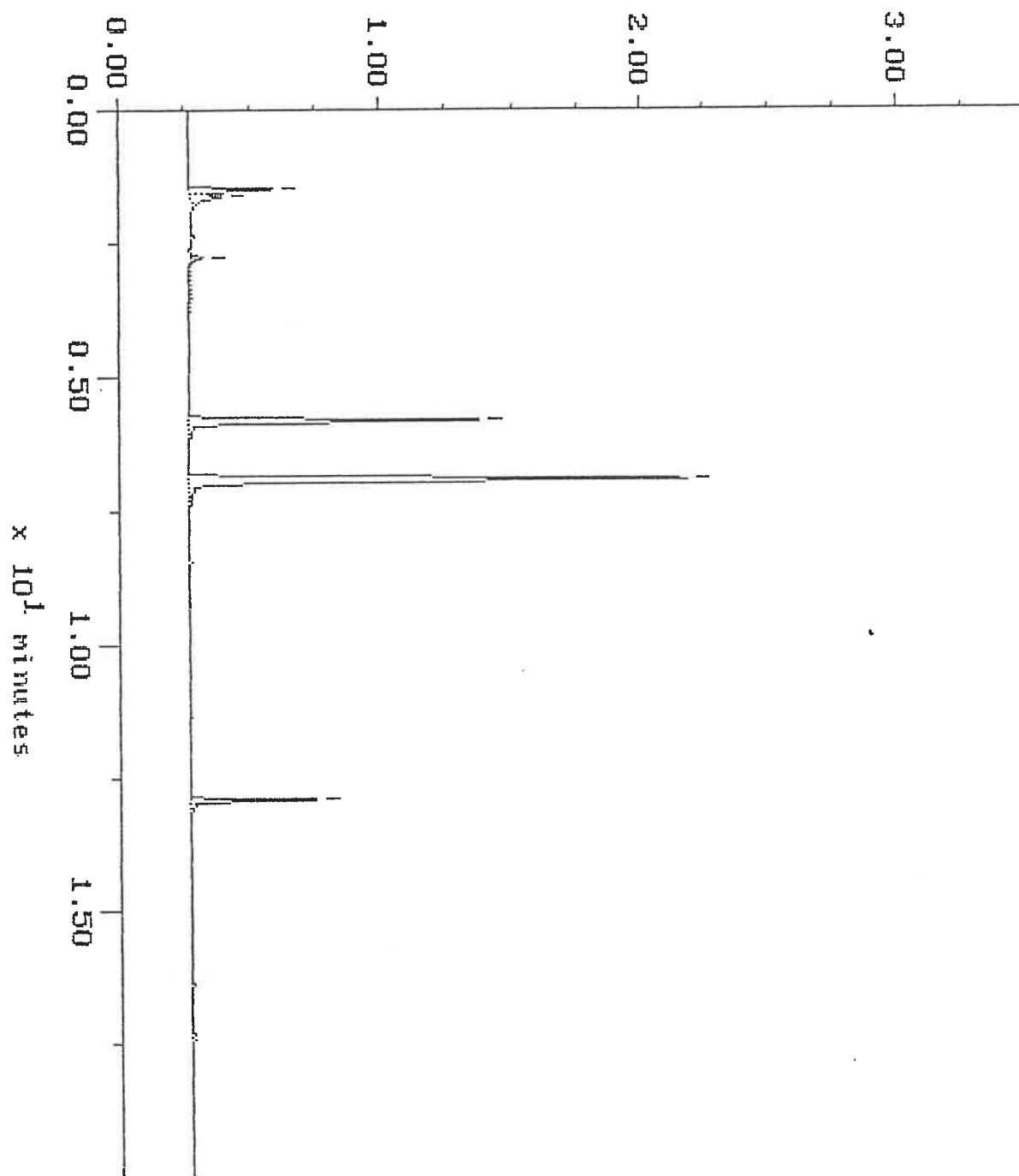
WA DOE WTPH-G

Blank

Sample: WRB 9-27 Channel: FID
Acquired: 27-SEP-93 8:11 Method: F:\BRO2\MAXDATA\PICARD\092793PC
Comments: ATI FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY.

Filename: R9279P02
Operator: ATI

$\times 10^{-1}$ volts

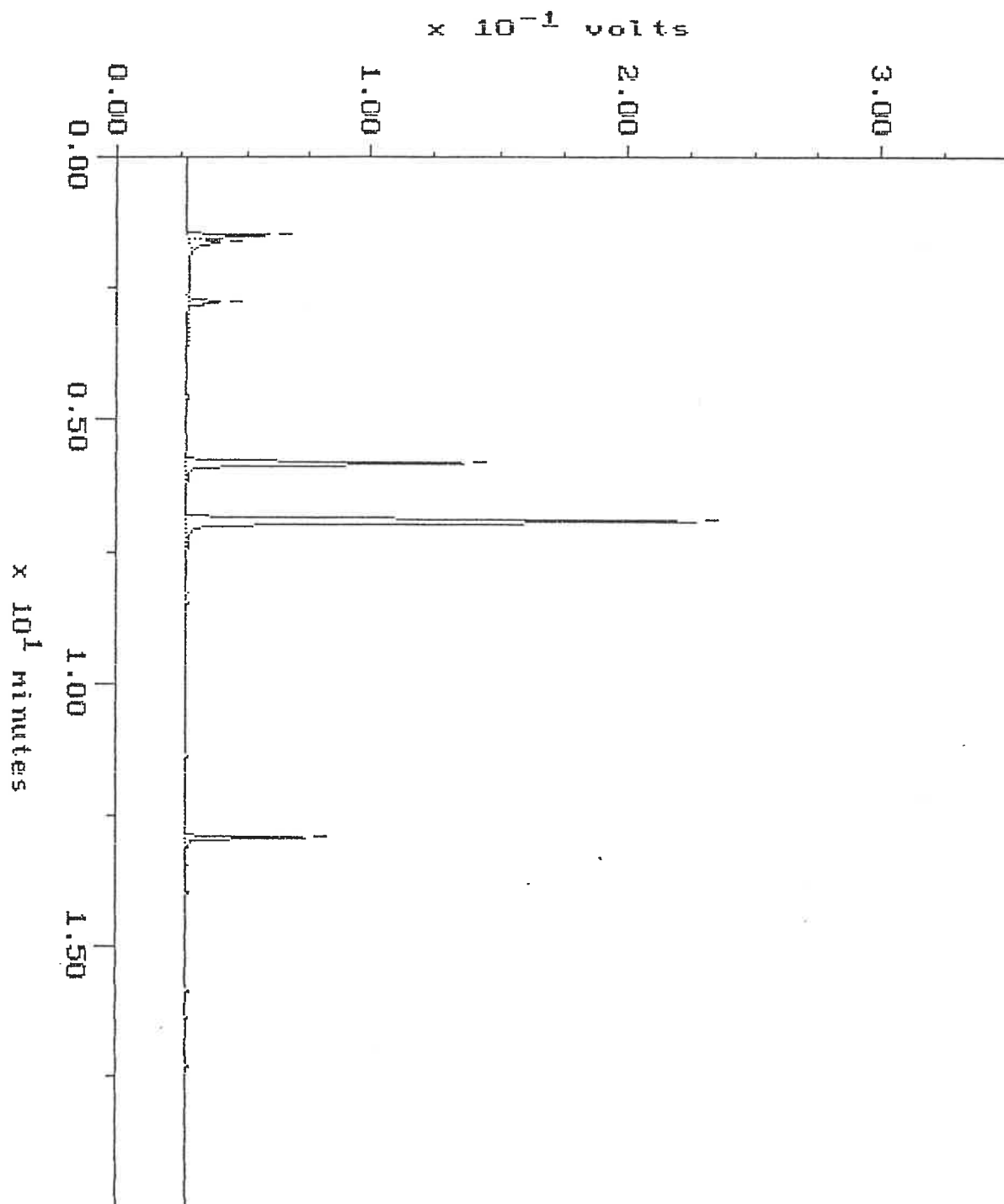


WA DOE WTPH-G

Blank

Sample: WRB 9-28 Channel: FID
Acquired: 28-SEP-93 9:45 Method: F:\BRO2\MAXDATA\PICARD\092893PC
Comments: ATI FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY.

Filename: R9289P01
Operator: ATI

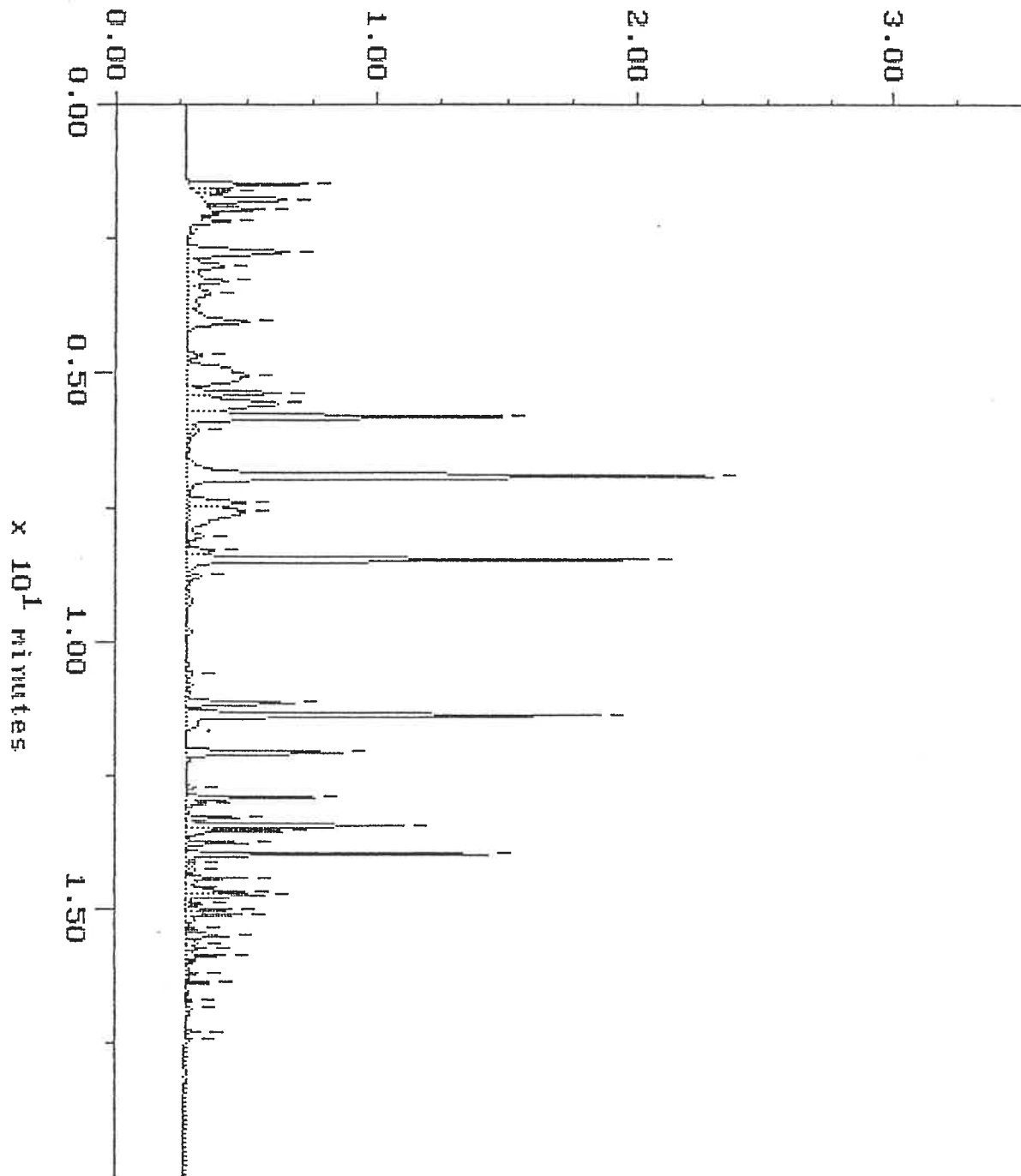


Continuing Calibration

Sample: STD-C 6 Channel: FID
Acquired: 27-SEP-93 7:41 Method: F:\BRO2\MAXDATA\PICARD\092793PC
Comments: ATI FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY.

Filename: R9279P01
Operator: ATI

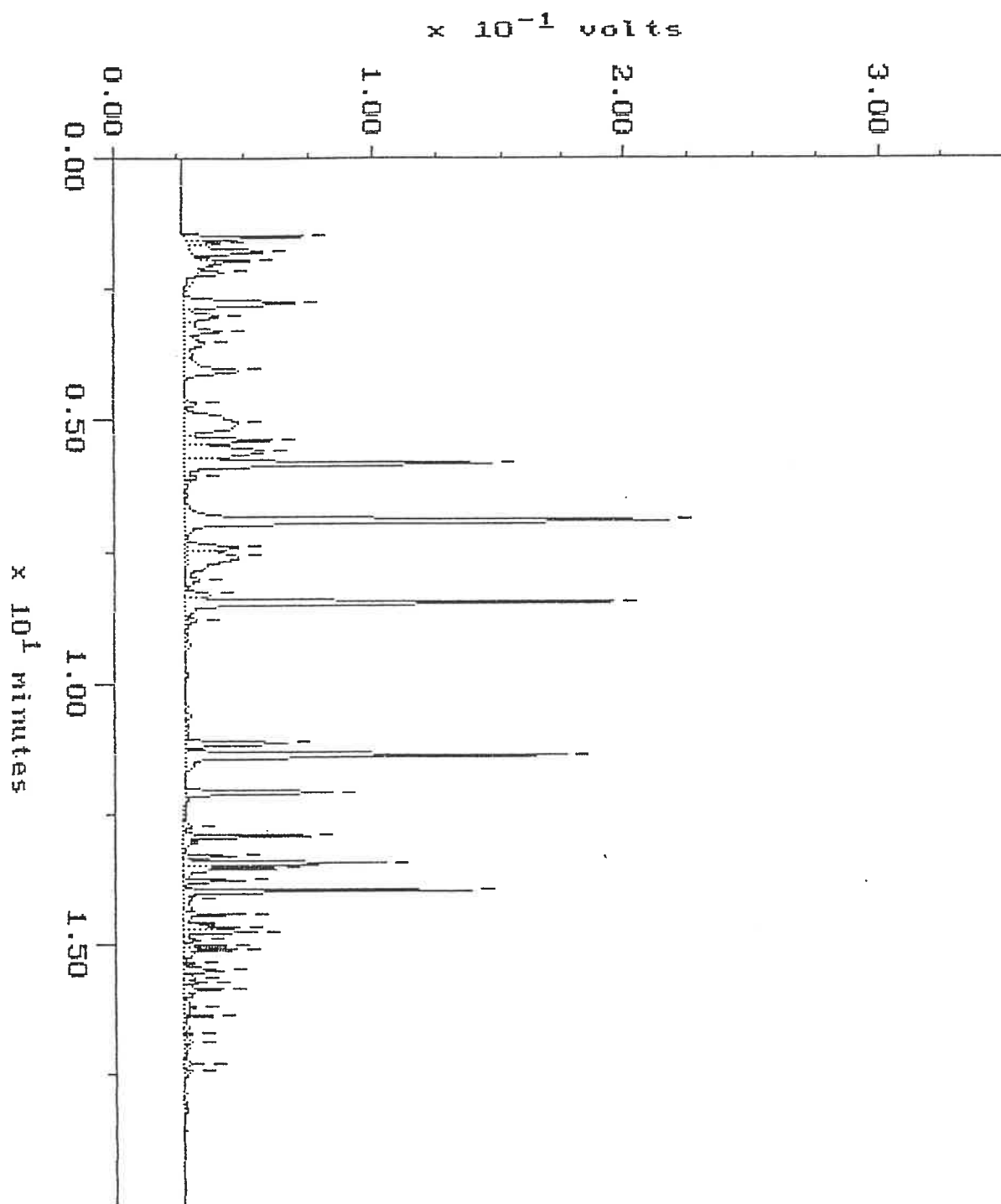
$\times 10^{-1}$ volts



Continuing Calibration

Sample: STD C 6 Channel: FID
Acquired: 28-SEP-93 8:24 Method: F:\BRO2\MAXDATA\PICARD\092793PC
Comments: ATI FUELS: A MISSION OF EXCELLENCE IN ANALYTICAL CHROMATOGRAPHY.

Filename: R9279P47
Operator: ATI

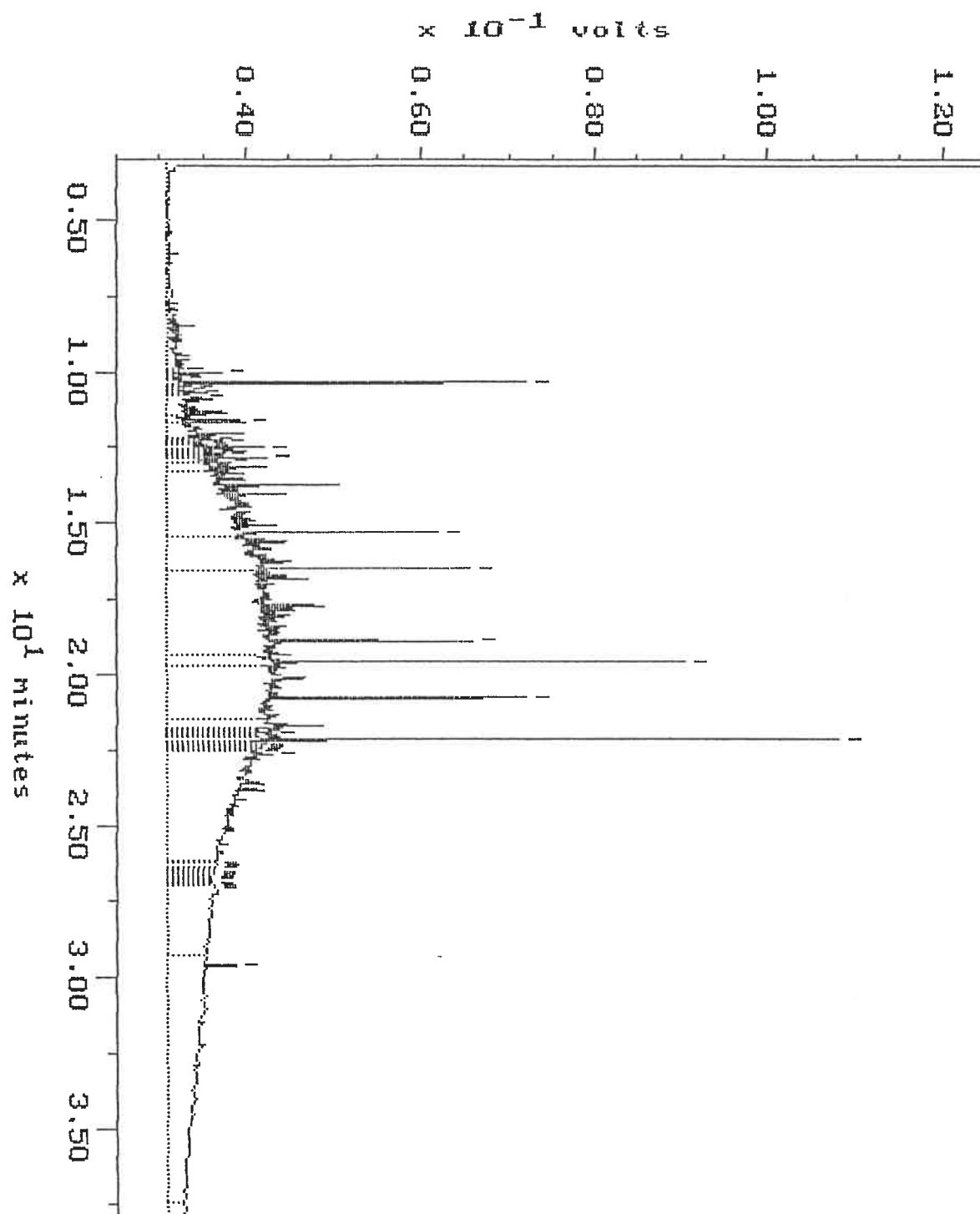


WA DOE WTPH-D

Sample: 9389-246-1DIL
Acquired: 28-SEP-93 18:22
Dilution: 1 : 10.000
Comments: ATI RUSH FUELS: PROVIDERS OF EXCELLENCE AND QUALITY IN CLIENT SERVICE

Channel: NANCY
Method: F:\BRO2\MAXDATA\NANCY\FUEL0928

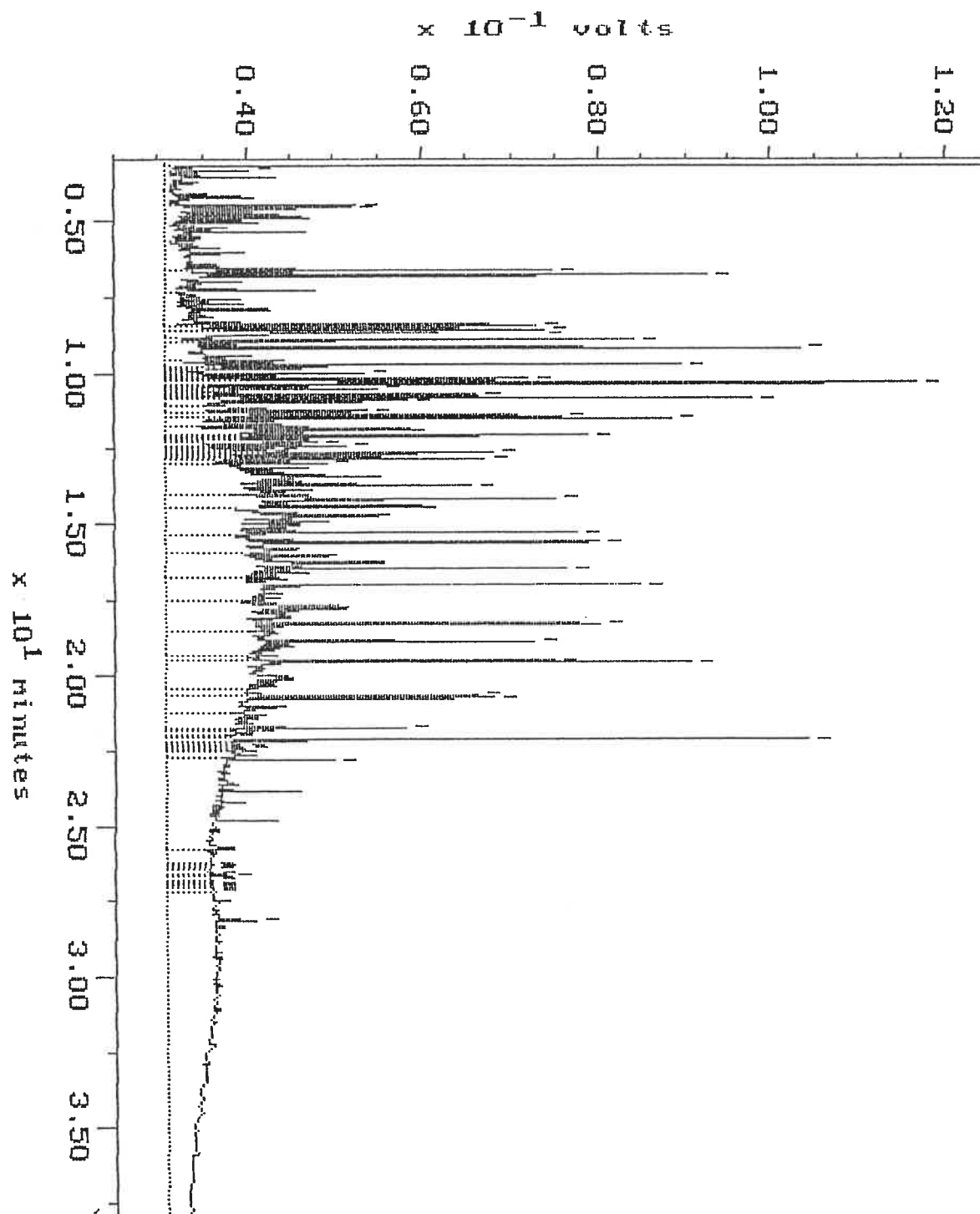
Filename: R9288N05
Operator: ATI



Sample: 9309-246-2DIL
Acquired: 28-SEP-93 19:10
Dilution: 1 : 10.000
Comments: ATI RUSH FUELS:PROVIDERS OF EXCELLENCE AND QUALITY IN CLIENT SERVICE

Channel: NANCY
Method: F:\BRO2\MAXDATA\NANCY\FUEL0928

Filename: R9288N06
Operator: ATI



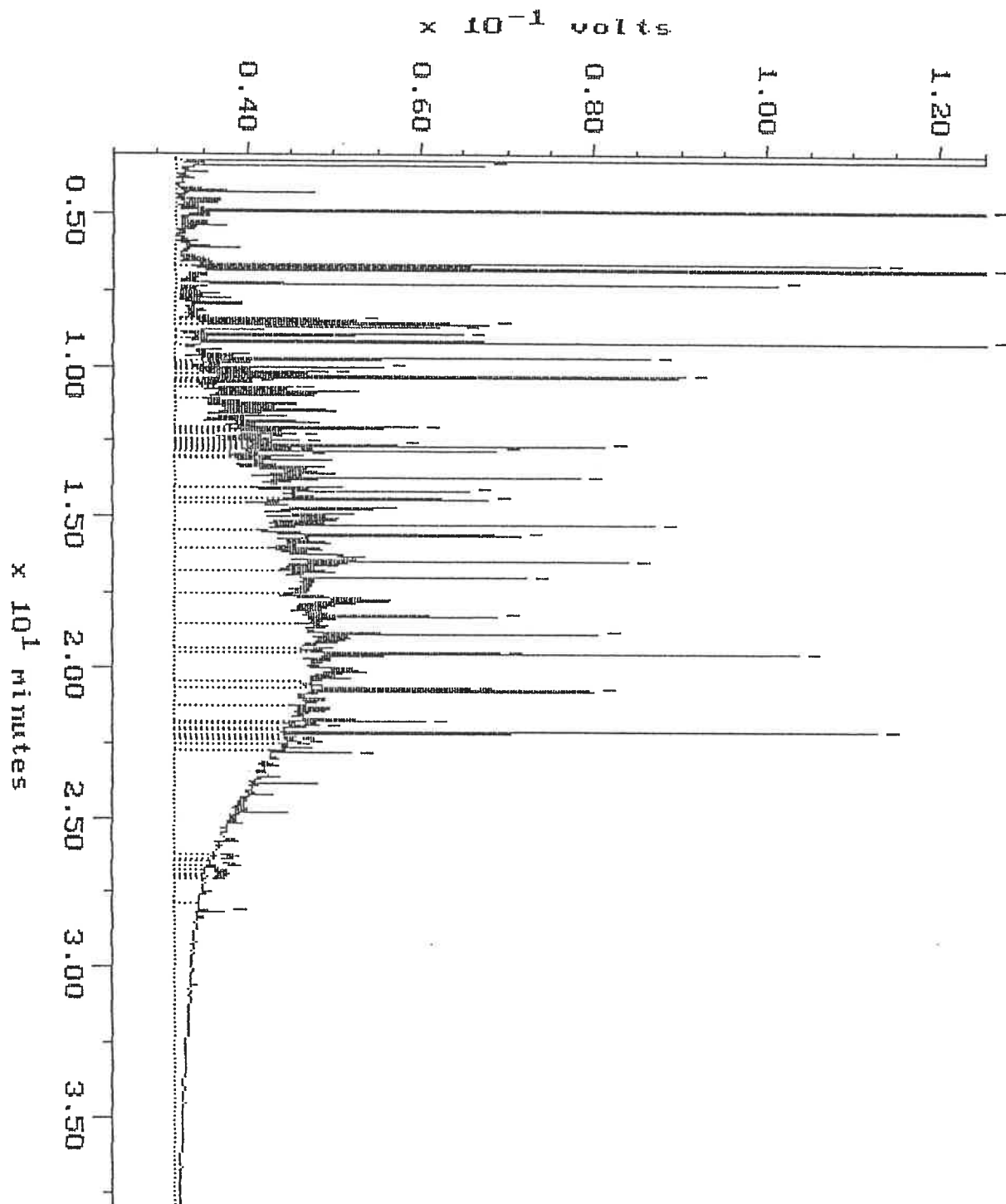
WA DOE WTPH-D

Sample: 9309-246-3DIL
Acquired: 29-SEP-93 10:49
Dilution: 1 : 10.000

Channel: NANCY
Method: F:\ER02\MAXDATA\NANCY\FUEL0928

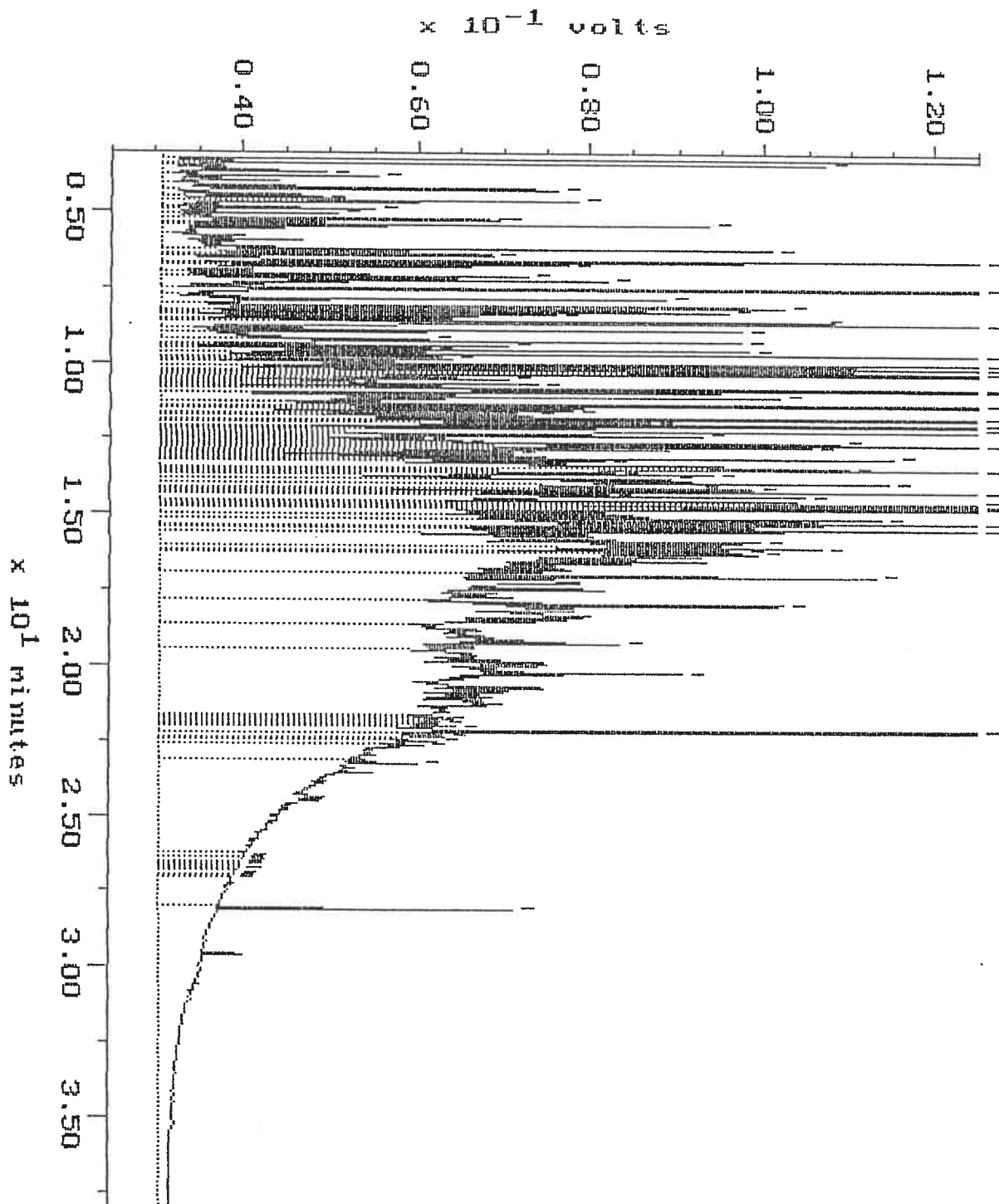
Filename: R9280N24
Operator: ATI

Comments: ATI RUSH FUELS: PROVIDERS OF EXCELLENCE AND QUALITY IN CLIENT SERVICE



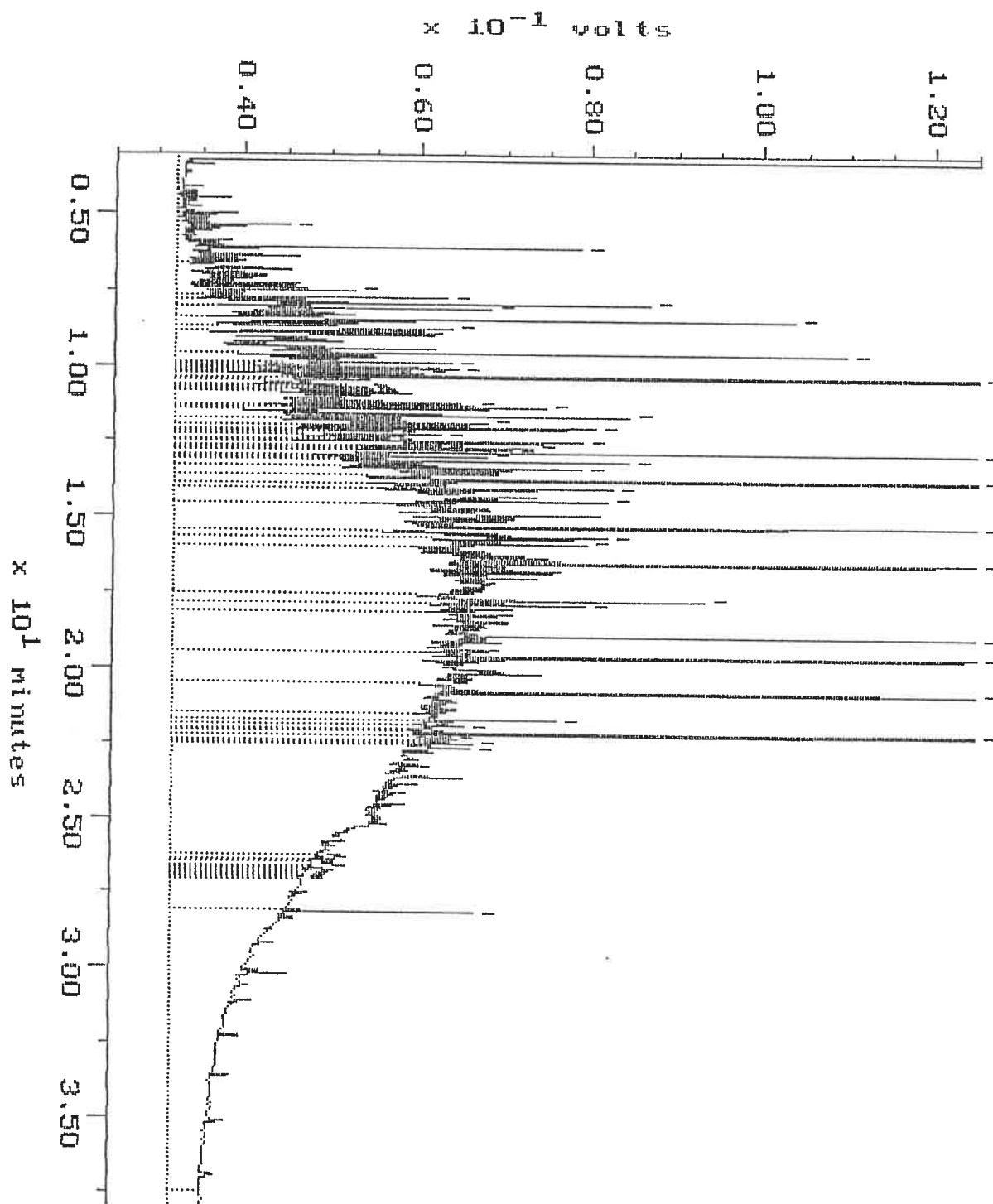
WA DOE WTPH-D

Sample: 9309-246-5 Channel: NANCY
Acquired: 27-SEP-93 18:25 Method: F:\BR02\MAXDATA\NANCY\FUEL0927
Comments: ATI RUSH FUELS: PROVIDERS OF EXCELLENCE AND QUALITY IN CLIENT SERVICE
Filename: R9278N08
Operator: ATI



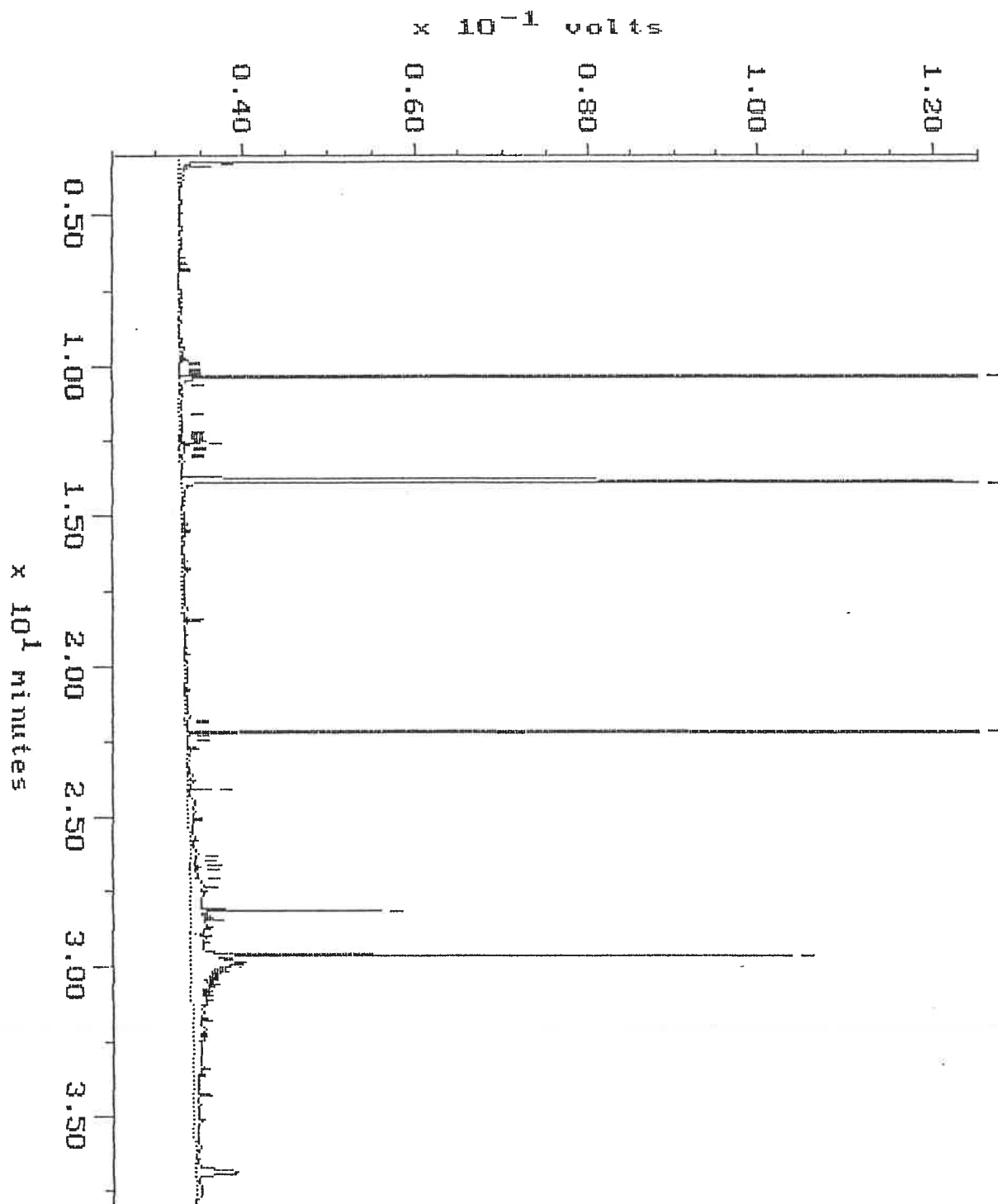
WA DOE WTPH-D

Sample: 9309-246-6 Channel: NANCY
Acquired: 28-SEP-93 3:47 Method: F:\BRO2\MAXDATA\NANCY\FUEL0927
Comments: ATI RUSH FUELS: PROVIDERS OF EXCELLENCE AND QUALITY IN CLIENT SERVICE
Filename: R9278N20
Operator: ATI



WA DOE WTPH-D

Sample: 9389-246-7 Channel: NANCY Filename: R9278N21
Acquired: 28-SEP-93 4:34 Method: F:\BRO2\MAXDATA\NANCY\FUEL0927 Operator: ATI
Comments: ATI RUSH FUELS: PROVIDERS OF EXCELLENCE AND QUALITY IN CLIENT SERVICE

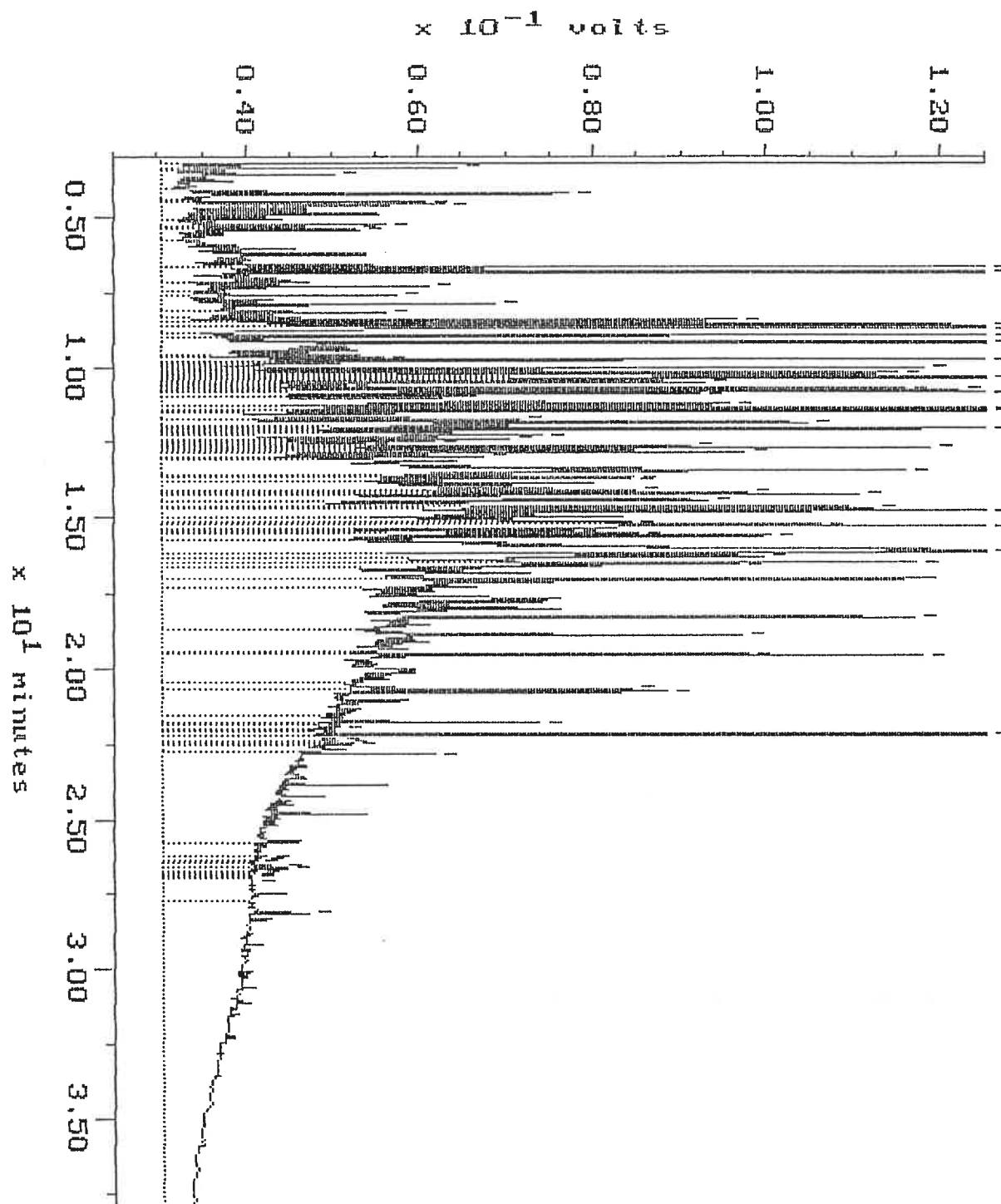


Sample: 9309-246-8DIL
Acquired: 28-SEP-93 16:47
Dilution: 1 : 2.000

Channel: NANCY
Method: F:\BR02\NAXDATA\NANCY\FUEL0928

Filename: R9288H03
Operator: ATI

Comments: ATI RUSH FUELS: PROVIDERS OF EXCELLENCE AND QUALITY IN CLIENT SERVICE



WA DOE WTPH-D

Sample: 9309-246-9

Channel: NANCY

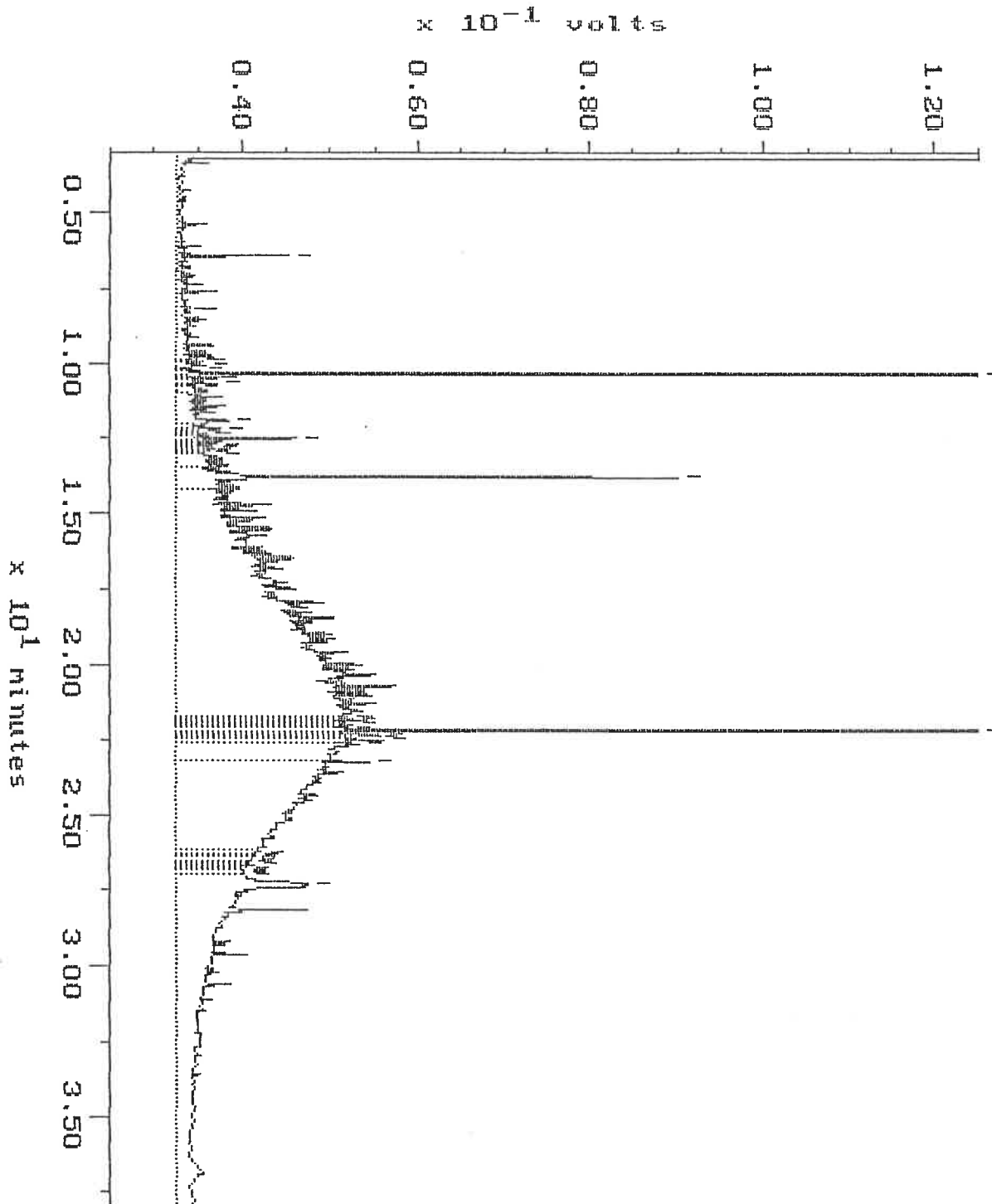
Filename: R9278N23

Acquired: 28-SEP-93 6:06

Method: F:\BRO2\MAXDATA\NANCY\FUEL8927

Operator: ATI

Comments: ATI RUSH FUELS: PROVIDERS OF EXCELLENCE AND QUALITY IN CLIENT SERVICE

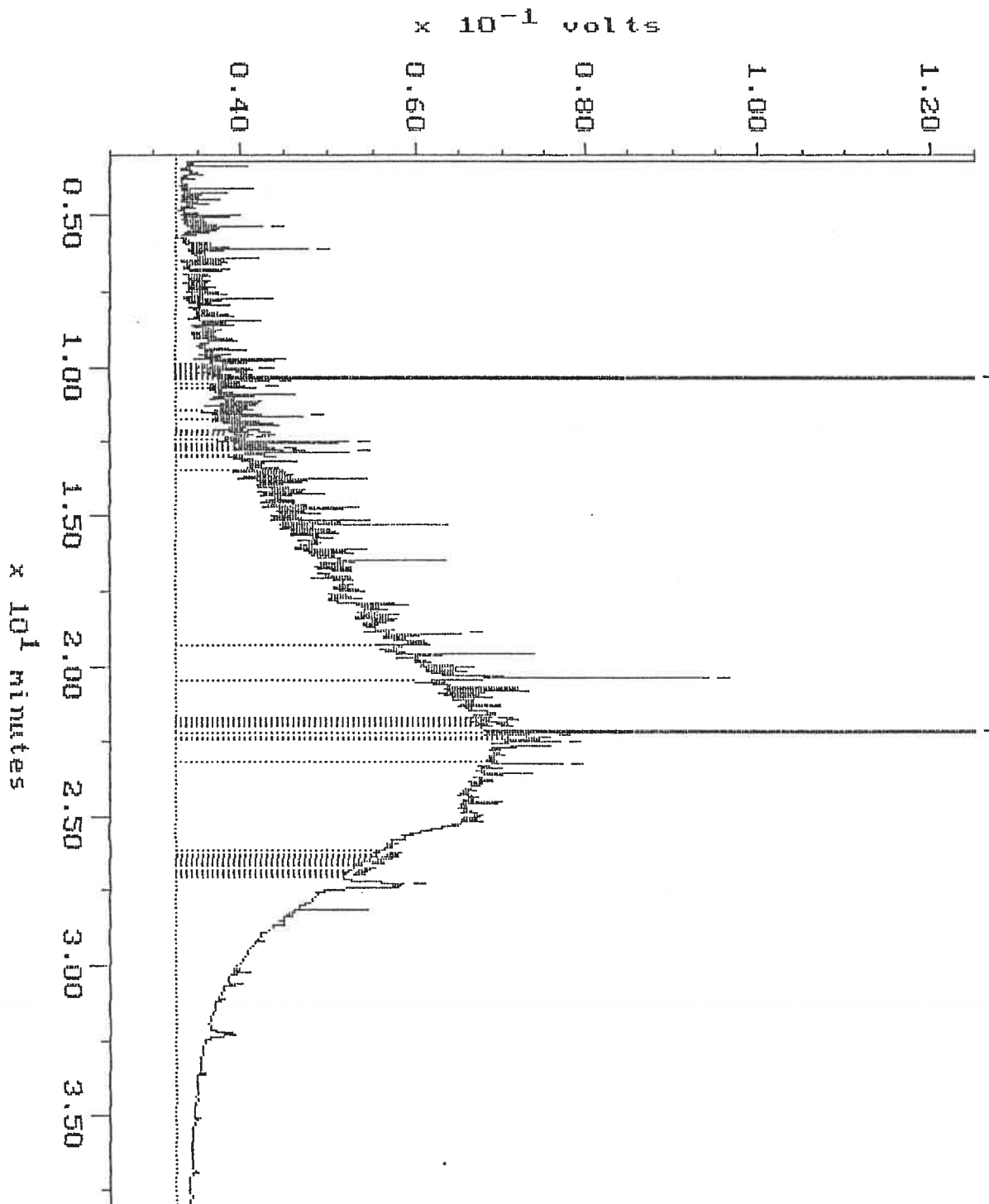


WA DOE WTPH-D

Sample: 9389-246-18
Acquired: 28-SEP-93 6:53
Comments: ATI RUSH FUELS: PROVIDERS OF EXCELLENCE AND QUALITY IN CLIENT SERVICE

Channel: NANCY
Method: F:\BR02\MAXDATA\NANCY\FUEL0927

Filename: R9278N24
Operator: ATI



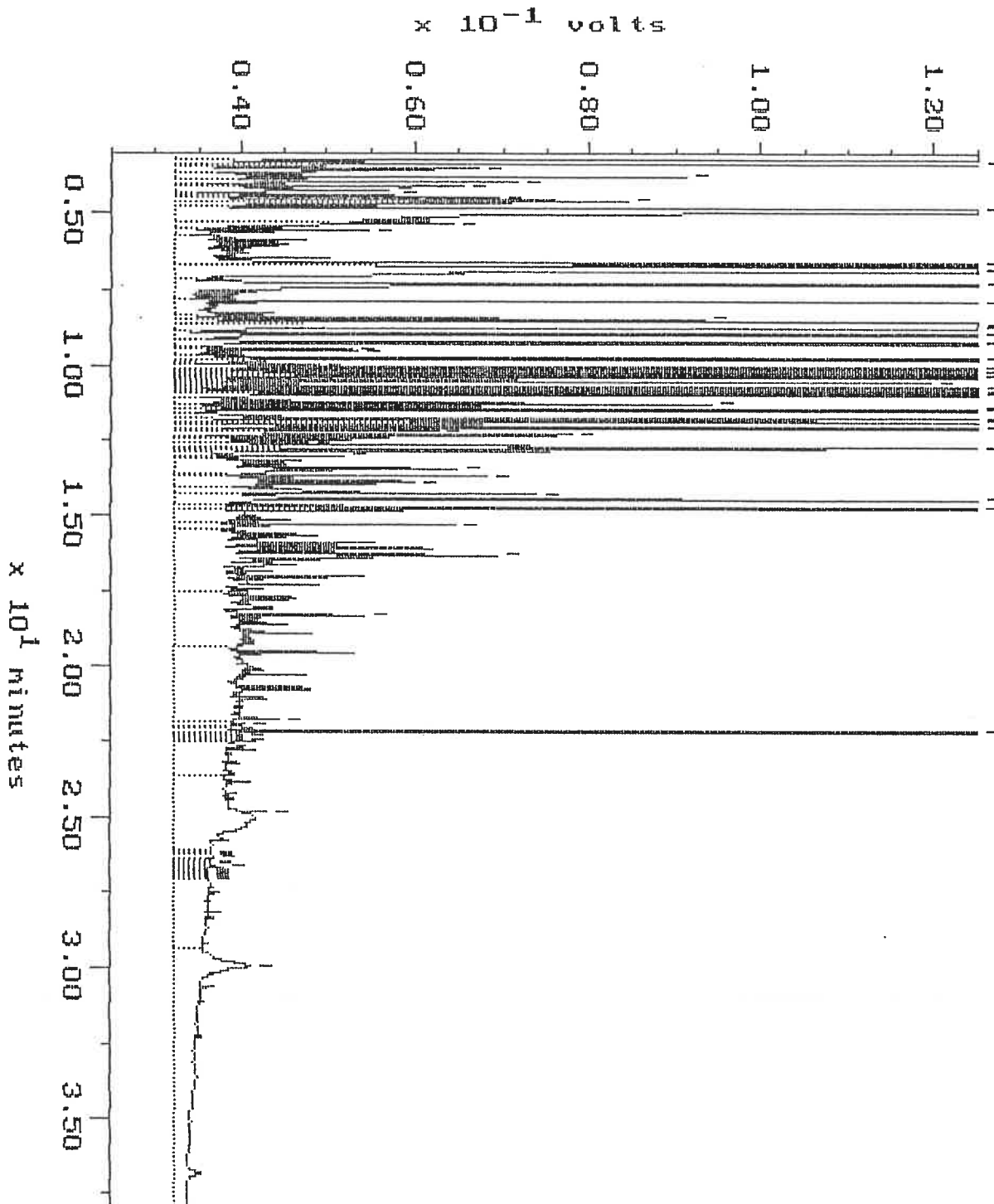
WA DOE WTPH-D

Sample: 9309-246-11
Acquired: 28-SEP-93 7:48

Channel: NANCY
Method: F:\BRO2\MAXDATA\NANCY\FUEL0927

Filename: R9278N25
Operator: ATI

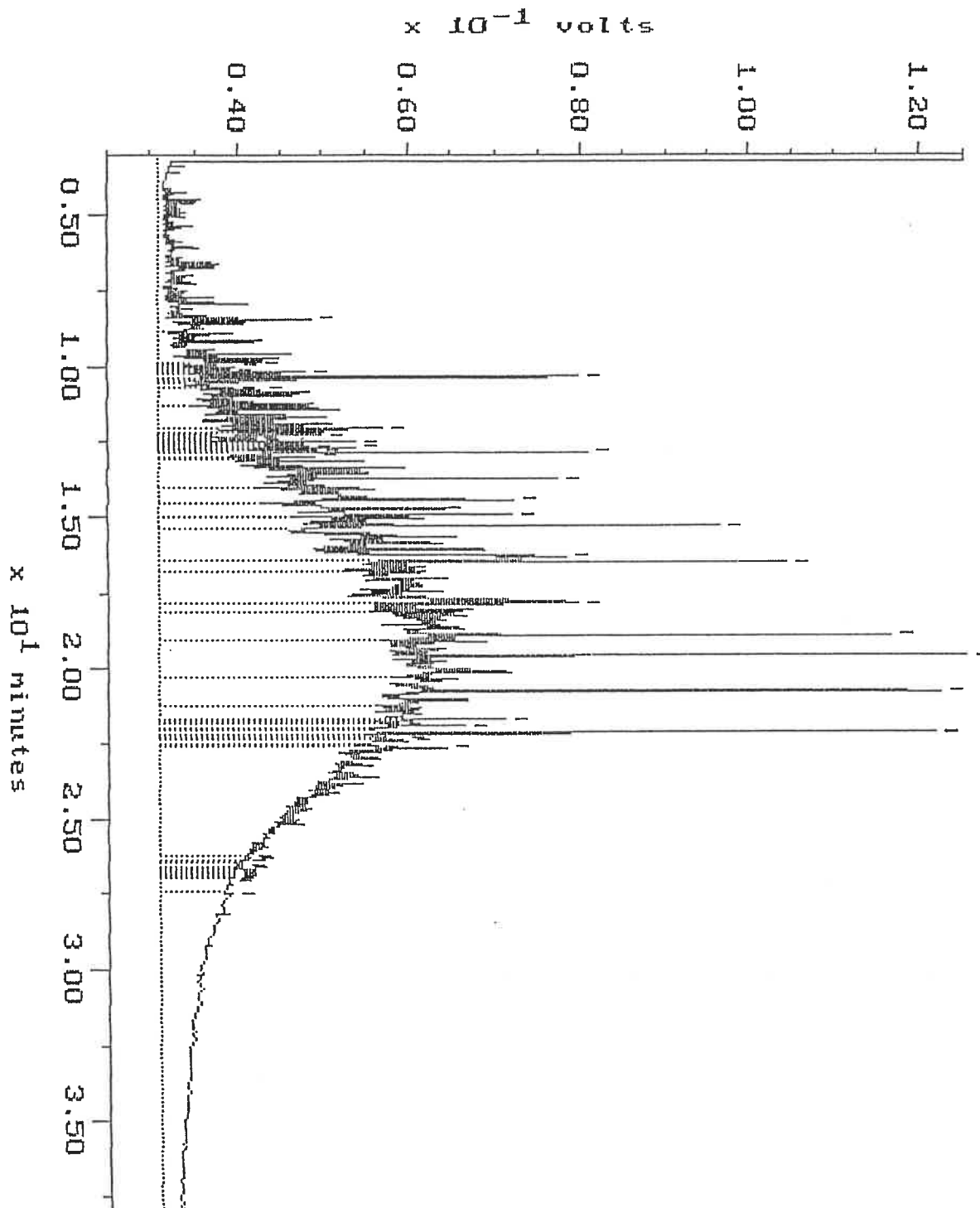
Comments: ATI RUSH FUELS: PROVIDERS OF EXCELLENCE AND QUALITY IN CLIENT SERVICE



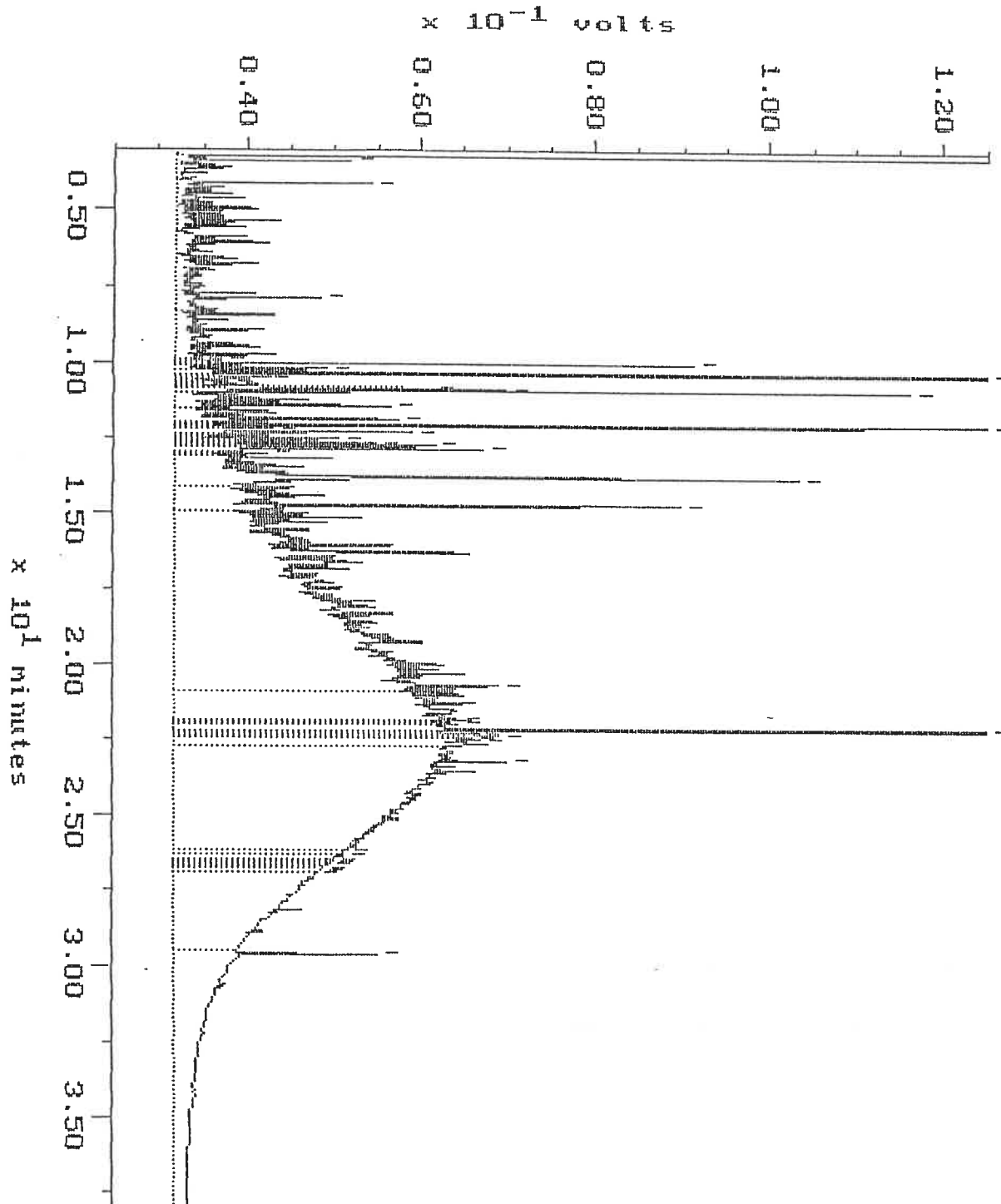
WA DOE WTPH-D

Sample: 9309-246-13DIL Channel: NANCY
Acquired: 28-SEP-93 20:44 Method: F:\BR02\MAXDATA\NANCY\FUEL0928
Dilution: 1 : 20.000
Comments: ATI RUSH FUELS: PROVIDERS OF EXCELLENCE AND QUALITY IN CLIENT SERVICE

Filename: R9288N08
Operator: ATI

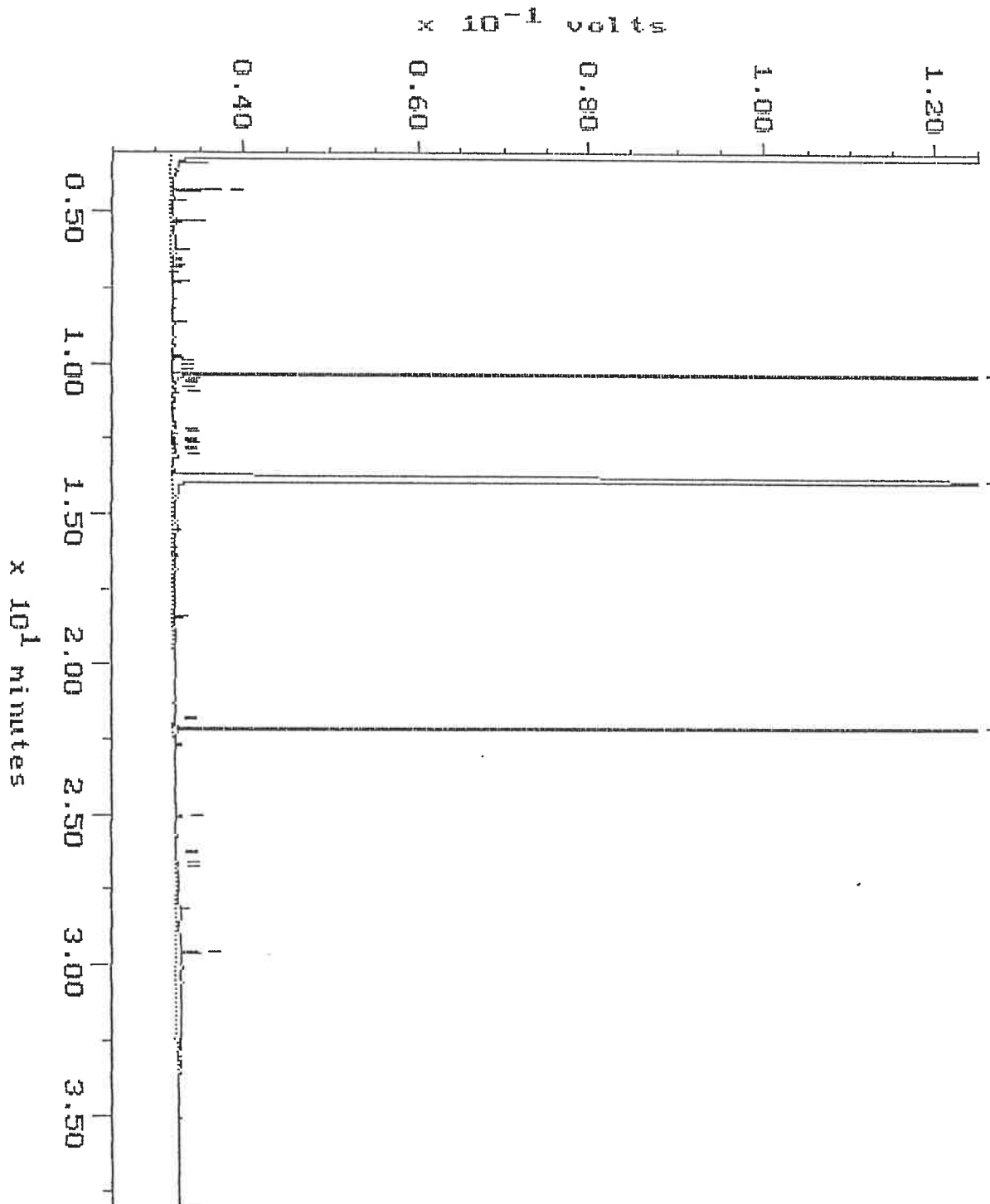


Sample: 9309-246-14 Channel: NANCY
 Acquired: 28-SEP-93 10:49 Method: F:\BRO2\MAXDATA\NANCY\FUEL0927
 Comments: ATI RUSH FUELS: PROVIDERS OF EXCELLENCE AND QUALITY IN CLIENT SERVICE
 Filename: R9270N29
 Operator: ATI



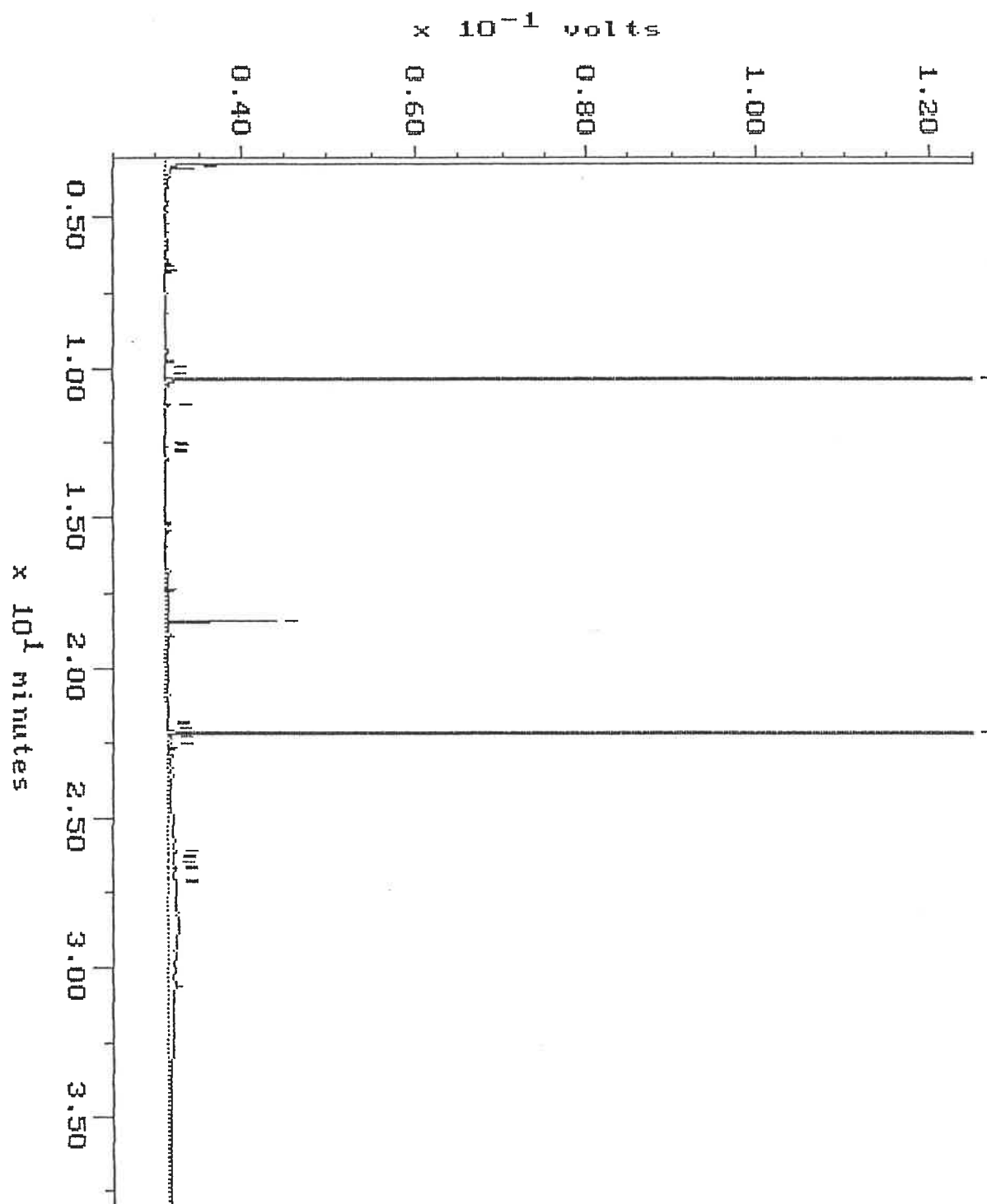
WA DOE WTPH-D

Sample: 9309-246-15 Channel: NANCY
Acquired: 28-SEP-93 11:36 Method: F:\BRO2\MAXDATA\NANCY\FUEL0927
Comments: ATI RUSH FUELS: PROVIDERS OF EXCELLENCE AND QUALITY IN CLIENT SERVICE
Filename: R3278N38
Operator: ATI



Blank

Sample: WRB 9-25 Channel: NANCY Filename: R9278H05
Acquired: 27-SEP-93 16:03 Method: F:\BRO2\MAXDATA\NANCY\FUEL0927 Operator: ATI
Comments: ATI RUSH FUELS: PROVIDERS OF EXCELLENCE AND QUALITY IN CLIENT SERVICE



Continuing Calibration

Sample: D 5003

Channel: NANCY

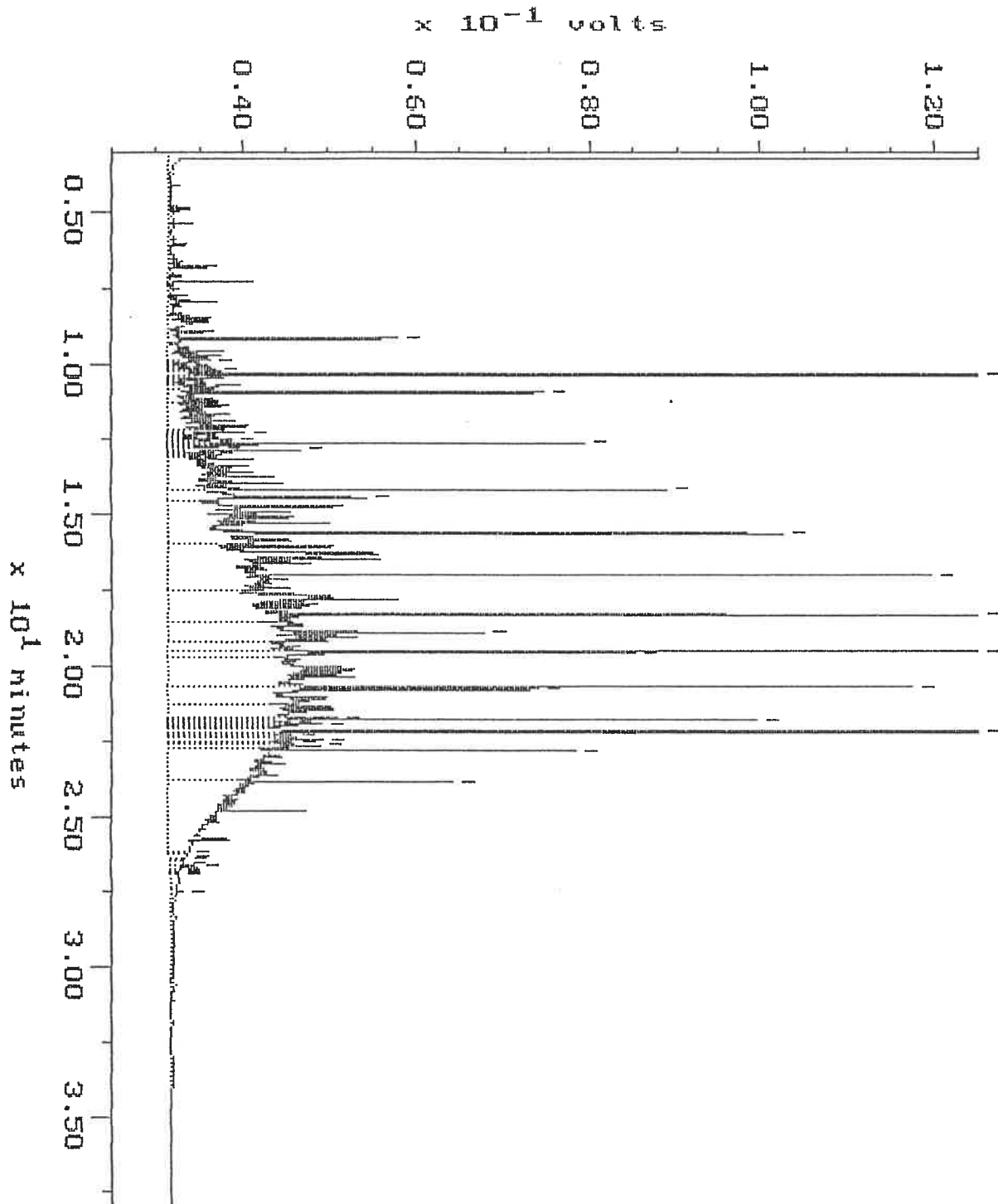
Filename: R9278N03

Acquired: 27-SEP-93 14:05

Method: F:\BR02\MAXDATA\NANCY\FUEL0927

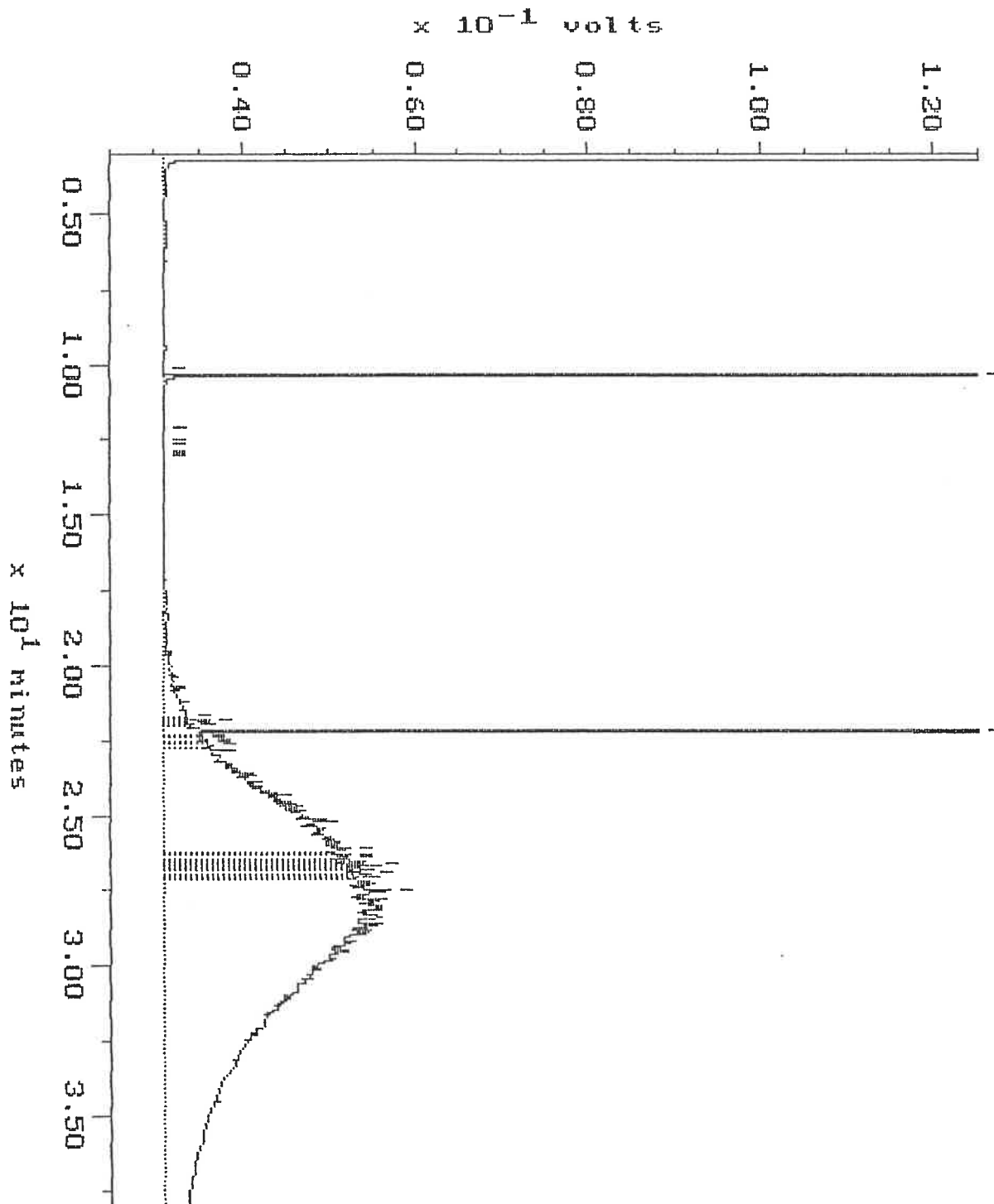
Operator: ATI

Comments: ATI RUSH FUELS: PROVIDERS OF EXCELLENCE AND QUALITY IN CLIENT SERVICE



Continuing Calibration

Sample: MD 500 Channel: NANCY Filename: R9278N04
Acquired: 27-SEP-93 14:52 Method: F:\BRO2\MAXDATA\NANCY\FUEL0927 Operator: ATI
Comments: ATI RUSH FUELS: PROVIDERS OF EXCELLENCE AND QUALITY IN CLIENT SERVICE



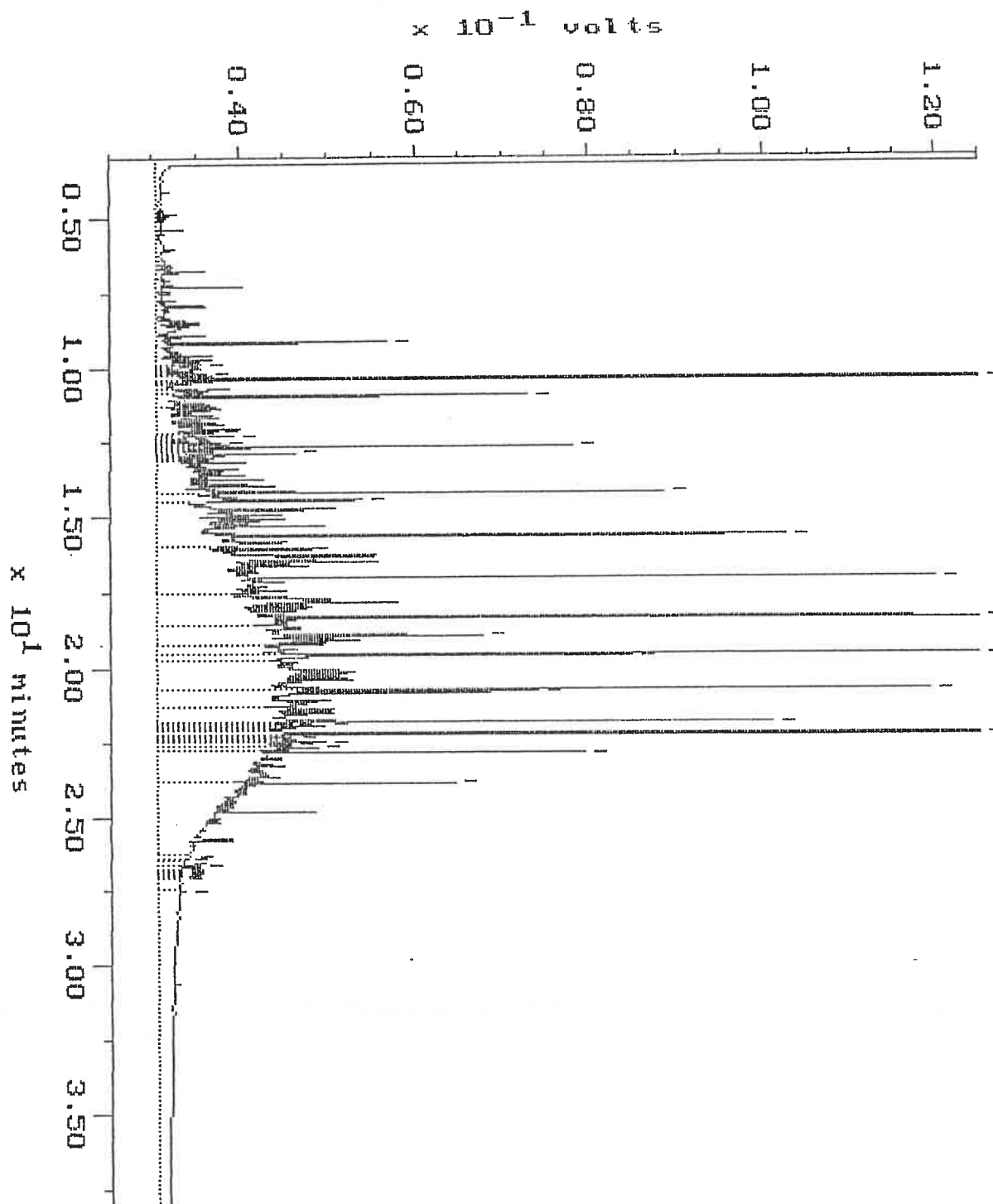
Continuing Calibration

Sample: D 500
Acquired: 26-SEP-93 15:12

Channel: NANCY
Method: F:\BK02\MAXDATA\NANCY\FUEL0928

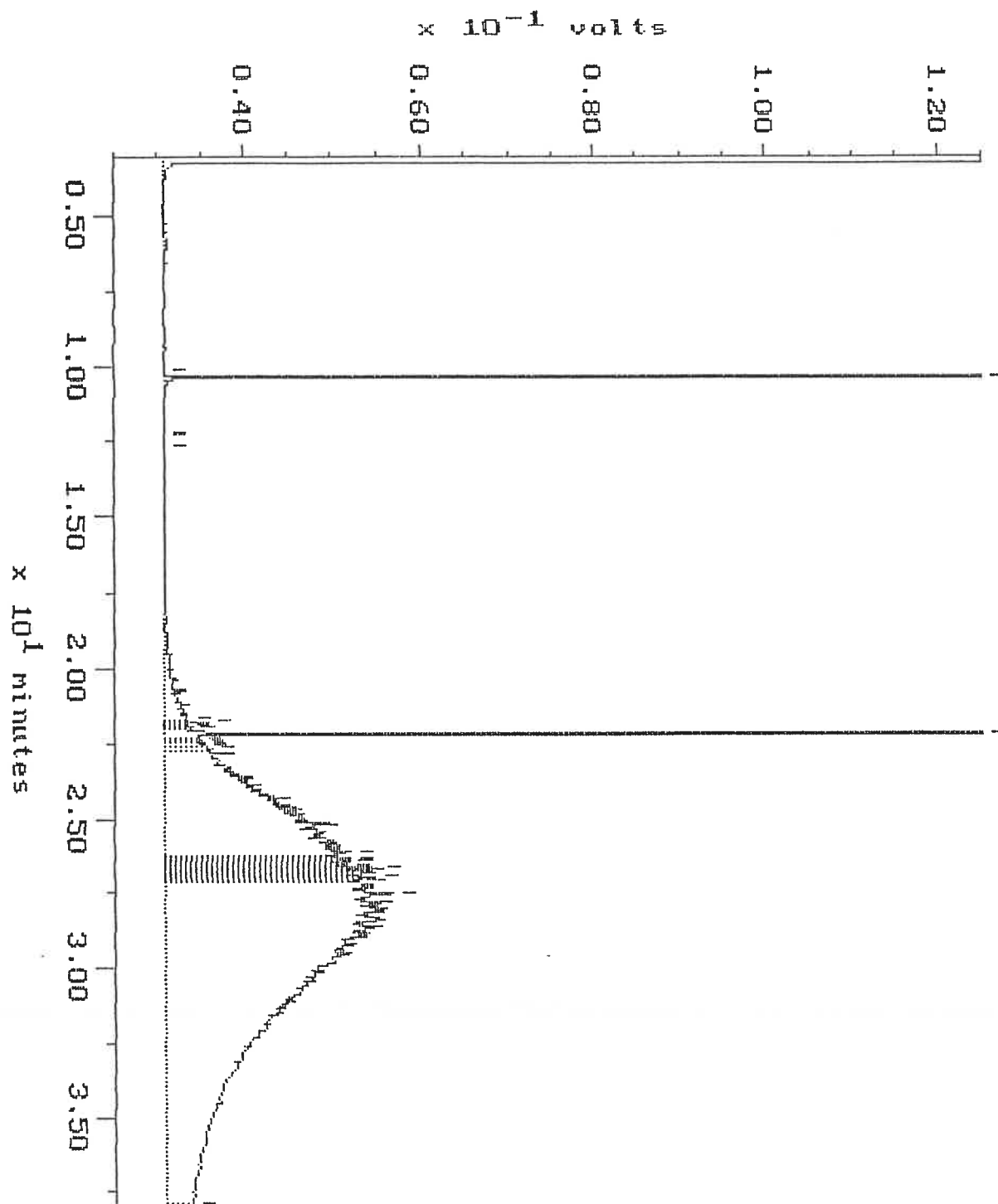
Filename: R3288N01
Operator: ATI

Comments: ATI RUSH FUELS: PROVIDERS OF EXCELLENCE AND QUALITY IN CLIENT SERVICE



Continuing Calibration

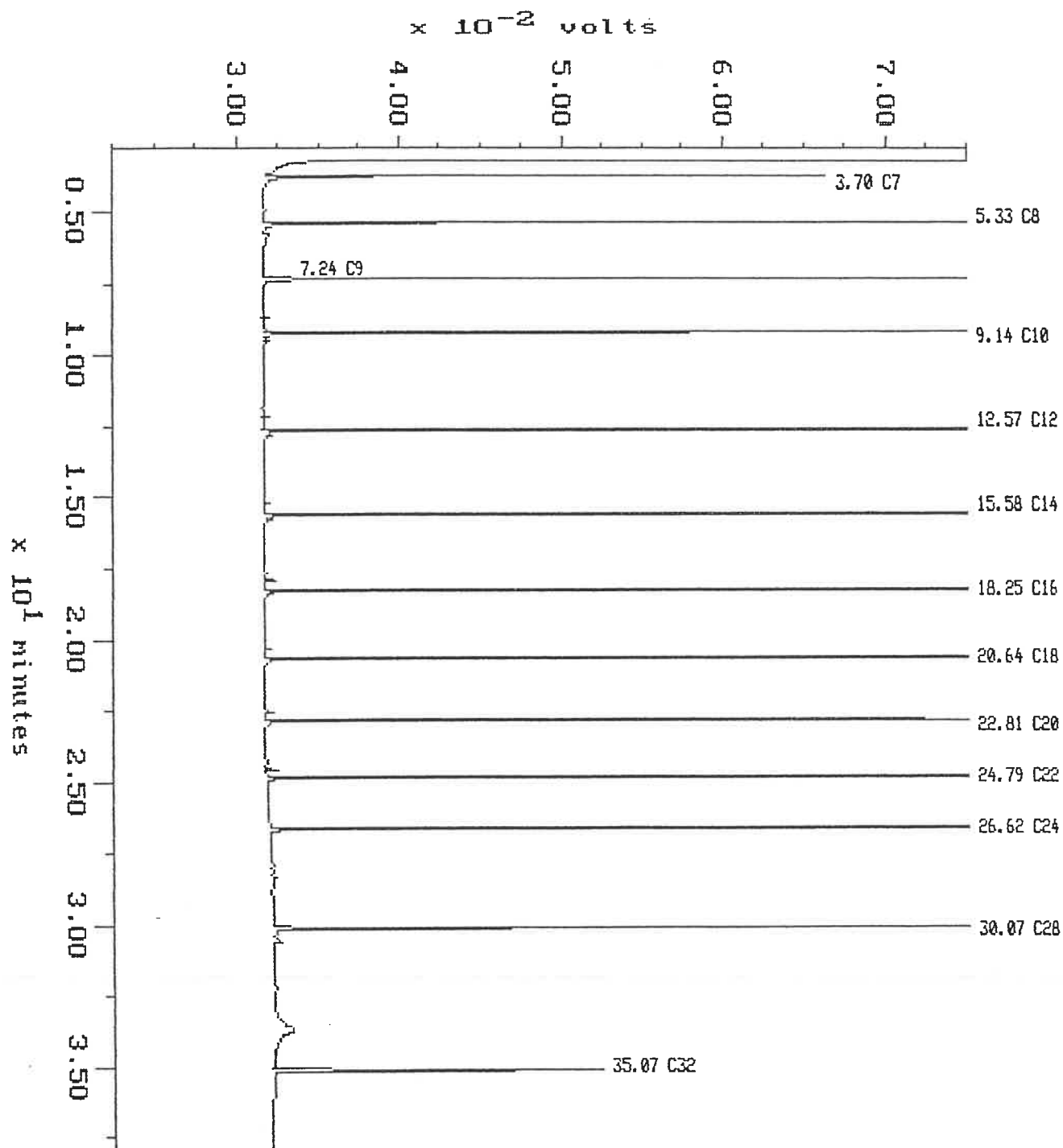
Sample: MO 500 Channel: NANCY Filename: R9288N02
Acquired: 28-SEP-93 16:00 Method: F:\BRO2\MAXDATA\NANCY\FUEL0928 Operator: ATI
Comments: ATI RUSH FUELS: PROVIDERS OF EXCELLENCE AND QUALITY IN CLIENT SERVICE



Alkane

Sample: ALKANE-93 13:17 Method: F:\DATA\MAXDATA\NANCY\FUEL0927
Inj Vol: 1.00

File: REF: #7278n02



Chain-of-Custody-Record

Fax copy of Lab Report and COC to Chevron Contact:

Chevron U.S.A., Inc. under contract with ATI Portland FAX: (503) 620-0393 Renton FAX: (206) 363-1742	Chevron Facility Number <u>61001351</u> Facility Address <u>1310 Highland Ave. Bremerton, WA.</u> Consultant Project Number <u>520-21101</u> Consultant Name <u>PACIFIC ENVIRONMENTAL GROUP</u> Address <u>4020 148th AVE N.E. SUITE B</u> Project Contact (Name) <u>John Johnson</u> (Phone) <u>(206) 869-5099</u> (FAX) <u>(206) 869-5639</u>	Chevron Contact (Name) <u>Tim Johnson</u> (Phone) <u>(206) 546-0523</u> Laboratory Name <u>Analytical Technologies, Inc.</u> Laboratory Release Number <u>890 8010</u> Samples Collected by (Name) <u>BREWER/King</u> Collection Date <u>9/2/97</u> Signature <u>J. Johnson</u>
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[illegible]

959-46

Fax copy of Lab Report and COC to Chevron Contact:

☒ NO

Chain-of-Custody-Record

Chevron U.S.A., Inc. under contract with ATI	Chevron Facility Number 61001551 Facility Address 310 Highland Ave. Brentwood, TN Consultant Project Number 520-41.01 Consultant Name PACIFIC ENVIRONMENTAL GROUP Address 4020 148 TH AVE. SUITE B, BRENTWOOD, TN Project Contact (Name) John Johnson (Phone) (206) 869-5099 (FAX) 869-5639	Chevron Contact (Name) Tim Johnson (Phone) (206) 546-0523 Laboratory Name Analytical Technologies, Inc. Laboratory Release Number 890 8010 Samples Collected by (Name) Brewer/Blaugh Collection Date 9/21/93 Signature [Handwritten Signature]	P.O.C. 3064										
Sample Number	Lab Sample Number	Number of Container	Matrix S - Soil W - Water C - Charcoal	Type G - Grab D - Discrete	Date/Time	Sample Preservation	Iced (Yes or No)	TPH-G/BETX (8015 MOD./8020) (WA)	TPH-HCID State: TPH-G State: TPH-D PLUS EXT. State: WA	TFH Special Instructions	TPH-IH (418.1) Purgeable Halocarbons (8010) Purgeable Aromatics (8020) Purgeable Organics (8040) GC/MS Extractable Organics (8270) GC/MS Total and/or Dissolved LEAD State:	Analytes To Be Performed	Remarks
MW-18	-9	2 VOA 1 LR Rdy 1 LTR 1 LTR	W LR Rdy LR Rdy LR Rdy		9/21/93 HCL	HCL NP NP HCL	X 	X 	X 	X 	X 	PAH 8010 8310R	
MW-19	-10	2 VOA 1 LR Rdy 1 LTR 1 LTR	W LR Rdy LR Rdy LR Rdy		9/21/93 NP	NP NP HCL	X 	X 	X 	X 	X 		SAMPLE QC-2 for use by Lab for QC.
MW-21	-11	2 VOA 1 LR Rdy 1 LTR 1 LTR	W LR Rdy LR Rdy LR Rdy		9/21/93 NP	NP NP HCL	X 	X 	X 	X 	X 		
QC-2 (MW-15) 9/21/93	-5	2 VOA 1 LR Rdy 1 LTR 1 LTR	W LR Rdy LR Rdy LR Rdy		9/21/93 W	W NP NP	X 	X 	X 	X 	X 		
Relinquished By (Signature) [Handwritten Signature]	Organization PEG	Date/Time 9/22/93	Received By (Signature) PS [Handwritten Initials]	Organizational	EPA 1057	Date/Time 9/22/11:20	Turnaround Time (Circle Choice) 24 Hrs. 48 Hrs. 5 Days 10 Days As Contracted						
Relinquished By (Signature) [Handwritten Signature]	Organization	Date/Time	Received By (Signature) Marilyn Portis	Organizational	ATI	Date/Time 9/22/93 1:30 PM							
Relinquished By (Signature)	Organization	Date/Time	Received for Laboratory By (Signature)			Date/Time							

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 520-41.01 LOCATION: 1310 Highland Ave Bremerton, WA WELL ID #: MW-11
 CLIENT/STATION No.: 61001351 FIELD TECHNICIAN: _____

WELL INFORMATION

Depth to Liquid: _____ TOB _____ TOC _____
 Depth to water: _____ TOB 8.62 TOC
 Total depth: _____ TOB 19.75 TOC
 Date: 9-20-93 Time (2400): 1047

Probe Type and I.D. #
☐ Oil/Water interface
☒ Electronic indicator
☐ Other; _____

CASING

DIAMETER GAL/ LINEAR FT.
☒ 2 _____ 0.17
☐ 3 _____ 0.38
☐ 4 _____ 0.66
☐ 4.5 _____ 0.83
☐ 5 _____ 1.02
☐ 6 _____ 1.5
☐ 8 _____ 2.6

SAMPLE TYPE

☐ Groundwater
☐ Duplicate
☐ Extraction well
☐ Trip blank
☐ Field blank
☐ Equipment blank
☐ Other; _____

TD 19.75 - DTW = 8.62 Gal/Linear x Foot -51 = _____ Number of x Casings 3 Calculated = Purge 5.67 gal

DATE PURGED: 9/20/93 START: 13:40 END (2400 hr): 13:55 PURGED BY: JR
 DATE SAMPLED: 9/21/93 START: 10:15 END (2400 hr): 10:19 SAMPLED BY: JR/LB

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (° F)	COLOR	TURBIDITY	ODOR

Pumped dry Yes / No

Cobalt 0-100
 Clear
 Cloudy
 Yellow
 Brown
 NTU 0-200
 Heavy
 Moderate
 Light
 Trace
 Strong
 Moderate
 Faint
 None

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB TOC _____

PURGING EQUIPMENT/I.D.

☒ Bailer: _____ ☐ Airlift: _____
☐ Centrifugal: _____ ☐ Dedicated: _____
☐ Other: _____

SAMPLING EQUIPMENT/I.D.

☒ Bailer: _____ ☐ Dedicated: _____
☐ Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
<u>MW-11</u>	<u>9-21-93</u>	<u>0:19</u>	<u>5</u>	<u>1-Liter</u>	<u>- Plastic</u> <u>- Glass</u> <u>- Other</u>	<u>- HNO₃</u> <u>- NONE</u> <u>- L₂</u>	<u>- WTPH-6/10EX, Total Lead,</u> <u>PAHS, WTPH-D-Sx-</u>

WELL INTEGRITY: ☒ Good ☐ Fair ☐ Poor

REMARKS: SAMPLE IS HOT! (shoen)

SIGNATURE: J. Brown



PACIFIC
 ENVIRONMENTAL
 GROUP, INC.

WATER SAMPLE FIELD DATA SHEET

CLIENT/STATION No. : 61001351 FIELD TECHNICIAN: LB/JB

GAL/

SAMPLE TYPE

☒ Groundwater

☐ Duplicate

☐ Extraction well

☐ Trip blank

☐ Field blank

☐ Equipment blank

☐ Other;

TD 14.53 - DTW = 8.13 $\frac{\text{Gal/Linear}}{\text{Foot}}$ 1.98 = $\frac{\text{Number of}}{\text{Casings}}$ 3 $\frac{\text{Calculated}}{\text{Purge}}$ 12.67 gal

DATE PURGED: 9/20/93 START: 15:25 END (2400 hr): 15:45 PURGED BY: JB
DATE SAMPLED: 9/21/93 START: 10:02 END (2400 hr): 10:26 SAMPLED BY: JD/LB

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (μ mhos/cm @ 25°C)	TEMPERATURE (° F)	COLOR	TURBIDITY	ODOR

Pumped dry ☒ Yes / ☐ No

FIELD MEASUREMENTS AT TIME OF SAMPLE AFTER RECHARGE:

Cobak 0-100	NTU 0-200	Strong
Clear	Heavy	Moderate
Cloudy	Moderate	Faint
Yellow	Light	None
Brown	Trace	

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: TOB/TOC

SAMPLING EQUIPMENT/I.D.

☒ Bailer: _____
☐ Dedicated: _____
☐ Other: _____

<u>SAMPLE I.D.</u>	<u>DATE</u>	<u>TIME (2400)</u>	<u>No. of Cont.</u>	<u>SIZE</u>	<u>CONTAINER</u>	<u>PRESERVE</u>	<u>ANALYTICAL PARAMETER</u>
MW-13	9-21-92	10:26	5	2-40ml 1-liter	- VOA - PWC - 3 PWC	- HCL - HNO ₃ - NONE	WTR-6/DEK, PAHs, TOL-0-4
QC-1	"	"	4	4-liter	6 liter	NONE	PAHs, TOL-0+Ext

WELL INTEGRITY: ☒ Good ☐ Fair ☐ Poor

REMARKS: well pumped dry after 10 gal. Well disconnected from VE system - looks like...

Tube Sample QC-1 4 extra Liters in
Sample is Hot! (Sheen)

SIGNATURE:



PACIFIC
ENVIRONMENTAL
GROUP, INC.

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 520-41.01 LOCATION: 1310 Highland Ave Bremerton, WA WELL ID #: MW-14
 CLIENT/STATION No.: 61001351 FIELD TECHNICIAN: LB/JB

WELL INFORMATION

Depth to Liquid: _____ TOB _____ TOC _____
 Depth to water: _____ TOB 8.85 TOC (TOC)
 Total depth: _____ TOB 14.10 TOC (TOC)
 Date: 9-20-93 Time (2400): 1116

Probe Type
and
I.D. #

☒ Oil/Water interface _____
☐ Electronic indicator _____
☐ Other; _____

CASING DIAMETER

☐ 2 _____ 0.17
☐ 3 _____ 0.38
☒ 4 _____ 0.66
☐ 4.5 _____ 0.83
☐ 5 _____ 1.02
☐ 6 _____ 1.5
☐ 8 _____ 2.6

GAL/ LINEAR FT.

SAMPLE TYPE

☒ Groundwater
☐ Duplicate
☐ Extraction well
☐ Trip blank
☐ Field blank
☐ Equipment blank
☐ Other; _____

TD 14.10 - DTW = 8.85 Gal/Linear 1.98 x Foot = _____ Number of 3 Casings Calculated = Purge 10.4 gal

DATE PURGED: 9/20/93 START: 14:25 END (2400 hr): 14:45 PURGED BY: JB
 DATE SAMPLED: 9/21/93 START: 1038 END (2400 hr): 1045 SAMPLED BY: JB/CD

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
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Pumped dry (Yes) / No

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB (TOC)

PURGING EQUIPMENT/I.D.

☐ Bailer: _____ ☐ Airlift: _____
☐ Centrifugal: _____ ☐ Dedicated: _____
☐ Other: _____

SAMPLING EQUIPMENT/I.D.

☒ Bailer: _____
☐ Dedicated: _____
☐ Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
MW-14	9-21-93	1045	5	2-40ml 1-10ml 2-10ml	- VOA - Pesticide - Metals	- HCL - HNO3 - NONE	WTP-6/PTX 10ml (Pur) 9/21/93-10

WELL INTEGRITY: ☒ Good ☐ Fair ☐ Poor

REMARKS: well pumped dry after 79A - Sample is Hot

SIGNATURE: JB



PACIFIC
ENVIRONMENTAL
GROUP, INC.

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 520-41.01 LOCATION: 1310 Highland Ave Bremerton, WA WELL ID #: MW-15
 CLIENT/STATION No.: 61001351 FIELD TECHNICIAN: LP/JB

WELL INFORMATION

Depth to Liquid: _____ TOB _____ TOC _____
 Depth to water: _____ TOB 9.22 TOC _____
 Total depth: _____ TOB 14.25 TOC _____
 Date: 9-20-93 Time (2400): 1057

Probe Type and I.D. #
☐ Oil/Water interface
☒ Electronic indicator
☐ Other: _____

CASING DIAMETER

☐ 2 _____ 0.17
☐ 3 _____ 0.38
☒ 4 _____ 0.66
☐ 4.5 _____ 0.83
☐ 5 _____ 1.02
☐ 6 _____ 1.5
☐ 8 _____ 2.6

GAL/LINEAR FT.

SAMPLE TYPE

☒ Groundwater
☐ Duplicate
☐ Extraction well
☐ Trip blank
☐ Field blank
☐ Equipment blank
☐ Other: _____

TD 14.25 - DTW = 9.22 Gal/Linear x Foot 1.98 = _____ Number of x Casings 3 Calculated = Purge 10 gal

DATE PURGED: 9/20/93 START: 14:05 END (2400 hr): 14:20 PURGED BY: JB
 DATE SAMPLED: 9-21-93 START: 10:50 END (2400 hr): 10:57 SAMPLED BY: JP/LD

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR

Pumped dry ☒ Yes ☐ No

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB TOC _____

PURGING EQUIPMENT/I.D.

☒ Bailer: Disposable ☐ Airlift: _____
☒ Centrifugal: and pump ☐ Dedicated: _____
☐ Other: _____

SAMPLING EQUIPMENT/I.D.

☒ Bailer: Disc
☐ Dedicated: _____
☐ Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
<u>MW-15</u>	<u>9-21-93</u>	<u>1055</u>	<u>5</u>	<u>2-40ml 1-Liter 2-Liter</u>	<u>-JGA -Plastic -Glass</u>	<u>-HCL -HNO3 -NONE</u>	<u>-WTPH-G/DEX -TOM/LED -PAH-WTPH-D+Ex-</u>
<u>QC-2</u>		<u>1055</u>	<u>4</u>	<u>1-Liter</u>	<u>glass</u>	<u>NONE</u>	<u>-PAH-WTPH-D+Ex-</u>

WELL INTEGRITY: ☒ Good ☐ Fair ☐ Poor

REMARKS: well pumped dry after 6.5 gal

Sample is hot! Freez

Took Dupe sample QC-2 - 4 liters

SIGNATURE: JP/LD



PACIFIC ENVIRONMENTAL GROUP, INC.

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 520-41.01 LOCATION: 1310 Highland Ave Bremerton, WA WELL ID #: MW-16
 CLIENT/STATION No.: 61001351 FIELD TECHNICIAN: LB/JB

WELL INFORMATION

Depth to Liquid: TOB TOC
 Depth to water: TOB 16.23 TOC
 Total depth: TOB 28.00 TOC
 Date: 9-20-93 Time (2400): 1030
 Probe Type and I.D. #
☐ Oil/Water interface
☒ Electronic indicator
☐ Other;

CASING

DIAMETER LINEAR FT.
☒ 2 0.17
☐ 3 0.38
☐ 4 0.66
☐ 4.5 0.83
☐ 5 1.02
☐ 6 1.5
☐ 8 2.6

GAL/

SAMPLE TYPE

☒ Groundwater
☐ Duplicate
☐ Extraction well
☐ Trip blank
☐ Field blank
☐ Equipment blank
☐ Other;

TD 28.00 - DTW = 16.23 Gal/Linear .51 x Foot = 13.5 Number of x Casings 3 Calculated = Purge 6 gal
 Actual 6 gal

DATE PURGED: 9/20/93 START: 16:35 END (2400 hr): 16:40 PURGED BY: JB
 DATE SAMPLED: 9-21-93 START: 1056 END (2400 hr): 1104 SAMPLED BY: JB/LB

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR

Pumped dry Yes ☒ No ☐
 FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:
 DTW: TOB/TOC
 PURGING EQUIPMENT/I.D. #
☐ Bailer: ☐ Airlift:
☒ Centrifugal: ☐ Dedicated:
☐ Other:
 SAMPLING EQUIPMENT/I.D. #
☒ Bailer: ☐ Dedicated:
☐ Other:

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
<u>MW-16</u>	<u>9-21-93</u>	<u>1104</u>	<u>5</u>	<u>2-40ml 1-1 liter</u>	<u>-Vols -Plastic -Glass</u>	<u>-HCL -HNO3 -NONE</u>	<u>WT HB/RTX: 10-91 (Lead) PAHS, WTPH-D + Ext</u>

WELL INTEGRITY: ☒ Good ☐ Fair ☐ Poor

REMARKS:

SIGNATURE: JB



PACIFIC
ENVIRONMENTAL
GROUP, INC.

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 520-41.01 LOCATION: 1310 Highland Ave Bremerton, WA WELL ID #: MW-17

CLIENT/STATION No.: 61001351 FIELD TECHNICIAN: LB/JB

WELL INFORMATION

Depth to Liquid: TOB TOC
Depth to water: TOB 19.28 TOC
Total depth: TOB 44.55 TOC
Date: 9-20-93 Time (2400): 10:25

Probe Type and I.D. #
☐ Oil/Water interface
☒ Electronic indicator
☐ Other;

CASING

DIAMETER LINEAR FT.
☒ 2 0.17
☐ 3 0.38
☐ 4 0.66
☐ 4.5 0.83
☐ 5 1.02
☐ 6 1.5
☐ 8 2.6

SAMPLE TYPE

☒ Groundwater
☐ Duplicate
☐ Extraction well
☐ Trip blank
☐ Field blank
☐ Equipment blank
☐ Other;

TD - DTW = Gal/Linear x Foot = Number of x Casings
Calculated = Purge 12.83 gal
Actual = 6 gal

DATE PURGED: 9-20-93 START: 1:55 END (2400 hr): 2:35 PURGED BY: LB
DATE SAMPLED: 9-21-93 START: 11:10 END (2400 hr): 11:15 SAMPLED BY: JB/LD

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR

Pumped dry Yes No
FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:
DTW: TOB/TOC

PURGING EQUIPMENT/I.D.

☒ Bailer: ☐ Airlift:
☐ Centrifugal: ☐ Dedicated:
☐ Other:

SAMPLING EQUIPMENT/I.D.

☒ Bailer:
☐ Dedicated:
☐ Other:

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
<u>MW-17</u>	<u>9-21-93</u>	<u>11:15</u>	<u>5</u>	<u>2-Liter</u>	<u>-VOP</u> <u>-Dipstick</u> <u>-Alloy</u>	<u>-HCL</u> <u>-HNO3</u> <u>-H2O2</u>	<u>WATER QUALITY</u> <u>PAHs, WTR-DOC</u>

WELL INTEGRITY: ☒ Good ☐ Fair ☐ Poor

REMARKS:

SIGNATURE: J. Brown



PACIFIC
ENVIRONMENTAL
GROUP, INC.

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 520-41.01 LOCATION: 1310 Highland Ave Bremerton, WA WELL ID #: MW-18
 CLIENT/STATION No.: 61001351 FIELD TECHNICIAN: LB/JB

WELL INFORMATION

Depth to Liquid: _____ TOB _____ TOC _____
 Depth to water: _____ TOB 11.67 TOC TOC
 Total depth: _____ TOB 21.07 TOC TOC
 Date: 9-20-93 Time (2400): 10:20

Probe Type and I.D. #
☐ Oil/Water interface
☒ Electronic indicator
☐ Other; _____

CASING

DIAMETER

☒ 2 _____ 0.17
☐ 3 _____ 0.38
☐ 4 _____ 0.66
☐ 4.5 _____ 0.83
☐ 5 _____ 1.02
☐ 6 _____ 1.5
☐ 8 _____ 2.6

GAL/

LINEAR FT.

SAMPLE TYPE

☒ Groundwater
☐ Duplicate
☐ Extraction well
☐ Trip blank
☐ Field blank
☐ Equipment blank
☐ Other; _____

TD _____ - DTW = _____ Gal/Linear x Foot = _____ Number of x Casings = _____ Calculated = Purge 4.79
 actual 4.8 gal

DATE PURGED: 9-20-93 START: 4:20 END (2400 hr): 4:35 PURGED BY: LB
 DATE SAMPLED: 9-21-93 START: 11:19 END (2400 hr): 11:25 SAMPLED BY: JB/LB

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
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Pumped dry Yes ☒ No

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB/TOC _____

PURGING EQUIPMENT/I.D.

☒ Bailer: _____ ☐ Airlift: _____
☐ Centrifugal: _____ ☐ Dedicated: _____
☐ Other: _____

SAMPLING EQUIPMENT/I.D.

☒ Bailer: _____
☐ Dedicated: _____
☐ Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
<u>MW-18</u>	<u>9-21-93</u>	<u>11:25</u>	<u>5</u>	<u>2-40ml</u> <u>1-60ml</u> <u>2-50ml</u>	<u>-VOA</u> <u>-Dichlor</u> <u>-Glass</u>	<u>-HCL</u> <u>-HNO3</u> <u>-H2O2</u>	<u>WTPH-6/PTSA, Total Lead,</u> <u>PAHY, WTPH-D-5x-</u>

WELL INTEGRITY: ☒ Good ☐ Fair ☐ Poor

REMARKS: _____

SIGNATURE: _____



PACIFIC
ENVIRONMENTAL
GROUP, INC.

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 520-41.01 LOCATION: 1310 Highland Ave Bremerton, WA WELL ID #: MW-19
 CLIENT/STATION No.: 61001351 FIELD TECHNICIAN: LB/JB

WELL INFORMATION

Depth to Liquid: TOB TOC
 Depth to water: TOB 15.73 TOC
 Total depth: TOB 24.28 TOC
 Date: 9-20-93 Time (2400): 1034

Probe Type and I.D. #
☐ Oil/Water interface
☒ Electronic indicator
☐ Other;

CASING

DIAMETER GAL/ LINEAR FT.
☒ 2 0.17
☐ 3 0.38
☐ 4 0.66
☐ 4.5 0.83
☐ 5 1.02
☐ 6 1.5
☐ 8 2.6

SAMPLE TYPE

☒ Groundwater
☐ Duplicate
☐ Extraction well
☐ Trip blank
☐ Field blank
☐ Equipment blank
☐ Other;

TD 24.28 - DTW = 15.73 Gal/Linear x Foot .51 = Number of x Casings 3 Calculated = Purge 4.36

DATE PURGED: 9/20/93 START: 15:20 END (2400 hr): 16:20 PURGED BY: JB
 DATE SAMPLED: 9-21-93 START: 1127 END (2400 hr): 1133 SAMPLED BY: JB/LB

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR

Pumped dry Yes ☒ No
 FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:
 DTW: TOB/TOC

PURGING EQUIPMENT/I.D.

☐ Bailer: ☐ Airlift:
☐ Centrifugal: ☐ Dedicated:
☐ Other:

SAMPLING EQUIPMENT/I.D.

☒ Bailer:
☐ Dedicated:
☐ Other:

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
MW-19	9-21-93	1133	5	3-40m 1.5-2.5 2-3.5	- HCL - Plastic - Glass	- HCL - HNO ₃ - H ₂ O ₂	WTPH-6/STEX, TOC, PCB, PAH, WTPH-2-5-6

WELL INTEGRITY: ☒ Good ☐ Fair ☐ Poor

REMARKS:

Purge = 5 GAL

SIGNATURE: JB



PACIFIC
ENVIRONMENTAL
GROUP, INC.

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 520-41.01 LOCATION: 1310 Highland Ave Bremerton, WA WELL ID #: MW-21

CLIENT/STATION No.: 61001351 FIELD TECHNICIAN: LB/JB

WELL INFORMATION

Depth to Liquid: _____ TOB _____ TOC _____
 Depth to water: _____ TOB 9.10 TOC TOC
 Total depth: _____ TOB 14.50 TOC TOC
 Date: 9-20-93 Time (2400): 1148

Probe Type and I.D. #
☐ Oil/Water interface
☒ Electronic indicator
☐ Other; _____

CASING

DIAMETER LINEAR FT.
☒ 2 _____ 0.17
☐ 3 _____ 0.38
☐ 4 _____ 0.66
☐ 4.5 _____ 0.83
☐ 5 _____ 1.02
☐ 6 _____ 1.5
☐ 8 _____ 2.6

SAMPLE TYPE

☒ Groundwater
☐ Duplicate
☐ Extraction well
☐ Trip blank
☐ Field blank
☐ Equipment blank
☐ Other; _____

TD 14.50 - DTW = 9.10 Gal/Linear x Foot .51 = Number of x Casings 3 Calculated = Purge 2.75991

DATE PURGED: 9/20/93 START: 14:00 END (2400 hr): 14:05 PURGED BY: JD
 DATE SAMPLED: 9-21-93 START: 11:35 END (2400 hr): 11:45 SAMPLED BY: JB/LD

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR

Pumped dry Yes / No

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB/TOC _____

PURGING EQUIPMENT/I.D.

☐ Bailer: _____
☒ Centrifugal: _____
☐ Other: _____
☐ Airlift: _____
☐ Dedicated: _____

SAMPLING EQUIPMENT/I.D.

☒ Bailer: _____
☐ Dedicated: _____
☐ Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
<u>MW-21</u>	<u>9-21-93</u>		<u>5</u>	<u>2-40 ml</u> <u>2-100 ml</u>	<u>NDA</u> <u>Plastic</u> <u>500 ml</u>	<u>HCL</u> <u>WASH</u> <u>NDA</u>	<u>WTH-6/DTX-099</u> <u>PARY NICH-2-5x</u>

WELL INTEGRITY: ☒ Good ☐ Fair ☐ Poor

REMARKS:

Total purge 3.5 gals.

SIGNATURE: J. Bm



PACIFIC
ENVIRONMENTAL
GROUP INC.

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 520-41.01 LOCATION: 1310 Highland Ave Bremerton, WA WELL ID #: MW-22

CLIENT/STATION No.: 61001351 FIELD TECHNICIAN: JB / LB

WELL INFORMATION

Depth to Liquid: TOB TOC
 Depth to water: TOB 8.04 TOC
 Total depth: TOB 15.00 TOC
 Date: 9-20-93 Time (2400): 1141

Probe Type and I.D. #
☐ Oil/Water interface
☒ Electronic indicator
☐ Other;

CASING

DIAMETER GAL/ LINEAR FT.
☒ 2 0.17
☐ 3 0.38
☐ 4 0.66
☐ 4.5 0.83
☐ 5 1.02
☐ 6 1.5
☐ 8 2.6

SAMPLE TYPE

☒ Groundwater
☐ Duplicate
☐ Extraction well
☐ Trip blank
☐ Field blank
☐ Equipment blank
☐ Other;

TD 15.00 - DTW = 8.04 Gal/Linear x Foot .51 = Number of x Casings 3 Calculated = Purge 3.54

DATE PURGED: 9/20/93 START: 15:50 END (2400 hr): 16:00 PURGED BY: B
 DATE SAMPLED: 9-21-93 START: 11:50 END (2400 hr): 12:00 noon SAMPLED BY: JB / LB

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR

Pumped dry ☒ Yes ☐ No

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: TOB/TOC

PURGING EQUIPMENT/I.D.

☐ Bailer:
☒ Centrifugal:
☐ Other:

☐ Airlift:
☐ Dedicated:

SAMPLING EQUIPMENT/I.D.

☒ Bailer:
☐ Dedicated:
☐ Other:

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
<u>MW-22</u>	<u>9-21-93</u>		<u>5</u>	<u>2-40ml</u> <u>1-100ml</u> <u>2-500ml</u>	<u>-Vial</u> <u>-Plastic</u> <u>-Glass</u>	<u>-HCL</u> <u>-HNO3</u> <u>-None</u>	<u>WTP-SISTEX, 041-200</u> <u>PALY, NICH-D-EX</u>

WELL INTEGRITY: ☒ Good ☐ Fair ☐ Poor

REMARKS: well pumped dry after 2.5 gal

SIGNATURE: JB



PACIFIC
ENVIRONMENTAL
GROUP, INC.

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 520-41.01 LOCATION: 1310 Highland Ave Bremerton, WA WELL ID #: MW-23
 CLIENT/STATION No.: 61001351 FIELD TECHNICIAN: LB / JB

WELL INFORMATION

Depth to Liquid: _____ TOB _____ TOC _____
 Depth to water: _____ TOB 18.22 TOC
 Total depth: _____ TOB 41.78 TOC
 Date: 9-20-93 Time (2400): 11:13

Probe Type and I.D. #
☐ Oil/Water interface
☒ Electronic indicator
☐ Other: _____

CASING

DIAMETER

☒ 2 _____
☐ 3 _____
☐ 4 _____
☐ 4.5 _____
☐ 5 _____
☐ 6 _____
☐ 8 _____

GAL/

LINEAR FT.

_____ 0.17
 _____ 0.38
 _____ 0.66
 _____ 0.83
 _____ 1.02
 _____ 1.5
 _____ 2.6

SAMPLE TYPE

☒ Groundwater
☐ Duplicate
☐ Extraction well
☐ Trip blank
☐ Field blank
☐ Equipment blank
☐ Other: _____

TD _____ - DTW = _____ Gal/Linear x Foot = _____ Number of x Casings = _____ Calculated = Purge 12.01
 Actual = 12.991

DATE PURGED: 9-20-93 START: 2:45 END (2400 hr): 3:21 PURGED BY: LB
 DATE SAMPLED: 9-21-93 START: 12:05 END (2400 hr): 12:15 SAMPLED BY: JB / LB

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR

Pumped dry Yes / No

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB TOC

PURGING EQUIPMENT/I.D.

☒ Bailer: _____ ☐ Airlift: _____
☐ Centrifugal: _____ ☐ Dedicated: _____
☐ Other: _____

SAMPLING EQUIPMENT/I.D.

☒ Bailer: _____
☐ Dedicated: _____
☐ Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
<u>MW-23</u>	<u>9-21-93</u>		<u>5</u>	<u>2-40ml</u> <u>1-liter</u> <u>2-liter</u>	<u>2-40ml</u> <u>1-liter</u> <u>2-liter</u>	<u>-HCL</u> <u>-HNO3</u> <u>-None</u>	<u>WTPH-6/STEX, TOTAL L2991</u> <u>PAHS WTPH-7 + 54</u>

WELL INTEGRITY: ☒ Good ☐ Fair ☐ Poor

REMARKS: Well under pressure - waited 25 minutes before taking DTW

SIGNATURE: _____



PACIFIC
ENVIRONMENTAL
GROUP, INC.

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 520-41.01 LOCATION: 1310 Highland Ave Bremerton, WA WELL ID #: MW-24

CLIENT/STATION No.: 61001351 FIELD TECHNICIAN: LB / JB

WELL INFORMATION

Depth to Liquid: _____ TOB _____ TOC _____
 Depth to water: _____ TOB 10.53 TOC _____
 Total depth: _____ TOB 34.47 TOC _____
 Date: 9-20-93 Time (2400): 10:15

Probe Type and I.D. #
☐ Oil/Water interface
☒ Electronic indicator
☐ Other: _____

CASING GAL/ DIAMETER LINEAR FT.

☒ 2 _____ 0.17
☐ 3 _____ 0.38
☐ 4 _____ 0.66
☐ 4.5 _____ 0.83
☐ 5 _____ 1.02
☐ 6 _____ 1.5
☐ 8 _____ 2.6

SAMPLE TYPE

☒ Groundwater
☐ Duplicate
☐ Extraction well
☐ Trip blank
☐ Field blank
☐ Equipment blank
☐ Other: _____

TD _____ - DTW = _____ Gal/Linear x Foot = _____ Number of x Casings = _____ Calculated = Purge 12.20
 Actual = 12.2 gal

DATE PURGED: 9-20-93 START: 1:00 END (2400 hr): 1:40 PURGED BY: LB
 DATE SAMPLED: 9-21-93 START: 1137 END (2400 hr): 1141 SAMPLED BY: JB / LB

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
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Pumped dry Yes / No

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB TOC

PURGING EQUIPMENT/I.D.

☒ Bailer: _____ ☐ Airlift: _____
☐ Centrifugal: _____ ☐ Dedicated: _____
☐ Other: _____

SAMPLING EQUIPMENT/I.D.

☒ Bailer: _____
☐ Dedicated: _____
☐ Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
<u>MW-24</u>	<u>9-21-93</u>	<u>1141</u>	<u>5</u>	<u>2-40ml</u> <u>1-60ml</u> <u>1-60ml</u>	<u>-HCL</u> <u>-HNO3</u> <u>-H2O2</u>	<u>-HCL</u> <u>-HNO3</u> <u>-H2O2</u>	<u>WTPH6/DTX TOX (P&H)</u> <u>PAHV WTPH6-D-SX</u>

WELL INTEGRITY: ☒ Good ☐ Fair ☐ Poor

REMARKS: _____

SIGNATURE: _____



PACIFIC
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GROUP, INC.

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 520-41.01 LOCATION: 1310 Highland Ave Bremerton, WA WELL ID #: MW-20
 CLIENT/STATION No.: 61001351 FIELD TECHNICIAN: LB/JB

WELL INFORMATION

Depth to Liquid: _____ TOB 8.85 TOC _____
 Depth to water: _____ TOB 8.86 TOC _____
 Total depth: _____ TOB _____ TOC _____
 Date: 9-20-93 Time (2400): 1150

Probe Type
and
I.D. #

☒ Oil/Water interface _____
☐ Electronic indicator _____
☐ Other; _____

CASING DIAMETER

☒ 2 _____ 0.17
☐ 3 _____ 0.38
☐ 4 _____ 0.66
☐ 4.5 _____ 0.83
☐ 5 _____ 1.02
☐ 6 _____ 1.5
☐ 8 _____ 2.6

GAL/ LINEAR FT.

SAMPLE TYPE

☐ Groundwater
☐ Duplicate
☐ Extraction well
☐ Trip blank
☐ Field blank
☐ Equipment blank
☐ Other; _____

TD _____ - DTW = _____ Gal/Linear x Foot = _____ Number of x Casings = _____ Calculated = Purge _____

DATE PURGED: _____ START: _____ END (2400 hr): _____ PURGED BY: _____

DATE SAMPLED: _____ START: _____ END (2400 hr): _____ SAMPLED BY: _____

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
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NOT SAMPLED - SPH IN WELL

Pumped dry Yes / No

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB/TOC _____

PURGING EQUIPMENT/I.D.

☐ Bailer: _____ ☐ Airlift: _____
☐ Centrifugal: _____ ☐ Dedicated: _____
☐ Other: _____

SAMPLING EQUIPMENT/I.D.

☐ Bailer: _____
☐ Dedicated: _____
☐ Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
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WELL INTEGRITY: ☒ Good ☐ Fair ☐ Poor

REMARKS: _____

SIGNATURE: _____



PACIFIC
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GROUP, INC.

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 520-41.01 LOCATION: 1310 Highland Ave Bremerton, WA WELL ID #: MW-8

CLIENT/STATION No.: 61001351 FIELD TECHNICIAN: _____

WELL INFORMATION

Depth to Liquid: _____ TOB _____ TOC _____
 Depth to water: _____ TOB DRY TOC
 Total depth: _____ TOB 4.24 TOC
 Date: 9-20-93 Time (2400): 1145

Probe Type and I.D. #
☐ Oil/Water interface
☒ Electronic indicator
☐ Other: _____

CASING

DIAMETER	GAL/ LINEAR FT.
☒ 2	0.17
☐ 3	0.38
☐ 4	0.66
☐ 4.5	0.83
☐ 5	1.02
☐ 6	1.5
☐ 8	2.6

SAMPLE TYPE

☐ Groundwater
☐ Duplicate
☐ Extraction well
☐ Trip blank
☐ Field blank
☐ Equipment blank
☐ Other: _____

TD _____ - DTW = _____ Gal/Linear x Foot = _____ Number of x Casings = _____ Calculated = Purge

DATE PURGED: _____ START: _____ END (2400 hr): _____ PURGED BY: _____

DATE SAMPLED: _____ START: _____ END (2400 hr): _____ SAMPLED BY: _____

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
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NOT SAMPLED - WELL DRY

Pumped dry Yes / No

Cobalt 0-100 Clear Cloudy Yellow Brown	NTU 0-200 Heavy Moderate Light Trace	Strong Moderate Faint None
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FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB/TOC _____

PURGING EQUIPMENT/I.D.

☐ Bailer: _____ ☐ Airlift: _____
☐ Centrifugal: _____ ☐ Dedicated: _____
☐ Other: _____

SAMPLING EQUIPMENT/I.D.

☐ Bailer: _____
☐ Dedicated: _____
☐ Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
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WELL INTEGRITY: ☒ Good ☐ Fair ☐ Poor

REMARKS: _____

SIGNATURE: _____



PACIFIC
ENVIRONMENTAL
GROUP, INC.

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 520-41.01 LOCATION: 1310 Highland Ave Bremerton, WA WELL ID #: MW-5
 CLIENT/STATION No.: 61001351 FIELD TECHNICIAN: LD/JD

WELL INFORMATION

Depth to Liquid: _____ TOB _____ TOC _____
 Depth to water: _____ TOB DRY TOC _____
 Total depth: _____ TOB 5-17 TOC _____
 Date: 9-20-93 Time (2400): 1130

Probe Type and I.D. #
☐ Oil/Water interface
☐ Electronic indicator
☐ Other; _____

CASING

DIAMETER

☒ 2 _____
☐ 3 _____
☐ 4 _____
☐ 4.5 _____
☐ 5 _____
☐ 6 _____
☐ 8 _____

GAL/

LINEAR FT.

0.17
 0.38
 0.66
 0.83
 1.02
 1.5
 2.6

SAMPLE TYPE

☐ Groundwater
☐ Duplicate
☐ Extraction well
☐ Trip blank
☐ Field blank
☐ Equipment blank
☐ Other; _____

TD _____ - DTW = _____ Gal/Linear x Foot = _____ Number of x Casings = _____ Calculated = Purge _____

DATE PURGED: _____ START: _____ END (2400 hr): _____ PURGED BY: _____

DATE SAMPLED: _____ START: _____ END (2400 hr): _____ SAMPLED BY: _____

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
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NOT SAMPLED - WELL DRY

Pumped dry Yes / No

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB/TOC _____

PURGING EQUIPMENT/I.D.

☐ Bailer: _____
☐ Centrifugal: _____
☐ Other: _____
☐ Airlift: _____
☐ Dedicated: _____

SAMPLING EQUIPMENT/I.D.

☐ Bailer: _____
☐ Dedicated: _____
☐ Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
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WELL INTEGRITY: ☒ Good ☐ Fair ☐ Poor

REMARKS: _____

SIGNATURE: _____



PACIFIC
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GROUP, INC.

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 520-41.01 LOCATION: 1310 Highland Ave Bremerton, WA WELL ID #: MW-4
 CLIENT/STATION No.: 61001351 FIELD TECHNICIAN: LB/JB

WELL INFORMATION

Depth to Liquid: _____ TOB 9.97 TOC
 Depth to water: _____ TOB 10.36 TOC
 Total depth: _____ TOB _____ TOC
 Date: 9-20-93 Time (2400): 1122

Probe Type and I.D. # ☒ Oil/Water interface _____
☐ Electronic indicator _____
☐ Other; _____

CASING

DIAMETER

☒ 2 _____ 0.17
☐ 3 _____ 0.38
☐ 4 _____ 0.66
☐ 4.5 _____ 0.83
☐ 5 _____ 1.02
☐ 6 _____ 1.5
☐ 8 _____ 2.6

GAL/

LINEAR FT.

SAMPLE TYPE

☐ Groundwater
☐ Duplicate
☐ Extraction well
☐ Trip blank
☐ Field blank
☐ Equipment blank
☐ Other; _____

TD _____ - DTW = _____ Gal/Linear x Foot = _____ Number of x Casings = _____ Calculated = Purge _____

DATE PURGED: _____ START: _____ END (2400 hr): _____ PURGED BY: _____

DATE SAMPLED: _____ START: _____ END (2400 hr): _____ SAMPLED BY: _____

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
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NOT SAMPLED - SPH IN WELL

Pumped dry Yes / No

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB/TOC _____

PURGING EQUIPMENT/I.D.

☐ Bailer: _____ ☐ Airlift: _____
☐ Centrifugal: _____ ☐ Dedicated: _____
☐ Other: _____

SAMPLING EQUIPMENT/I.D.

☐ Bailer: _____
☐ Dedicated: _____
☐ Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
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WELL INTEGRITY: ☒ Good ☐ Fair ☐ Poor

REMARKS: Well disconnected from VE system - looks unusual - 1/2 gal

SIGNATURE: _____



PACIFIC
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FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 520-41.01 LOCATION: 1310 Highland Ave Bremerton, WA WELL ID #: MW-10

CLIENT/STATION No.: 61001351 FIELD TECHNICIAN: LP/JB

WELL INFORMATION

Depth to Liquid: TOB 9.86 TOC
 Depth to water: TOB 9.97 TOC
 Total depth: TOB 19.65 TOC
 Date: 9-20-93 Time (2400): 1050

Probe Type and I.D. #
☐ Oil/Water interface
☒ Electronic indicator
☐ Other; _____

CASING

DIAMETER

☒ 2
☐ 3
☐ 4
☐ 4.5
☐ 5
☐ 6
☐ 8

GAL/

LINEAR FT.

0.17
0.38
0.66
0.83
1.02
1.5
2.6

SAMPLE TYPE

☐ Groundwater
☐ Duplicate
☐ Extraction well
☐ Trip blank
☐ Field blank
☐ Equipment blank
☐ Other; _____

TD _____ - DTW = _____ Gal/Linear x Foot = _____ Number of x Casings = _____ Calculated = Purge

DATE PURGED: _____ START: _____ END (2400 hr): _____ PURGED BY: _____

DATE SAMPLED: _____ START: _____ END (2400 hr): _____ SAMPLED BY: _____

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
NOT SAMPLED - SPH IN WELL							

Pumped dry Yes / No

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB/TOC _____

PURGING EQUIPMENT/I.D.

☐ Bailer: _____
☐ Centrifugal: _____
☐ Other: _____
☐ Airlift: _____
☐ Dedicated: _____

SAMPLING EQUIPMENT/I.D.

☐ Bailer: _____
☐ Dedicated: _____
☐ Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
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WELL INTEGRITY: ☒ Good ☐ Fair ☐ Poor

REMARKS: _____

SIGNATURE: _____



PACIFIC
ENVIRONMENTAL
GROUP, INC.

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 520-41.01 LOCATION: 1310 Highland Ave Bremerton, WA WELL ID #: MW-6
 CLIENT/STATION No.: 61001351 FIELD TECHNICIAN: LB/JR

WELL INFORMATION

Depth to Liquid: _____ TOB _____ TOC _____
 Depth to water: _____ TOB 9.99 TOC
 Total depth: _____ TOB 18.65 TOC
 Date: 9-20-93 Time (2400): 1124

Probe Type and I.D. #
☒ Oil/Water interface
☐ Electronic indicator
☐ Other; _____

CASING

DIAMETER	GAL/ LINEAR FT.
☒ 2	0.17
☐ 3	0.38
☐ 4	0.66
☐ 4.5	0.83
☐ 5	1.02
☐ 6	1.5
☐ 8	2.6

SAMPLE TYPE

☒ Groundwater
☐ Duplicate
☐ Extraction well
☐ Trip blank
☐ Field blank
☐ Equipment blank
☐ Other; _____

TD 18.65 - DTW = 9.99 Gal/Linear x Foot = 51 = Number of x Casings 3 Calculated = Purge 4.41 gal

DATE PURGED: 9/20/93 START: 14:50 END (2400 hr): 15:10 PURGED BY: JR

DATE SAMPLED: _____ START: _____ END (2400 hr): _____ SAMPLED BY: _____

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

NOT SAMPLED

Pumped dry Yes / No

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB/TOC _____

PURGING EQUIPMENT/I.D.

☐ Bailer: _____ ☐ Airlift: _____
☒ Centrifugal: _____ ☐ Dedicated: _____
☐ Other: _____

SAMPLING EQUIPMENT/I.D.

☐ Bailer: _____
☐ Dedicated: _____
☐ Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

WELL INTEGRITY: ☐ Good ☐ Fair ☐ Poor

REMARKS: Well disconnected from 15 system - looks unintentional / while interface probe did not indicate SPH a visual check did indicate SPH in well (globules seen floating in water - very very fine - no odor).

5 gal. purge Black odorous sludge removed from bottom of well.
Slugs of SPH observed.

SIGNATURE: _____



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FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 520-41.01 LOCATION: 1310 Highland Ave Bremerton, WA WELL ID #: MW-9

CLIENT/STATION No.: 61001351 FIELD TECHNICIAN: LB/JB

WELL INFORMATION

Depth to Liquid: TOB 10.14 TOC
 Depth to water: TOB 10.15 TOC
 Total depth: 19.80 TOB TOC
 Date: 9-20-93 Time (2400): 1153

Probe Type and I.D. #
☐ Oil/Water interface
☐ Electronic indicator
☐ Other;

CASING

DIAMETER

☒ 2 0.17
☐ 3 0.38
☐ 4 0.66
☐ 4.5 0.83
☐ 5 1.02
☐ 6 1.5
☐ 8 2.6

GAL/

LINEAR FT.

SAMPLE TYPE

☐ Groundwater
☐ Duplicate
☐ Extraction well
☐ Trip blank
☐ Field blank
☐ Equipment blank
☐ Other;

TD _____ - DTW = _____ Gal/Linear x Foot = _____ Number of x Casings = _____ Calculated = Purge

DATE PURGED: _____ START: _____ END (2400 hr): _____ PURGED BY: _____

DATE SAMPLED: _____ START: _____ END (2400 hr): _____ SAMPLED BY: _____

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
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NOT SAMPLED - SPH IN WELL

Pumped dry Yes / No

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: TOB/TOC

PURGING EQUIPMENT/I.D.

☐ Bailer: _____ ☐ Airlift: _____
☐ Centrifugal: _____ ☐ Dedicated: _____
☐ Other: _____

SAMPLING EQUIPMENT/I.D.

☐ Bailer: _____
☐ Dedicated: _____
☐ Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
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WELL INTEGRITY: ☒ Good ☐ Fair ☐ Poor

REMARKS: _____

SIGNATURE: _____

J. Brown



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