PHASE II ENVIRONMENTAL SITE ASSESSMENT
1655 18th STREET
BRANDON, MANITOBA

SUBMITTED TO:

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ENGINEERING GLOBAL SOLUTIONS

EXECUTIVE SUMMARY

As requested by Mr. Tat-Liang Cheam of Nejmark Architects on behalf of the Canadian Tire Corporation Limited, AGRA Earth & Environmental Limited (AEE) conducted a Phase II Environmental Site Assessment (ESA) of the property located at 1655 18th Street in Brandon, Manitoba. The legal description of the property is outlined in Manitoba Certificate of Title #146264 (Appendix G).

The purpose of the Phase II ESA was to determine the nature and extent of hydrocarbon impacts at the subject property, in the vicinity of the proposed locations of various expansion/construction options. The source of contamination is a former petroleum refinery that was located on the site and to the north.

Specifically, the Phase II ESA included:

- Building Option 1A/1B: The drilling of 6 test holes around the existing building (within the footprints of the proposed building expansion options) and the installation of a monitoring well in 1 of the test holes. Submission of 3 soil and 1 water samples for laboratory analysis of BTEX (benzene, toluene, xylenes, and ethylbenzene), TSH (total semi-volatile hydrocarbons) and TVH (total volatile hydrocarbons);
- Building Option 2: The drilling of 6 test holes within the footprint of the proposed building and installation of monitoring wells in 2 of the holes. Submission of 4 soil and 1 water samples for laboratory analysis of BTEX, TSH and TVH;
- Building Option 3A: The drilling 6 test holes within the footprint of the proposed building and installation of monitoring wells in 3 of the holes. Submission of 4 soil and 1 water samples for laboratory analysis of BTEX, TSH and TVH;
- Building Option 4: The drilling of 6 test holes within the footprint of the proposed building and installation of monitoring wells in 3 of the holes. Submission of 3 soil and 1 water samples for laboratory analysis of BTEX, TSH and TVH;
- Gas Bar: The drilling of 4 test holes - one on the south end of the gas tank bed, one north of the pump islands and one at each of the southeast and northeast corner of an exclusion zone around the east side of the kiosk (office) and the installation of monitoring wells in two of the holes. Submission of 2 soil samples for laboratory analysis of BTEX, TSH and TVH;
- Monitoring of the wells ($\geq$72 hours upon completion) - measurement of vapor concentrations, measurement of the water level, measurement of the thickness of free product (if present) and the drawing of water samples; and
- Completion of a summary report outlining the details of the Phase II ESA investigation, including detailed test hole logs noting the soil stratigraphy, a test hole location plan and comments on the laboratory results, recommendations for a preferred building location, and possible remediation and/or site management associated with the building options.

Note Options 3B and 3C were added after the drilling was carried out in the field, however they have been incorporated into the report.

Laboratory analysis indicated that hydrocarbon parameter concentrations were variable across the site, with hydrocarbon impacts noted in many of the testholes which were drilled. The most highly impacted samples from each option were selected for analysis and 8 out of the 16 soil samples analyzed showed at least one exceedance of the relevant criteria. Benzene and xylene concentrations elevated slightly above CCME criteria (5.8 to 37 mg/kg benzene and 18.8 to 66 mg/kg total xylenes respectively) were noted near the gas bar in TH18, TH20 and TH21, on the west side of the existing store in TH5 and approximately 60 m southeast of the existing store in TH8. Evidence of historical oil storage in earthen berms was found in TH8, TH23, TH25 and TH26 in the eastern portion of the site. Total extractable hydrocarbon analysis results of 18000 to 26000 mg/kg were noted in samples from these test holes. Analytical results from the majority of samples did not show exceedances of CCME criteria. Nevertheless, it is our opinion that significant volumes of hydrocarbon impacted soil are present on the site. All of the options reviewed would require some excavation of impacted soil prior to construction.

The results of the Phase II ESA indicated that Building Option 3C appeared to be the least impacted by residual hydrocarbons. Option 2 was ranked below Option 3C and appears to be slightly more impacted. Option 3A/3B was more impacted than Option 2 with Options 1A/1B and 4 being the most impacted. From an environmental standpoint the preferable option is Option 3C. As noted above, all of the options assessed showed evidence of hydrocarbon impacts and the extent of hydrocarbon impacts has not been fully delineated in any of the areas on site.

Additional testholes are recommended in the footprint area of the option which is selected for construction to determine the amount and cost of the removal of impacted soil and replacement with compacted fill.

A deep pile system could provide a pathway for migration of hydrocarbons in the groundwater to deeper aquifers, and should be considered with caution.

Laboratory analysis of soil samples from the vicinity of the gas bar indicates the presence of hydrocarbons which appear to be gasoline based on gas chromatography analysis. The USTs in the gas bar should be precision leak tested, the volume records reviewed and the piping be pressure tested to ensure that fuel is not leaking at present. If required, remediation of soils in the vicinity of the gas bar should be conducted in conjunction with remediation of the remainder of the site and not as an isolated activity.

The monitoring reports in Manitoba Environment files have not evaluated the performance of the vapor extraction system or the degree of remediation which has been attained as compared to the operating costs. The operations of the present vapor extraction system on the site should be reviewed since it has been operating for eight years without an evaluation of it's effectiveness.

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1.0 INTRODUCTION

As requested by Mr. Tat-Liang Cheam of Nejmark Architects on behalf of the Canadian Tire Corporation Limited, AGRA Earth & Environmental Limited (AEE) conducted a Phase II Environmental Site Assessment (ESA) of the property located at 1655 18th Street in Brandon, Manitoba. The legal description of the property is outlined in Manitoba Certificate of Title # 146264 (Appendix E).

1.1 Background

The purpose of the Phase II ESA was to determine the extent of contamination at the subject property, in the vicinity of the proposed locations of various expansion/construction options and to recommend a preferred building location, and possible remediation and/or site management requirements associated with the building options. The source of contamination is a former petroleum refinery that was located on the site and to the north.

1.2 Scope of Work

The scope of work for the field investigation was proposed (in respect to each building option footprint) as follows:

- Building Option 1A/1B: drill 6 test holes around the existing building (within the footprints of the proposed building expansion options) and install a monitoring well in 1 of the test holes. Submit 3 soil and 1 water samples for laboratory analysis of BTEX (benzene, toluene, xylenes, and ethylbenzene), TSH (total semi-volatile hydrocarbons) and TVH (total volatile hydrocarbons);
- Building Option 2: drill 6 test holes within the footprint of the proposed building and install monitoring wells in 3 of the holes. Submit 4 soil and 1 water samples for laboratory analysis of BTEX, TSH and TVH;
- Building Option 3: drill 6 test holes within the footprint of the proposed building and install monitoring wells in 3 of the holes. Submit 4 soil and 1 water samples for laboratory analysis of BTEX, TSH and TVH;
- Building Option 4: drill 6 test holes within the footprint of the proposed building and install monitoring wells in 3 of the holes. Submit 3 soil and 1 water samples for laboratory analysis of BTEX, TSH and TVH;
- Gas Bar: drill 4 test holes - one on each end (north and south) of the gas tank bed, one north of the pump islands and one east of the kiosk (office) and install monitoring wells in two of the holes. Submit 2 soil samples for laboratory analysis of BTEX, TSH and TVH;
- Monitor the wells (≥72 hours upon completion) - take vapor concentration readings, measure the water level, measure the thickness of free product (if present) and draw water samples; and
- Complete a summary report outlining the details of the Phase II ESA investigation, including detailed test hole logs noting the soil stratigraphy, a test hole location plan and comments on the laboratory results, environmental status of the site and

recommendations for additional work if required.

The proposed field work and laboratory analysis were carried out as proposed with three exceptions. Firstly, only 2 monitoring wells were installed in the testholes (TH) within the footprint of Building Option 2 because minimal vapor readings were detected in this area. Secondly, two of the testholes in the vicinity of the Gas Bar had to be relocated because the exact location of both the feed lines that ran from the gas tanks to the gas pumps and the electrical line that ran from the retail store to the gas bar kiosk could not be determined. Therefore the testholes proposed for the north end of the gas tank bed and east of the kiosk were both located east of a safe zone (as designated by Michael Rooks of the Canadian Tire Petroleum Division). Thirdly, the testhole locations for Building Option 4 were restricted to available open spaces in the undeveloped wooded area due to the density of some parts of the area and the presence of the marsh.

1.3 Site Description

The site was located on the east side of 18th Street, south of Richmond Avenue in Brandon, Manitoba. The site is bounded by industrial and commercial buildings to the north and east, a cemetery to the south, and a commercial strip mall to the west across 18th Street. The site was approximately 6.8 hectares in size with the west half of the site consisting of a retail store (approximately 4600m^2) and a gas bar, an asphalt paved parking lot (surrounding the store and gas bar and extending south of the store approximately 75m) and an undeveloped field (vegetated with prairie grass) extending south of the parking lot to the south property line. The east half of the site was partly vegetated with deciduous trees (mainly around the east and west perimeter) and bullrushes (in the area of the old lagoon) and surficial fill material throughout the remainder of the area. The east half of the site drained through catch basins located throughout the parking lot and in 18th Street. The west half of the site drained towards the lagoon in the southeast section of the site and south into ditches on agricultural land to the south, eventually running into a feeder stream of the Assiniboine River.

Based on geological maps, the subsurface stratigraphy in this area of the city normally consists of topsoil and fill materials underlain by alluvial deposits of sand, silt, gravel and clay, to about 3 to 5 m below grade. A zone of clayey till is expected to occur between the clay and bedrock. The approximate depth of bedrock is 12 to 15 m below grade. The bedrock is in the Ashville Formation and consists of carbonaceous shale. Based on the Phase II field work, the subsurface soils investigated at the site are generally consistent with those described above.

The electrical (Manitoba Hydro), telephone (MTS) and cable service lines ran underground from the east side of the retail store to a transformer and switch boxes, respectively. The cables then ran north to the north side of the back lane and then east towards 14th Street. The natural gas and water lines ran underground from the north side of the retail store directly north to the north side of the back lane and then east towards 14th Street. The sewer line ran from the west end of the site to the east corner of the front (south side) of the retail store and then north to the north side of the backlane and east towards 14th Street. Copies of the utility location requests for the site are provided in Appendix F.

2.0 METHODS

2.1 Soil Sampling Methods

Soil sampling was carried out from September 28 to October 2, 1998 with the aid of a truck mounted drill rig (CT250) fitted with a combination of a 150 mm solid stem auger and a 200mm hollow stem auger and a track rig (RM30) fitted with a combination of a 125 mm solid stem auger and 180mm hollow stem auger. The drill rigs were supplied and operated by Paddock Drilling of Brandon, Manitoba. The location of the test holes is illustrated in Appendix A.

At regular intervals, duplicate soil samples were removed either from the auger flights by hand (with clean latex gloves) or from a split spoon and sealed in clear plastic bags. The Ambient Temperature Headspace (ATH) vapor concentration was determined for one bagged soil sample at each sampling interval using a hexane calibrated GasTech Tracetector set on the no methane response mode and the samples were visually examined for signs of hydrocarbon contamination such as staining and odors. The duplicate soil sample was placed in a Teflon sealed glass jar for possible chemical analysis if visible signs of contamination were observed (staining) and/or high ATH readings were measured. Headspace in the glass jar was minimized to reduce analyte volatization before laboratory analysis.

All sample containers were labeled with the project number, date of sampling, name of sampler and sample depth. All jarred samples were immediately placed into an ice packed cooler. The jarred samples were retained in the ice packed cooler while in the field and during shipping to Enviro Test Laboratory in Winnipeg, Manitoba to reduce analyte volatization. A chain of custody/analytical request form was completed and sent with the soil samples. Jarred samples not required for analysis were held in cold storage at the laboratory for 30 days and then disposed of unless further analysis was requested.

2.2 Laboratory Analysis

Samples submitted for laboratory analysis and the laboratory methods used by Enviro Test Laboratory are presented in Table 1.

2.3 Quality Assurance/Quality Control

Analytical quality control is typically provided by the laboratory through duplicate analysis of randomly selected samples submitted for laboratory analysis and by determining the percent of spiked surrogate trifluorotoluene recovery for each sample submitted. Field quality assurance was provided by adherence to the soil sampling protocols as stated in Section 2.1.

No duplicate analysis was carried out by the laboratory for this project, however surrogate analyte recovery was within acceptable limits.

TABLE 1: LABORATORY ANALYSIS

Soil Sample	Analysis Requested	Laboratory Method Used
TH1-3 @ 1.5-2.0m	BTEX,TVH &TSH	BTEX & TVH: Modified EPA SW-846 Methods 5021/8015 & 8020 (ETL Method Number: A751.04) TSH: Modified EPA SW-846 Methods 3510, 3550A & 8000 (ETL Method Number: A782.03)
TH5-4 @ 2.1m	BTEX & TVH	
TH6-3 @ 1.5-2.0m	BTEX,TVH &TSH	
TH8-4 @ 2.1m	BTEX,TVH &TSH	
TH9-3 @ 1.5-2.0m	BTEX,TVH &TSH	
TH11-5 @ 2.7m	BTEX & TVH	
TH12-2 @ 0.9m	BTEX,TVH &TSH	
TH14-4 @ 2.1m	BTEX,TVH &TSH	
TH15-4 @ 2.1m	BTEX,TVH &TSH	
TH17-8 @ 3.8m	BTEX & TVH	
TH18-5 @ 2.7m	BTEX,TVH &TSH	
TH20-5 @ 2.7m	BTEX,TVH &TSH	
TH21-6 @ 3.1-3.5m	BTEX,TVH &TSH	
TH23-2 @ 0.9m	BTEX,TVH &TSH	
TH26-1 @ 0.3m	BTEX,TVH &TSH	
TH27-3 @ 1.5-2.0m	BTEX,TVH &TSH	
Water Sample	**Analysis Requested**	**Laboratory Method Used**
W4-1	BTEX,TVH & TSH	BTEX & TVH: EPA Method 563.1/ETL chemspec Analyt. Ltd MSOP14.06 (ETL Method Number: A787.03) TSH: Modified EPA SW-846 Methods 3510, 3550A & 8000A (ETL Method Number: A782.03)
W8A-1	BTEX,TVH & TSH	
W14-1	BTEX,TVH & TSH	
W23-1	BTEX,TVH & TSH	

BTEX - Benzene, Toluene, Ethylbenzene and Xylene
TSH - Total Semi-volatile Hydrocarbons
TVH - Total Volatile Hydrocarbons
EPA - W.S. Environmental Protection Agency, 1986. Test Methods for Evaluation of Solid Waste 3^{d}.Ed. Office of Solid Waste Emergency Response, U.S. Environmental Protection Agency, Washington, D.C.
BTEX, TSH & TVH analysis was requested for each of the above samples using the described methods (see appendix E).

3.0 RESULTS

3.1 Subsurface Conditions

Although highly variable in the upper 4 to 6 m, the soil profile within the property generally consists of the following, as noted in descending order from the ground surface:

- Asphalt, Fill Materials or Organic Soils
- Variable low plastic silt, clay and/or silty sand
- Low to medium plastic silty clay
- Medium Plastic clay till, with interbedded deposits of sand and gravel

A perched groundwater zone was typically present within 1.5 to 2.5 m of grade, although at some locations seepage did not occur immediately on completion of drilling. Groundwater was also present within the clay till, generally occurring within interbedded sand or gravel layers. Test hole logs are included in Appendix D.

The geotechnical report for the site investigation provides additional detail on the soil and groundwater conditions within each of the 4 primary building option locations.

After the completion of drilling, monitoring wells were installed to a depth of 4.6 m with a slotted section of 3.7m in each of TH4, 9, 14, 16, 17, 19, 22, and 23. Monitoring wells were installed in TH8A, TH26 and TH27 to depths of 4.0 m (3.1 m slotted), 2.8 m (2.8 m slotted) and 3.7 m (3.7 m slotted), respectively, because very wet sand and gravel layers were encountered and caused the holes to slough while the wells were being installed. The construction details of the monitoring wells are shown on the test hole logs. The groundwater monitoring wells were monitored by AEE personnel on October 6, 1998. The results of the monitoring are summarized in Table 2.

TABLE 2: GROUNDWATER and VAPOR MONITORING RESULTS			
MONITORING WELL	**SUBSURFACE ATH VAPOR CONCENTRATION**	**GROUNDWATER LEVEL (m below grade)**	**COMMENTS**
TH4	0	1.20	
TH8A	11000	1.25	Sheen on top of sample
TH9	0	1.10	
TH14	770	2.08	
TH16	440	1.00	
TH17	110	2.70	
TH19	110	2.62	
TH22	0	1.66	
TH23	11000	2.50	
TH26	0	1.50	
TH27	0	0.70	

* Vapor concentration results in Parts Per Million (PPM)

No free product was observed in the wells, however, a sheen was noted on the surface of the groundwater in TH8A during the October 6, 1998 monitoring event.

3.2 Site Classification

Applicable Guidelines and Remediation Criteria - Soil

In 1991, Canadian Council of Ministers of the Environment (CCME) established interim assessment and remediation criteria for soil and groundwater contaminants. The criteria were adopted from existing guidelines and criteria in use in Canada at that time. The interim criteria were to be modified as required to reflect emerging scientific data. Sites were classified as agricultural, residential/parkland, or commercial/industrial based on land use.

In 1993, Manitoba Environment (ME) published Petroleum Storage Sites: On-site Risk Management, in which sites were classified according to their sensitivity as determined by a site sensitivity assessment. Sites were classified as Level I, II or III for high, moderate and low sensitivity, respectively. For each level, remediation criteria for BTEX (benzene, toluene, ethyl benzene and xylenes), mineral oil and grease, lead, total semi-volatiles (TSH) and total volatile hydrocarbons (TVH) were established. In March 1997, the CCME Recommended Canadian Soil Quality Guidelines (SQG), overriding the CCME interim assessment and remediation criteria (1991) for a number of parameters, were published. The SQG are based on the lowest value generated by the environmental and human health approaches for each of four land uses: agricultural, residential/parkland, commercial, and industrial.

Subsequent to the publishing of the CCME SQG, ME adopted a three tiered approach for dealing with contaminated sites. The first tier consists of the direct adoption of the SQG. The second tier consists of evaluation of site specific conditions and limited modification of the SQG by setting site-specific objectives. The third tier relies on the use of risk assessment procedures to establish remediation objectives at contaminated sites on a site-specific basis.

The SQG do not have established guidelines for all of the parameters listed in the interim criteria. Therefore, the applicable guideline is often dependent on the parameter in question. In general the interim remediation criteria (1991) are applicable for some of the metal parameters, ME (1993) is applicable for TVH, TSH and mineral oil and grease and the SQG (1997) are applicable to BTEX and some metals.

Site Sensitivity Analysis and Determination of Site Specific Criteria

For the purpose of this assessment, AEE has adopted the first tier approach for the site assessment; that is, the default criteria are used in lieu of a site specific risk assessment.

A site sensitivity analysis was completed by AEE as described in the Manitoba Environment guidelines (1993). This procedure is used to aid in the determination of the appropriate remediation criteria and is not intended to be a comprehensive risk assessment of the site. The tables in Appendix C highlight the information used for the sensitivity analysis and summarize the ingestion and inhalation potential via the various human exposure pathways.

The site sensitivity ranking for the inhalation of vapours from soil was moderate and from groundwater low. Based on the present commercial land use and the sensitivity analysis, the CCME SQG for a commercial site are considered to be the applicable guidelines for BTEX concentrations.

3.3 Laboratory Analysis Results

The laboratory results from the Phase II investigation are summarized in Tables 3 (Soil) and 4 (Water). For comparative purposes, the Canadian Council of Ministers of the Environment (CCME) Recommended Canadian Soil Quality Criteria (SQG) (published March 1997) for BTEX compounds are presented in Table 3 and the Ontario Ministry of Environment Remediation criteria for groundwater in a non-potable setting with fine-grained soil is presented in Table 4. Since the CCME SQG do not have any established criteria for TSH and TVH, the ME Level II criteria (1993) for a moderately sensitive site are also shown alongside the test results. The certificates of analysis for the laboratory testing are attached for reference in Appendix E.

TABLE 3: DETAILED CHEMICAL ANALYSIS RESULTS (SOIL)

PARAMETER	Benzene	Ethylbenzene	Toluene	Xylenes	TSH	TVH
MDL	0.02	0.03	0.02	0.01	5.0	5.0
CCME SQG COMMERCIAL Criteria	5.0	20.0	25.0*	17.0	NG	NG
ME LEVEL II Criteria	NA	NA	NA	NA	2000	150
TH1-3	0.5	2.9	1.3	10.0	400	47
TH5-4	6.6	2.6	4.6	15.1	NA	140
TH6-3	<0.02	3.4	1.8	10.4	2900	66
TH8-4	6.1	5.1	0.7	36.3	26000	320
TH9-3	0.17	<0.03	0.94	4.5	250	50
TH11-5	<0.02	<0.03	0.04	0.48	NA	7
TH12-2	0.09	<0.03	0.02	0.24	910	6
TH14-4	<0.02	0.07	<0.02	0.46	330	5
TH15-4	<0.02	3.3	<0.02	14.1	620	24
TH17-8	0.08	0.49	<0.02	1.36	NA	9
TH18-5	5.8	6.3	22	55	400	150
TH20-5	37	7.4	17	66	53	740
TH21-6	2.7	7.9	4.5	18.8	220	150
TH23-2	1.1	1.7	0.89	7.9	26000	61
TH26-1	0.79	0.96	1.0	2.9	18000	62
TH27-3	0.02	<0.03	<0.02	0.07	21	5

Notes: All results are in mg/kg unless otherwise indicated. NA/NG - No analysis performed
* Manitoba Environment Criteria have been superseded by CCME SQG.
* Groundwater Ingestion Pathway not applicable

The soil analytical results summarized in Table 3 indicated exceedances of the relevant criteria in various samples for benzene, xylenes, TSH and TVH. A toluene guideline level of 25 mg/kg was selected for the soil remediation criteria since groundwater on site is not used for drinking.

TABLE 4: DETAILED CHEMICAL ANALYSIS RESULTS (WATER)						
PARAMETER	**Benzene**	**Ethyl-benzene**	**Toluene**	**Xylenes**	**TSH**	**TVH**
MDL	0.5	0.5	0.5	0.5	100	100
MOE Commercial Criteria	12000	50000	37000	35000	NG	NG
TH4	2.4	0.7	3.6	7.7	5000	<100
TH8A	41	0.5	0.7	10.2	39000	<100
TH14	1600	150	2100	3800	3100	7900
TH23	69	<0.5	28	109	2900	250

Notes: All results are in µg/L unless otherwise indicated.
NA/NG - No analysis performed / No applicable guideline

As noted in Table 4, environmental water quality parameters tested did not exceed the applicable guidelines.

4.0 DISCUSSION

Option 1A/1B (TH1-TH6)

Laboratory analysis of soil samples and field measured ATH vapor concentrations indicate that residual hydrocarbon impacts are present in the soil within the footprint of building option 1A/1B. Exceedances of the CCME SQG criteria were noted in samples from TH5 and TH6 and elevated combustible vapor concentrations were noted in all testholes except TH4. Visual evidence of hydrocarbon impacts were noted in all testholes except TH5. Laboratory analysis of the groundwater in this area indicated an elevated dissolved TSH concentration in TH4. The vertical and horizontal extent of the impacts have not been delineated, but the impacts appear to be concentrated in the 1 to 3 m depth range and likely cover a majority of the building footprint.

Expansion to the north of the current store would require excavation of significant volumes of heavily impacted soil to control the potential for vapor migration into the new building. The presence of former refinery operations on site and to the north indicates a significant possibility of recontamination of any clean fill placed in the area. Similarly, the soil surrounding the Option 1B expansion is known to be impacted based on the present study and past studies. Any soil remediation carried out in this area should be part of a larger remediation plan.

Option 2 (TH7-TH12)

Laboratory analysis of soil samples and field measured ATH vapor concentrations indicate that residual hydrocarbon impacts are present in the soil within the footprint of building option 2. Exceedances of the CCME SQG criteria were noted in a sample from TH8, in the northeast corner of the building footprint. Elevated combustible vapor concentrations were noted in TH8 and TH11 and visual evidence of hydrocarbon impacts were noted in all testholes except TH9 and TH10. Laboratory analysis of the groundwater in this area indicated an elevated dissolved TSH concentration in TH8A. The vertical and horizontal extent of the impacts have not been delineated, but the impacts appear to be concentrated in the 1 to 3 m depth range.

Significant heavy hydrocarbon soil and vapor impacts were noted in TH8 and TH8A in the northeast portion of Option 2. It is expected that this zone would require remediation prior to construction and may involve a significant cost. Based on the present study, past investigations and historical information, the highly impacted zone which would likely require removal may cover an area of approximately 2500 m^2 within the footprint. The Option 2 area has the added disadvantage that according to the quarterly monitoring reports, it is downgradient of the heavily impacted area in which the present vapor extraction system is operating. Any clean fill placed in the building foundation would likely become impacted in the future.

Option 3A/3B (TH13-TH18)

Laboratory analysis of soil samples and field measured ATH vapor concentrations indicate that residual hydrocarbon impacts are present in the soil within the footprint of building option 3A/3B. Exceedances of the CCME SQG criteria were noted in samples from TH18 and elevated combustible vapor concentrations were noted in all testholes. Visual evidence of hydrocarbon impacts were noted in testholes TH15, TH17 and TH18. Laboratory analysis of the groundwater in this area indicated elevated concentrations of dissolved BTEX, TVH and TSH in the well installed in TH14. The vertical and horizontal extent of the impacts have not been delineated, but the impacts appear to be concentrated in the 1.5 to 3.5 m depth range, except in TH18, where staining was noted to a depth of 4.9 m.

The soil in the vicinity of TH18 was noted to be significantly impacted by hydrocarbons during the field investigation and would likely require removal prior to construction. Also, TH20 near the northwest portion of Options 3A/3B had benzene and xylene concentrations in excess of the relevant criteria. The area requiring removal in the vicinity of TH18 may be approximately 1250 m^2. The area in the vicinity of TH16 is also known to be impacted with elevated hydrocarbon vapors and a portion of the present vapor extraction system is operating nearby. The area in the vicinity of TH16 requiring removal may be approximately 750 m^2. Given the apparent distribution of hydrocarbon impacts in the proposed footprint area, this option is less attractive than Option 3C.

Option 3C (TH10-TH13, TH16)

This option was added after the site investigation was completed, however five testholes (from Options 2 and 3) are within the footprint of this building option. Laboratory analysis of soil samples and field measured ATH vapor concentrations indicate that residual hydrocarbon impacts are present in the soil within the footprint of building option 3C. Exceedances of the CCME SQG criteria were not noted in any of the samples from Option 3C however elevated combustible vapor concentrations were noted in all testholes except TH10. Visual evidence of hydrocarbon impacts were noted in TH11 and TH12. Laboratory analysis of the groundwater at the site indicated an elevated dissolved TSH concentration in TH14. The vertical and horizontal extent of the impacts have not been delineated, but the impacts appear to be concentrated in the 1.5 to 3.5 m depth range.

The only zone with known significant hydrocarbon impacts in this area is in the vicinity of TH16, where a portion of the existing vapor extraction system is in operation. The area in the vicinity of TH16 requiring removal may be approximately 750 m^2. This area could be excavated prior to construction and measures taken to minimize future migration of contaminants into the footprint area. Option 3C appears to have the least impacts of the options under consideration.

Option 4 (TH23-TH28)

Laboratory analysis of soil samples and field measured ATH vapor concentrations indicate that residual hydrocarbon impacts are present in the soil within the footprint of building Option 4.

Exceedances of the CCME SQG criteria were noted in samples from TH23 and TH26 and elevated combustible vapor concentrations were noted in all testholes except TH24 and TH27. Visual evidence of hydrocarbon impacts were noted in all testholes except TH28. Laboratory analysis of the groundwater in this area indicated an elevated dissolved TSH concentration in the well installed in TH23. The vertical and horizontal extent of the impacts have not been delineated, but the impacts appear to be concentrated in the near-surface to 3 m depth range. The heavy oil impacts noted in TH23, TH25, TH26 and TH8/8A may be part of the same impacted area and may be the result of the reported historical storage of bunker oil in open bermed ponds. The area of this impacted zone may be approximately 4000 m^2 within the footprint of Option 4. The large amount of heavily impacted soil which would require remediation in this area makes it an undesirable building location.

Gas Bar (TH19-TH22)

Laboratory analysis of soil samples and field measured ATH vapor concentrations indicate that residual hydrocarbon impacts are present in the soil in the vicinity of the gas bar. As-built drawings showing the exact location of the underground fuel tanks and lines were not available so an exclusion zone around the tank area was established by Canadian Tire and the testholes were located outside of the exclusion zone. Exceedances of the relevant criteria were noted in samples from TH20 and TH21 and elevated combustible vapor concentrations were noted in testholes TH20 to TH22. Visual evidence of hydrocarbon impacts were also noted in testholes TH20 to TH22. Groundwater samples from wells in this area were not retrieved. The vertical and horizontal extent of the impacts have not been delineated, but the impacts appear to be concentrated in the 1.5 to 3.5 m depth range, except in TH21 where staining was noted to extend to a depth of 4.6 m.

Due to the proximity of the gas bar to areas of known hydrocarbon impacts to the immediate east and to the historical presence of bulk fuel storage in the area of the gas bar itself, it is difficult to determine if hydrocarbon impacts noted in TH20 to TH22 are due to the gas bar operations. Investigations carried out in 1990 noted elevated vapors in nearby monitoring wells, indicating that hydrocarbon impacts have been present for at least 8 years. Review of gas chromatograph scans for TEH analyses on soil samples from TH18, TH20 and TH21 indicate hydrocarbon components primarily in the gasoline range. The source of the gasoline in the subsurface could be past refining operations or leaks from the gas bar operations.

Groundwater

The results of the analysis of groundwater samples from four monitoring wells indicated that all four water samples had been impacted by hydrocarbons. The sample from TH14 in the southwest portion of Option 3A/3B was highly impacted. The analytical results have been compared to commercial criteria for fine-grained soil in a nonpotable groundwater situation. No exceedances of the MOE criteria were noted. The quarterly site monitoring program does not include laboratory analysis of groundwater samples although some groundwater analysis was carried out during the 1990 site investigation. Groundwater samples from the 1990 investigation were generally taken from areas of hydrocarbon impacts and this was reflected

in the analytical results. The most heavily impacted groundwater sample from the 1990 program had BTEX concentrations approximately 10 times greater than those in the sample from TH14. Gas chromatograph scans for the TH14 sample indicate impacts by gasoline while the scan from TH8A indicates impacts by diesel fuel or bunker oil. The scans from TH4 and TH23 show impacts by a wide range of hydrocarbon types, with some emphasis on the heavier fuels such as diesel or bunker oil.

The quarterly monitoring results indicate a west to east flow direction of groundwater in the perched aquifer (i.e. the sands, silts and clays above the till layer). The irregular distribution of hydrocarbons in the subsurface at the site, coupled with the heterogeneous soil matrix in the upper 4 meters implies the presence of variable degrees of hydrocarbon impacts in the groundwater. It is likely that most groundwater on site has been impacted by historical activities. Building options which are located downgradient (i.e. to the east) of hydrocarbon impacted areas may be affected by vapors which are released by impacted groundwater.

Ranking

Based on the investigations carried out, hydrocarbon impacts for the various building options are summarized in Table 5. A qualitative ranking is shown, based on analytical results, ATH vapor readings and visual observations. As indicated in Table 5 the building option with the least apparent hydrocarbon impact is Option 3C, followed by Options 2, 3A/3B, 4 and 1A/1B.

TABLE 5: SUMMARY OF HYDROCARBON IMPACTS FOR BUILDING OPTIONS

CRITERIA	1A/1B	2	3A/3B	3C	4	GAS BAR
Testholes	6	6	7(note1)	5	6	4
Lab Samples Submitted	3	4	4	3	3	2
Samples with Exceedances	2	1	1	0	2	2
Testholes with Elevated Vapors	5	3	6	4	4	3
Testholes with Visible Impacts	5	4	3	3	5	3
Monitoring Wells Installed	1	2	3	1	3	2
Wells with Elevated Vapors	0	2	4	1	1	0
Groundwater Samples Taken	1	1	2	0	1	0
Water Samples with Exceedances	0	1	1	N/A	0	N/A
Approximate Area of Soil Requiring Removal (m^2)	5000+	2500	2000	750	4000	NC
Ranking of Degree of Impact (note 2)	E	B	C	A	D	N/A

Note 1 - TH19 (for gas bar) is also in footprint of Option 3
Note 2 - A is least impacted, E is most impacted
N/A - Not Applicable
NC - Not Calculated

5.0 CONCLUSIONS AND RECOMMENDATIONS

Laboratory analysis indicated that hydrocarbon parameter concentrations were generally relatively low, with occasional "hot spots". Benzene and xylene concentrations elevated slightly above CCME criteria (5.8 to 37 mg/kg benzene and 18.8 to 66 mg/kg total xylenes respectively) were noted near the gas bar in TH18, TH20 and TH21, on the west side of the existing store in TH5 and approximately 60 m southeast of the existing store in TH8. Evidence of historical oil storage in earthen berms was found in TH8, TH23, TH25 and TH26 in the eastern portion of the site. Total extractable hydrocarbon analysis results of 18000 to 26000 mg/kg were noted in samples from these test holes. Analytical results from the majority of samples did not show exceedances of CCME criteria. Nevertheless, it is our opinion that significant volumes of hydrocarbon impacted soil are present on the site. All of the options reviewed would require some excavation of impacted soil prior to construction.

The results of the Phase II ESA indicated that Building Option 3C appeared to be the least impacted by residual hydrocarbons. Option 2 was ranked below Option 3C and appears to be slightly more impacted. Option 3A/3B was more impacted than Option 2 with Options 1A/1B and 4 being the most impacted. From an environmental standpoint the preferable option is Option 3C. As noted above, all of the options assessed showed evidence of hydrocarbon impacts and the extent of hydrocarbon impacts has not been fully delineated in any of the areas on site.

Additional testholes are recommended in the footprint area of the option which is selected for construction to determine the amount and cost of the removal of impacted soil and replacement with compacted fill.

A deep pile system could provide a pathway for migration of hydrocarbons in the groundwater to deeper aquifers, and should be considered with caution.

Laboratory analysis of soil samples from the vicinity of the gas bar indicates the presence of hydrocarbons which appear to be gasoline based on gas chromatography analysis. The USTs in the gas bar should be precision leak tested, the volume records reviewed and the piping be pressure tested to ensure that fuel is not leaking at present. If required, remediation of soils in the vicinity of the gas bar should be conducted in conjunction with remediation of the remainder of the site and not as an isolated activity.

The monitoring reports in Manitoba Environment files have not evaluated the performance of the vapor extraction system or the degree of remediation which has been attained as compared to the operating costs. The operations of the present vapor extraction system on the site should be reviewed since it has been operating for eight years without an evaluation of it's effectiveness.

6.0 CLOSURE

The findings of this report were based on AEE's field observations and analytical testing completed on selected soil and groundwater samples. Laboratory testing was conducted specifically for the substances as indicated in the Certificates of Analysis. The possible presence of any other contaminants was not investigated. This report is intended to reduce, but not eliminate, uncertainty regarding the potential for recognized environmental conditions in connection with the property, given reasonable limits of time and cost. No other warranty, expressed or implied is made.

Yours truly,

AGRA Earth & Environmental Limited

for David Bynski, B.Sc. C.E.

Reviewed by:

Kimber Osiowy, M.Sc., P.Eng.
Group Leader, Environmental Assessment

Dist: (4) Mr. Tat-Liang Cheam, Nejmark Architects

WX-04528.2wpd

7.0 REFERENCES

Canadian Council of Ministers of the Environment. 1991. Interim Environmental Quality Criteria for Contaminated Sites. CCME EPC-CS34.

Canadian Council of Ministers of the Environment. 1997. Recommended Canadian Soil Quality Guidelines.

Manitoba Environment. 1998. Guideline for Environmental Site Investigations in Manitoba.

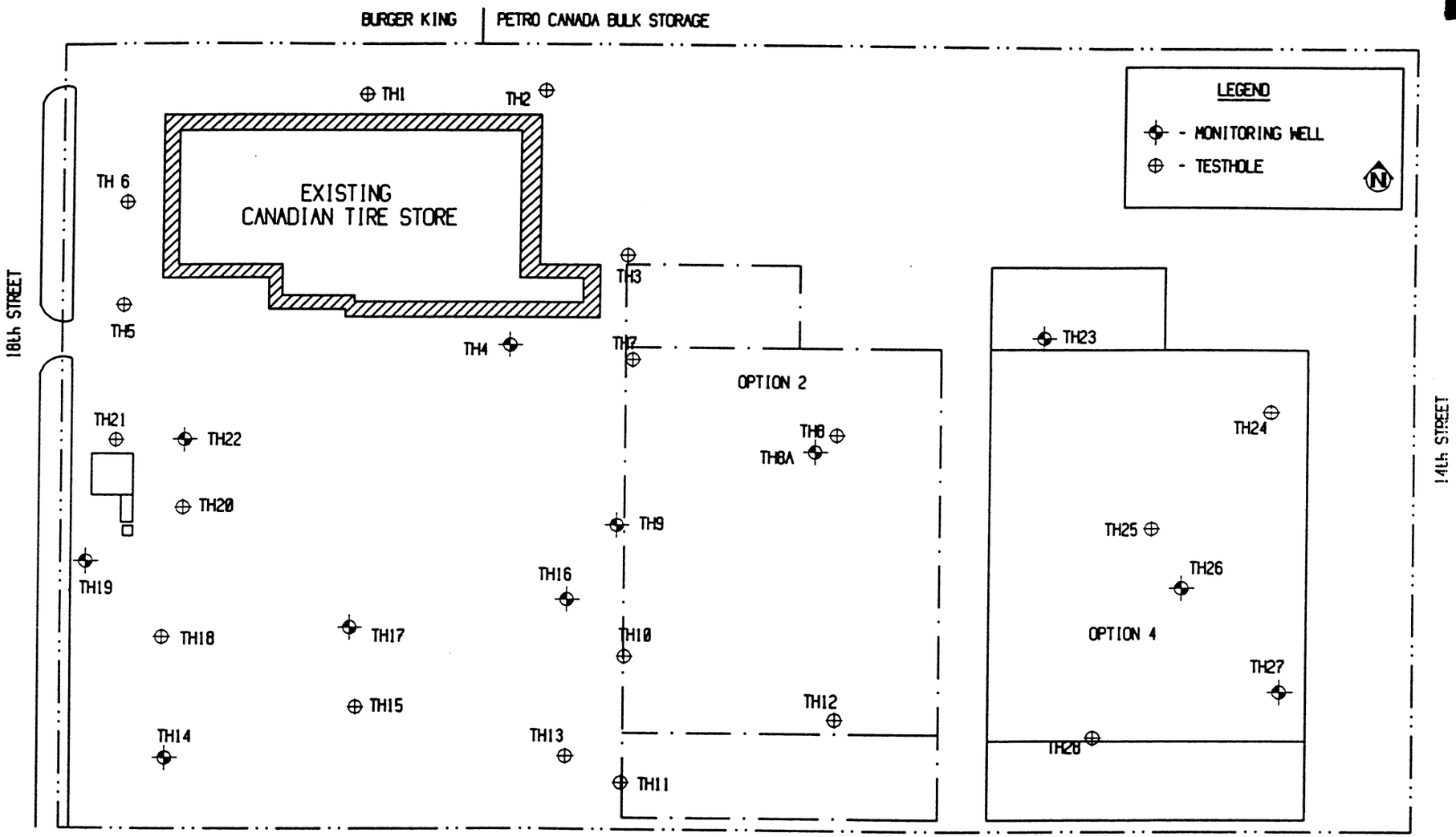
Manitoba Environment. 1993. A Guideline for the Environmental Investigation and Remediation of Petroleum Storage Sites in Manitoba.

Geokwan Engineering Limited. June 18, 1990. Report to Canadian Tire Corporation Limited: Environmental Site Assessment - Stage 2 - 4.

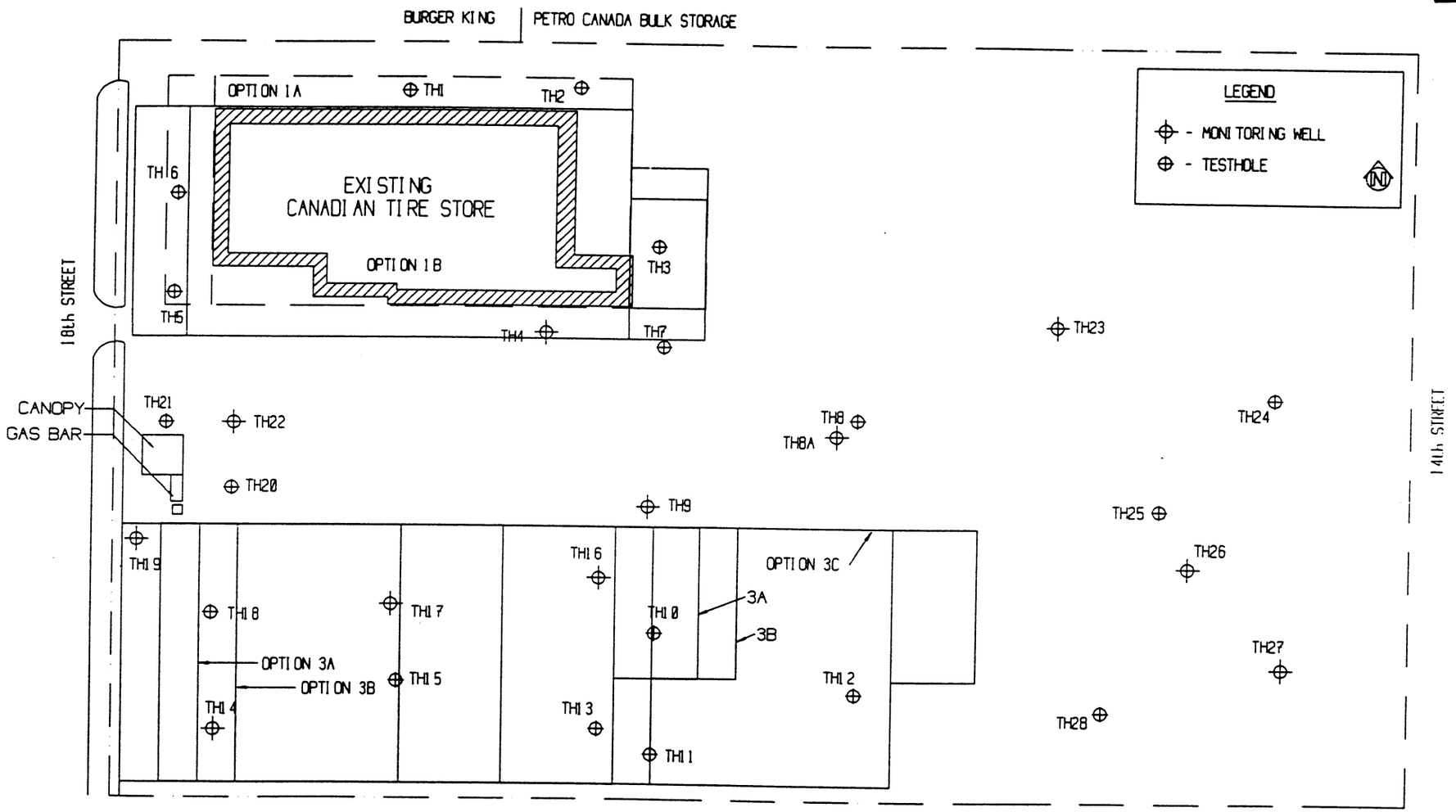
UMA Engineering Limited. July 31, 1998. Performance Monitoring of Brandon, Manitoba Vapour Extraction System - Second Quarter, 1998.

APPENDIX A

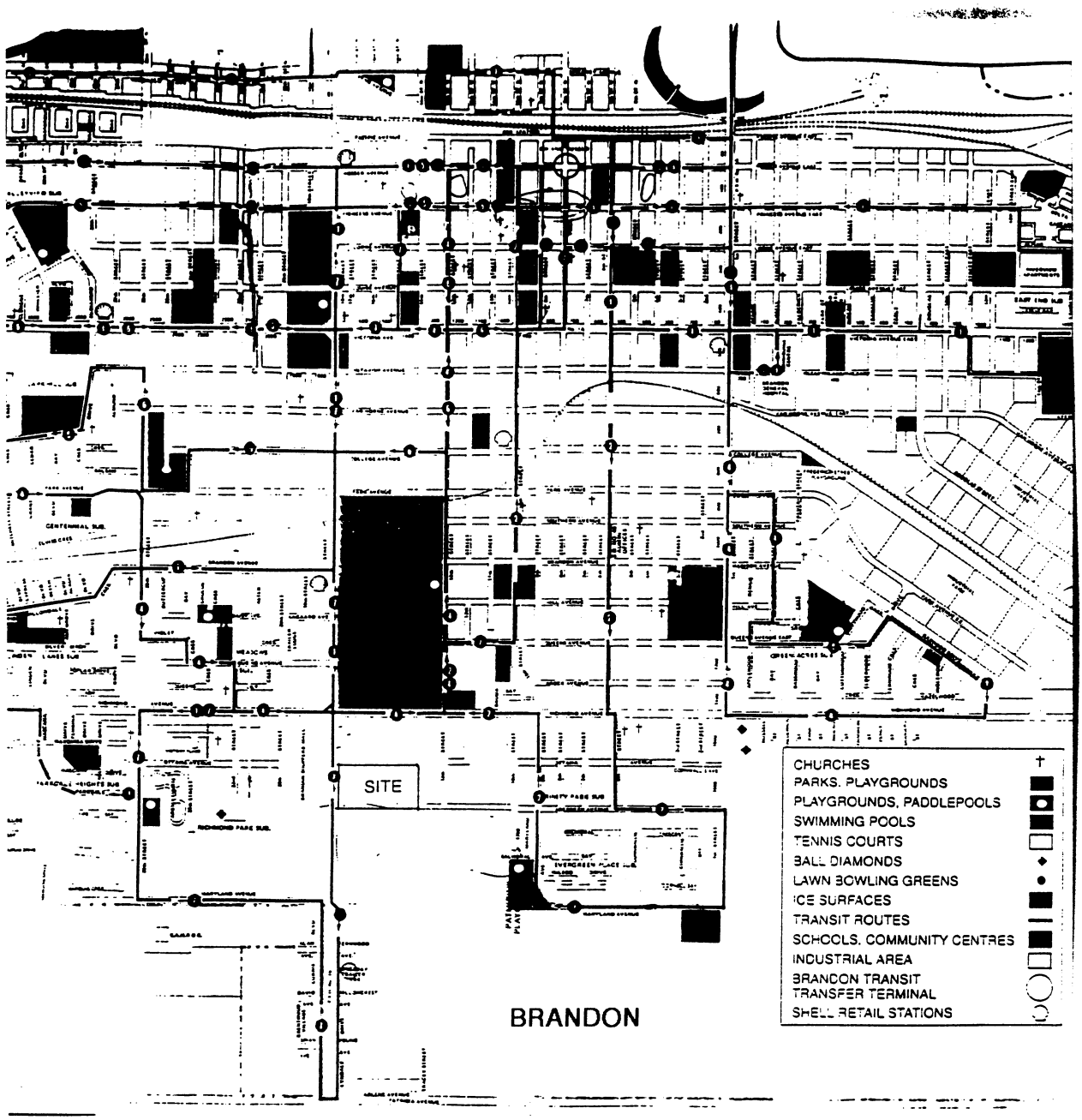
SITE FIGURES



AGRA Earth & Environmental Limited	TEST HOLE LOCATION PLAN SHOWING OPTIONS 2 and 4 PHASE II ENVIRONMENTAL SITE ASSESSMENT 1655 - 18TH STREET BRANDON, MANITOBA			
CANADIAN TIRE CORPORATION LIMITED				
Drawn : DS/PDC	Scale: ≈ 1:1,500	Date: OCT/98	Project No.:WX-04528	Figure: A2



AGRA *Earth & Environmental Limited*		**TEST HOLE LOCATION PLAN SHOWING OPTIONS 1A, 1B, 3A, 3B and 3C PHASE II ENVIRONMENTAL SITE ASSESSMENT 1655 - 18TH STREET BRANDON, MANITOBA**		
CANADIAN TIRE CORPORATION LIMITED				
Drawn : DS/PDC	Scale: ≈ 1:1,500	Date: OCT/98	Project No.:WX-04528	Figure: A1



AGRA
Earth & Environmental Limited

CANADIAN TIRE CORPORATION LTD

SITE LOCATION MAP
PHASE II ENVIRONMENTAL SITE ASSESSMENT
1655 18th STREET
BRANDON, MANITOBA

Drawn: DB	Scale: as shown	Date: OCT/98	Project No.:WX04528.2	Figure:A3

APPENDIX B

STATEMENT OF LIMITATIONS

STATEMENT OF LIMITATIONS

1. The work performed in this report was carried out in accordance with the standard terms of conditions made part of this contract. The conclusions presented herein are based solely upon the scope of services and time and budgetary limitations described in our contract.

2. The report has been prepared in accordance with generally accepted environmental study and/or engineering practices. No other warranties, either expressed or implied, are made as to the professional services provided under the terms of our contract and included in this report.

3. The services performed and outlined in this report were based, in part, upon visual observations of the site and attendant structures. Our opinion cannot be extended to portions of the site which were unavailable for direct observation, reasonably beyond the control of AGRA Earth & Environmental Limited.

4. The objective of this report was to assess the environmental conditions at the site, within the context of our contract and existing environmental regulations within the applicable jurisdiction. Evaluating compliance of past or future owners with applicable local, provincial and federal government laws and regulations was not included in our contract for services.

5. Our observations relating to the condition of environmental media at the site are described in this report. It should be noted that other compounds or materials other than those described could be present in the site environment.

6. The conclusions of this report are based in part, on the information provided by others. The possibility remains that unexpected environmental conditions may be encountered at the site in locations not specifically investigated. Should such an event occur, AGRA Earth & Environmental Limited must be notified in order that we may determine if modifications to our conclusions and recommendations presented herein, are necessary.

APPENDIX C

SITE SENSITIVITY ANALYSIS

TABLE A1: SITE SENSITIVITY FACTORS	
FACTOR	**SITE CHARACTERISTICS**
Site description	Retail store and Gas Bar
Surrounding Land Uses North: West: East: South:	 Commercial Commercial Commercial & Industrial Commercial & Agricultural
Groundwater Usage	Site: no use Southeast: irrigation
Surface Water	West part of site: catch basins in parking lot and on 18th Street East part of site: lagoon at southeast corner of site and south to agr. land
Underground Structures	MTS, Hydro, Cable, Gas, Water, Sewer along north property line running east
Subsurface Stratigraphy Soil profile Depth to Groundwater	 Paved sections: 1.5m of granular and clay fill followed by low plastic silt to 2.7m underlain by a high plastic clay followed by clay till Vegetated area: 0.6m of topsoil and sand fill followed by low plastic silt to 2.0m underlain by high plastic clay followed by clay till approximately 1.5 m below grade

TABLE A2 : SITE SENSITIVITY CLASSIFICATION				
Concern	**Receptor**	**Receptor Sensitivity**	**Likelihood of Impact**	**Sensitivity Ranking**
Ingestion	Groundwater: irrigation (adjacent sites)	Medium	Medium	*
	Surface water: irrigation (adjacent sites)	Medium	Medium	
Inhalation Soil	Surrounding agricultural land	Medium	Medium	Moderate
	Existing building on-site (commercial)	Medium	Low	
Groundwater	Surrounding agricultural land	Medium	Medium	Low
	Existing building on-site (commercial)	Medium	Low	

*- Water clean-up is normally not required.

Site sensitivity ranking is **Moderate**
Soil cleanup to **Level II**

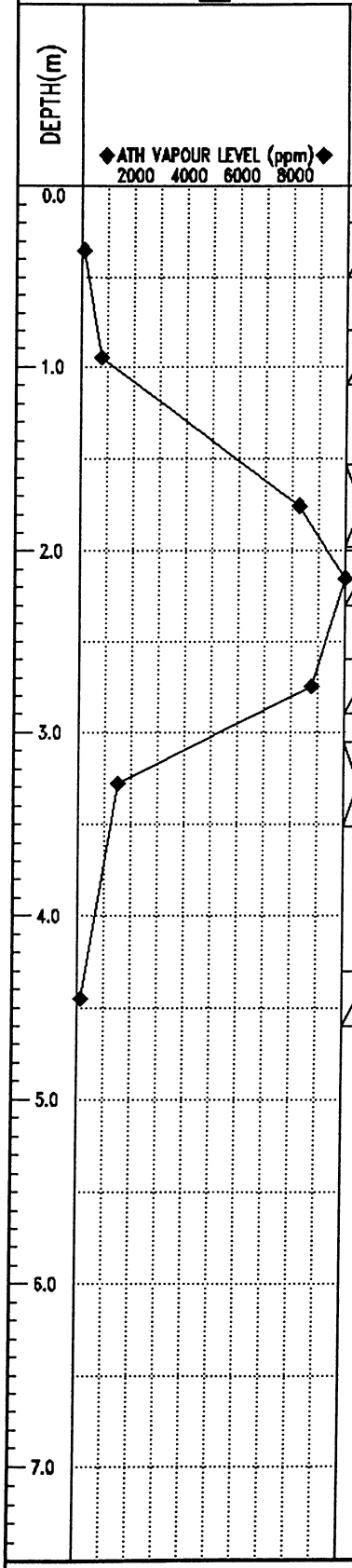
APPENDIX D

TESTHOLE LOGS

CANADIAN TIRE – BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 1
NEJMARK ARCHITECTS	DRILL RIG: CT250	PROJECT NO: WX04528.2.3
	AUGER: 125 MM	ELEVATION: 99.78 m

SAMPLE TYPE ■ SHELBY TUBE ▨ CUTTINGS ⊠ SPT ▤ CORE ▥ NO RECOVERY ▮ CONT. SAMPLE

BACKFILL TYPE ■ BENTONITE ∴ PEA GRAVEL ▥ SLOUGH ⁂ GROUT ▨ DRILL CUTTINGS ⁘ SAND



DEPTH(m)	SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION	INSTRUMENTATION DATA	COMMENTS	ELEVATION(m)
0.0					ASPHALT (100mm)			99.0
		1-1	SP		SAND (FILL) – poorly graded, fine to medium grained, loose to medium dense, silty, gravelly			
1.0		1-2					heavy hydrocarbons from 0.6 to 1.0m	
		1-3	SM		SAND – poorly graded, fine grained, moist, loose, dark brown, trace gravel Silty, clayey from 1.8 to 2.0m		sheen on soil from 1.8 to 2.0m	98.0
2.0		1-4					odour and staining from 2.8 to 3.0m	
		1-5	CI		CLAY – medium plastic, moist, stiff, brown, silty, black staining			97.0
3.0		1-6						
					CLAY (TILL) – medium plastic, moist, stiff, brown, gravelly, sandy			96.0
4.0		1-7	CI				hydrocarbons ended at 4.0m	
					Hole ended at 4.6m No sloughing or seepage at completion of drilling. Hole filled with cuttings and plugged with bentonite at top and bottom Asphalt repaired with ready-mix concrete			95.0
5.0								
6.0								94.0
7.0								93.0

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Winnipeg, Manitoba

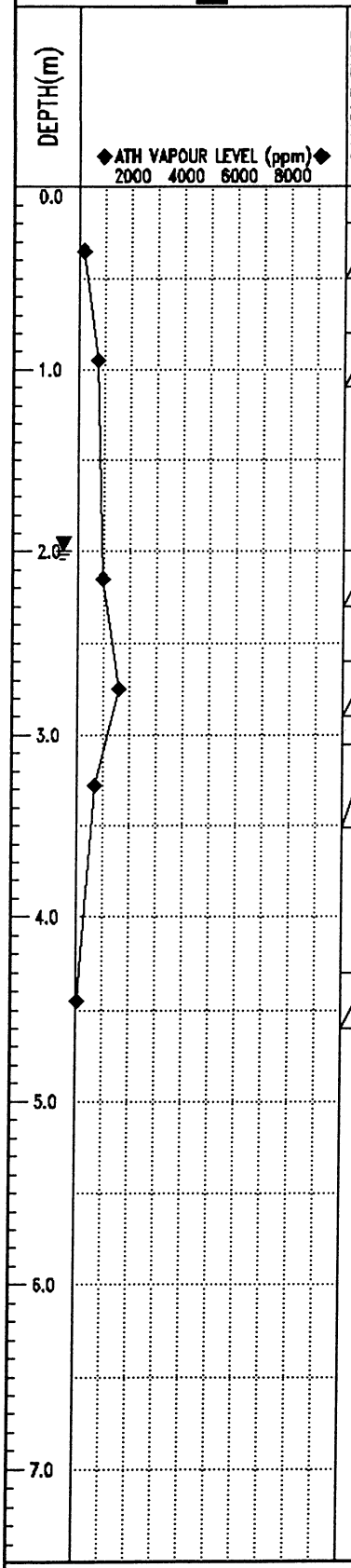
LOGGED BY: DB	COMPLETION DEPTH: 4.58 m
REVIEWED BY: KBO	COMPLETE: 10/02/98
Fig. No: A1	Page 1 of 1

98/10/23 01:32PM (PREVIEW)

CANADIAN TIRE - BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 2
NEJMARK ARCHITECTS	DRILL RIG: CT250	PROJECT NO: WX04528.2.3
	AUGER: 125 MM	ELEVATION: 99.58 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND



SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION	INSTRUMENTATION DATA	COMMENTS	ELEVATION(m)
				ASPHALT (100mm)			99.0
	2-1	SP		SAND (FILL) - poorly graded, fine to medium grained, moist, loose to medium dense, gravelly, silty			
	2-2	CL		CLAY (FILL) - low plastic, moist, firm, dark brown, very sandy, silty Concrete and gravel from 1.5 to 1.8m			98.0
	2-4			Wet at 2.0 m			
	2-5			CLAY - medium plastic, moist, firm to stiff, brown, trace sand Light brown below 3.0m		Heavy hydrocarbons at 2.6m	97.0
	2-6	CI		Low to medium plastic, very silty, firm below 4.0m			96.0
	2-7			Hole ended at 4.6m Sloughing and seepage from 2.0m below grade, water to 2.0m below grade immediately after drilling Hole filled with cuttings and plugged with bentonite at top and bottom Asphalt repaired with ready-mix concrete			95.0
							94.0
							93.0

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LOGGED BY: DB	COMPLETION DEPTH: 4.58 m
REVIEWED BY: KBO	COMPLETE: 10/02/98
Fig. No: A2	Page 1 of 1

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CANADIAN TIRE – BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 3
NEJMARK ARCHITECTS	DRILL RIG: CT250	PROJECT NO: WX04528.2.3
	AUGER: 125 MM	ELEVATION: 99.44 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

DEPTH(m)	ATH VAPOUR LEVEL (ppm) 2000 4000 6000 8000	SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION	INSTRUMENTATION DATA	COMMENTS	DEPTH(m)
0.0	◆					ASPHALT (50mm)			0.0
1.0	◆		3-1	SP		SAND (FILL) – poorly graded, fine to medium grained, moist, loose to medium dense, gravelly, silty			1.0
			3-2						
			3-3	CL		CLAY – low plastic, moist, soft to firm, black, silty		hydrocarbons at 2.0m	
2.0	◆		3-4	GP		Sandy below 1.5m			2.0
			3-5			GRAVEL – poorly graded, fine grained, moist, brown, some sand			
3.0	◆		3-6			CLAY – medium plastic, moist, stiff, brown, sandy			3.0
4.0						Light brown from 2.3 to 3.4m			4.0
5.0			3-8	CI		Sand intrusions, very stiff from 6.1 to 6.4m			5.0
6.0			3-9						6.0
7.0									7.0
8.0			3-10			CLAY (TILL) – medium plastic, moist, stiff, brown, gravelly, sandy			8.0
9.0						Very stiff below 6.0m			9.0
			3-11	CI		Sand layer from 9.2 to 9.3m			
10.0						Thin (0.2m thick) sand layers between 10.1 and 10.5m from grade			10.0
11.0			3-12						11.0
12.0						Hole ended at 11.1m			12.0
13.0						Sloughing and seepage to 10.0m below grade at completion of drilling			13.0
14.0						Hole filled with cuttings and plugged with bentonite at top, 4.6m below grade and bottom			14.0
15.0						Asphalt repaired with ready-mix concrete			15.0
16.0									16.0
17.0									17.0
18.0									18.0
19.0									19.0
20.0									20.0

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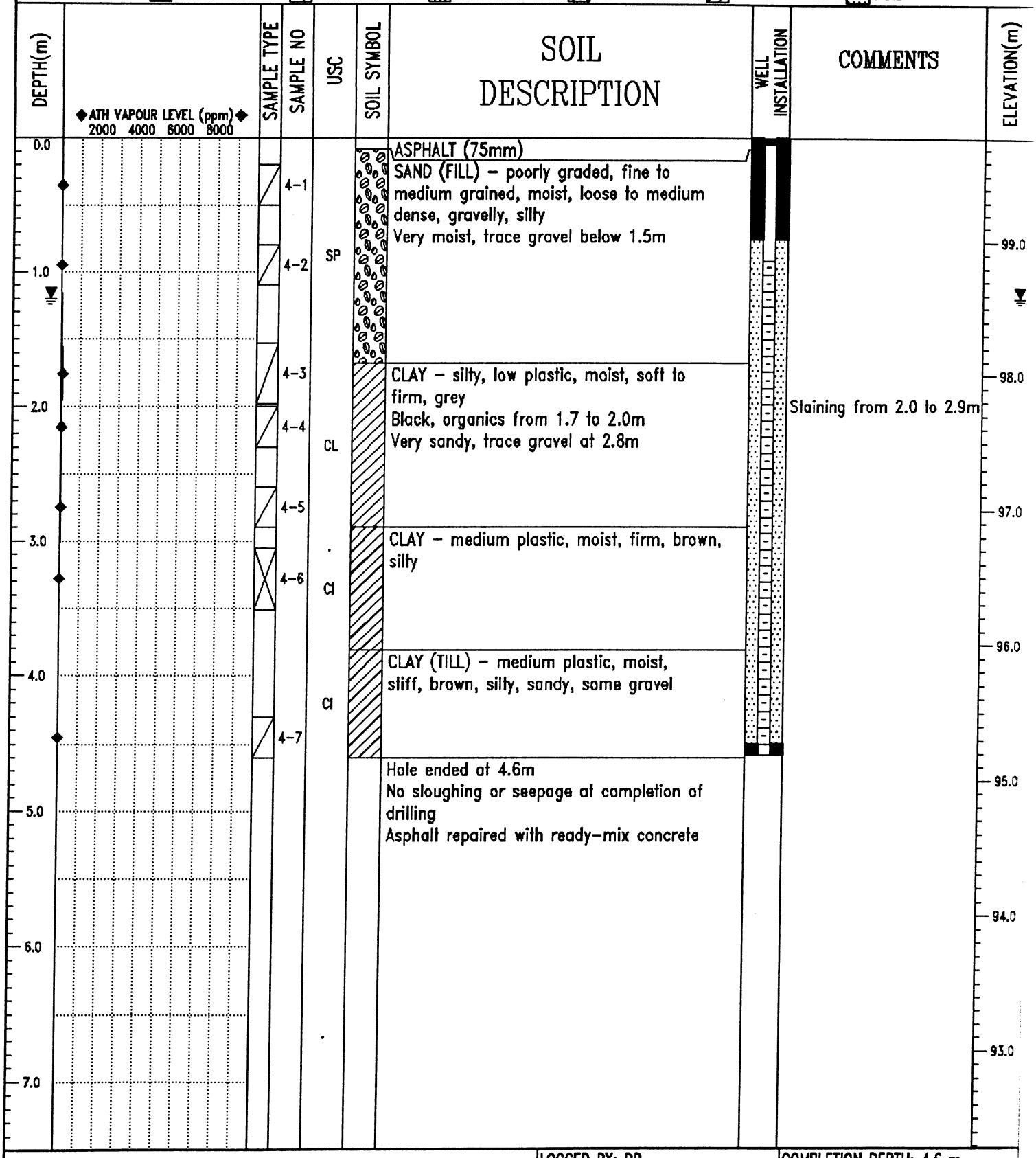
LOGGED BY: DB	COMPLETION DEPTH: 4.58 m
REVIEWED BY: KBO	COMPLETE: 10/02/98
Fig. No: A3	Page 1 of 1

CANADIAN TIRE – BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 4
NEJMARK ARCHITECTS	DRILL RIG: CT250	PROJECT NO: WX04528.2.3
	AUGER: 125 MM	ELEVATION: 99.78 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND



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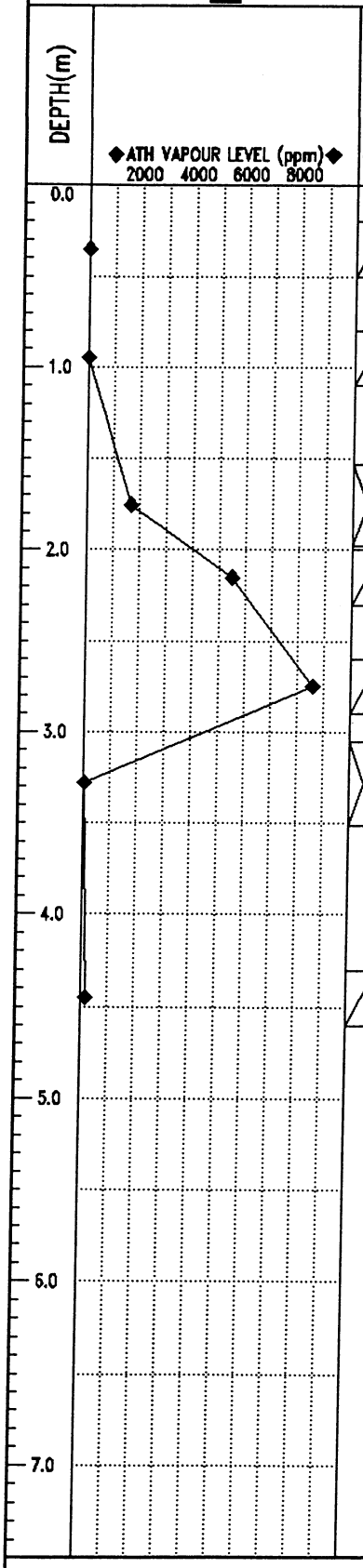
	REVIEWED BY: KBO	COMPLETE: 10/02/98
	Fig. No: A4	Page 1 of 1

98/10/26 05:54PM (PREVIEW)

CANADIAN TIRE – BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 5
NEJMARK ARCHITECTS	DRILL RIG: CT250	PROJECT NO: WX04528.2.3
	AUGER: 125 MM	ELEVATION: 99.84 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND



SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION	INSTRUMENTATION DATA	COMMENTS	ELEVATION(m)
				ASPHALT (125mm)			
	5-1	SP		SAND (FILL) – poorly graded, fine to medium grained, moist, loose to medium dense, gravelly, silty			
	5-2						99.0
		CI		CLAY – medium plastic, damp, stiff, black, sandy, trace gravel			
	5-3						98.0
	5-4	SM		SAND – silty, fine grained, brown, moist			
	5-5	CL-CI		CLAY – low to medium plastic, damp, firm to stiff, grey, very silty Medium plastic, brown at 3.2m			97.0
	5-6						
		CL		CLAY (TILL) – silty, sandy, low plastic, moist, very stiff, brown			96.0
	5-7						
				Hole ended at 4.6m No sloughing or seepage at completion of drilling Hole filled with cuttings and plugged with bentonite at top and bottom Asphalt repaired with ready-mix concrete			95.0
							94.0
							93.0

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LOGGED BY: DB	COMPLETION DEPTH: 4.58 m
REVIEWED BY: KBO	COMPLETE: 10/02/98
Fig. No: A5	Page 1 of 1

98/10/23 12:10PM (GEO_E7.5)

CANADIAN TIRE – BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 6
NEJMARK ARCHITECTS	DRILL RIG: CT250	PROJECT NO: WX04528.2.3
	AUGER: 125 MM SS / 150 MM HSA	ELEVATION: 99.6 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

DEPTH(m)	ATH VAPOUR LEVEL (ppm) 2000 4000 6000 8000	SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION	INSTRUMENTATION DATA	COMMENTS	DEPTH(m)
0.0						ASPHALT (100mm)			0.0
1.0			6-1	SP		SAND (FILL) – poorly graded, fine to medium grained, moist, loose to medium dense, gravelly, silty			1.0
			6-2			Very clayey, silty from 0.9 to 1.4m			
2.0			6-3	CL		SILT – clayey, low plastic, moist, firm to stiff, grey to black		Heavy staining from 2.4 to 2.6m	2.0
			6-4						
3.0			6-5						3.0
			6-6	CI		CLAY – silty, medium plastic, moist, stiff, brown, oxides			
4.0									4.0
			6-13			CLAY (TILL) – medium plastic, moist, stiff, brown			
5.0			6-8			Silt lenses from 3.3 to 4.5m			5.0
6.0						Grey clay, some gravel, stiff from 6.1 to 6.4m			6.0
7.0						Very stiff to hard below 7.0m			7.0
						Very sandy, wet from 7.6 to 8.0m			
8.0			6-10	CI		Very sandy, wet from 9.2 to 9.6m			8.0
9.0						Grey, silty, trace sand below 10.7m			9.0
			6-11						
10.0									10.0
11.0			6-12						11.0
12.0						Hole ended at 11.1m			12.0
						Sloughing and seepage to 7.6 m below grade at completion of drilling			
13.0						Hole filled with cuttings and plugged with bentonite at top and bottom			13.0
14.0						Asphalt repaired with ready-mix concrete			14.0
15.0									15.0
16.0									16.0
17.0									17.0
18.0									18.0
19.0									19.0
20.0									20.0

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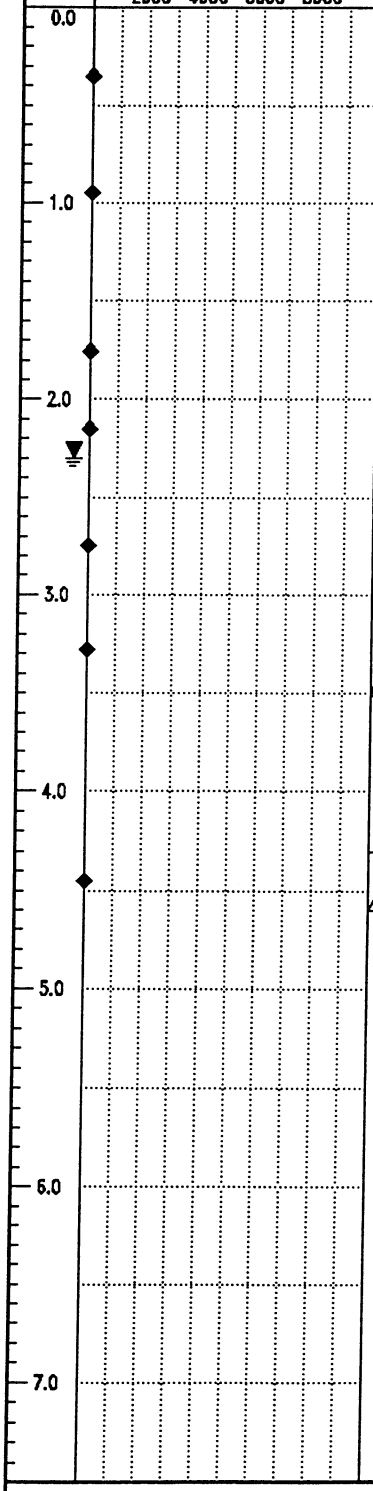
LOGGED BY: DB	COMPLETION DEPTH: 4.58 m
REVIEWED BY: KBO	COMPLETE: 10/02/98
Fig. No: A6	Page 1 of 1

98/10/28 05:57PM (GEO_E15)

CANADIAN TIRE – BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 7
NEJMARK ARCHITECTS	DRILL RIG: CT250	PROJECT NO: WX04528.2.3
	AUGER: 125 MM	ELEVATION: 99.15 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND



SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION	INSTRUMENTATION DATA	COMMENTS	ELEVATION(m)
				ASPHALT (75mm)			99.0
	7-1	SP		SAND (FILL) – poorly graded, fine to medium grained, moist, loose to medium dense, gravelly, silty			
	7-2	CI		CLAY – medium plastic, moist, firm, brown, silty Low plastic grey, sandy, trace organics below 1.4m			98.0
	7-3					Staining from 1.8 to 3.0m	
	7-4	CH		CLAY (TILL) – high plastic, moist, stiff, brown, gravelly, sandy Silty, sandy, brown from 2.4 to 3.0m			97.0
	7-5						
	7-6	SM		SAND – silty, brown, wet, loose to medium dense			96.0
		CI		CLAY (TILL) – medium plastic, moist, stiff, brown, gravel Grey/brown below 4.3m			95.0
	7-7						94.0
				Hole ended at 4.6m Slough to 2.8m below grade, seepage to 2.3m below grade at completion of drilling Hole filled with cuttings and plugged with bentonite at top and bottom Asphalt repaired with ready-mix concrete			93.0
							92.0

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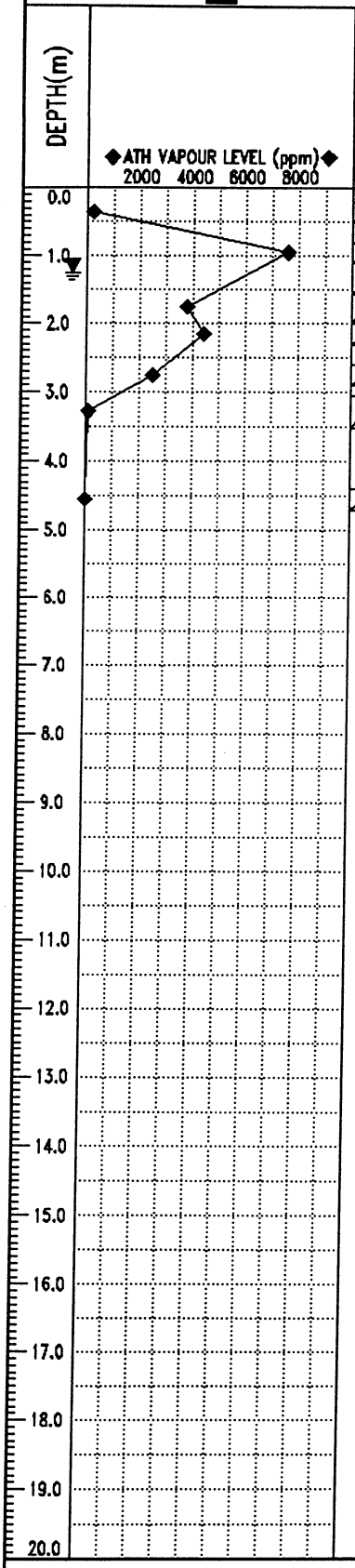
LOGGED BY: DB	COMPLETION DEPTH: 4.58 m
REVIEWED BY: KBO	COMPLETE: 10/02/98
Fig. No: A7	Page 1 of 1

98/10/23 12:11PM (GEO_E7.5)

CANADIAN TIRE – BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 8
NEJMARK ARCHITECTS	DRILL RIG: CT250	PROJECT NO: WX04528.2.3
	AUGER: 125 MM SS / 150 MM HSA	ELEVATION: 100.51 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND



SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION	COMMENTS
	8-1	OL		TOPSOIL – loamy, black, organics, roots, moist, grass, sandy, silty, gravelly	Monitoring well installed in TH8A
	8-2				Thick, heavy oil from 2.0 to 2.8m
	8-3	CL		CLAY (FILL) – low plastic, very moist, firm to stiff, dark brown, gravelly	
	8-4	CL		SILT – low plastic, moist, firm, brown, silty, sandy, gravelly Black, organics from 2.0 to 2.1m Wet from 2.1 to 2.4m	
	8-5				
	8-6	CH		CLAY – high plastic, moist, firm to stiff, brown, sandy, oxides Brown/grey from 4.0 to 4.3m Medium plastic, moist, brown, silty, some sand from 4.3 to 5.1m	
	8-7			CLAY (TILL) – medium plastic, moist, stiff, grey, gravelly	
		CI		Very stiff below 9 m	

The test hole was originally drilled to 4.7m with a solid stem auger, however was discontinued due to heavy seepage. Hole was completed 3.0m from original location using hollow stem augers.
Sloughing and seepage to 9.2m below grade at compeltion of drilling in TH8A.
TH8 was filled with bentonite.
TH8A was plugged with bentonite at the bottom, cuttings from 11.1 to 4.7m, bentonite from 4.7 to 2.8m and cuttings to grade.

DEPTH(m): 0.0, 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0, 11.0, 12.0, 13.0, 14.0, 15.0, 16.0, 17.0, 18.0, 19.0, 20.0

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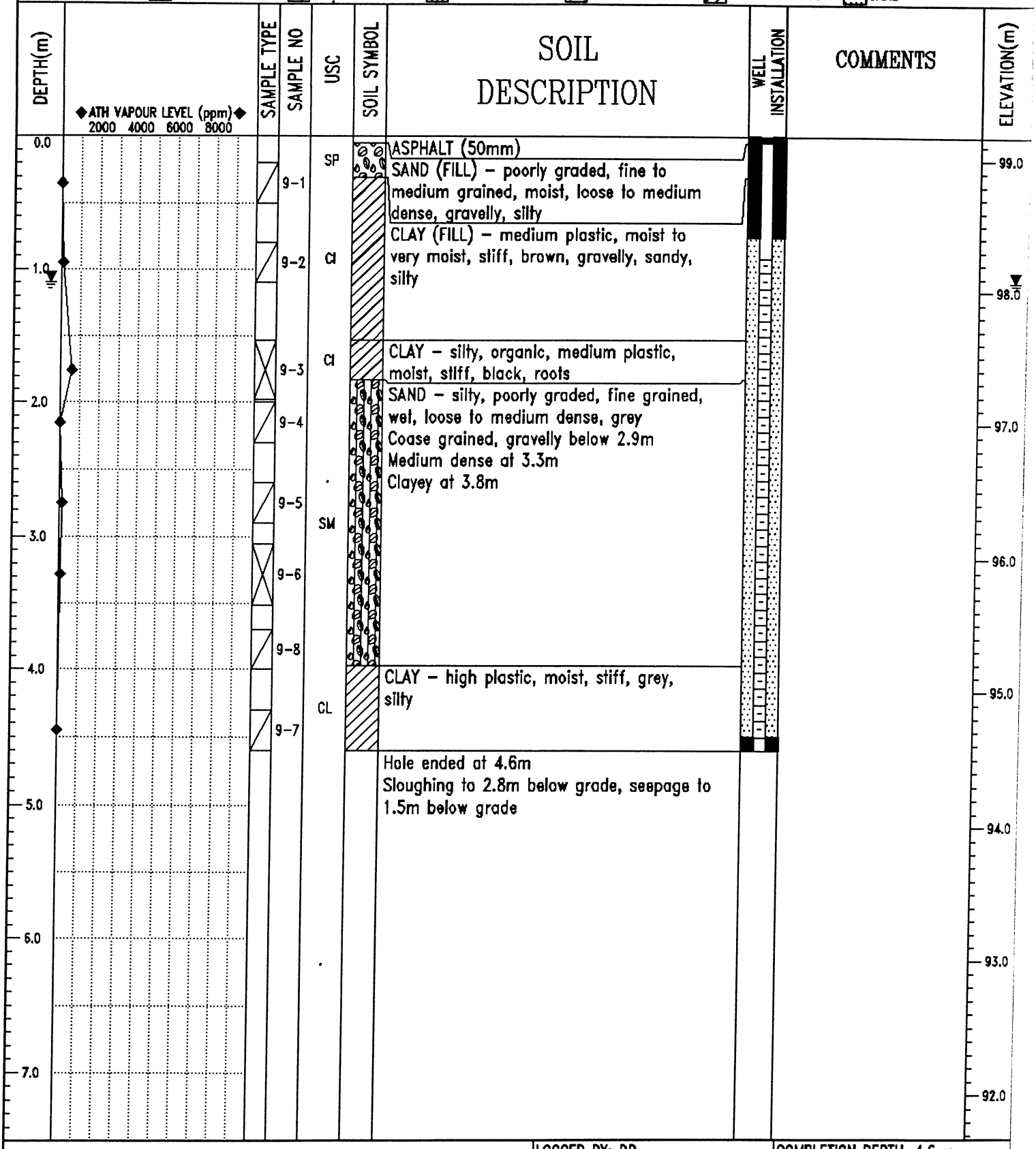
LOGGED BY: DB	COMPLETION DEPTH: 11.1 m
REVIEWED BY: KBO	COMPLETE: 10/02/98
Fig. No: A8	Page 1 of 1

98/10/26 08:00PM (PREVIEW)

CANADIAN TIRE - BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 9
NEJMARK ARCHITECTS	DRILL RIG: CT250	PROJECT NO: WX04528.2.3
	AUGER: 125 MM	ELEVATION: 99.17 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND



AGRA Earth & Environmental Limited Winnipeg, Manitoba	LOGGED BY: DB	COMPLETION DEPTH: 4.6 m
	REVIEWED BY: KBO	COMPLETE: 10/02/98
	Fig. No: A9	Page 1 of 1

98/10/28 04:02PM (GLD_LT.5)

CANADIAN TIRE – BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 10
NEJMARK ARCHITECTS	DRILL RIG: CT250	PROJECT NO: WX04528.2.3
	AUGER: 125 MM	ELEVATION: 99.66 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

DEPTH(m)	ATH VAPOUR LEVEL (ppm) 2000 4000 6000 8000	SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION	INSTRUMENTATION DATA	COMMENTS	ELEVATION(m)
0.0				OL		TOPSOIL – loamy, black, organics, roots, moist, grass			99.0
			10-1	CL		CLAY (FILL) – low plastic, moist, firm, black, organics, sandy, silty			
1.0			10-2	OL		LOAM – black, organics, roots, moist			
			10-3	SM		SAND – silty, poorly graded, fine to medium grained, wet, loose to medium dense, brown Clayey below 2.0m			98.0
2.0			10-4						
			10-5			CLAY – silty, medium plastic, moist, firm, brown Grey below 3.0m			97.0
3.0			10-6	CI					
									96.0
4.0			10-7	CI		CLAY (TILL) – medium plastic, moist, firm to stiff, brown, gravelly Brown/grey from 3.8 to 4.0m Trace gravel from 4.0 to 4.3m Sand lense from 4.5 to 4.6m			
						Hole ended at 4.6m Sloughing and seepage to 2.0m below grade at completion of drilling Hole filled with cuttings and plugged with bentonite at top and bottom			95.0
5.0									
									94.0
6.0									
									93.0
7.0									

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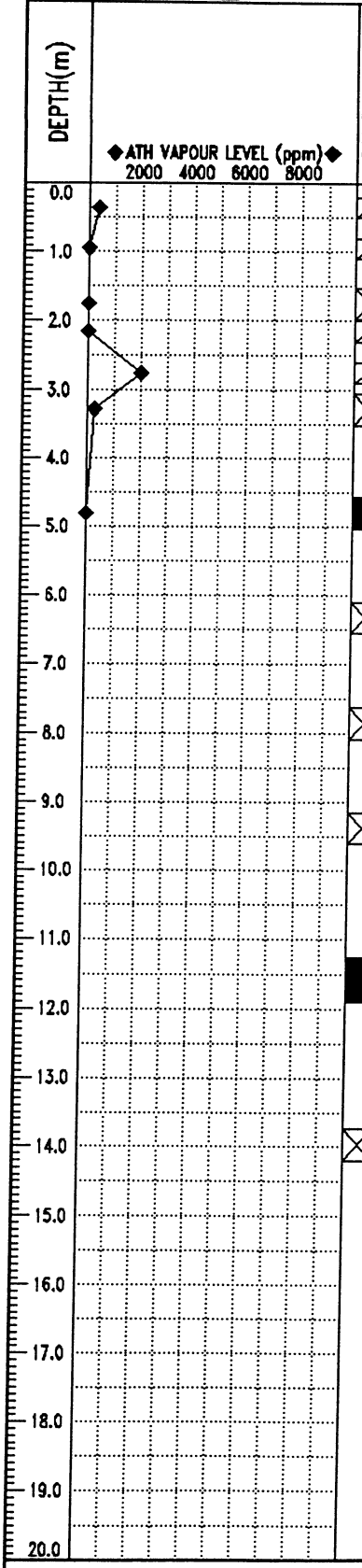
LOGGED BY: DB	COMPLETION DEPTH: 4.6 m
REVIEWED BY: KBO	COMPLETE: 10/02/98
Fig. No: A10	Page 1 of 1

98/10/23 12:12PM (GEO_E7.5)

CANADIAN TIRE – BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 11
NEJMARK ARCHITECTS	DRILL RIG: CT250	PROJECT NO: WX04528.2.3
	AUGER: 125 MM SS / 150 MM HSA	ELEVATION: 99.55 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND



SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION	INSTRUMENTATION DATA	COMMENTS
	11-1	OL		TOPSOIL – loamy, black, organics, roots, moist, grass, sandy, silty, gravelly		
	11-2	SM		SAND – silty, poorly graded, fine grained, very moist, loose to medium dense, brown Black, organics from 0.3 to 0.6m Very silty from 1.4 to 1.7m		
	11-3					
	11-4					
	11-5					
	11-6			CLAY – silty, medium plastic, moist, firm to stiff, brown/grey, oxides Some gravel from 2.8 to 3.0m Firm, grey from 6.1 to 6.6m		Staining from 2.4 to 3.0m
	11-7	CI				
	11-8					
	11-9			CLAY (TILL) – medium plastic, moist, stiff to very stiff, dark grey, gravelly		
	1-10			Very stiff below 9.0 m		
	1-11	CI				
	1-13			Hole ended at 14.2m Slight sloughing and seepage from sand layer from 0.3 to 2.1 at completion of drilling Hole filled with cuttings and bentonite at bottom and 2.8m below grade		

DEPTH(m): 0.0, 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0, 11.0, 12.0, 13.0, 14.0, 15.0, 16.0, 17.0, 18.0, 19.0, 20.0

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LOGGED BY: DB	COMPLETION DEPTH: 4.6 m
REVIEWED BY: KBO	COMPLETE: 10/02/98
Fig. No: A11	Page 1 of 1

98/10/26 04:17PM (PREVIEW)

CANADIAN TIRE – BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 12
NEJMARK ARCHITECTS	DRILL RIG: CT250	PROJECT NO: WX04528.2.3
	AUGER: 125 MM	ELEVATION: 100.11 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND

DEPTH(m)	ATH VAPOUR LEVEL (ppm) 2000 4000 6000 8000	SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION	INSTRUMENTATION DATA	COMMENTS	ELEVATION(m)
0.0				OL		TOPSOIL – loamy, black, organics, roots, moist, grass			100.0
			12-1	CL		CLAY (FILL) – low plastic, moist, soft, brown/black, organics, sandy, very silty, gravelly			
1.0			12-2	ML		SILT – low plastic, moist, soft to firm, brown/grey, sandy Very sandy, stiff from 1.8 to 2.0m Very clayey from 2.1 to 2.3m		Slight odour and staining from 1.0 to 2.3m	99.0
			12-3						
2.0			12-4	SM		SAND – silty, poorly graded, fine to medium grained, very moist, medium dense, grey			98.0
			12-5	CI		CLAY – silty, medium plastic, moist, stiff, brown/grey, oxides			
3.0			12-6			CLAY (TILL) – medium plastic, moist, firm to stiff, brown, gravel Brown/grey from 3.0 to 4.0m			97.0
4.0			12-7	CI					96.0
5.0						Hole ended at 4.6m Sloughing and seepage to 2.0m below grade Hole filled with cuttings and plugged with bentonite at top and bottom			95.0
6.0									94.0
7.0									93.0

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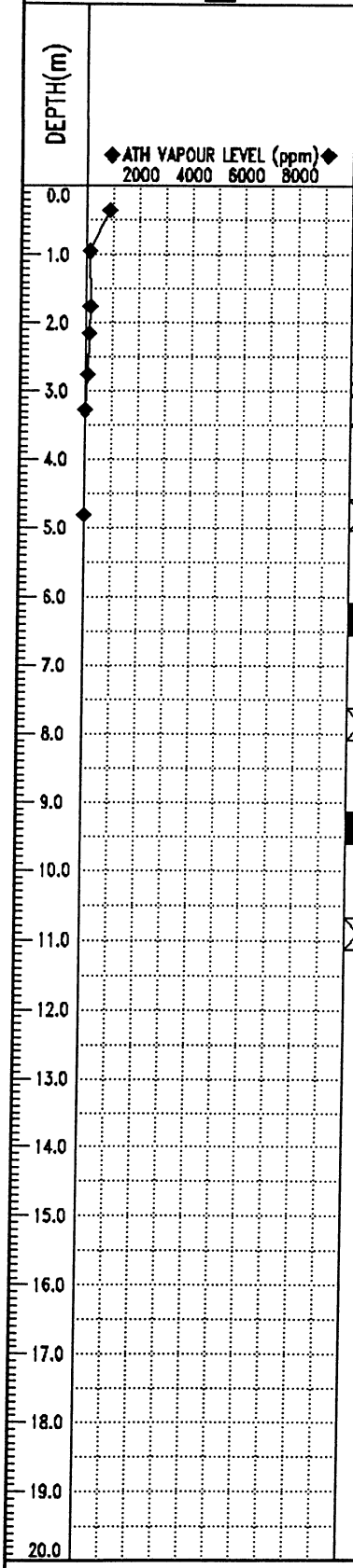
LOGGED BY: DB	COMPLETION DEPTH: 4.6 m
REVIEWED BY: KBO	COMPLETE: 10/02/98
Fig. No: A12	Page 1 of 1

98/10/23 12:13PM (GEO_LT.S)

CANADIAN TIRE – BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 13
NEJMARK ARCHITECTS	DRILL RIG: CT250	PROJECT NO: WX04528.2.3
	AUGER: 125 MM SS / 150 MM HSA	ELEVATION: 99.77 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND



SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION	INSTRUMENTATION DATA	COMMENTS
	13-1	OL		TOPSOIL – loamy, black, organics, roots, moist, grass, sandy, silty, gravelly		
	13-2	ML		SILT – low plastic, moist to very moist, firm, brown, very sandy, oxides Trace sand, trace clay below 2.0m		
	13-3					
	13-4					
	13-5					
	13-6	CL-CI		CLAY – very silty, low to medium plastic, moist, firm to stiff, brown/grey, oxide Some gravel from 2.8 to 3.0m		
	13-7					
	13-8	CI		CLAY (TILL) – medium plastic, moist, firm, grey, gravelly Stiff below 6.0m		
	13-9					
	3-10					
	3-11					
				Hole ended at 11.1m Sloughing and seepage to 10.0m below grade at completion of drilling Hole filled with cuttings and bentonite at bottom and top		

DEPTH(m): 0.0, 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0, 11.0, 12.0, 13.0, 14.0, 15.0, 16.0, 17.0, 18.0, 19.0, 20.0

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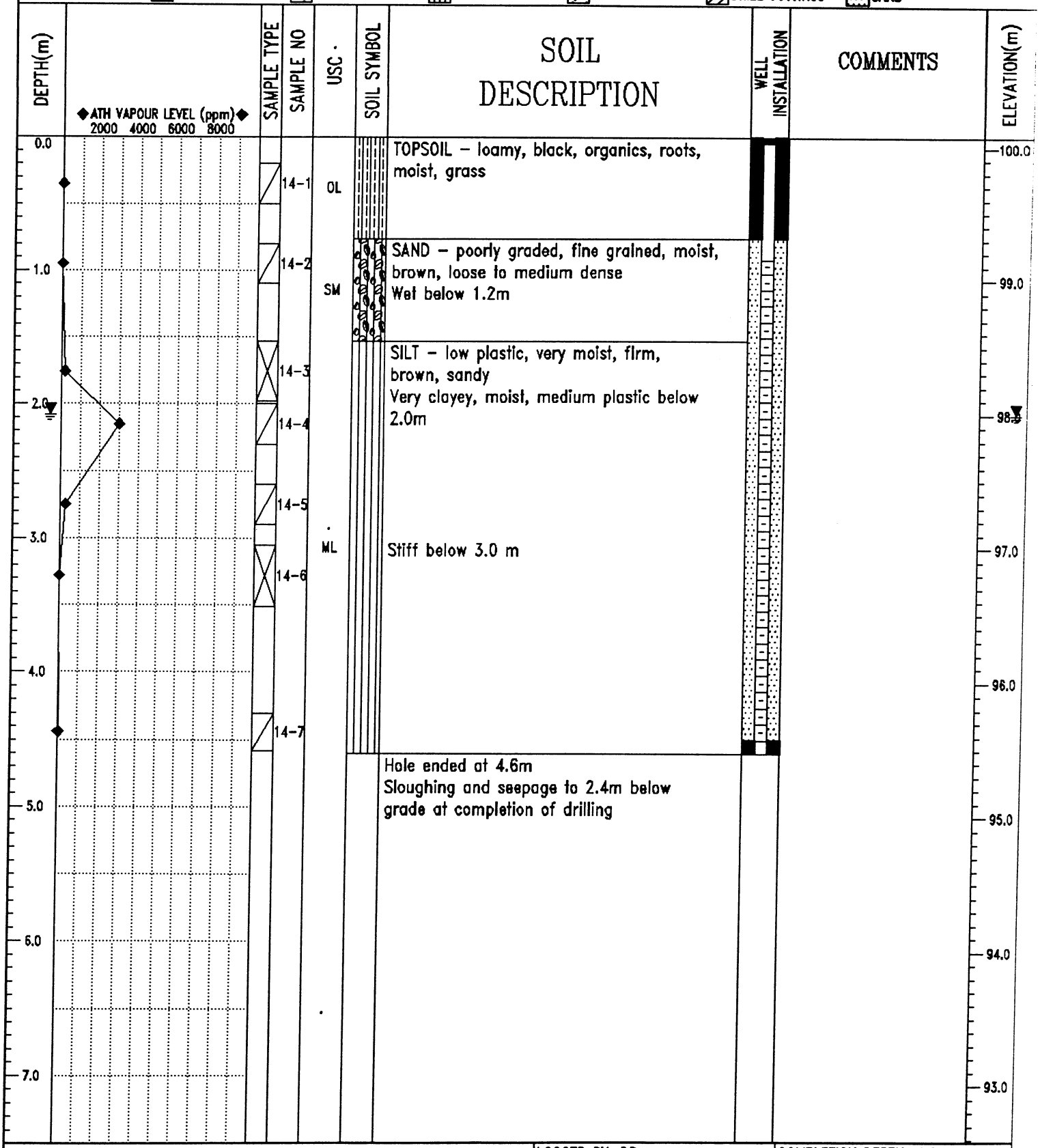
LOGGED BY: DB	COMPLETION DEPTH: 10.68 m
REVIEWED BY: KBO	COMPLETE: 10/02/98
Fig. No: C13	Page 1 of 1

98/10/26 08:09PM (GEO_E15)

CANADIAN TIRE – BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 14
NEJMARK ARCHITECTS	DRILL RIG: CT250	PROJECT NO: WX04528.2.3
	AUGER: 125 MM	ELEVATION: 100.08 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND



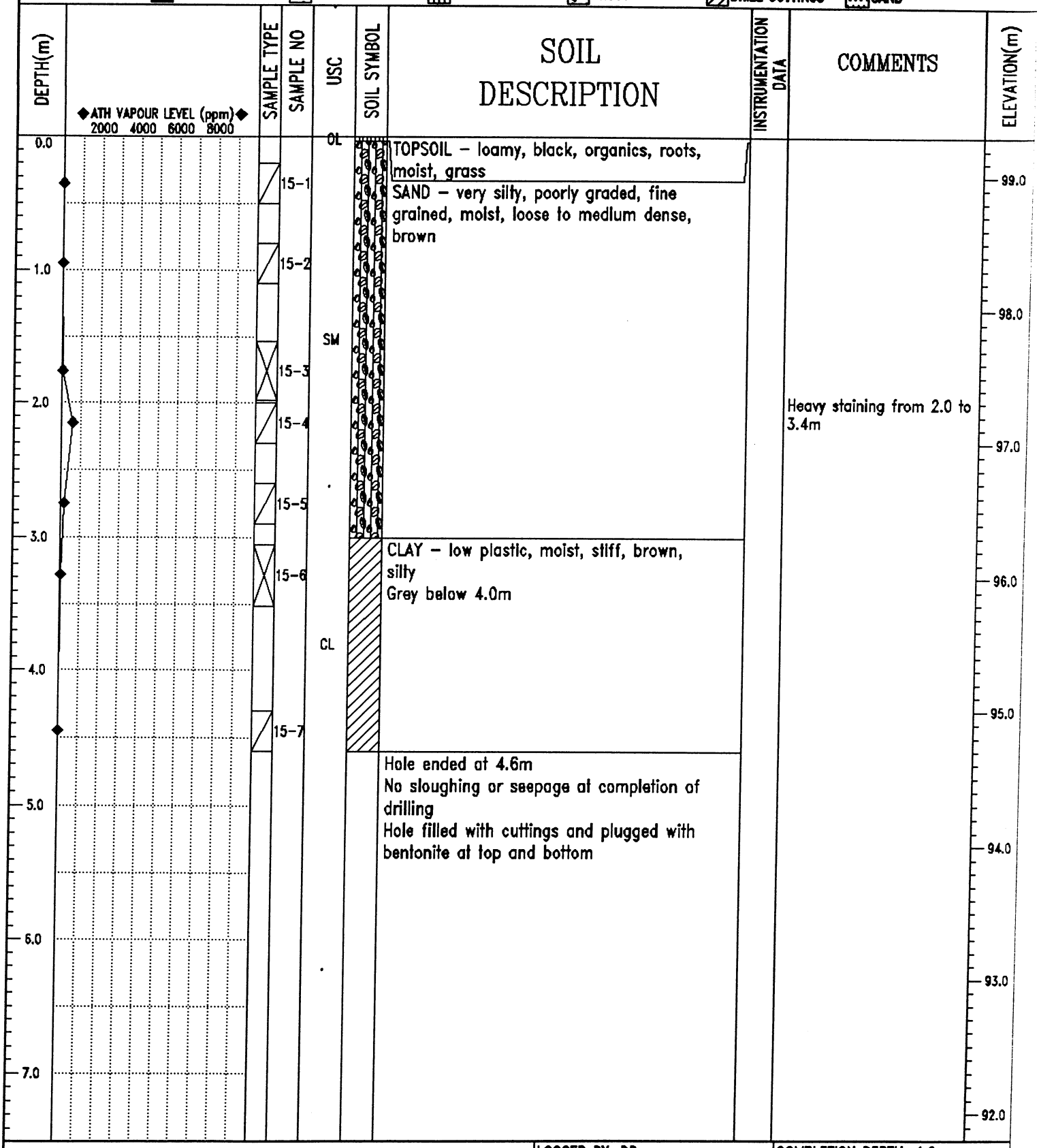
AGRA Earth & Environmental Limited Winnipeg, Manitoba	LOGGED BY: DB REVIEWED BY: KBO Fig. No: A14	COMPLETION DEPTH: 4.6 m COMPLETE: 10/02/98 Page 1 of 1

98/10/26 08:03PM (PREVIEW)

CANADIAN TIRE – BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 15
NEJMARK ARCHITECTS	DRILL RIG: CT250	PROJECT NO: WX04528.2.3
	AUGER: 125 MM	ELEVATION: 99.3 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND



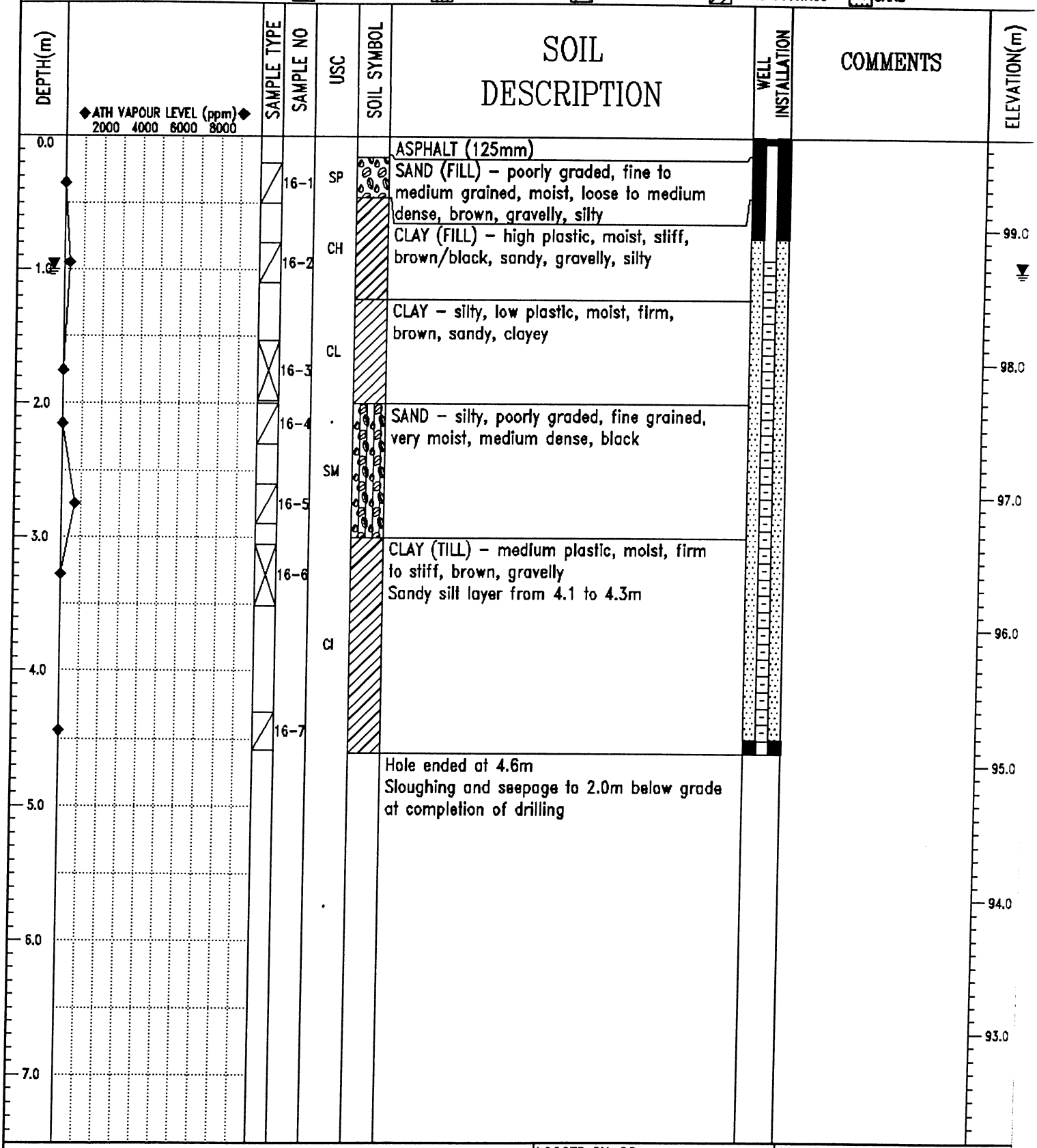
AGRA Earth & Environmental Limited Winnipeg, Manitoba	LOGGED BY: DB	COMPLETION DEPTH: 4.6 m
	REVIEWED BY: KBO	COMPLETE: 10/02/98
	Fig. No: A15	Page 1 of 1

98/10/23 12:14PM (GEO_E7.5)

CANADIAN TIRE – BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 16
NEJMARK ARCHITECTS	DRILL RIG: CT250	PROJECT NO: WX04528.2.3
	AUGER: 125 MM	ELEVATION: 99.69 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND



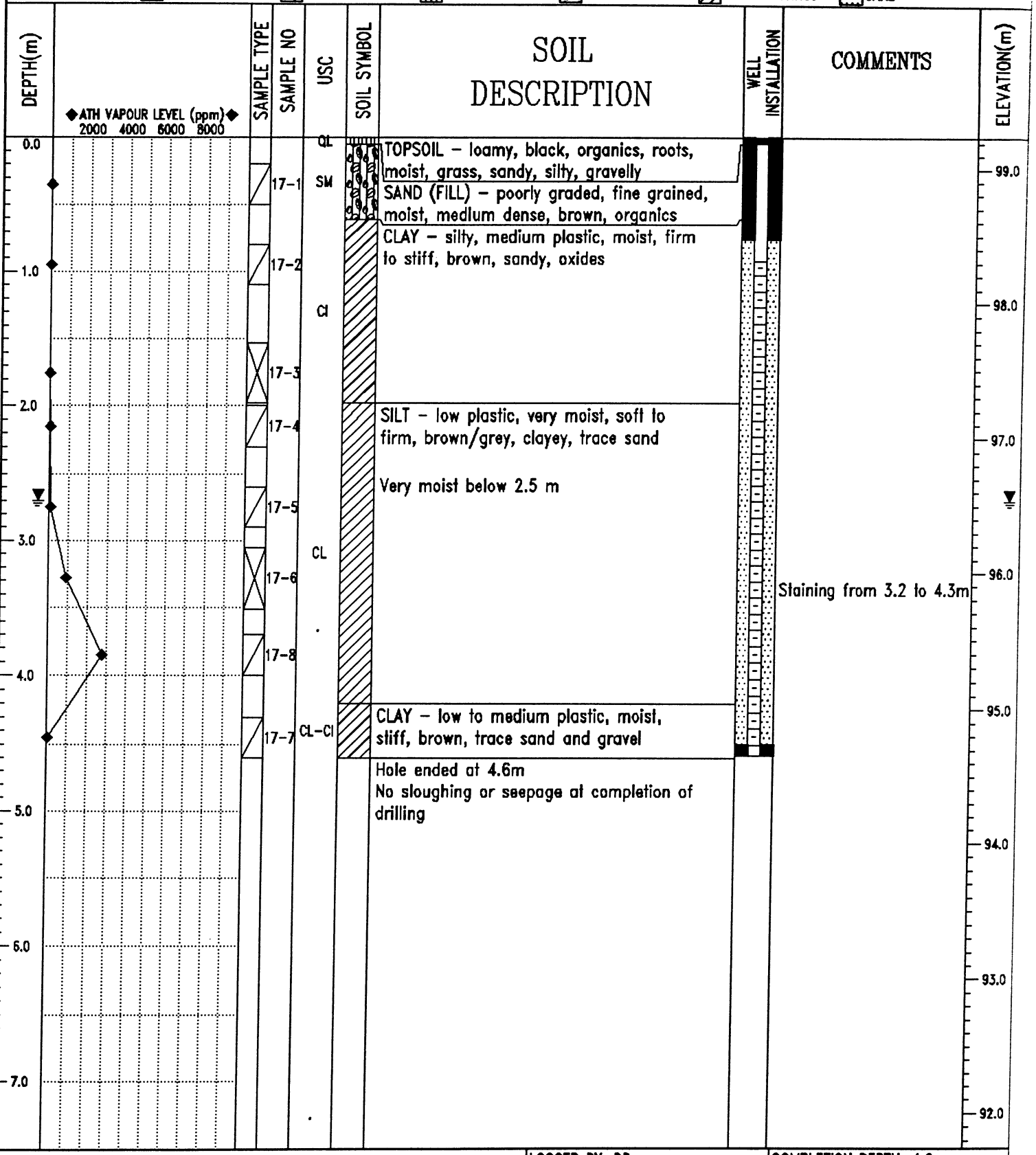
AGRA Earth & Environmental Limited Winnipeg, Manitoba	LOGGED BY: DB	COMPLETION DEPTH: 4.6 m
	REVIEWED BY: KBO	COMPLETE: 10/02/98
	Fig. No: A16	Page 1 of 1

98/10/28 08:04PM (GEO_E7.5)

CANADIAN TIRE - BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 17
NEJMARK ARCHITECTS	DRILL RIG: CT250	PROJECT NO: WX04528.2.3
	AUGER: 125 MM	ELEVATION: 99.24 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND



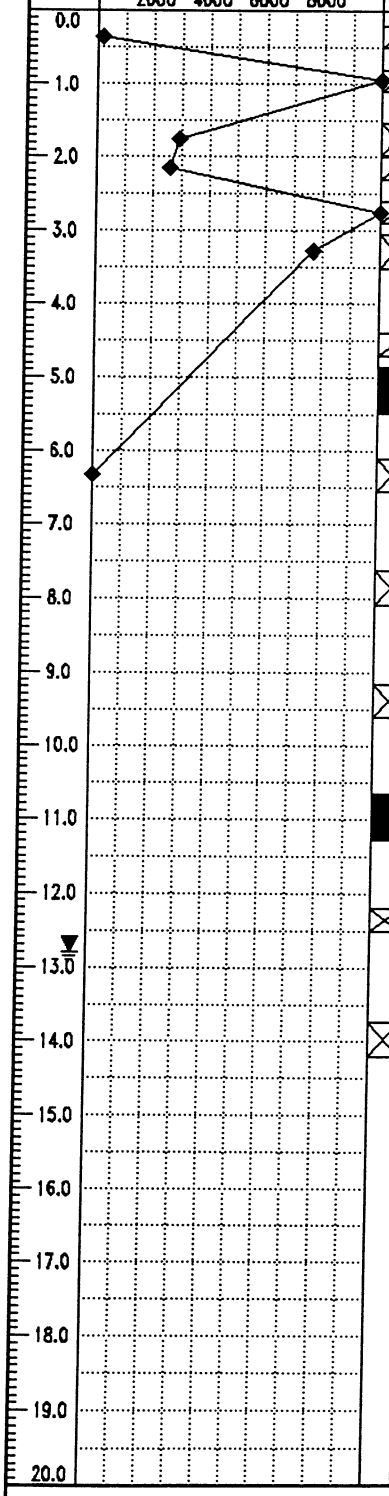
AGRA Earth & Environmental Limited Winnipeg, Manitoba	LOGGED BY: DB	COMPLETION DEPTH: 4.6 m
	REVIEWED BY: KBO	COMPLETE: 10/02/98
	Fig. No: A17	Page 1 of 1

98/10/26 08:10PM (GEO_E7.5)

CANADIAN TIRE - BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 18
NEJMARK ARCHITECTS	DRILL RIG: CT250	PROJECT NO: WX04528.2.3
	AUGER: 125 MM SS / 150 MM HSA	ELEVATION: 99.98 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND



DEPTH(m)	SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION	INSTRUMENTATION DATA	COMMENTS
0.0			OL		TOPSOIL - loamy, moist, black, organics, sodded (50mm)		
0.3		18-1	CI		CLAY (FILL) - very sandy, gravelly, medium plastic, moist, firm, brown		Staining from 0.3 to 4.9m
1.0		18-2					
1.5		18-3	SM		SAND - poorly graded, fine grained, moist, loose to medium dense, grey, silty		
2.0		18-4					
2.6		18-5	CL		CLAY - low plastic, moist, soft to firm, brown, very silty Wet from 2.6 to 3.1m Stiff from 3.1 to 4.3m		
3.0		18-6					
3.1		18-14			Sand layer from 3.1 to 3.4m		
4.0							
4.3		18-7	CI		CLAY - medium plastic, moist, stiff, grey/brown, silt lenses		
5.0							
6.0		18-8			CLAY (TILL) - medium plastic, moist, firm to stiff, grey, gravelly		
7.0							
8.0		18-9					
9.0							
9.5		18-10					
10.0			CI				
11.0		18-11			Very stiff below 11 m		
12.0							
12.0		18-12					
13.0							
14.0		18-13					
14.2					Hole ended at 14.2m Sloughing and seepage to 12.8m below from sand layers grade at completion of drilling Hole filled with cuttings and plugged with bentonite at top and bottom		
15.0							
16.0							
17.0							
18.0							
19.0							
20.0							

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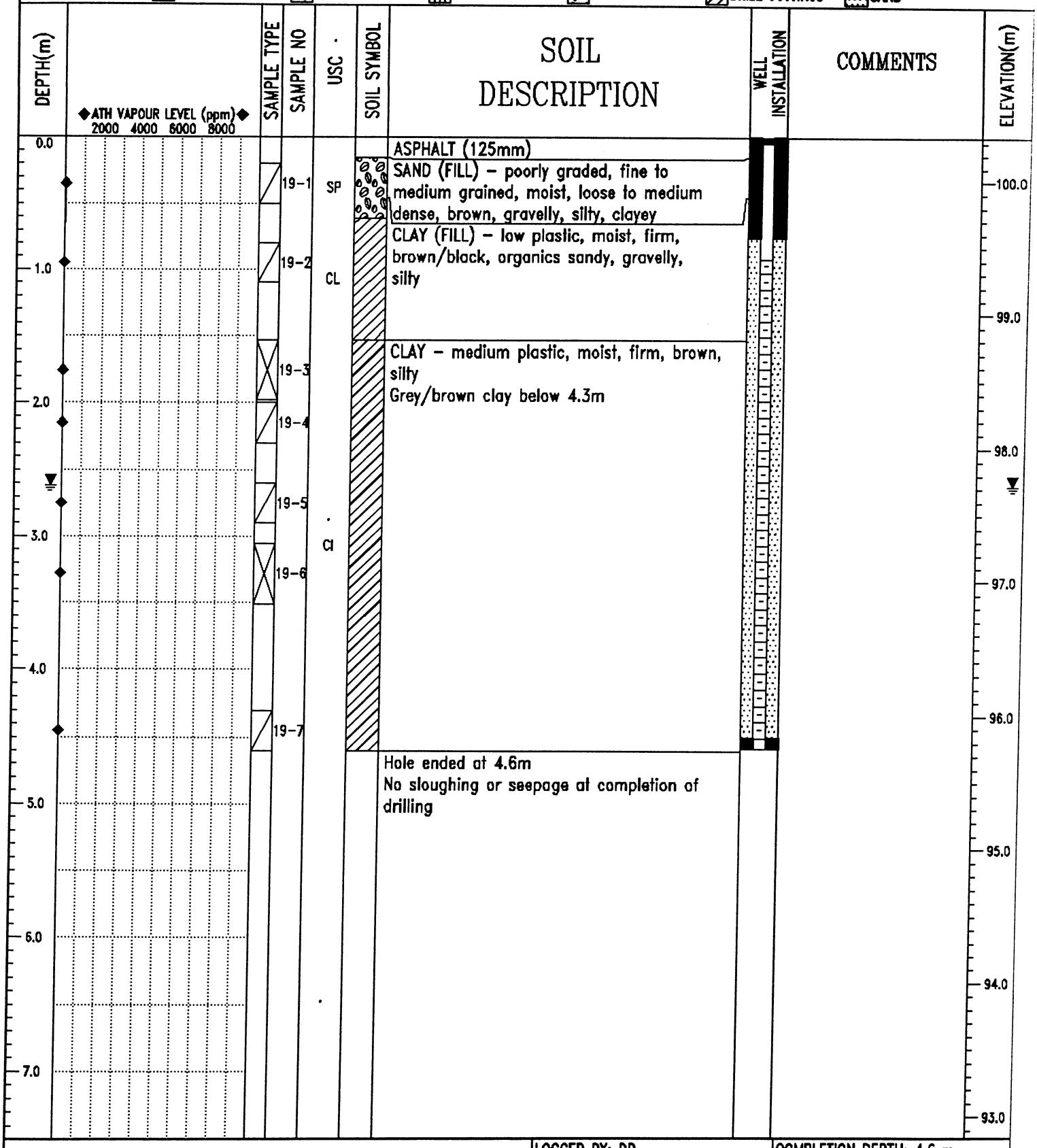
LOGGED BY: DB	COMPLETION DEPTH: 14.2 m
REVIEWED BY: KBO	COMPLETE: 10/02/98
Fig. No: A18	Page 1 of 1

98/10/26 06:10PM (GEO_E15)

CANADIAN TIRE - BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 19
NEJMARK ARCHITECTS	DRILL RIG: CT250	PROJECT NO: WX04528.2.3
	AUGER: 125 MM	ELEVATION: 100.34 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND



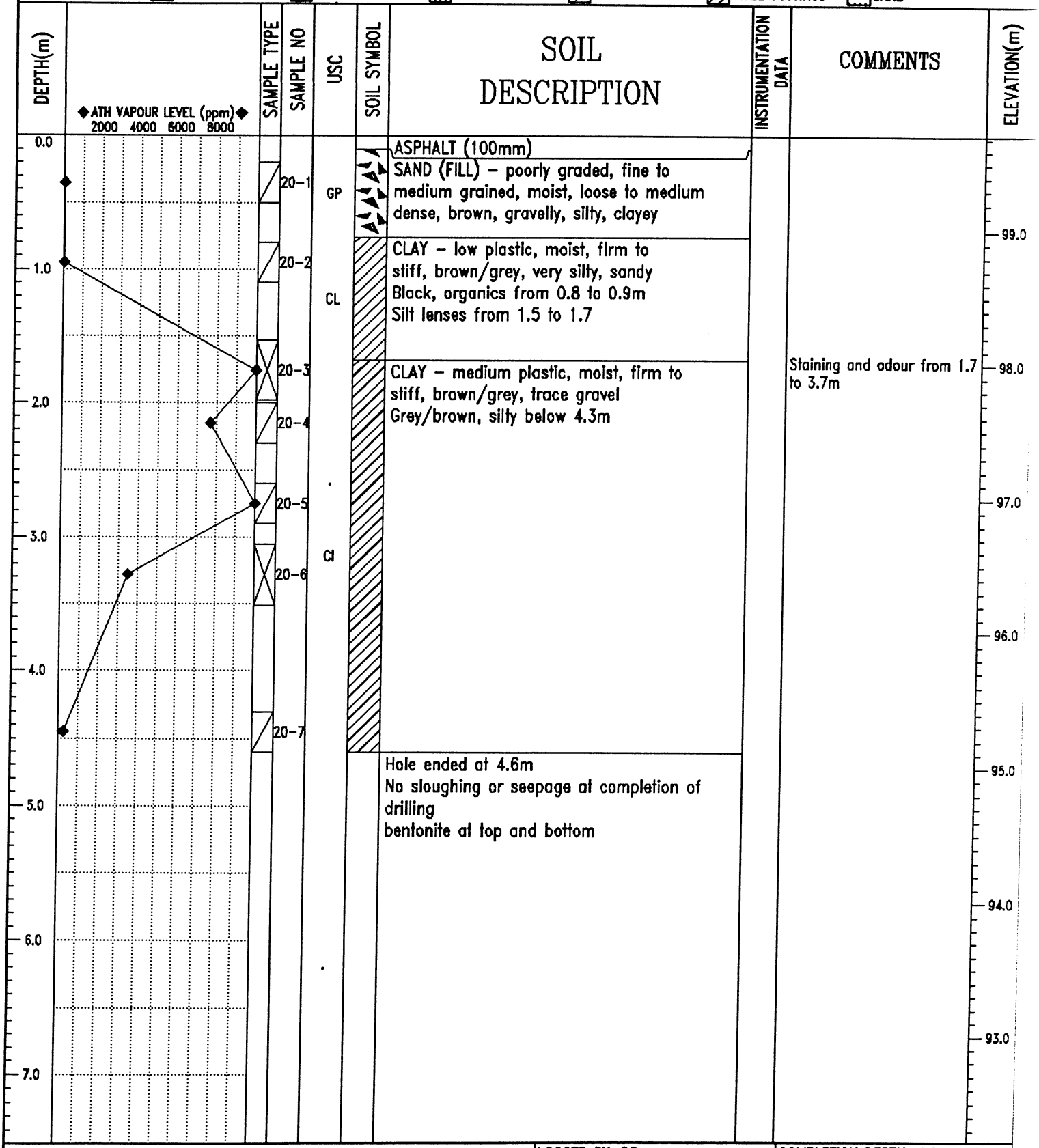
AGRA Earth & Environmental Limited Winnipeg, Manitoba	LOGGED BY: DB	COMPLETION DEPTH: 4.6 m
	REVIEWED BY: KBO	COMPLETE: 10/02/98
	Fig. No: A19	Page 1 of 1

98/10/26 06:10PM (GEO_07.5)

CANADIAN TIRE – BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 20
NEJMARK ARCHITECTS	DRILL RIG: CT250	PROJECT NO: WX04528.2.3
	AUGER: 125 MM	ELEVATION: 99.72 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND



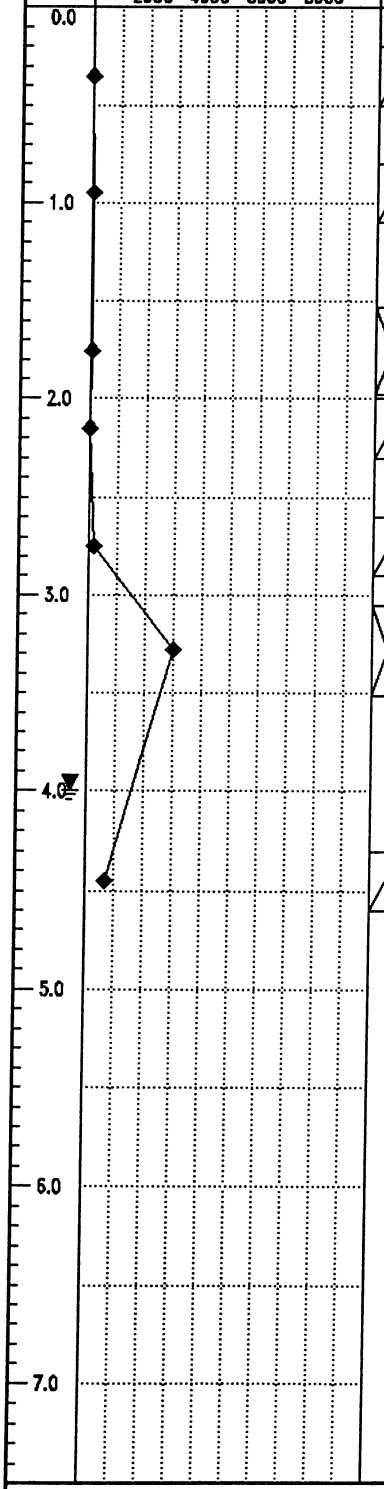
AGRA Earth & Environmental Limited Winnipeg, Manitoba	LOGGED BY: DB	COMPLETION DEPTH: 4.6 m
	REVIEWED BY: KBO	COMPLETE: 10/02/98
	Fig. No: A20	Page 1 of 1

98/10/23 12:17PM (GEO_17.5)

CANADIAN TIRE – BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 21
NEJMARK ARCHITECTS	DRILL RIG: CT250	PROJECT NO: WX04528.2.3
	AUGER: 125 MM	ELEVATION: 99.44 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND



SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION	INSTRUMENTATION DATA	COMMENTS	ELEVATION(m)
				ASPHALT (125mm)			99.0
	21-1	SP		SAND (FILL) – poorly graded, fine to medium grained, moist, loose to medium dense, brown, gravelly, silty, clayey			
	21-2	CL		CLAY – low plastic, moist, firm, brown, very silty			98.0
	21-3			SILT – low plastic, very moist, soft to firm, brown, trace sand			
	21-4	ML				Staining, odour, from 2.1 to 4.6m	97.0
	21-5						
	21-6			CLAY – low to medium plastic, moist, firm to stiff, grey			96.0
		CL-CI					
	21-7						95.0
				Hole ended at 4.6m Sloughing and seepage to 4.0m below grade on completion of drilling. Hole filled with cuttings and plugged with bentonite at top and bottom			94.0
							93.0
							92.0

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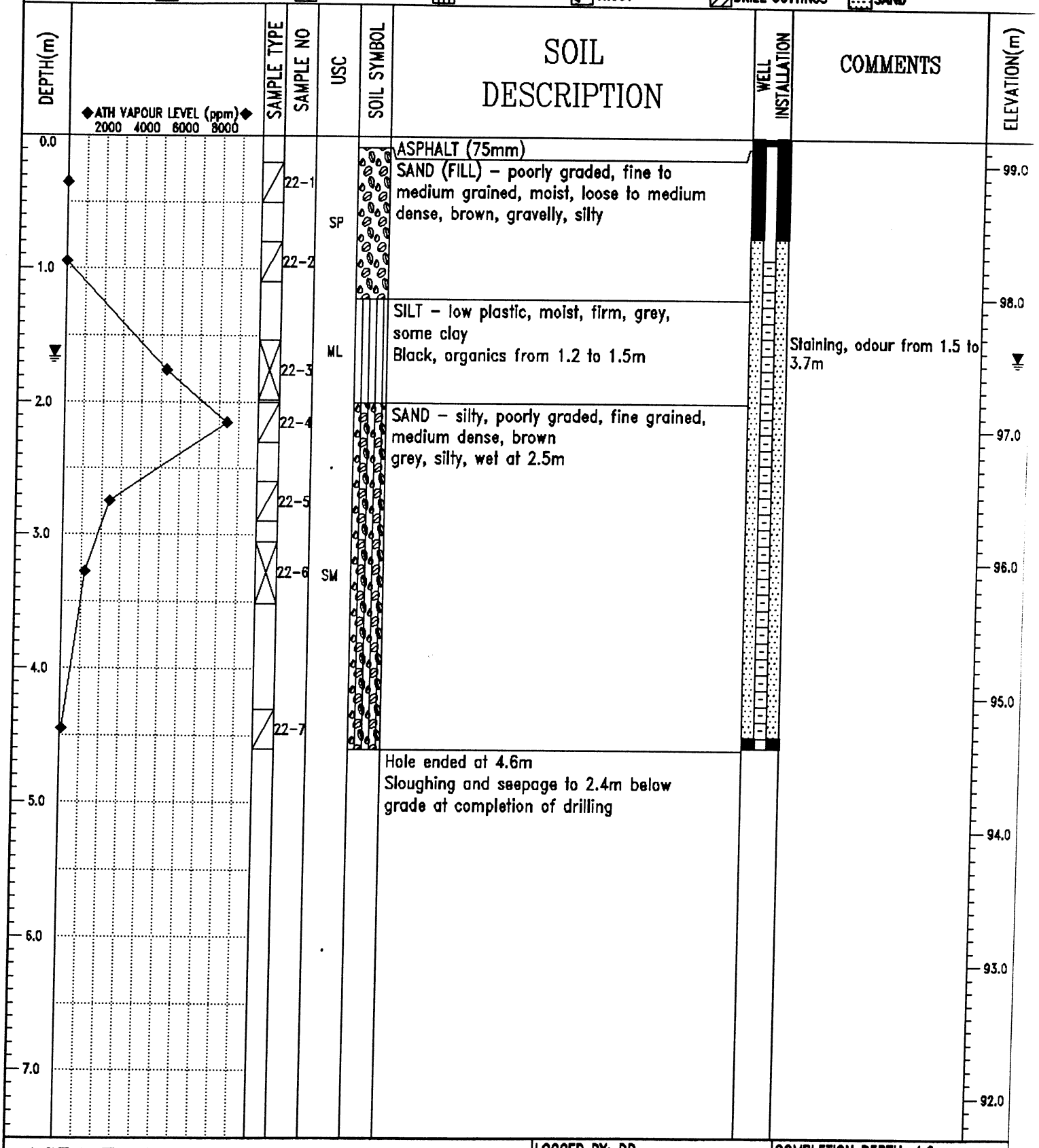
LOGGED BY: DB	COMPLETION DEPTH: 4.6 m
REVIEWED BY: KBO	COMPLETE: 10/02/98
Fig. No: A21	Page 1 of 1

98/10/23 12:17PM (GEO_17.5)

CANADIAN TIRE – BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 22
NEJMARK ARCHITECTS	DRILL RIG: CT250	PROJECT NO: WXO4528.2.3
	AUGER: 125 MM	ELEVATION: 99.2 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND



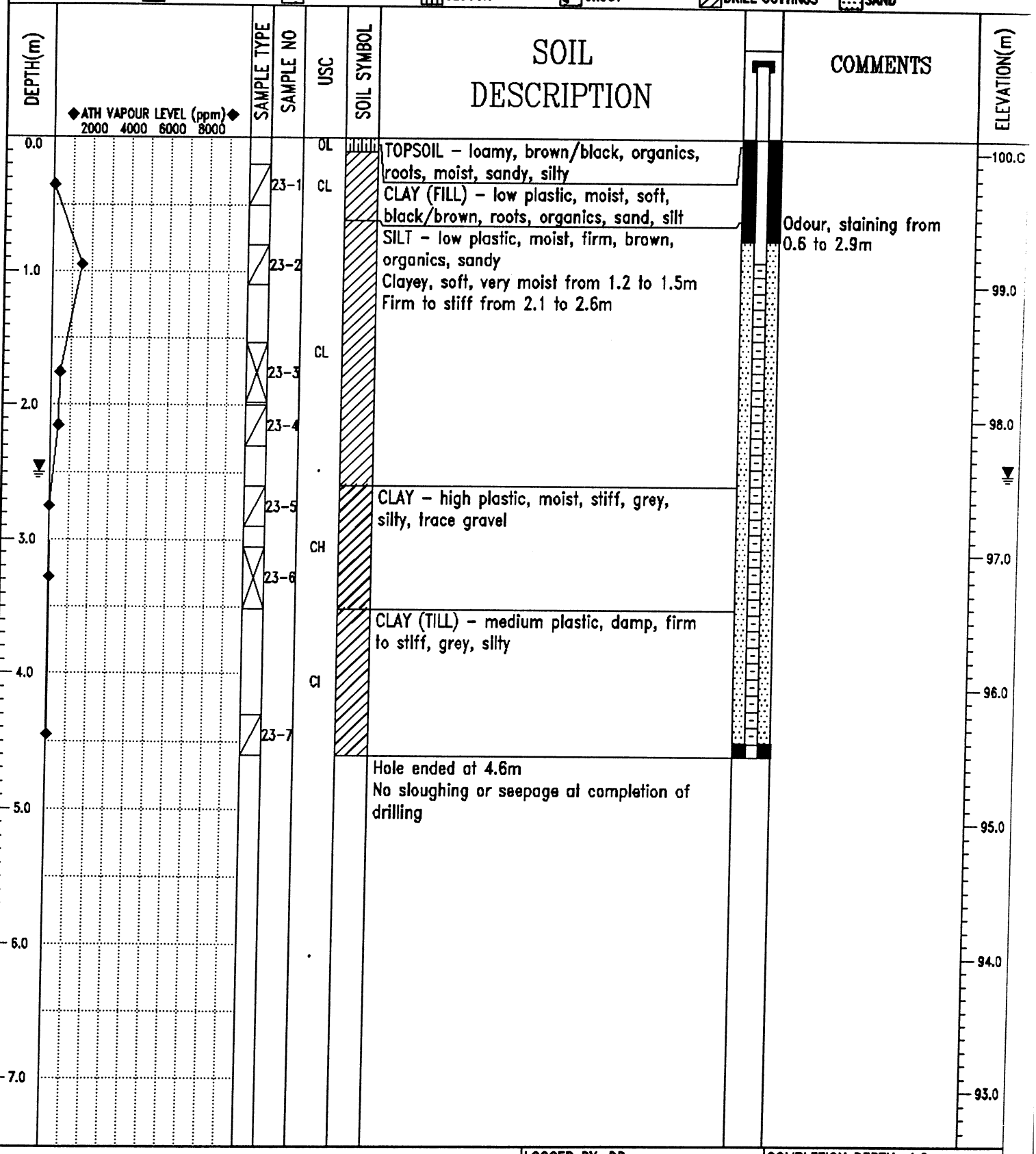
AGRA Earth & Environmental Limited Winnipeg, Manitoba	LOGGED BY: DB	COMPLETION DEPTH: 4.6 m
	REVIEWED BY: KBO	COMPLETE: 10/02/98
	Fig. No: A22	Page 1 of 1

98/10/28 08:10PM (GEO_17.5)

CANADIAN TIRE – BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 23
NEJMARK ARCHITECTS	DRILL RIG: RM30	PROJECT NO: WX04528.2.3
	AUGER: 125 MM	ELEVATION: 100.1 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND



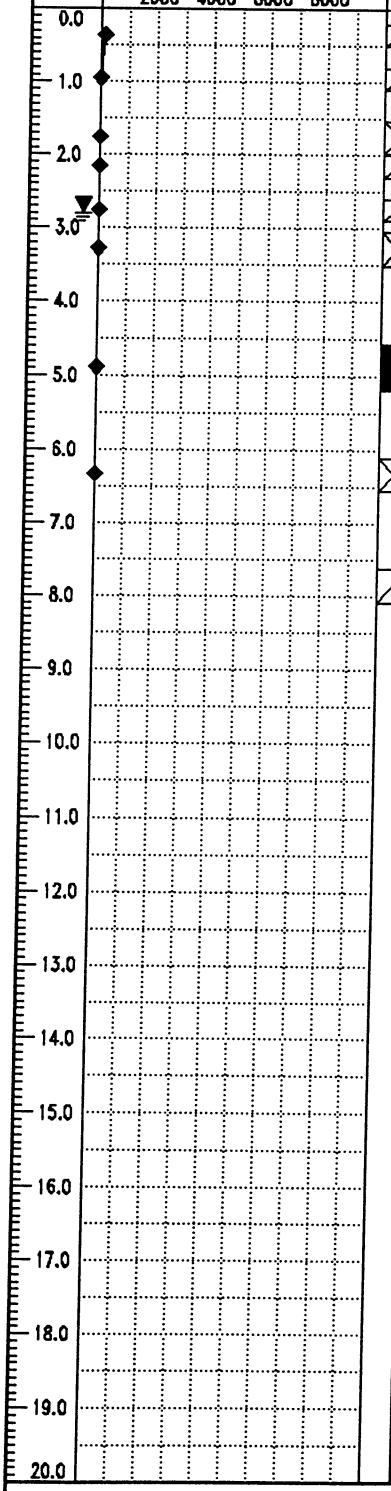
AGRA Earth & Environmental Limited Winnipeg, Manitoba	LOGGED BY: DB	COMPLETION DEPTH: 4.6 m
	REVIEWED BY: KBO	COMPLETE: 10/02/98
	Fig. No: A23	Page 1 of 1

98/10/26 08:11PM (GEO_E7.5)

CANADIAN TIRE – BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 24
NEJMARK ARCHITECTS	DRILL RIG: CT250	PROJECT NO: WX04528.2.3
	AUGER: 125 MM SS / 150 MM HSA	ELEVATION: 99.73 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND



SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION	INSTRUMENTATION DATA	COMMENTS
				SOIL DESCRIPTION		
	24-1	OL		TOPSOIL – loamy, moist, black, organics, sandy		
	24-2	CL		CLAY (FILL) – low plastic, moist, soft to firm, brown, very silty, very sandy		Staining, odour from 0.8 to 1.5m
	24-3	CI		CLAY (TILL) – medium plastic, moist, stiff to very stiff, grey/brown, silt lenses		
	24-4					
	24-5					
	24-6	ML		SILT – low plastic, moist, soft to firm, grey, sandy, clayey Very sandy, wet from 3.0 to 3.2m Very clayey below 4.0m		
	24-7	CI		CLAY (TILL) – medium plastic, moist, firm to stiff, grey, gravelly		
	24-8	GP		GRAVEL – poorly graded, fine to medium grained, very wet, medium dense, some sand, gravelly, stones (shale) Water encountered at approximately 6.1m, water filled hole to 2.8m below grade immediately after drilling to 6.1m		
	24-9			Hole ended at 8.4m; refusal on suspected boulders Sloughing to 6.1m below grade, water level at 2.8m below grade at completion of drilling Hole filled with cuttings and plugged with bentonite at top and bottom		

DEPTH(m): 0.0, 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0, 11.0, 12.0, 13.0, 14.0, 15.0, 16.0, 17.0, 18.0, 19.0, 20.0

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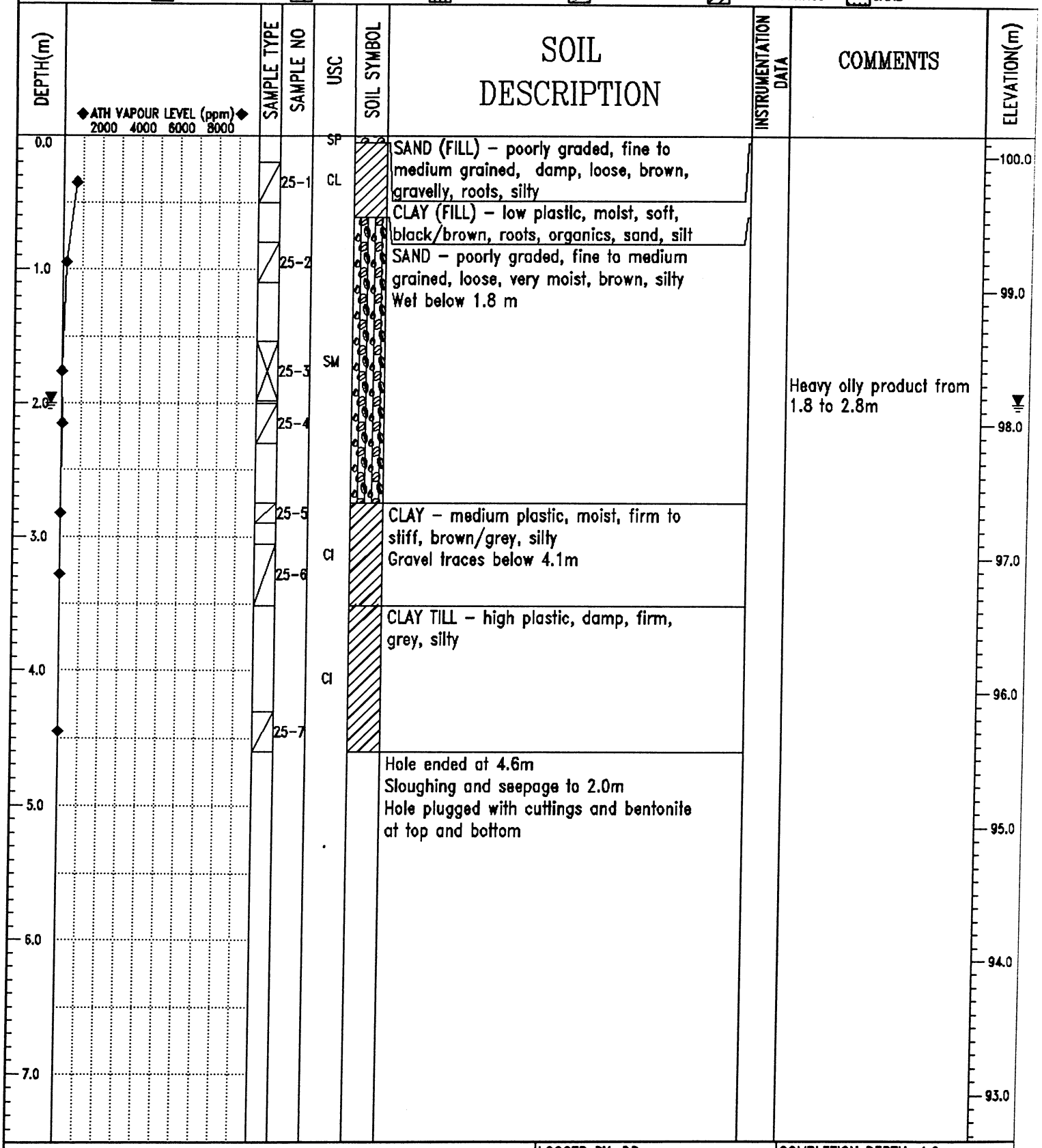
LOGGED BY: DB	COMPLETION DEPTH: 8.39 m
REVIEWED BY: KBO	COMPLETE: 10/02/98
Fig. No: A24	Page 1 of 1

98/10/26 06:11PM (GEO_E15)

CANADIAN TIRE – BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 25
NEJMARK ARCHITECTS	DRILL RIG: RM30	PROJECT NO: WX04528.2.3
	AUGER: 125 MM	ELEVATION: 100.16 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND



AGRA Earth & Environmental Limited Winnipeg, Manitoba	LOGGED BY: DB	COMPLETION DEPTH: 4.6 m
	REVIEWED BY: KBO	COMPLETE: 10/02/98
	Fig. No: A25	Page 1 of 1

98/10/26 06:11PM (GEO_07.5)

CANADIAN TIRE – BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 26
NEJMARK ARCHITECTS	DRILL RIG: RM30	PROJECT NO: WX04528.2.3
	AUGER: 125 MM	ELEVATION: 100.69 m

SAMPLE TYPE ■ SHELBY TUBE ▨ CUTTINGS ☒ SPT ▤ CORE ▥ NO RECOVERY ▮ CONT. SAMPLE

BACKFILL TYPE ■ BENTONITE ⋰ PEA GRAVEL ▥ SLOUGH ⁘ GROUT ▨ DRILL CUTTINGS ⋯ SAND

DEPTH(m)	◆ATH VAPOUR LEVEL (ppm)◆ 2000 4000 6000 8000	SAMPLE TYPE	SAMPLE NO	USC	SOIL SYMBOL	SOIL DESCRIPTION	COMMENTS	ELEVATION(m)
0.0				OL		TOPSOIL – loamy, brown/black, organics, roots, moist, sandy, silty		100.0
			26-1	CL		CLAY (FILL) – low plastic, moist, soft, black/brown, roots, organics, sand, silt		
1.0			26-2				Sheen on auger at 0.6m	
	▼					GRAVEL – poorly graded, fine to medium grain, wet, dense, brown	Oil on top of the water at 1.5m	99.0
2.0			26-3	GP				
			26-4					98.0
			26-5					
3.0			26-6	CH		CLAY – high plastic, moist, stiff, brown, some silt		
						CLAY (TILL) – medium plastic, moist, stiff grey, gravelly		97.0
4.0				CI			Well could only be installed to 2.8m below grade due to sloughing in hole. Slotted section extended to 0.3m above grade, but was sealed off with bentonite above the surface.	
			26-7			Hole ended at 4.6m Sloughing and seepage to 1.5m below grade at completion of drilling		96.0
5.0								
								95.0
6.0								
								94.0
7.0								

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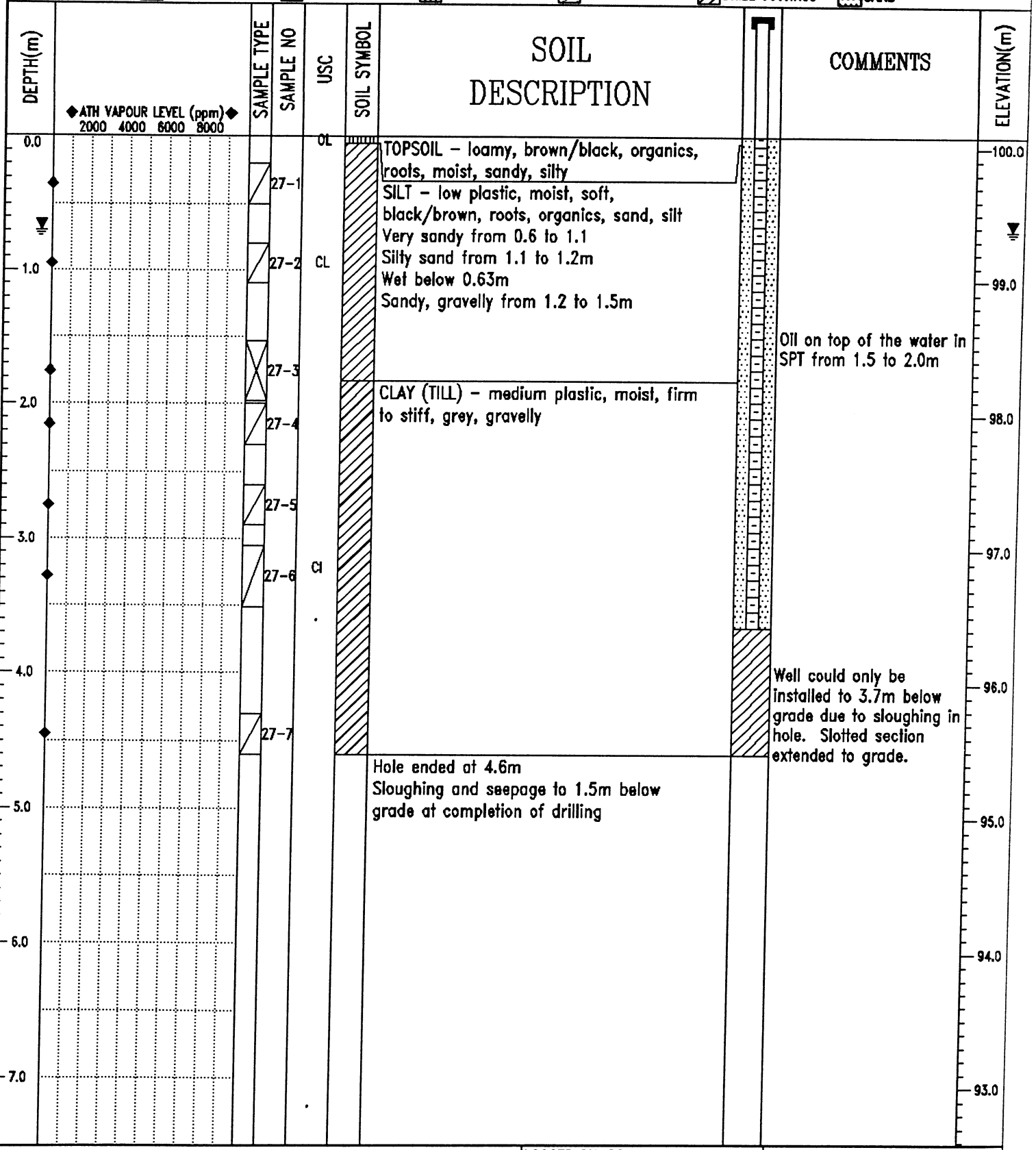
LOGGED BY: DB	COMPLETION DEPTH: 4.6 m
REVIEWED BY: KBO	COMPLETE: 10/02/98
Fig. No: A26	Page 1 of 1

98/10/26 06:12PM (GEO_D7.5)

CANADIAN TIRE - BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 27
NEJMARK ARCHITECTS	DRILL RIG: RM30	PROJECT NO: WX04528.2.3
	AUGER: 125 MM	ELEVATION: 100.08 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND



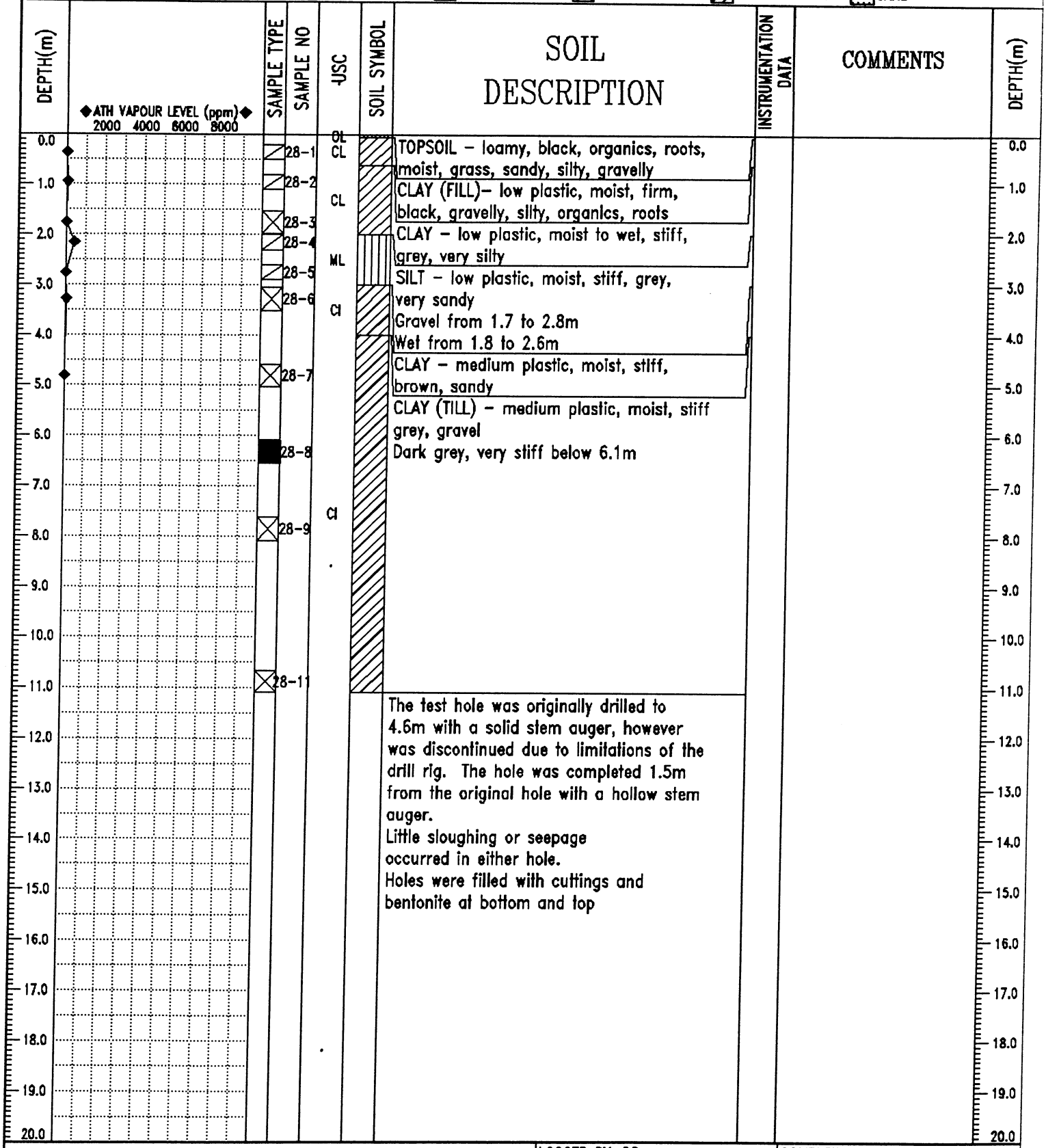
AGRA Earth & Environmental Limited Winnipeg, Manitoba	LOGGED BY: DB	COMPLETION DEPTH: 4.6 m
	REVIEWED BY: KBO	COMPLETE: 10/02/98
	Fig. No: A27	Page 1 of 1

98/10/26 06:12PM (GEO_E7.5)

CANADIAN TIRE – BRANDON	CONTRACTOR: PADDOCK DRILLING LTD.	TEST HOLE NO: 28
NEJMARK ARCHITECTS	DRILL RIG: CT250	PROJECT NO: WX04528.2.3
	AUGER: 125 MM SS / 150 MM HSA	ELEVATION: 99.59 m

SAMPLE TYPE: SHELBY TUBE | CUTTINGS | SPT | CORE | NO RECOVERY | CONT. SAMPLE

BACKFILL TYPE: BENTONITE | PEA GRAVEL | SLOUGH | GROUT | DRILL CUTTINGS | SAND



SOIL DESCRIPTION

TOPSOIL – loamy, black, organics, roots, moist, grass, sandy, silty, gravelly

CLAY (FILL)– low plastic, moist, firm, black, gravelly, silty, organics, roots

CLAY – low plastic, moist to wet, stiff, grey, very silty

SILT – low plastic, moist, stiff, grey, very sandy

Gravel from 1.7 to 2.8m

Wet from 1.8 to 2.6m

CLAY – medium plastic, moist, stiff, brown, sandy

CLAY (TILL) – medium plastic, moist, stiff grey, gravel

Dark grey, very stiff below 6.1m

The test hole was originally drilled to 4.6m with a solid stem auger, however was discontinued due to limitations of the drill rig. The hole was completed 1.5m from the original hole with a hollow stem auger.

Little sloughing or seepage occurred in either hole.

Holes were filled with cuttings and bentonite at bottom and top

INSTRUMENTATION DATA

COMMENTS

DEPTH(m)

AGRA Earth & Environmental Limited Winnipeg, Manitoba	LOGGED BY: DB REVIEWED BY: KBO Fig. No: A28	COMPLETION DEPTH: 11.1 m COMPLETE: 10/02/98 Page 1 of 1

98/10/26 06:12PM (GEO_E15)

APPENDIX E

CERTIFICATE OF ANALYSIS

RECEIVED OCT 2 2 1998

ETL Enviro-Test LABORATORIES MTC

Manitoba Technology Centre Ltd.

FAX: 489 8261
FAX and Mail

CHEMICAL ANALYSIS REPORT

AGRA Earth & Environmental
95 Scurfield Blvd
Winnipeg MB R3Y 1G4

DATE: October 15 1998

ATTN: BYNSKI D

Lab Work Order #: W981016325 Submitted By: Bynski D

Project Reference: WX04528

Project P.O. #: Date Received: 98/10/ 7

Comments:

APPROVED BY: Paul Nicolas

Paul Nicolas
Project Manager

ACCREDITATIONS: STANDARDS COUNCIL OF CANADA (SCC), IN COOPERATION WITH THE CANADIAN ASSOCIATION FOR ENVIRONMENTAL ANALYTICAL LABORATORIES (CAEAL): FOR SPECIFIC TESTS AS REGISTERED BY THE COUNCIL (EDMONTON, CALGARY, WINNIPEG)
AMERICAN INDUSTRIAL HYGIENE ASSOCIATION (AIHA): FOR INDUSTRIAL HYGIENE ANALYSIS (EDMONTON, WINNIPEG)
AGRICULTURE CANADA: UNDER THE CANADIAN FERTILIZER QUALITY ASSURANCE PROGRAM (SASKATOON)

ENVIRO-TEST ANALYSIS REPORT

FAX and Mail

W981016325 CONT...

LAB ID SAMPLE ID TEST DESCRIPTION	RESULT	D.L.	UNITS	METHOD #	ANALYZED	ANALYST
98-A58767 5-4 AGRA Earth & Environmental Sample Type: Soil Collected: 98/ 9/29						
Trace Organics						
Benzene	6.6	0.02	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Ethyl Benzene	2.6	0.03	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Extracted Date BTEX & TVH	Done On	***			98/10/ 8	TJJ
Moisture Content	15.27	0.01	%		98/10/ 8	PGR
Toluene	4.6	0.02	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Volatile Hydrocarbons Tot	140	5.	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Xylene - meta and para	9.7	0.01	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Xylene - ortho	5.4	0.01	mg/kg DWt*	A751.04	98/10/ 8	TJJ
COMMENTS FOR LAB NUMBER 98-A58767						
SAMPLE COMMENT (ORGANIC)						
* DWt = Dry Weight						
98-A58768 1-3 AGRA Earth & Environmental Sample Type: Soil Collected: 98/ 9/29						
Trace Organics						
Benzene	0.50	0.02	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Ethyl Benzene	2.9	0.03	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Extracted Date BTEX & TVH	Done On	***			98/10/ 8	TJJ
Extracted Date TEH	Done On	***			98/10/ 9	PGR
Hydrocarbons Total Ext.	400	5.	mg/Kg DWt*	A782.03	98/10/ 9	PGR
Moisture Content	17.22	0.01	%		98/10/ 8	PGR
Toluene	1.3	0.02	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Volatile Hydrocarbons Tot	47.	5.	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Xylene - meta and para	8.6	0.01	mg/kg DWt*	A751.04	98/10/ 8	TJJ

ENVIRO-TEST ANALYSIS REPORT

FAX and Mail

W981016325 CONT...

LAB ID SAMPLE ID TEST DESCRIPTION	RESULT	D.L.	UNITS	METHOD #	ANALYZED	ANALYST
Xylene - ortho	1.4	0.01	mg/kg DWt*	A751.04	98/10/ 8	TJJ

COMMENTS FOR LAB NUMBER 98-A58768

SAMPLE COMMENT (ORGANIC)

* DWt = Dry Weight

98-A58769
6-3
AGRA Earth & Environmental
Sample Type: Soil
Collected: 98/ 9/30

Trace Organics						
Benzene	< 0.02	0.02	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Ethyl Benzene	3.4	0.03	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Extracted Date BTEX & TVH	Done On	***			98/10/ 8	TJJ
Extracted Date TEH	Done On	***			98/10/ 9	PGR
Hydrocarbons Total Ext.	2900	5.	mg/Kg DWt*	A782.03	98/10/ 9	PGR
Moisture Content	13.64	0.01	%		98/10/ 8	PGR
Toluene	1.8	0.02	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Volatile Hydrocarbons Tot	66.	5.	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Xylene - meta and para	8.2	0.01	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Xylene - ortho	2.2	0.01	mg/kg DWt*	A751.04	98/10/ 8	TJJ

COMMENTS FOR LAB NUMBER 98-A58769

SAMPLE COMMENT (ORGANIC)

* DWt = Dry Weight

ENVIRO-TEST ANALYSIS REPORT

FAX and Mail

W981016325 CONT...

LAB ID SAMPLE ID TEST DESCRIPTION	RESULT	D.L.	UNITS	METHOD #	ANALYZED	ANALYST
98-A58770						
8-4						
AGRA Earth & Environmental						
Sample Type: Soil						
Collected: 98/10/ 1						
Trace Organics						
Benzene	6.1	0.02	mg/kg DWt*	A751.04	98/10/13	TJJ
Ethyl Benzene	5.1	0.03	mg/kg DWt*	A751.04	98/10/13	TJJ
Extracted Date BTEX & TVH	Done On	***			98/10/ 8	TJJ
Extracted Date TEH	Done On	***			98/10/ 9	PGR
Hydrocarbons Total Ext.	26000	5.	mg/Kg DWt*	A782.03	98/10/ 9	PGR
Moisture Content	14.71	0.01	%		98/10/ 8	PGR
Toluene	0.70	0.02	mg/kg DWt*	A751.04	98/10/13	TJJ
Volatile Hydrocarbons Tot	320	5.	mg/kg DWt*	A751.04	98/10/13	TJJ
Xylene - meta and para	32.	0.01	mg/kg DWt*	A751.04	98/10/13	TJJ
Xylene - ortho	4.3	0.01	mg/kg DWt*	A751.04	98/10/13	TJJ
COMMENTS FOR LAB NUMBER 98-A58770						
SAMPLE COMMENT (ORGANIC)						
* DWt = Dry Weight						
98-A58771						
9-3						
AGRA Earth & Environmental						
Sample Type: Soil						
Collected: 98/ 9/29						
Trace Organics						
Benzene	0.17	0.02	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Ethyl Benzene	< 0.03	0.03	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Extracted Date BTEX & TVH	Done On	***			98/10/ 8	TJJ
Extracted Date TEH	Done On	***			98/10/ 9	PGR
Hydrocarbons Total Ext.	250	5.	mg/Kg DWt*	A782.03	98/10/ 9	PGR
Moisture Content	17.46	0.01	%		98/10/ 8	PGR

ENVIRO-TEST ANALYSIS REPORT

LAB ID	SAMPLE ID	TEST DESCRIPTION	RESULT	D.L.	UNITS	METHOD #	ANALYZED	ANALYST
		Toluene	0.94	0.02	mg/kg DWt*	A751.04	98/10/ 8	TJJ
		Volatile Hydrocarbons Tot	50.	5.	mg/kg DWt*	A751.04	98/10/ 8	TJJ
		Xylene - meta and para	3.3	0.01	mg/kg DWt*	A751.04	98/10/ 8	TJJ
		Xylene - ortho	1.2	0.01	mg/kg DWt*	A751.04	98/10/ 8	TJJ
COMMENTS FOR LAB NUMBER 98-A58771								
				SAMPLE COMMENT (ORGANIC)				
		* DWt = Dry Weight						
98-A58772								
11-5								
AGRA Earth & Environmental								
Sample Type: Soil								
Collected: 98/10/ 1								
		Trace Organics						
		Benzene	< 0.02	0.02	mg/kg DWt*	A751.04	98/10/ 8	TJJ
		Ethyl Benzene	< 0.03	0.03	mg/kg DWt*	A751.04	98/10/ 8	TJJ
		Extracted Date BTEX & TVH	Done On	***			98/10/ 8	TJJ
		Moisture Content	23.63	0.01	%		98/10/ 8	PGR
		Toluene	0.04	0.02	mg/kg DWt*	A751.04	98/10/ 8	TJJ
		Volatile Hydrocarbons Tot	7.	5.	mg/kg DWt*	A751.04	98/10/ 8	TJJ
		Xylene - meta and para	0.41	0.01	mg/kg DWt*	A751.04	98/10/ 8	TJJ
		Xylene - ortho	0.07	0.01	mg/kg DWt*	A751.04	98/10/ 8	TJJ
COMMENTS FOR LAB NUMBER 98-A58772								
				SAMPLE COMMENT (ORGANIC)				
		* DWt = Dry Weight						

ENVIRO-TEST ANALYSIS REPORT

FAX and Mail

W981016325 CONT...

LAB ID SAMPLE ID TEST DESCRIPTION	RESULT	D.L.	UNITS	METHOD #	ANALYZED	ANALYST
98-A58773 12-2 AGRA Earth & Environmental Sample Type: Soil Collected: 98/10/ 2						
Trace Organics						
Benzene	0.09	0.02	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Ethyl Benzene	< 0.03	0.03	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Extracted Date BTEX & TVH	Done On	***			98/10/ 8	TJJ
Extracted Date TEH	Done On	***			98/10/ 9	PGR
Hydrocarbons Total Ext.	910	5.	mg/Kg DWt*	A782.03	98/10/ 9	PGR
Moisture Content	20.77	0.01	%		98/10/ 8	PGR
Toluene	0.02	0.02	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Volatile Hydrocarbons Tot	6.	5.	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Xylene - meta and para	0.24	0.01	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Xylene - ortho	< 0.01	0.01	mg/kg DWt*	A751.04	98/10/ 8	TJJ
COMMENTS FOR LAB NUMBER 98-A58773						
SAMPLE COMMENT (ORGANIC)						
* DWt = Dry Weight						
98-A58774 14-4 AGRA Earth & Environmental Sample Type: Soil Collected: 98/ 9/29						
Trace Organics						
Benzene	< 0.02	0.02	mg/kg DWt*	A751.04	98/10/13	TJJ
Ethyl Benzene	0.07	0.03	mg/kg DWt*	A751.04	98/10/13	TJJ
Extracted Date BTEX & TVH	Done On	***			98/10/ 8	TJJ
Extracted Date TEH	Done On	***			98/10/ 9	PGR
Hydrocarbons Total Ext.	330	5.	mg/Kg DWt*	A782.03	98/10/ 9	PGR
Moisture Content	23.09	0.01	%		98/10/ 8	PGR

ENVIRO-TEST ANALYSIS REPORT

FAX and Mail

W981016325 CONT...

LAB ID	SAMPLE ID	TEST DESCRIPTION	RESULT	D.L.	UNITS	METHOD #	ANALYZED	ANALYST
		Toluene	< 0.02	0.02	mg/kg DWt*	A751.04	98/10/13	TJJ
		Volatile Hydrocarbons Tot	5.	5.	mg/kg DWt*	A751.04	98/10/13	TJJ
		Xylene - meta and para	0.36	0.01	mg/kg DWt*	A751.04	98/10/13	TJJ
		Xylene - ortho	0.10	0.01	mg/kg DWt*	A751.04	98/10/13	TJJ
COMMENTS FOR LAB NUMBER 98-A58774								
		SAMPLE COMMENT (ORGANIC)						
		* DWt = Dry Weight						
98-A58775								
15-4								
AGRA Earth & Environmental								
Sample Type: Soil								
Collected: 98/ 9/29								
		Trace Organics						
		Benzene	< 0.02	0.02	mg/kg DWt*	A751.04	98/10/ 8	TJJ
		Ethyl Benzene	3.3	0.03	mg/kg DWt*	A751.04	98/10/ 8	TJJ
		Extracted Date BTEX & TVH	Done On	***			98/10/ 8	TJJ
		Extracted Date TEH	Done On	***			98/10/ 9	PGR
		Hydrocarbons Total Ext.	620	5.	mg/Kg DWt*	A782.03	98/10/ 9	PGR
		Moisture Content	19.34	0.01	%		98/10/ 8	PGR
		Toluene	< 0.02	0.02	mg/kg DWt*	A751.04	98/10/ 8	TJJ
		Volatile Hydrocarbons Tot	24.	5.	mg/kg DWt*	A751.04	98/10/ 8	TJJ
		Xylene - meta and para	7.3	0.01	mg/kg DWt*	A751.04	98/10/ 8	TJJ
		Xylene - ortho	6.8	0.01	mg/kg DWt*	A751.04	98/10/ 8	TJJ
COMMENTS FOR LAB NUMBER 98-A58775								
		SAMPLE COMMENT (ORGANIC)						
		* DWt = Dry Weight						

ENVIRO-TEST ANALYSIS REPORT

FAX and Mail

W981016325 CONT...

LAB ID SAMPLE ID TEST DESCRIPTION	RESULT	D.L.	UNITS	METHOD #	ANALYZED	ANALYST
98-A58776						
17-8						
AGRA Earth & Environmental						
Sample Type: Soil						
Collected: 98/ 9/29						
Trace Organics						
Benzene	0.08	0.02	mg/kg DWt*	A751.04	98/10/13	TJJ
Ethyl Benzene	0.49	0.03	mg/kg DWt*	A751.04	98/10/13	TJJ
Extracted Date BTEX & TVH	Done On	***			98/10/ 8	TJJ
Moisture Content	28.40	0.01	%		98/10/ 8	PGR
Toluene	< 0.02	0.02	mg/kg DWt*	A751.04	98/10/13	TJJ
Volatile Hydrocarbons Tot	9.	5.	mg/kg DWt*	A751.04	98/10/13	TJJ
Xylene - meta and para	1.3	0.01	mg/kg DWt*	A751.04	98/10/13	TJJ
Xylene - ortho	0.06	0.01	mg/kg DWt*	A751.04	98/10/13	TJJ
COMMENTS FOR LAB NUMBER 98-A58776						
SAMPLE COMMENT (ORGANIC)						
* DWt = Dry Weight						
98-A58777						
18-5						
AGRA Earth & Environmental						
Sample Type: Soil						
Collected: 98/ 9/30						
Trace Organics						
Benzene	5.8	0.02	mg/kg DWt*	A751.04	98/10/13	TJJ
Ethyl Benzene	6.3	0.03	mg/kg DWt*	A751.04	98/10/13	TJJ
Extracted Date BTEX & TVH	Done On	***			98/10/ 8	TJJ
Extracted Date TEH	Done On	***			98/10/ 9	PGR
Hydrocarbons Total Ext.	400	5.	mg/Kg DWt*	A782.03	98/10/ 9	PGR
Moisture Content	20.80	0.01	%		98/10/ 8	PGR
Toluene	22.	0.02	mg/kg DWt*	A751.04	98/10/13	TJJ
Volatile Hydrocarbons Tot	150	5.	mg/kg DWt*	A751.04	98/10/13	TJJ

ENVIRO-TEST ANALYSIS REPORT

FAX and Mail

W981016325 CONT...

LAB ID	SAMPLE ID	TEST DESCRIPTION	RESULT	D.L.	UNITS	METHOD #	ANALYZED	ANALYST
		Xylene - meta and para	43.	0.01	mg/kg DWt*	A751.04	98/10/13	TJJ
		Xylene - ortho	12.	0.01	mg/kg DWt*	A751.04	98/10/13	TJJ
COMMENTS FOR LAB NUMBER 98-A58777								
		SAMPLE COMMENT (ORGANIC)						
		* DWt = Dry Weight						
98-A58778								
23-2								
AGRA Earth & Environmental								
Sample Type: Soil								
Collected: 98/10/ 2								
		Trace Organics						
		Benzene	1.1	0.02	mg/kg DWt*	A751.04	98/10/ 8	TJJ
		Ethyl Benzene	1.7	0.03	mg/kg DWt*	A751.04	98/10/ 8	TJJ
		Extracted Date BTEX & TVH	Done On	***			98/10/ 8	TJJ
		Extracted Date TEH	Done On	***			98/10/ 9	PGR
		Hydrocarbons Total Ext.	26000	5.	mg/Kg DWt*	A782.03	98/10/ 9	PGR
		Moisture Content	16.67	0.01	%		98/10/ 8	PGR
		Toluene	0.89	0.02	mg/kg DWt*	A751.04	98/10/ 8	TJJ
		Volatile Hydrocarbons Tot	61.	5.	mg/kg DWt*	A751.04	98/10/ 8	TJJ
		Xylene - meta and para	6.2	0.01	mg/kg DWt*	A751.04	98/10/ 8	TJJ
		Xylene - ortho	1.7	0.01	mg/kg DWt*	A751.04	98/10/ 8	TJJ
COMMENTS FOR LAB NUMBER 98-A58778								
		SAMPLE COMMENT (ORGANIC)						
		* DWt = Dry Weight						

ENVIRO-TEST ANALYSIS REPORT

FAX and Mail

W981016325 CONT...

LAB ID SAMPLE ID TEST DESCRIPTION	RESULT	D.L.	UNITS	METHOD #	ANALYZED	ANALYST
98-A58779						
26-1						
AGRA Earth & Environmental						
Sample Type: Soil						
Collected: 98/10/ 2						
Trace Organics						
Benzene	0.79	0.02	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Ethyl Benzene	0.96	0.03	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Extracted Date BTEX & TVH	Done On	***			98/10/ 8	TJJ
Extracted Date TEH	Done On	***			98/10/ 9	PGR
Hydrocarbons Total Ext.	18000	5.	mg/Kg DWt*	A782.03	98/10/ 9	PGR
Moisture Content	14.33	0.01	%		98/10/ 8	PGR
Toluene	1.0	0.02	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Volatile Hydrocarbons Tot	62.	5.	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Xylene - meta and para	1.6	0.01	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Xylene - ortho	1.3	0.01	mg/kg DWt*	A751.04	98/10/ 8	TJJ
COMMENTS FOR LAB NUMBER 98-A58779						
SAMPLE COMMENT (ORGANIC)						
* DWt = Dry Weight						
98-A58780						
27-3						
AGRA Earth & Environmental						
Sample Type: Soil						
Collected: 98/10/ 2						
Trace Organics						
Benzene	0.02	0.02	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Ethyl Benzene	< 0.03	0.03	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Extracted Date BTEX & TVH	Done On	***			98/10/ 8	TJJ
Extracted Date TEH	Done On	***			98/10/ 9	PGR
Hydrocarbons Total Ext.	21.	5.	mg/Kg DWt*	A782.03	98/10/ 9	PGR
Moisture Content	19.62	0.01	%		98/10/ 8	PGR

ENVIRO-TEST ANALYSIS REPORT

LAB ID	SAMPLE ID	TEST DESCRIPTION	RESULT	D.L.	UNITS	METHOD #	ANALYZED	ANALYST
		Toluene	< 0.02	0.02	mg/kg DWt*	A751.04	98/10/ 8	TJJ
		Volatile Hydrocarbons Tot	5.	5.	mg/kg DWt*	A751.04	98/10/ 8	TJJ
		Xylene - meta and para	0.07	0.01	mg/kg DWt*	A751.04	98/10/ 8	TJJ
		Xylene - ortho	< 0.01	0.01	mg/kg DWt*	A751.04	98/10/ 8	TJJ

COMMENTS FOR LAB NUMBER 98-A58780

SAMPLE COMMENT (ORGANIC)

* DWt = Dry Weight

98-A58781
21-6
AGRA Earth & Environmental
Sample Type: Soil
Collected: 98/ 9/30

Trace Organics						
Benzene	2.7	0.02	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Ethyl Benzene	7.9	0.03	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Extracted Date BTEX & TVH	Done On	***			98/10/ 8	TJJ
Extracted Date TEH	Done On	***			98/10/ 9	PGR
Hydrocarbons Total Ext.	220	5.	mg/Kg DWt*	A782.03	98/10/ 9	PGR
Moisture Content	26.50	0.01	%		98/10/ 8	PGR
Toluene	4.5	0.02	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Volatile Hydrocarbons Tot	150	5.	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Xylene - meta and para	15.	0.01	mg/kg DWt*	A751.04	98/10/ 8	TJJ
Xylene - ortho	3.8	0.01	mg/kg DWt*	A751.04	98/10/ 8	TJJ

COMMENTS FOR LAB NUMBER 98-A58781

SAMPLE COMMENT (ORGANIC)

* DWt = Dry Weight

ENVIRO-TEST ANALYSIS REPORT

FAX and Mail

W981016325 CONT...

LAB ID SAMPLE ID TEST DESCRIPTION	RESULT	D.L.	UNITS	METHOD #	ANALYZED	ANALYST
98-A58782 20-5 AGRA Earth & Environmental Sample Type: Soil Collected: 98/10/ 1						
Trace Organics						
Benzene	37.	0.02	mg/kg DWt*	A751.04	98/10/13	TJJ
Ethyl Benzene	7.4	0.03	mg/kg DWt*	A751.04	98/10/13	TJJ
Extracted Date BTEX & TVH	Done On	***			98/10/ 8	TJJ
Extracted Date TEH	Done On	***			98/10/ 9	PGR
Hydrocarbons Total Ext.	53.	5.	mg/Kg DWt*	A782.03	98/10/ 9	PGR
Moisture Content	24.72	0.01	%		98/10/ 8	PGR
Toluene	17.	0.02	mg/kg DWt*	A751.04	98/10/13	TJJ
Volatile Hydrocarbons Tot	740	5.	mg/kg DWt*	A751.04	98/10/13	TJJ
Xylene - meta and para	52.	0.01	mg/kg DWt*	A751.04	98/10/13	TJJ
Xylene - ortho	14.	0.01	mg/kg DWt*	A751.04	98/10/13	TJJ
COMMENTS FOR LAB NUMBER 98-A58782 SAMPLE COMMENT (ORGANIC) * DWt = Dry Weight						
98-A58783 W14-1 AGRA Earth & Environmental Sample Type: Water Collected: 98/10/ 6						
Trace Organics						
Benzene	1600	0.5	ug/L	A787.03	98/10/13	TJJ
Ethyl Benzene	150	0.5	ug/L	A787.03	98/10/13	TJJ
Extracted Date TEH	Done On	***			98/10/ 9	PGR
Hydrocarbons Total Ext.	3100	100	ug/L	A782.03	98/10/14	MTD
Hydrocarbons Volatile - T	7900	100	ug/L	A787.03	98/10/13	TJJ
Toluene	2100	0.5	ug/L	A787.03	98/10/13	TJJ

ENVIRO-TEST ANALYSIS REPORT

LAB ID SAMPLE ID TEST DESCRIPTION	RESULT	D.L.	UNITS	METHOD #	ANALYZED	ANALYST
Xylene - meta and para	2500	0.5	ug/L	A787.03	98/10/13	TJJ
Xylene - O	1300	0.5	ug/L	A787.03	98/10/13	TJJ
COMMENTS FOR LAB NUMBER 98-A58783						
LAB COMMENT Water Samples were submitted in 250 ml soil jars with headspace.						
98-A58784 W4-1 AGRA Earth & Environmental Sample Type: Water Collected: 98/10/ 6						
Trace Organics						
Benzene	2.4	0.5	ug/L	A787.03	98/10/ 9	TJJ
Ethyl Benzene	0.7	0.5	ug/L	A787.03	98/10/ 9	TJJ
Extracted Date TEH	Done On	***			98/10/ 9	PGR
Hydrocarbons Total Ext.	5000	100	ug/L	A782.03	98/10/14	MTD
Hydrocarbons Volatile - T	< 100	100	ug/L	A787.03	98/10/ 9	TJJ
Toluene	3.6	0.5	ug/L	A787.03	98/10/ 9	TJJ
Xylene - meta and para	4.7	0.5	ug/L	A787.03	98/10/ 9	TJJ
Xylene - O	3.0	0.5	ug/L	A787.03	98/10/ 9	TJJ
COMMENTS FOR LAB NUMBER 98-A58784						
LAB COMMENT Water Samples were submitted in 250 ml soil jars with headspace.						

ENVIRO-TEST ANALYSIS REPORT

FAX and Mail

W981016325 CONT...

LAB ID SAMPLE ID TEST DESCRIPTION	RESULT	D.L.	UNITS	METHOD #	ANALYZED	ANALYST
98-A58785 W8A-1 AGRA Earth & Environmental Sample Type: Water Collected: 98/10/ 6						
Trace Organics						
Benzene	41.	0.5	ug/L	A787.03	98/10/ 9	TJJ
Ethyl Benzene	0.5	0.5	ug/L	A787.03	98/10/ 9	TJJ
Extracted Date TEH	Done On	***			98/10/ 9	PGR
Hydrocarbons Total Ext.	39000	100	ug/L	A782.03	98/10/14	MTD
Hydrocarbons Volatile - T	< 100	100	ug/L	A787.03	98/10/ 9	TJJ
Toluene	0.7	0.5	ug/L	A787.03	98/10/ 9	TJJ
Xylene - meta and para	7.2	0.5	ug/L	A787.03	98/10/ 9	TJJ
Xylene - O	3.0	0.5	ug/L	A787.03	98/10/ 9	TJJ
COMMENTS FOR LAB NUMBER 98-A58785 LAB COMMENT Water Samples were submitted in 250 ml soil jars with headspace.						
98-A58786 W23-1 AGRA Earth & Environmental Sample Type: Water Collected: 98/10/ 6						
Trace Organics						
Benzene	69.	0.5	ug/L	A787.03	98/10/ 9	TJJ
Ethyl Benzene	< 0.5	0.5	ug/L	A787.03	98/10/ 9	TJJ
Extracted Date TEH	Done On	***			98/10/ 9	PGR
Hydrocarbons Total Ext.	2900	100	ug/L	A782.03	98/10/14	MTD
Hydrocarbons Volatile - T	250	100	ug/L	A787.03	98/10/ 9	TJJ
Toluene	28.	0.5	ug/L	A787.03	98/10/ 9	TJJ
Xylene - meta and para	68.	0.5	ug/L	A787.03	98/10/ 9	TJJ

ENVIRO-TEST ANALYSIS REPORT

LAB ID SAMPLE ID TEST DESCRIPTION	RESULT	D.L.	UNITS	METHOD #	ANALYZED	ANALYST
Xylene - O	41.	0.5	ug/L	A787.03	98/10/ 9	TJJ

COMMENTS FOR LAB NUMBER 98-A58786

LAB COMMENT
Water Samples were submitted in 250 ml soil jars with headspace.

ENVIRO-TEST LABORATORIES TEST METHODOLOGIES

BTEX and TVH in Soil
ETL Method Number: A751.04 **Reference: Modified EPA SW-846 Method 5021/8015 and 8020**

Principle of Method:
Extracts are prepared by weighing 8-10 grams into a 20 mL vial and extracting with methanol. An aliquot of the methanol is injected into water along with an internal standard. The headspace is analyzed by a gas chromatograph equipped with a Tekmar 7000/7050 autosampler and photoionization detector (PID) flame ionization detector (FID) in series. The benzene, toluene, ethyl benzene, meta, para and ortho xylene compounds are identified by their retention times and quantified by internal standard methods using the measurement of peak area relative to calibration standards using the PID responses. The total volatile hydrocarbons are a semi-quantitative result based on the sum of peak areas in the C5-C10 carbon range using the FID response.

Total Extractable Hydrocarbons in Water, Soil and Sediment
ETL Method Number: A782.03 **Reference: Modified EPA SW-846 Methods 3510, 3550A and 8000A**

Principle of Method:
This is the semi-quantitative determination of total extractable hydrocarbons (TEH) C11-C30 in water, soil and sediment samples. A water sample volume of 240 mLs in a 250 mL glass amber bottle is shaken with 2-4 mL hexane for one hour on a wrist action shaker, then sonicated for 5 minutes. A soil/sediment sample of 25 grams is weighed out with sodium sulphate and extracted with 10 mLs hexane/acetone for one hour on a wrist action shaker, then sonicated for 5 minutes. After extraction, the solvent layer is drawn off and analysed against a calibrated diesel standard on a gas chromatograph equipped with a flame ionization detector. All results are reported on a dry weight basis. By special request, the result can be calculated on C10-C24 to meet specific regulations.

BTEX and TVH in Water
ETL Method Number: A787.03 **Reference: EPA Method 503.1/ETL Chemspec Analytical Ltd MSOP14.06**

Principle of Method:
Volatile organic compounds are extracted (purged) by bubbling nitrogen through a water sample. The purged sample components are trapped in a tube containing a sorbent material. When purging is complete, the tube is heated and back flushed with helium to desorb the trapped compounds onto a gas chromatographic column. The gas chromatograph is temperature programmed to separate the method analytes which are then detected with a photoionization detector (PID) followed by a flame ionization detector (FID).

Data File C:\HPCHEM\2\DATA\OCT8PR\035B2801.D Sample Name: 98-58767

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Injection Date : 10/9/98 9:53:40 PM Seq. Line : 28
Sample Name : 98-58767 5-4 Vial : 35
Acq. Operator : A. Balkaran Inj : 1
Inj Volume : 1 µl

Acq. Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/8/98 3:04:09 PM by A. Balkaran
Analysis Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/16/98 10:36:28 AM by Paul R.
(modified after loading)

Method for analysis of TEH (C11-C30) in soils using DB1 capillary column with modified temperature program.(40 C for 2 min. 20 C/min to 300 C for 3 min)

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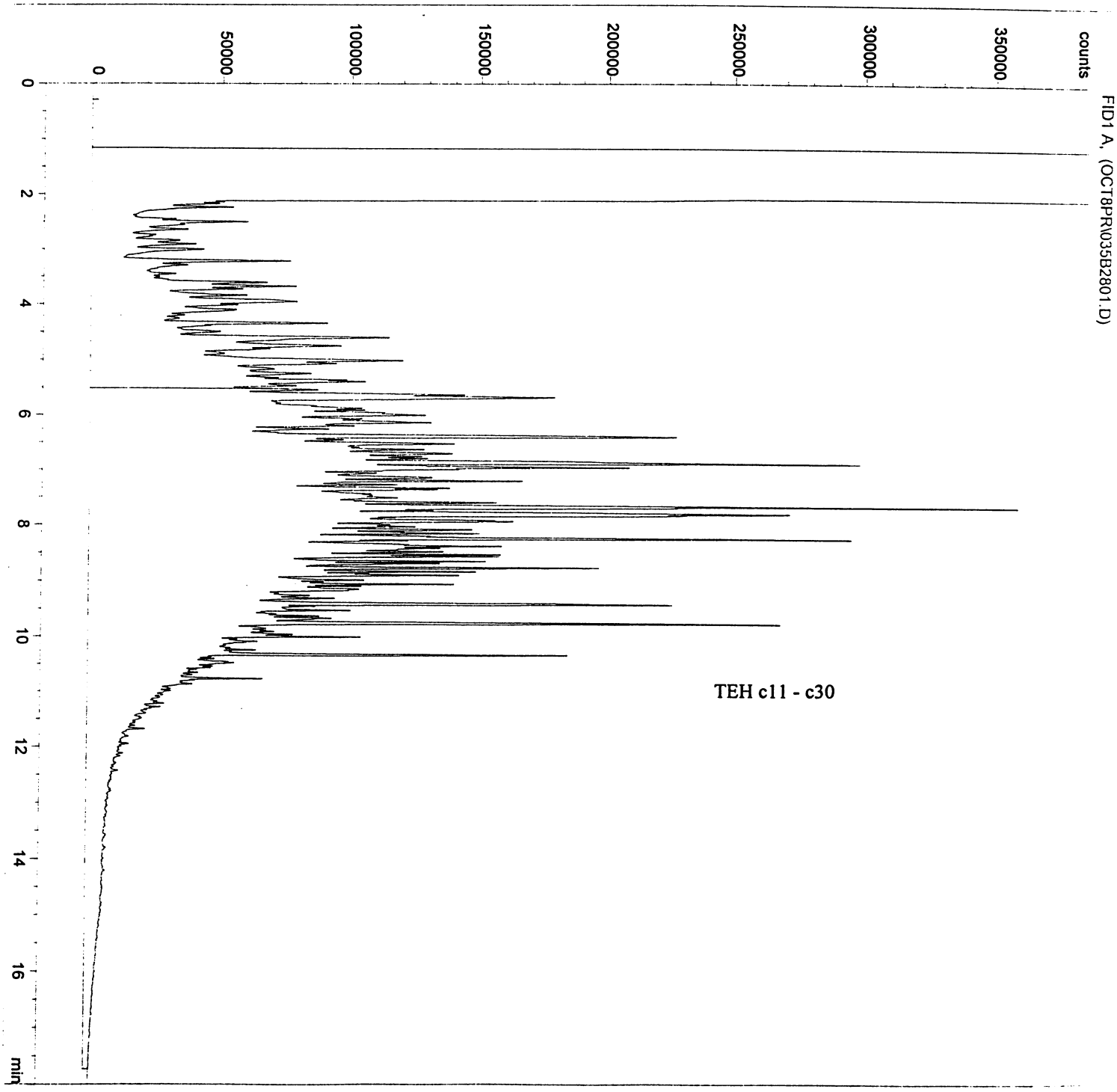
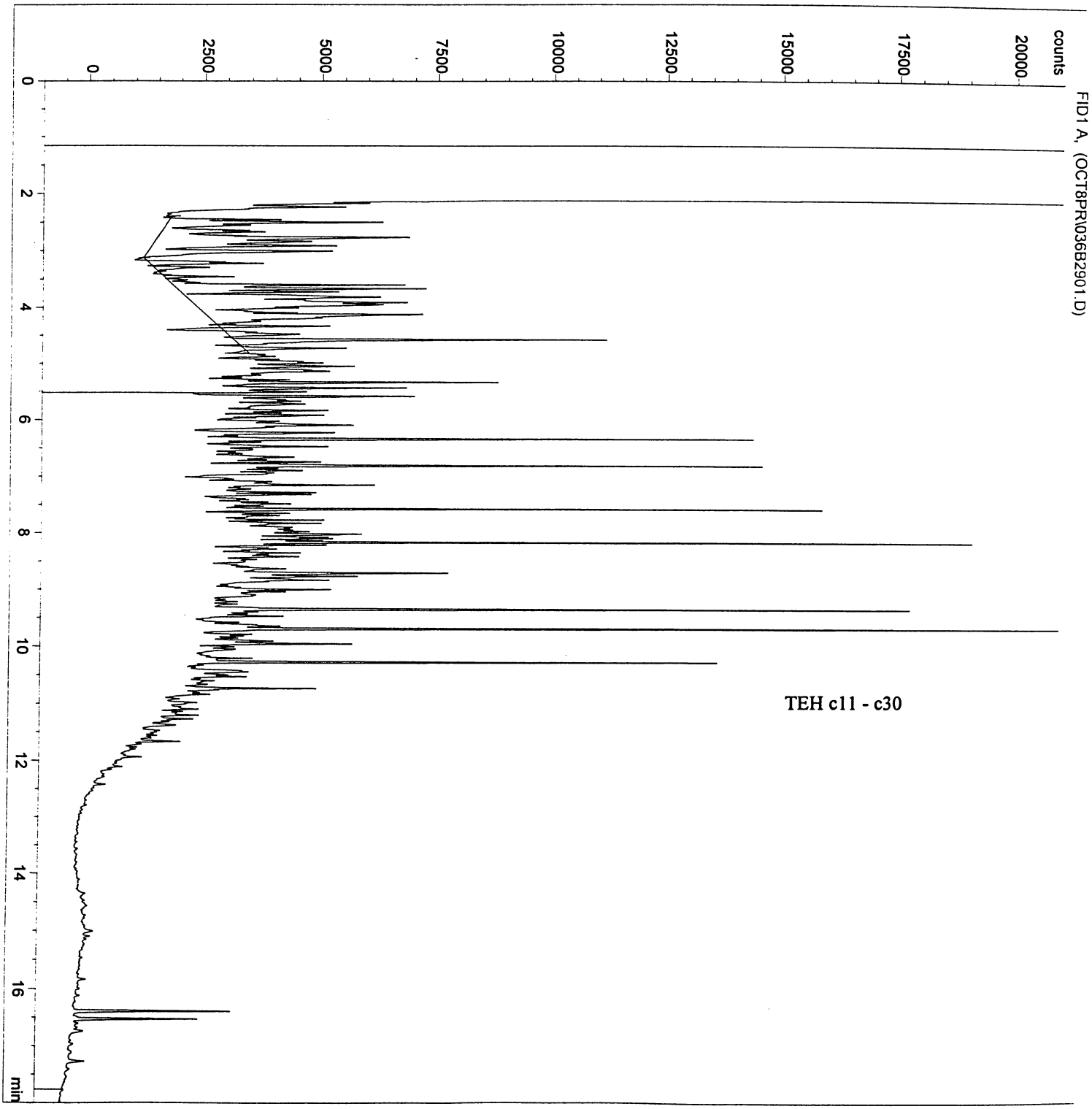


Data File C:\HPCHEM\2\DATA\OCT8PR\036B2901.D Sample Name: 98-58768

Injection Date : 10/9/98 10:19:42 PM Seq. Line : 29
Sample Name : 98-58768 Vial : 36
Acq. Operator : A. Balkaran 1-3 Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\OCT9PR.S
Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/8/98 3:04:09 PM by A. Balkaran
Method for analysis of TEH (C11-C30) in soils using DB1 capillary column with modified temperature program.(40 C for 2 min. 20 C/min to 300 C for 3 min)



Data File C:\HPCHEM\2\DATA\OCT8PR\037B3001.D Sample Name: 98-58769

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Injection Date : 10/9/98 10:45:56 PM Seq. Line : 30
Sample Name : 98-58769 Vial : 37
Acq. Operator : A. Balkaran 6-3 Inj : 1
Inj Volume : 1 µl

Acq. Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/8/98 3:04:09 PM by A. Balkaran
Analysis Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/16/98 10:36:28 AM by Paul R.
(modified after loading)
Method for analysis of TEH (C11-C30) in soils using DB1 capillary column with modified temperature program.(40 C for 2 min. 20 C/min to 300 C for 3 min)

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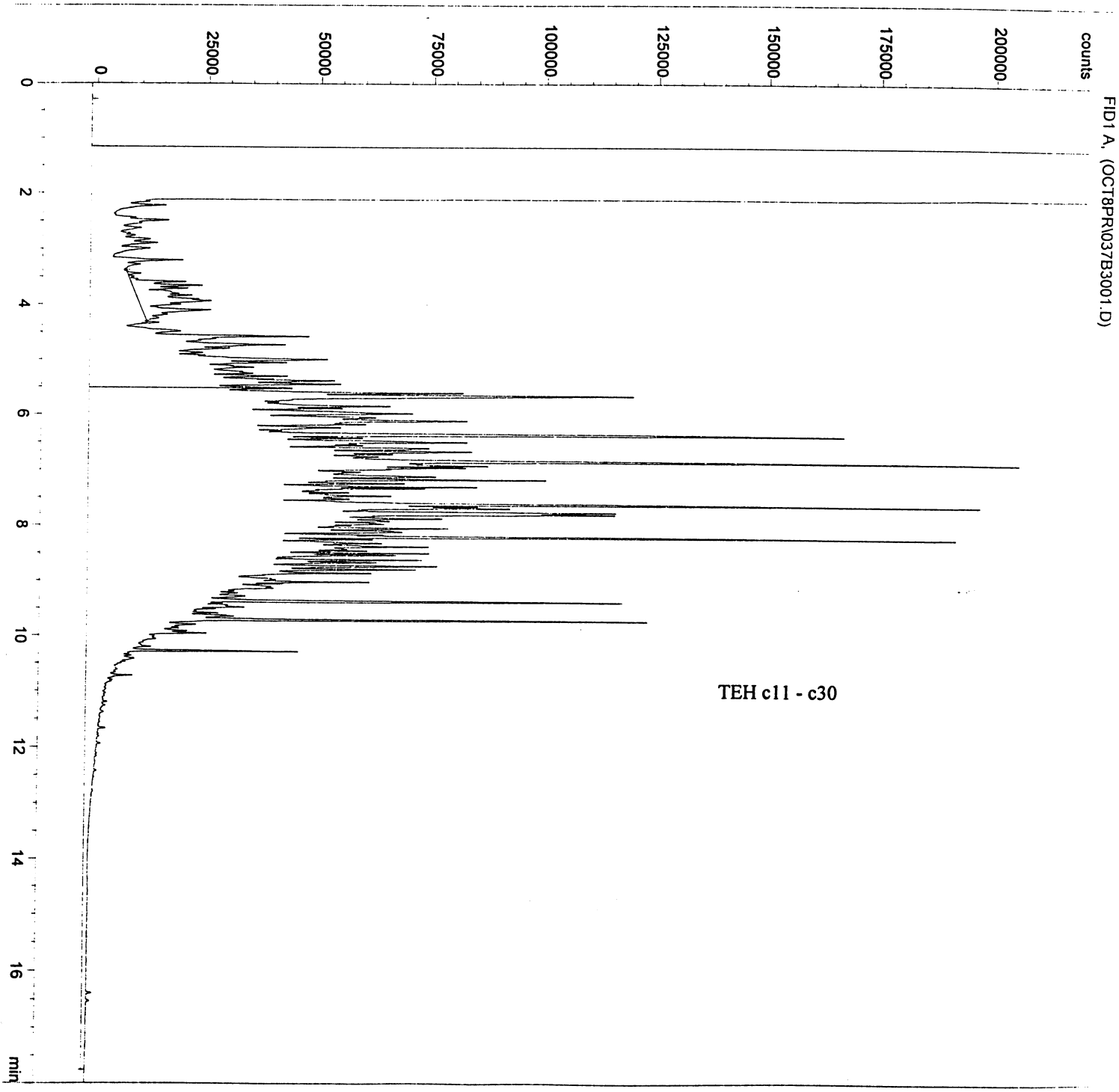
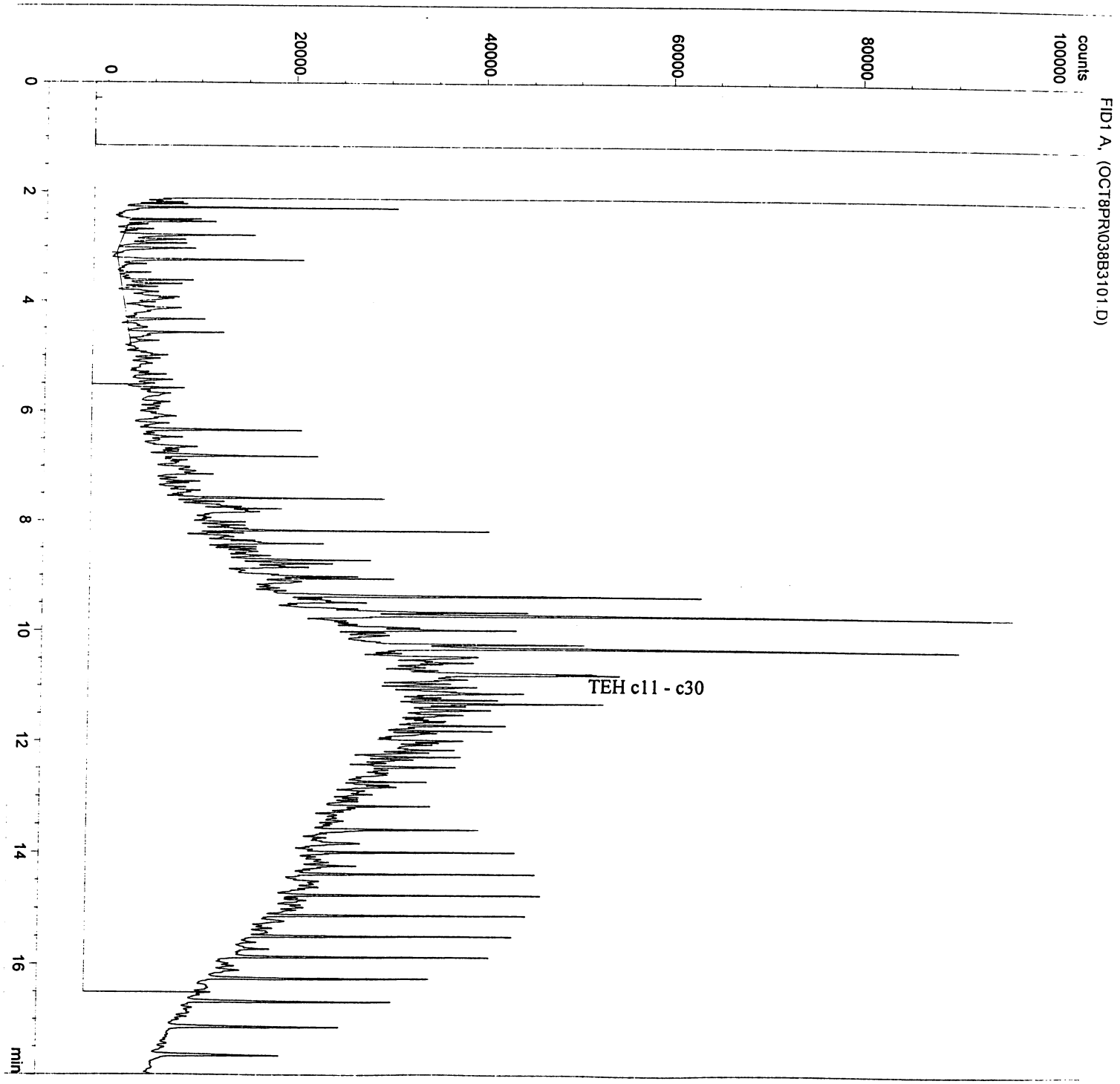


Data File C:\HPCHEM\2\DATA\OCT8PR\038B3101.D Sample Name: 98-58770 1:10

Injection Date : 10/9/98 11:11:59 PM Seq. Line : 31
Sample Name : 98-58770 1:10 Vial : 38
Acq. Operator : A. Balkaran Inj : 1
Inj Volume : 1 µl

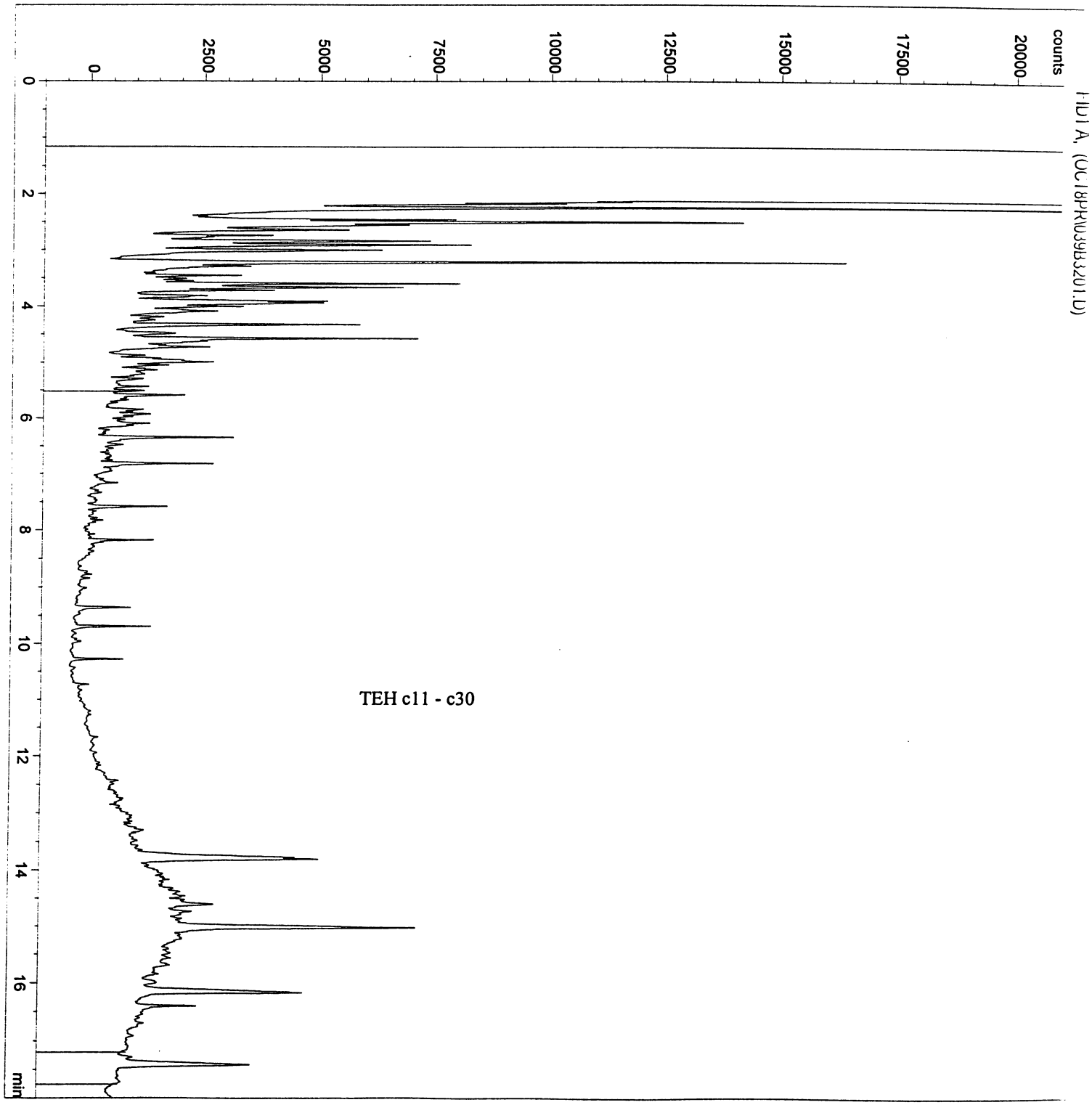
Acq. Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/8/98 3:04:09 PM by A. Balkaran
Analysis Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/16/98 10:36:28 AM by Paul R.
(modified after loading)
Method for analysis of TEH (C11-C30) in soils using DB1 capillary column with modified temperature program.(40 C for 2 min. 20 C/min to 300 C for 3 min)



Data File C:\HPCHEM\2\DATA\OCT8PR\039B3201.D Sample Name: 98-58771

Injection Date : 10/9/98 11:38:03 PM Seq. Line : 32
Sample Name : 98-58771 Vial : 39
Acq. Operator : A. Balkaran 9-3 Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\OCT9PR.S
Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/8/98 3:04:09 PM by A. Balkaran
Method for analysis of TEH (C11-C30) in soils using DB1 capillary column with modified temperature program.(40 C for 2 min. 20 C/min to 300 C for 3 min)



Data File C:\HPCHEM\2\DATA\OCT8PR\040B3301.D Sample Name: 98-58772

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Injection Date : 10/10/98 12:04:00 AM Seq. Line : 33
Sample Name : 98-58772 Vial : 40
Acq. Operator : A. Balkaran Inj : 1
Inj Volume : 1 µl

11-5

Sequence File : C:\HPCHEM\2\SEQUENCE\OCT9PR.S
Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/8/98 3:04:09 PM by A. Balkaran
Method for analysis of TEH (C11-C30) in soils using DB1 capillary column with modified temperature program.(40 C for 2 min. 20 C/min to 300 C for 3 min)

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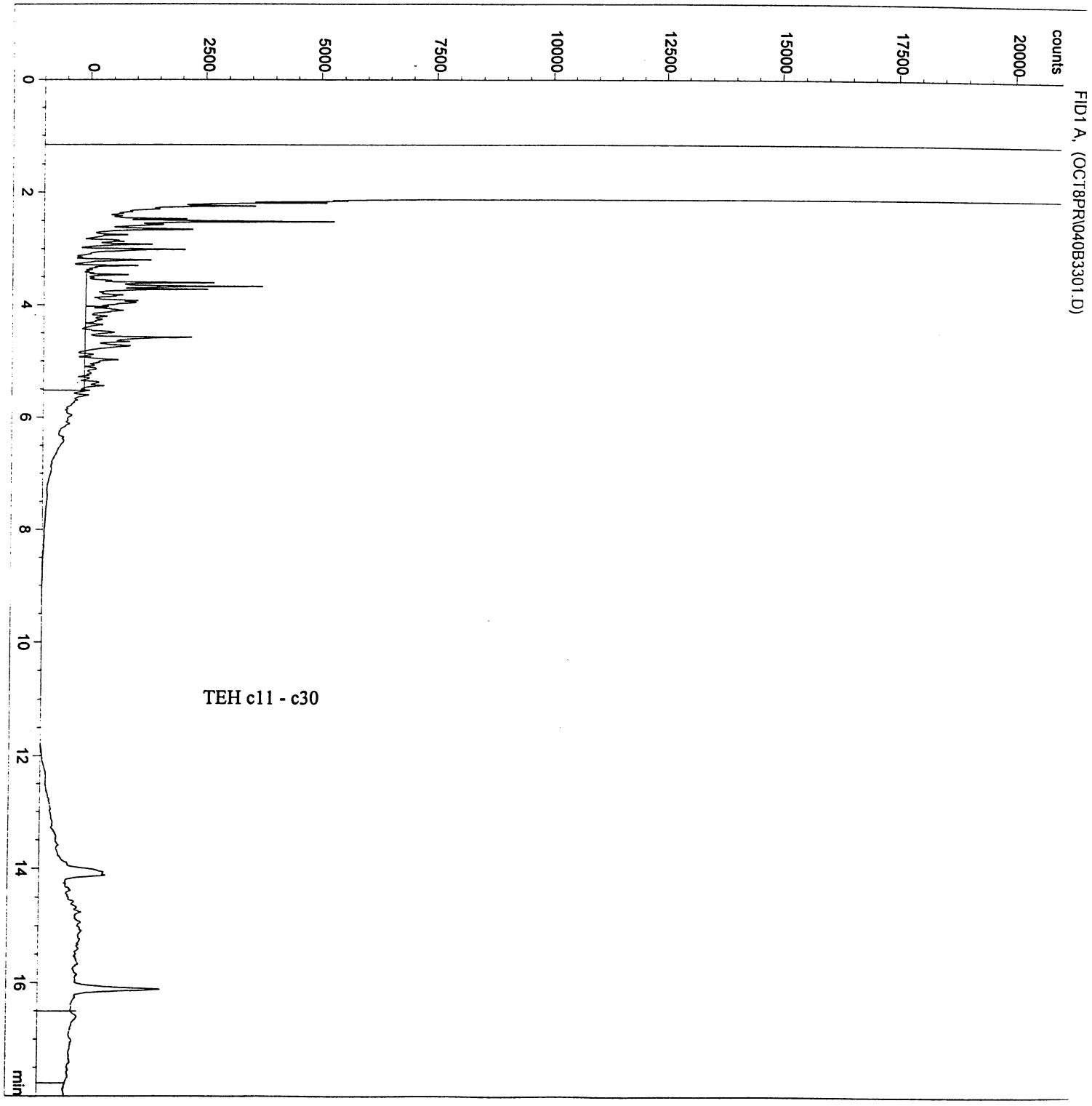

ata File C:\HPCHEM\2\DATA\OCT8PR\041B3401.D Sample Name: 98-58773

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Injection Date : 10/10/98 12:30:00 AM Seq. Line : 34
Sample Name : 98-58773 Vial : 41
Acq. Operator : A. Balkaran 12-2 Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\OCT9PR.S
Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/8/98 3:04:09 PM by A. Balkaran
Method for analysis of TEH (C11-C30) in soils using DB1 capillary column with modified temperature program.(40 C for 2 min. 20 C/min to 300 C for 3 min)

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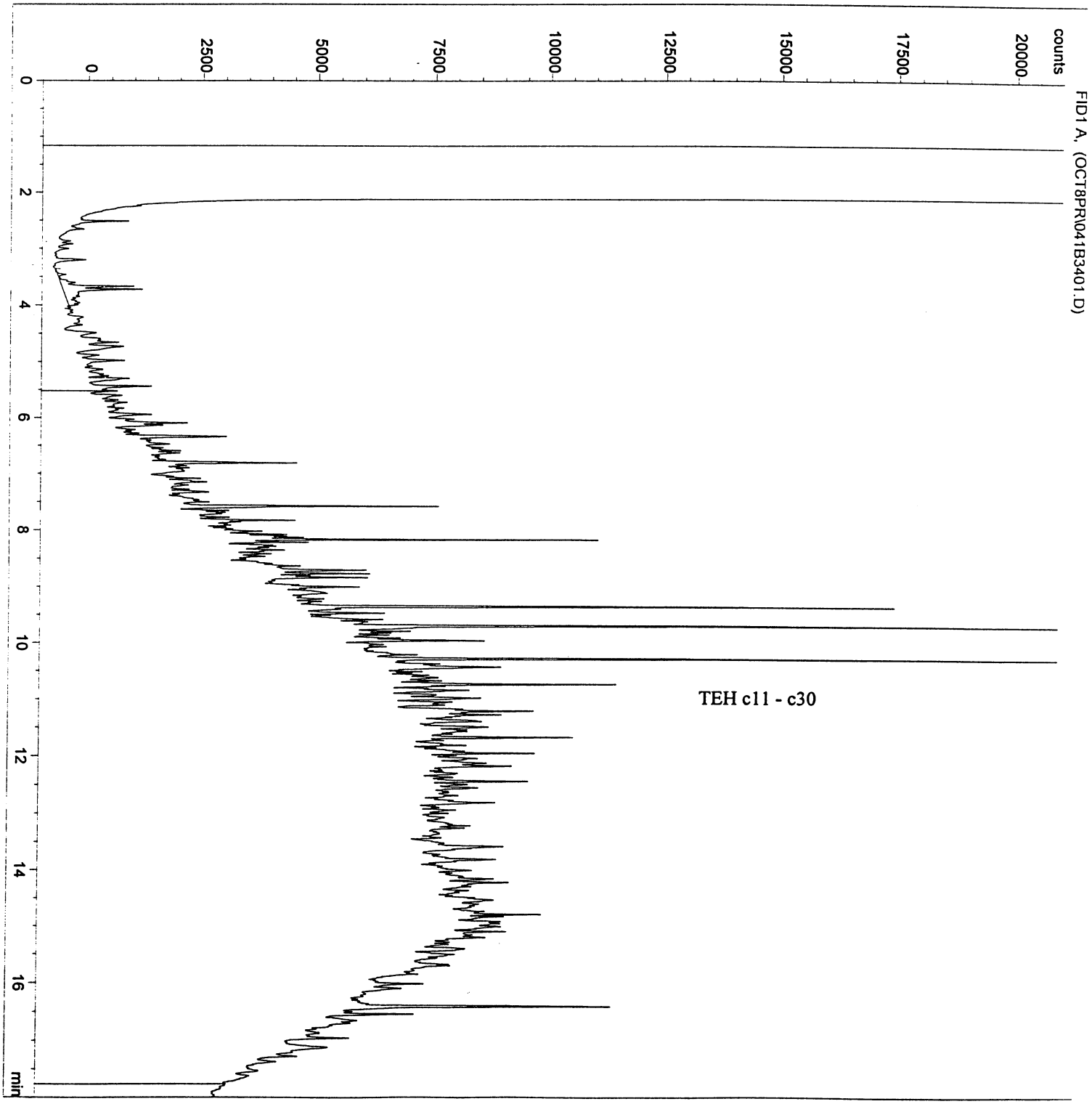

Data File C:\HPCHEM\2\DATA\OCT8PR\042B3501.D Sample Name: 98-58774

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Injection Date : 10/10/98 12:56:01 AM Seq. Line : 35
Sample Name : 98-58774 Vial : 42
Acq. Operator : A. Balkaran 14-4 Inj : 1
Inj Volume : 1 µl

Acq. Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/8/98 3:04:09 PM by A. Balkaran
Analysis Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/16/98 10:36:28 AM by Paul R.
(modified after loading)

Method for analysis of TEH (C11-C30) in soils using DB1 capillary column with modified temperature program.(40 C for 2 min. 20 C/min to 300 C for 3 min)

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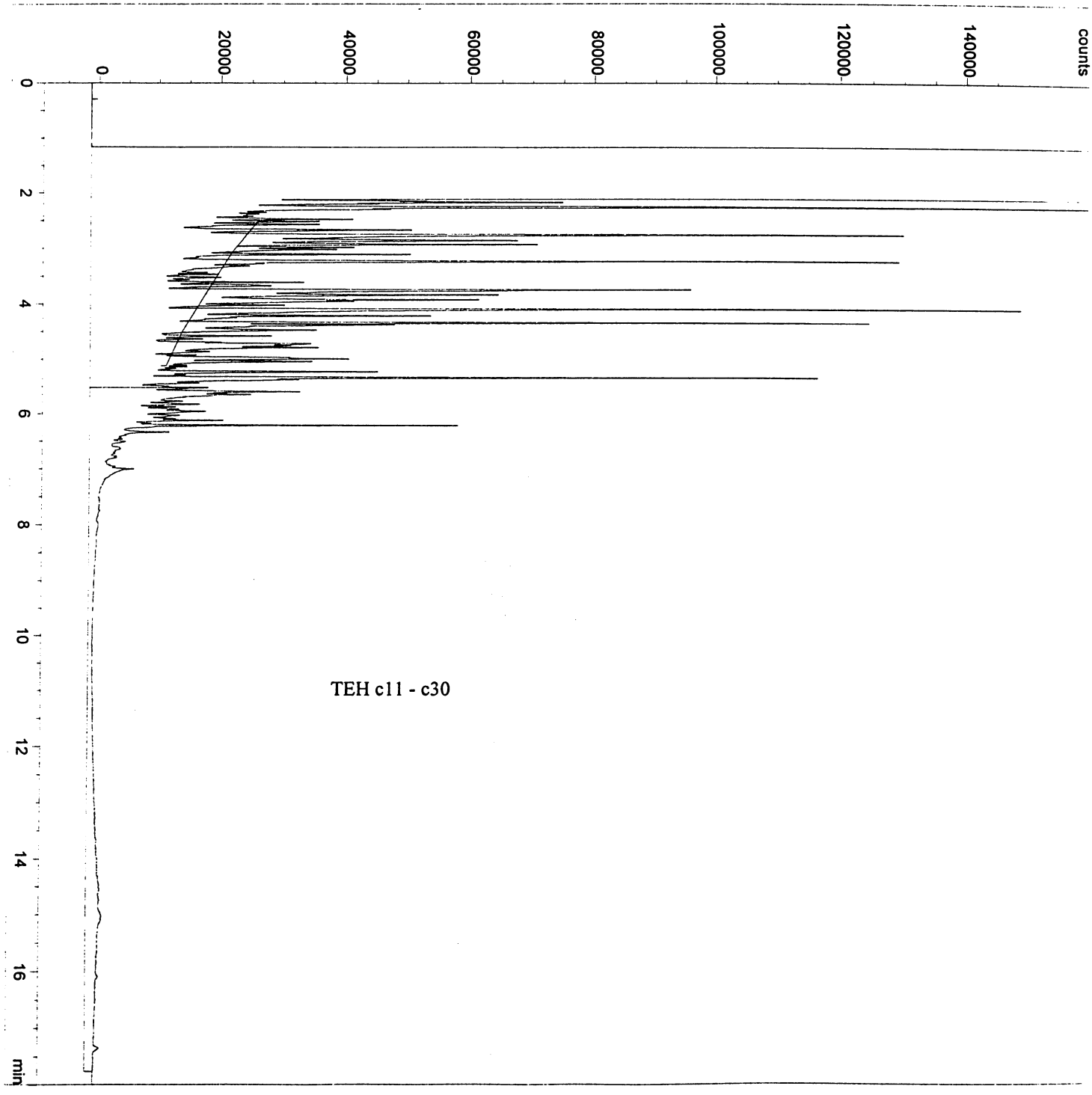

Data File C:\HPCHEM\2\DATA\OCT8PR\043B3601.D Sample Name: 98-58775

==========

Injection Date : 10/10/98 1:22:03 AM Seq. Line : 36
Sample Name : 98-58775 Vial : 43
Acq. Operator : A. Balkaran Inj : 1
Inj Volume : 1 µl

15-4

Acq. Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/8/98 3:04:09 PM by A. Balkaran
Analysis Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/16/98 10:36:28 AM by Paul R.
(modified after loading)
Method for analysis of TEH (C11-C30) in soils using DB1 capillary column with modified temperature program.(40 C for 2 min. 20 C/min to 300 C for 3 min)

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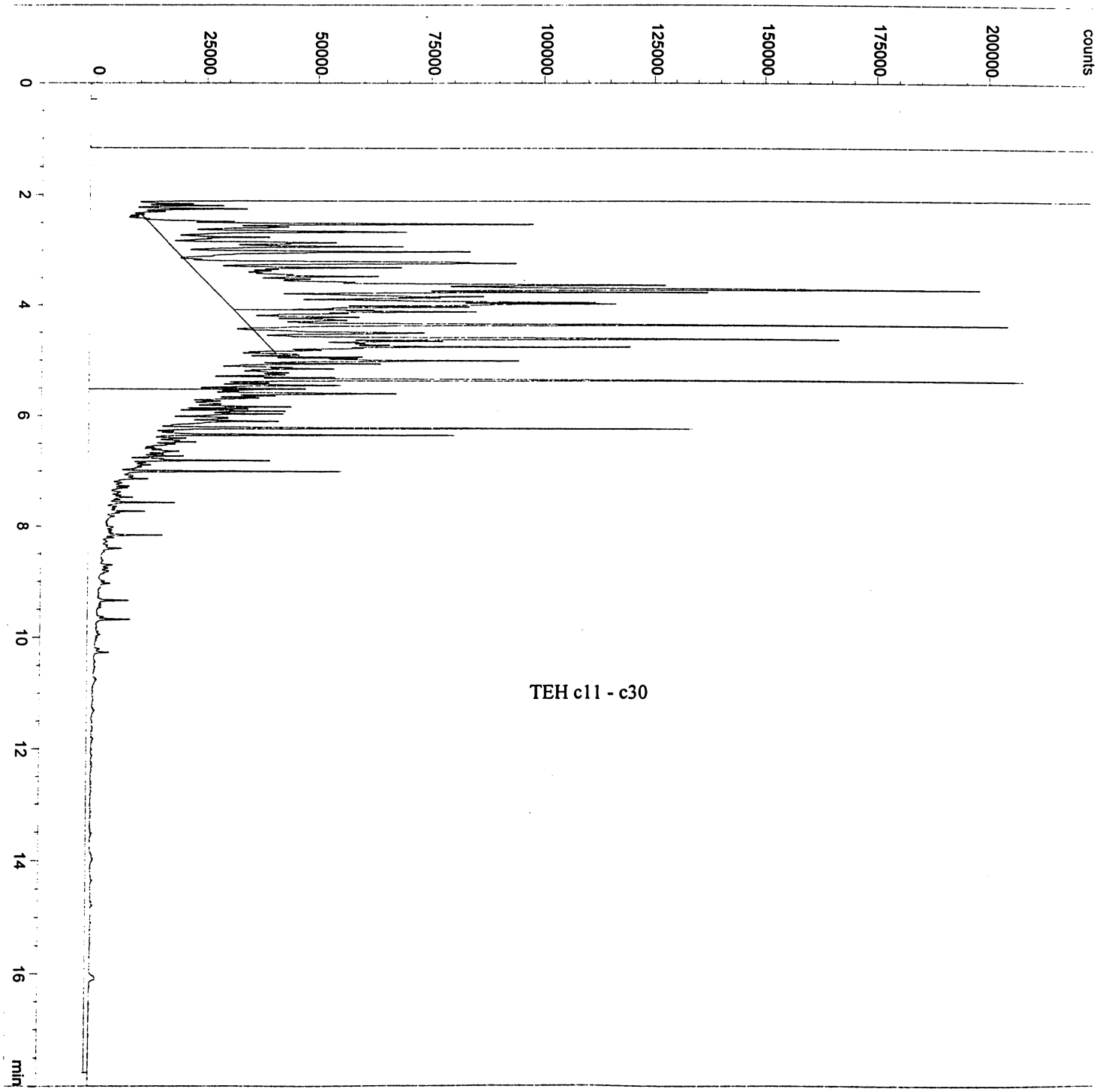

Data File C:\HPCHEM\2\DATA\OCT8PR\044B4001.D Sample Name: 98-58776

==========

Injection Date : 10/10/98 2:57:42 AM Seq. Line : 40
Sample Name : 98-58776 Vial : 44
Acq. Operator : A. Balkaran Inj : 1
Inj Volume : 1 µl

Acq. Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/8/98 3:04:09 PM by A. Balkaran
Analysis Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/16/98 10:36:28 AM by Paul R.
(modified after loading)
Method for analysis of TEH (C11-C30) in soils using DB1 capillary column with modified temperature program.(40 C for 2 min. 20 C/min to 300 C for 3 min)

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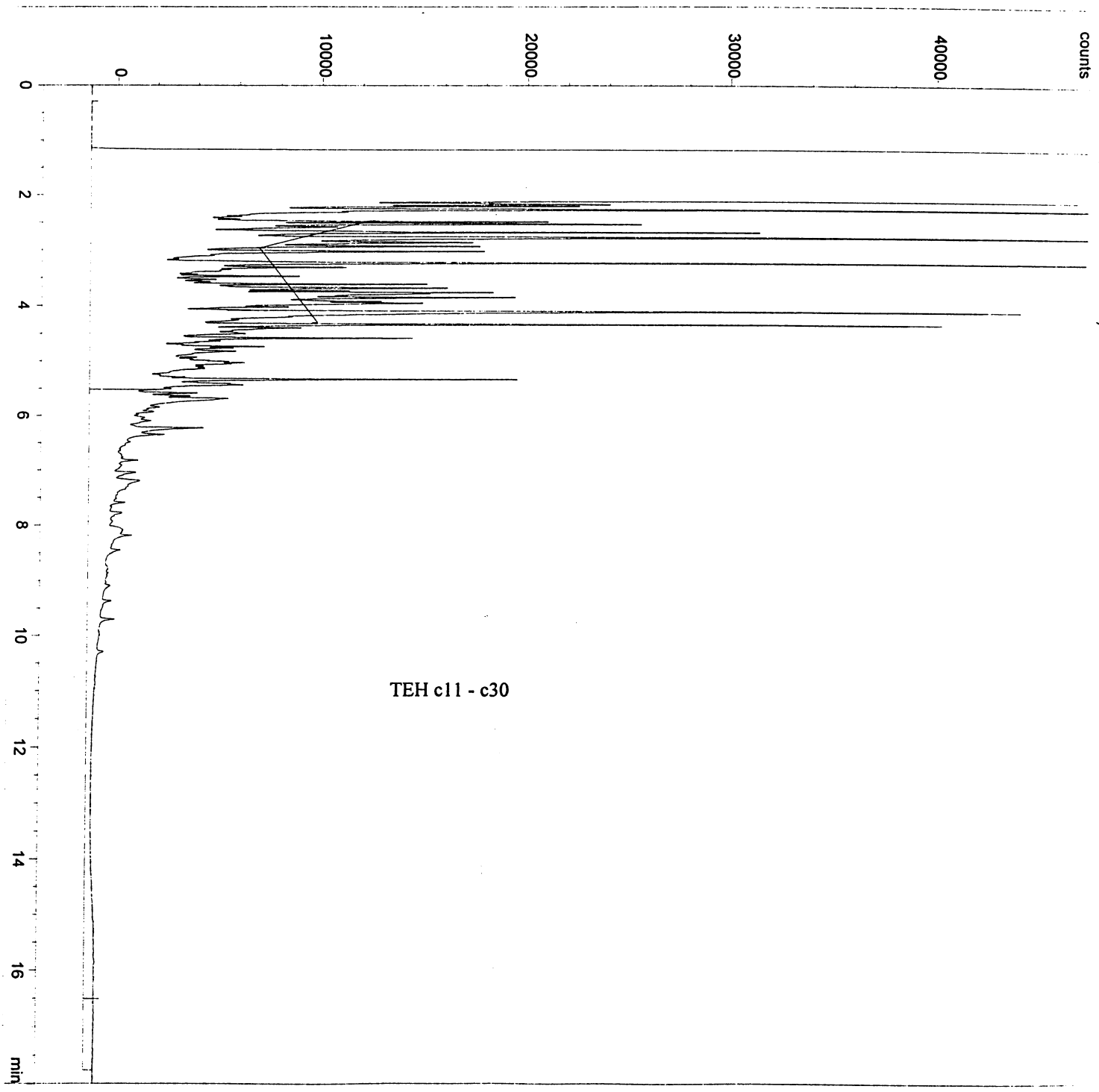

Data File C:\HPCHEM\2\DATA\OCT8PR\045B4101.D Sample Name: 98-58777 1:10

==========

Injection Date : 10/10/98 3:23:34 AM Seq. Line : 41
Sample Name : 98-58777 1:10 Vial : 45
Acq. Operator : A. Balkaran Inj : 1
Inj Volume : 1 µl

Acq. Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/8/98 3:04:09 PM by A. Balkaran
Analysis Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/16/98 10:36:28 AM by Paul R.
(modified after loading)
Method for analysis of TEH (C11-C30) in soils using DB1 capillary column with modified temperature program.(40 C for 2 min. 20 C/min to 300 C for 3 min)

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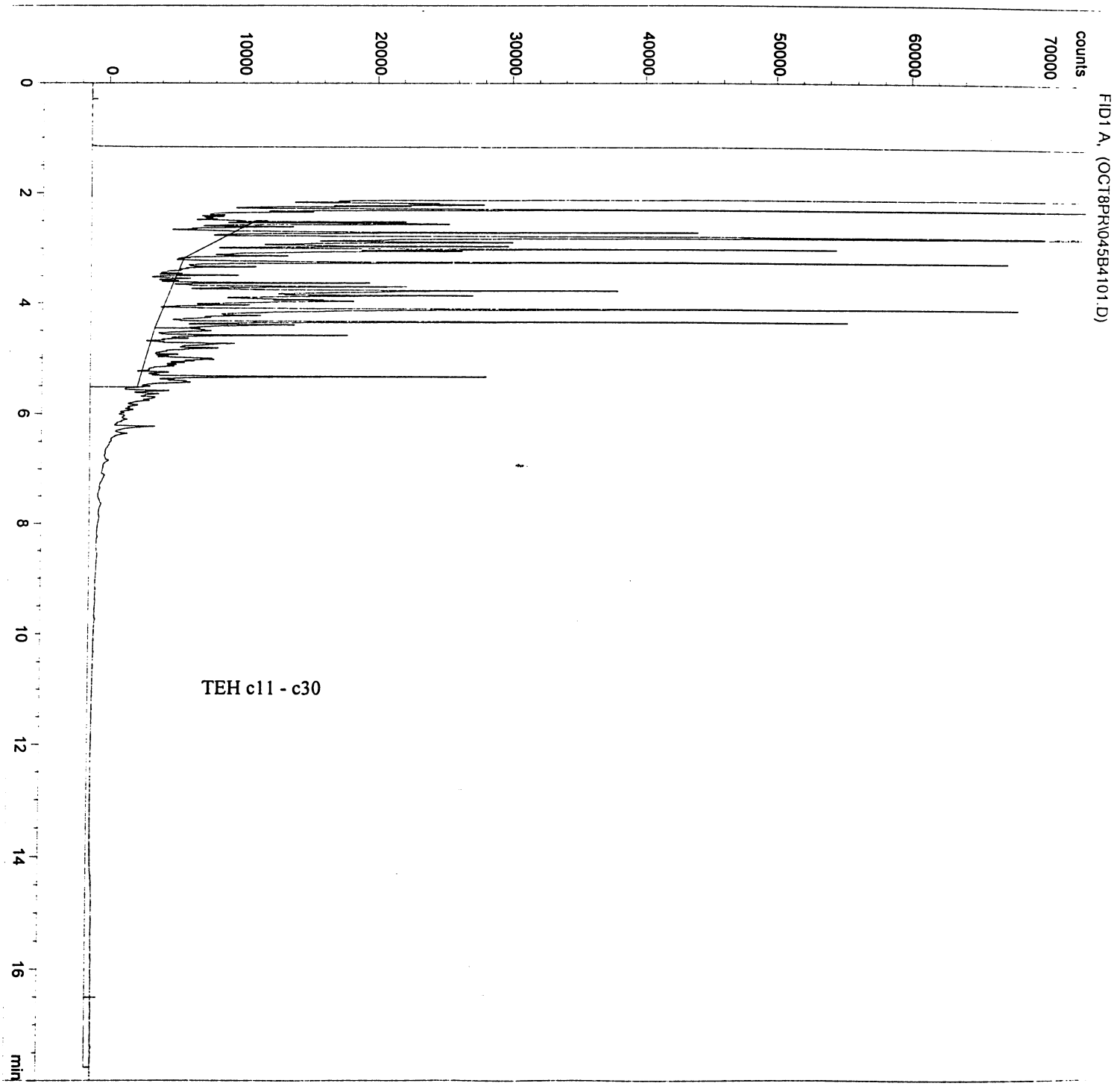
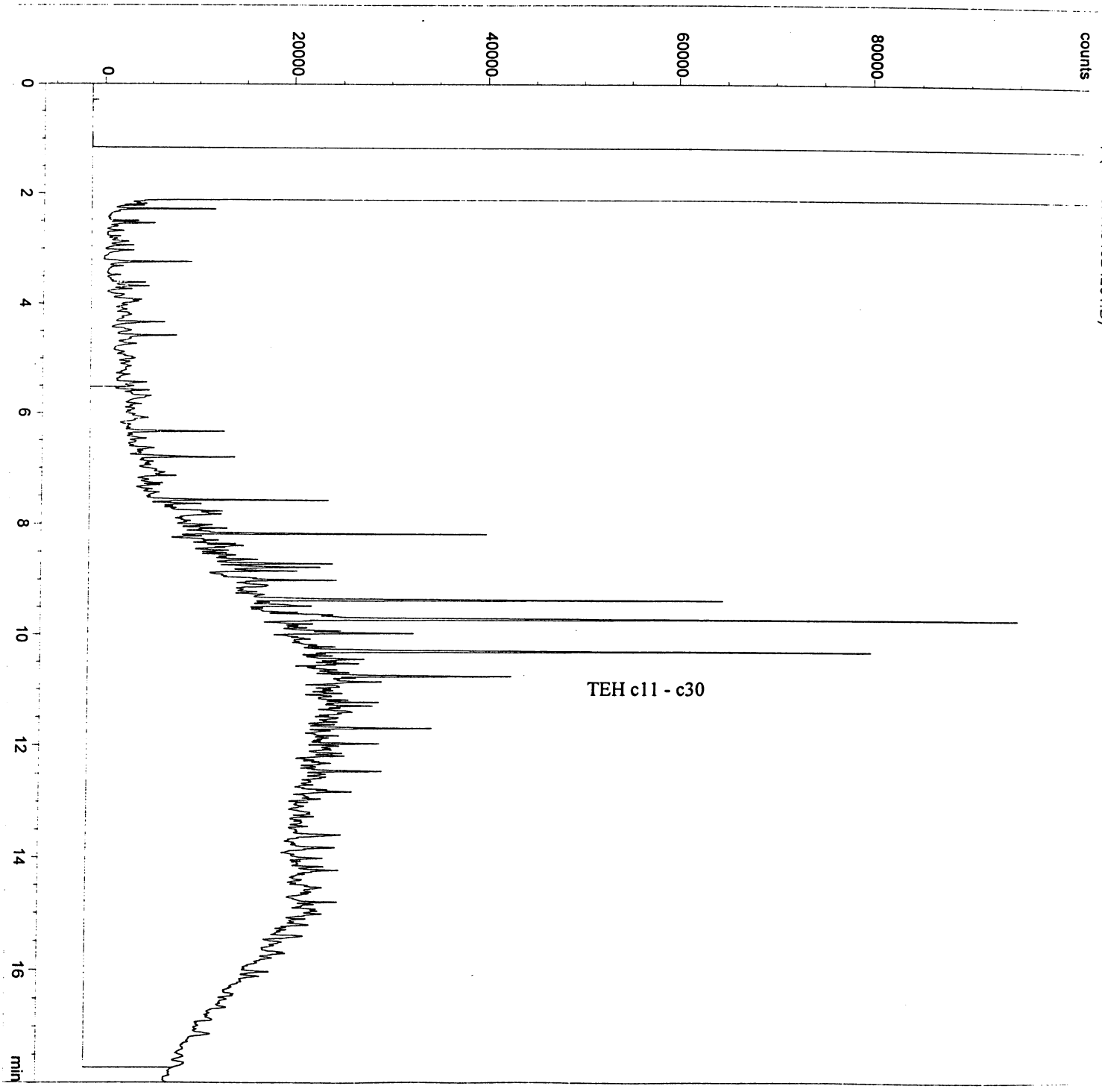


Data File C:\HPCHEM\2\DATA\OCT8PR\046B4201.D Sample Name: 98-58778 1:10

Injection Date : 10/10/98 3:49:35 AM Seq. Line : 42
Sample Name : 98-58778 1:10 Vial : 46
Acq. Operator : A. Balkaran Inj : 1
Inj Volume : 1 µl

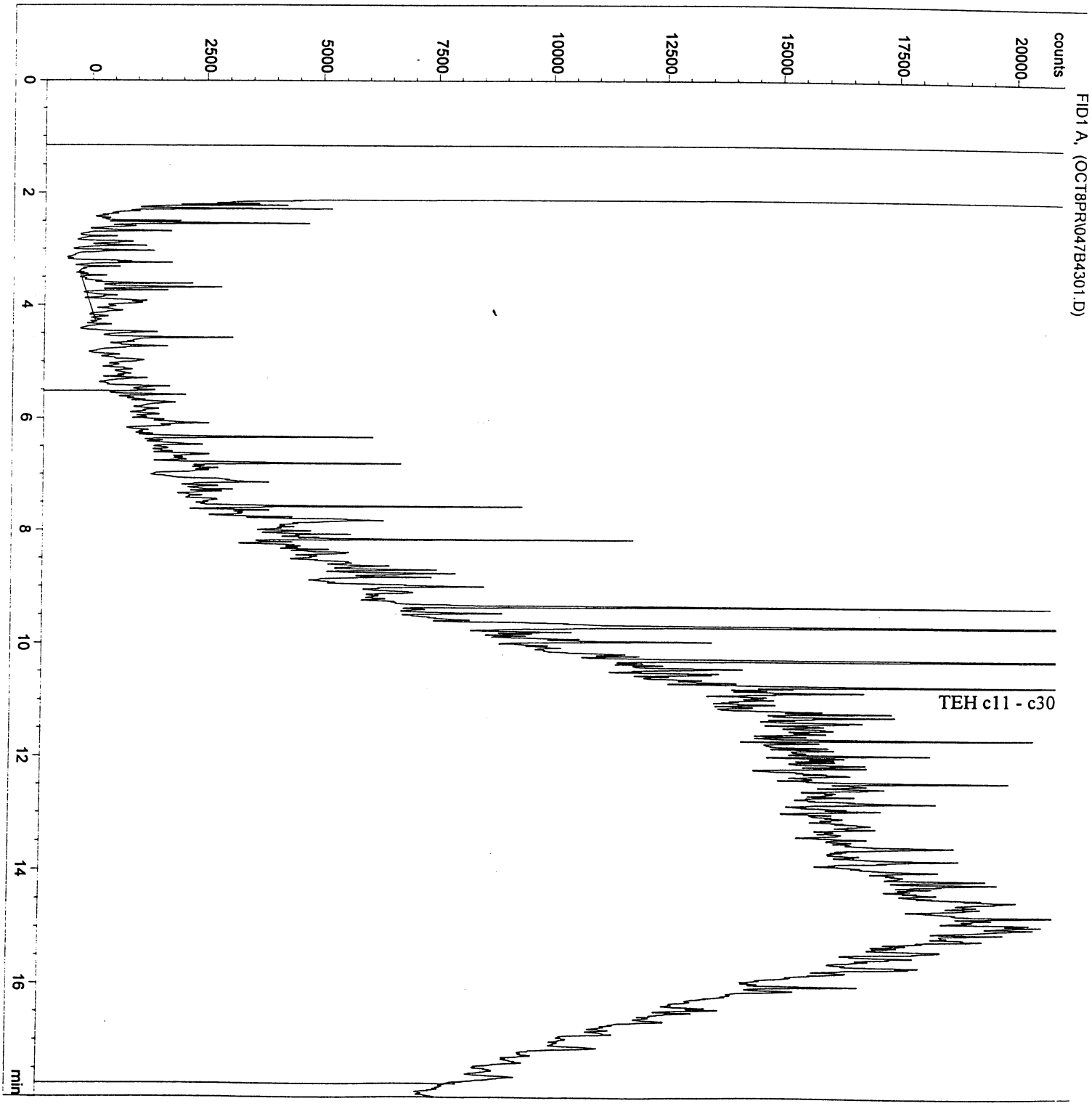
Acq. Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/8/98 3:04:09 PM by A. Balkaran
Analysis Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/16/98 10:36:28 AM by Paul R.
(modified after loading)
Method for analysis of TEH (C11-C30) in soils using DB1 capillary column with modified temperature program.(40 C for 2 min. 20 C/min to 300 C for 3 min)



Data File C:\HPCHEM\2\DATA\OCT8PR\047B4301.D Sample Name: 98-58779 1:10

Injection Date : 10/10/98 4:15:26 AM Seq. Line : 43
Sample Name : 98-58779 1:10 Vial : 47
Acq. Operator : A. Balkaran Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\OCT9PR.S
Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/8/98 3:04:09 PM by A. Balkaran
Method for analysis of TEH (C11-C30) in soils using DB1 capillary column with modified temperature program.(40 C for 2 min. 20 C/min to 300 C for 3 min)



Data File C:\HPCHEM\2\DATA\OCT8PR\048B4501.D Sample Name: 98-58780

==========

Injection Date : 10/10/98 4:58:59 AM Seq. Line : 45
Sample Name : 98-58780 Vial : 48
Acq. Operator : A. Balkaran Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\OCT9PR.S
Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/8/98 3:04:09 PM by A. Balkaran
Method for analysis of TEH (C11-C30) in soils using DB1 capillary column with modified temperature program. (40 C for 2 min. 20 C/min to 300 C for 3 min)

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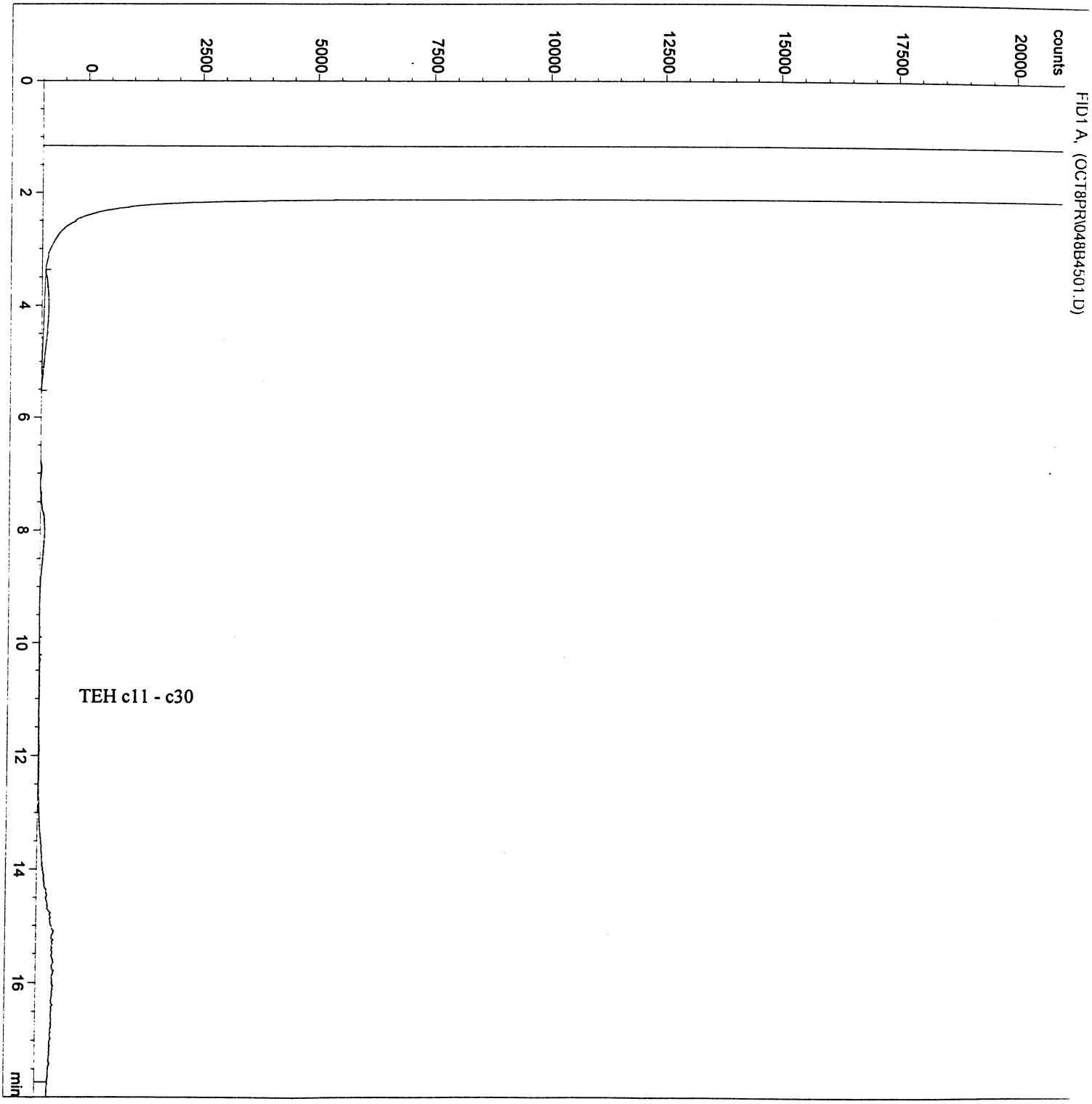

Data File C:\HPCHEM\2\DATA\OCT8PR\049B4601.D Sample Name: 98-58781

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Injection Date : 10/10/98 5:25:05 AM Seq. Line : 46
Sample Name : 98-58781 Vial : 49
Acq. Operator : A. Balkaran 21-6 Inj : 1
Inj Volume : 1 µl

Acq. Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/8/98 3:04:09 PM by A. Balkaran
Analysis Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/16/98 10:36:28 AM by Paul R.
(modified after loading)
Method for analysis of TEH (C11-C30) in soils using DB1 capillary column with modified temperature program.(40 C for 2 min. 20 C/min to 300 C for 3 min)

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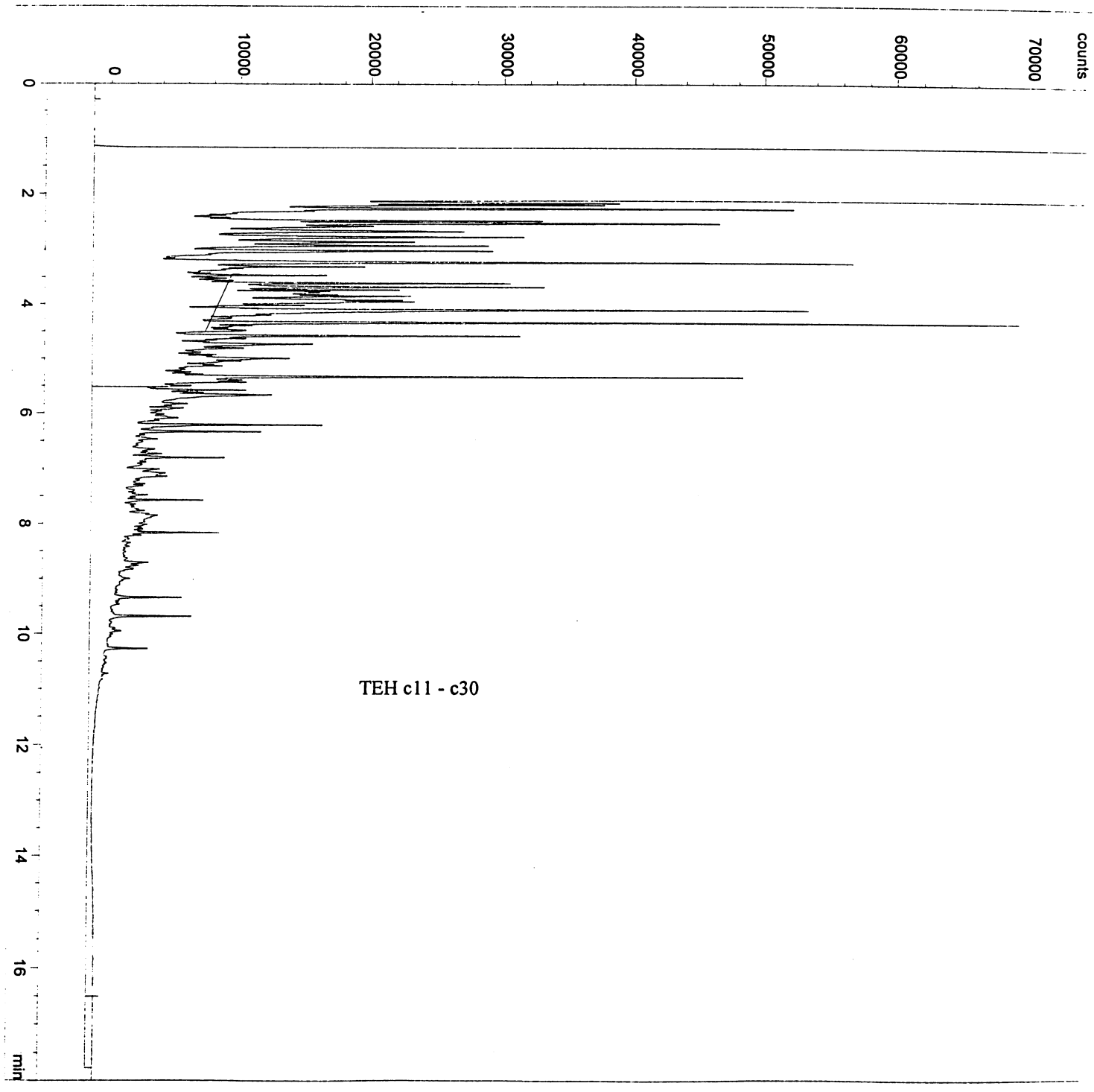

Data File C:\HPCHEM\2\DATA\OCT8PR\050B4701.D Sample Name: 98-58782 1:10

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Injection Date : 10/10/98 5:50:55 AM Seq. Line : 47
Sample Name : 98-58782 1:10 Vial : 50
Acq. Operator : A. Balkaran Inj : 1
Inj Volume : 1 µl

Sequence File : C:\HPCHEM\2\SEQUENCE\OCT9PR.S
Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/8/98 3:04:09 PM by A. Balkaran
Method for analysis of TEH (C11-C30) in soils using DB1 capillary column with modified temperature program.(40 C for 2 min. 20 C/min to 300 C for 3 min)

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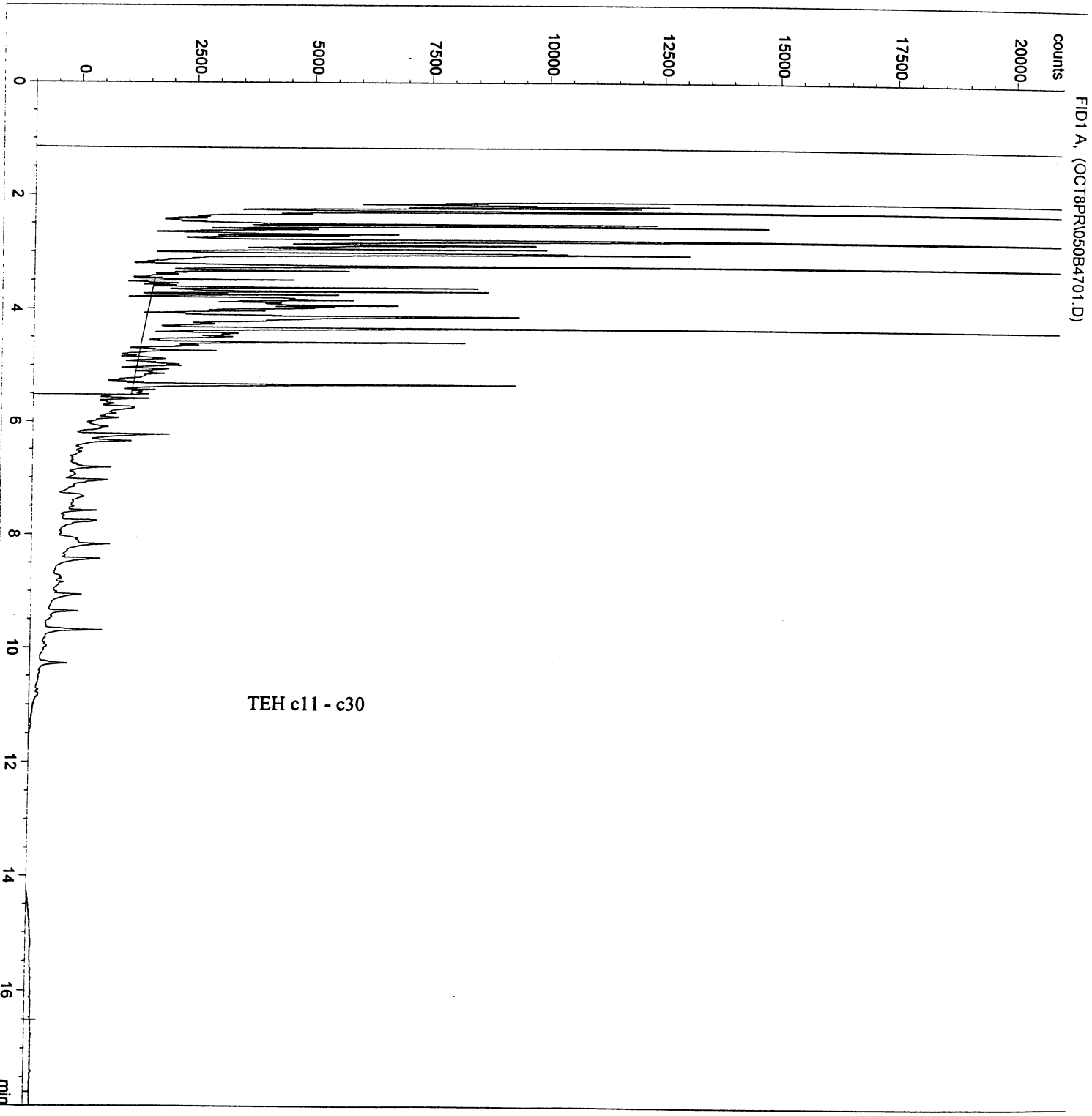

Instrument 2 10/10/98 6:00:04 AM A. Balkaran

ata File C:\HPCHEM\2\DATA\OCT8PR\002B0201.D Sample Name: Diesel Std
ID: Diesel Working Std (C155B)
250 uL of C155A (Stock Solution) diluted to 10 mL of he
xane.

==========

Injection Date	: 10/8/98 3:31:41 PM	Seq. Line	: 2
Sample Name	: Diesel Std	Vial	: 2
Acq. Operator	: A. Balkaran	Inj	: 1
		Inj Volume	: 1 µl

Acq. Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/8/98 3:31:33 PM by A. Balkaran
(modified after loading)
Analysis Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/16/98 2:28:03 PM by Paul R.
(modified after loading)
Method for analysis of TEH (C11-C30) in soils using DB1 capillary column with modified temperature program.(40 C for 2 min. 20 C/min to 300 C for 3 min)

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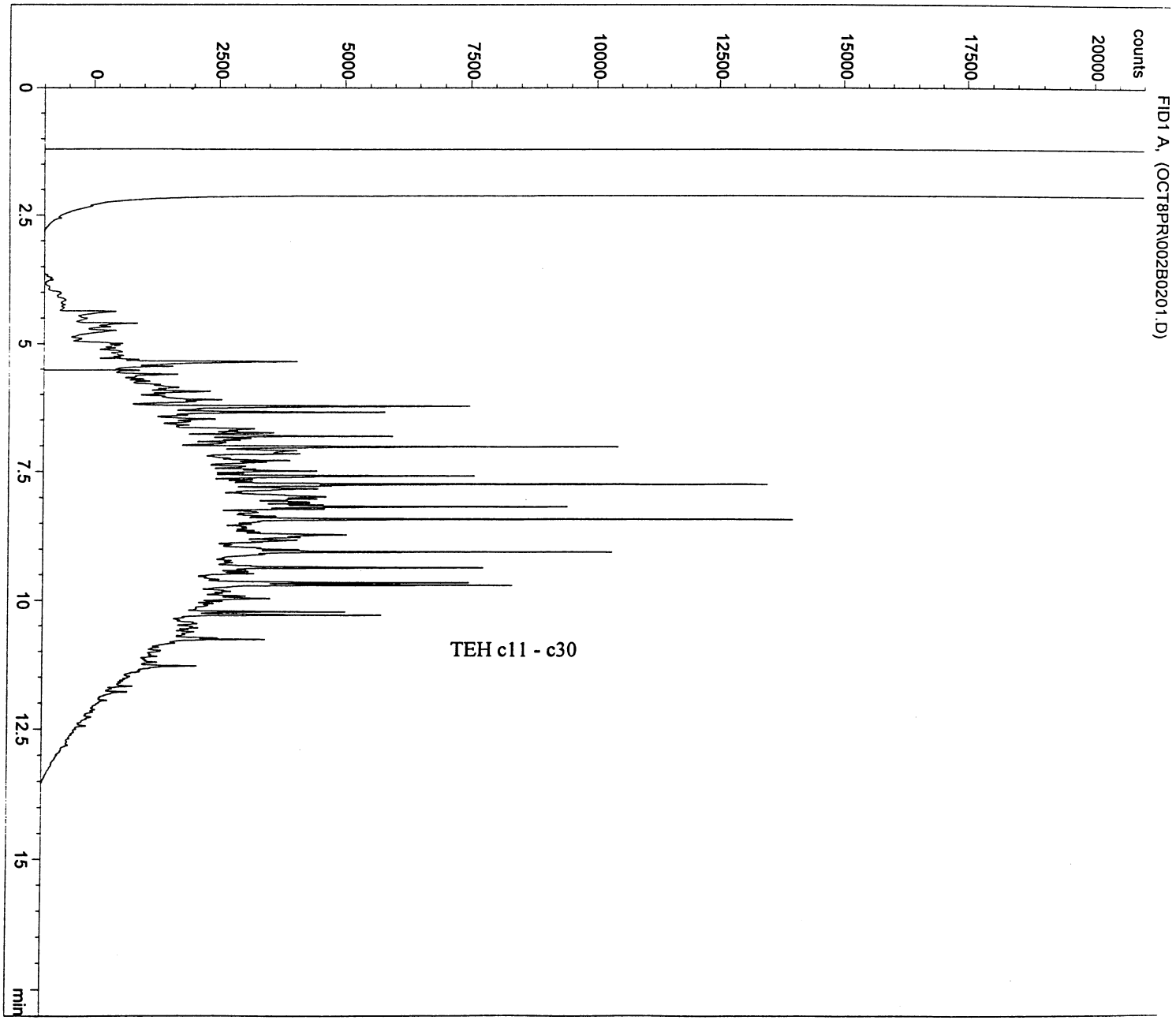

Data File C:\HPCHEM\2\DATA\OCT8PR\003B0301.D Sample Name: Gas Qual Std
ID: Gasoline Working Std (C154B)
1000 uL of C154A (Gasoline Stock Std) diluted to 10 mL
of hexane.

==========

Injection Date	: 10/8/98 4:24:31 PM	Seq. Line	: 3
Sample Name	: Gas Qual Std	Vial	: 3
Acq. Operator	: A. Balkaran	Inj	: 1
		Inj Volume	: 1 µl
Acq. Method	: C:\HPCHEM\2\METHODS\TEHSOIL.M		
Last changed	: 10/8/98 4:16:23 PM by A. Balkaran (modified after loading)		
Analysis Method	: C:\HPCHEM\2\METHODS\TEHSOIL.M		
Last changed	: 10/16/98 2:28:03 PM by Paul R. (modified after loading)		

Method for analysis of TEH (C11-C30) in soils using DB1 capillary column with modified temperature program.(40 C for 2 min. 20 C/min to 300 C for 3 min)

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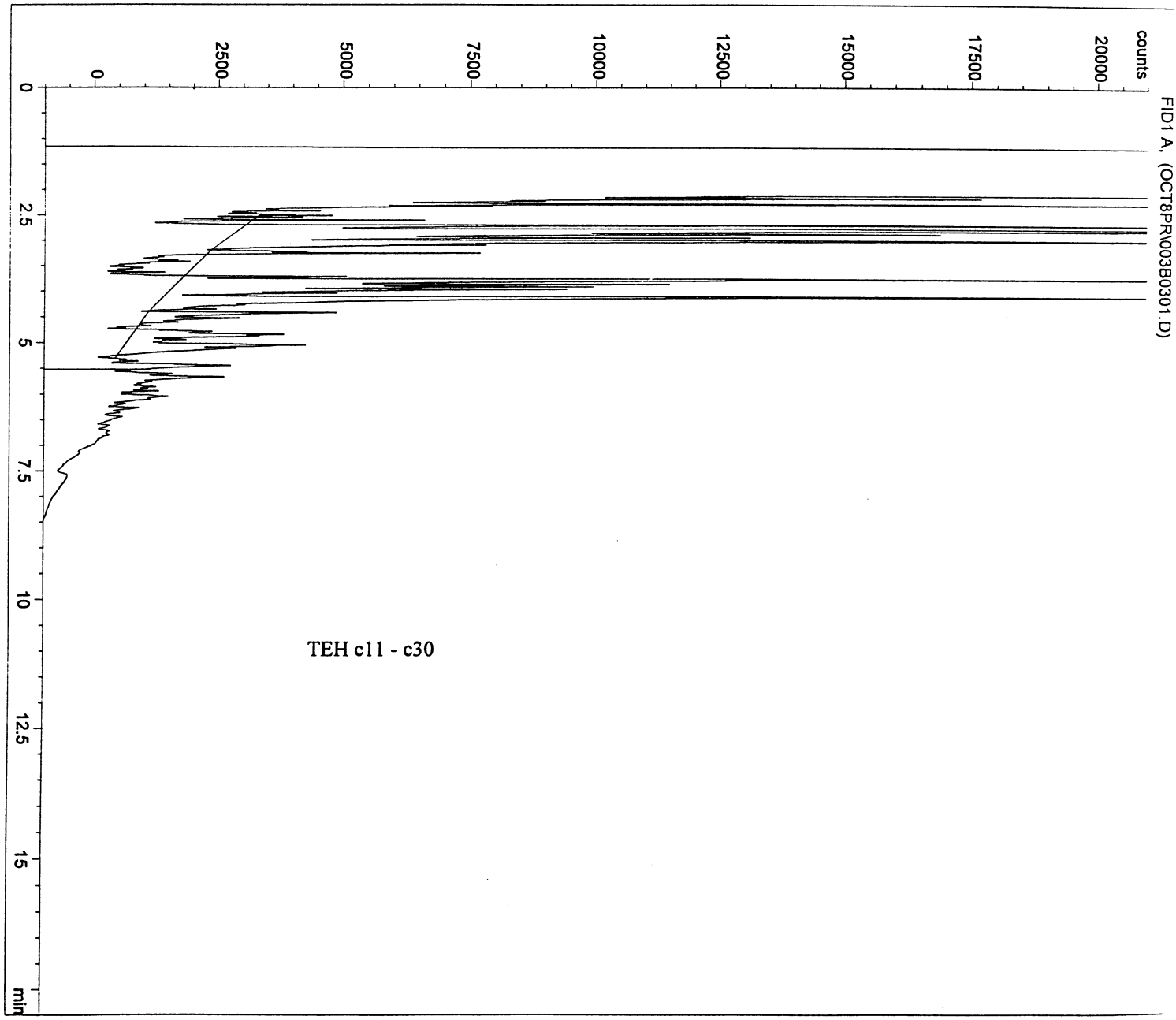
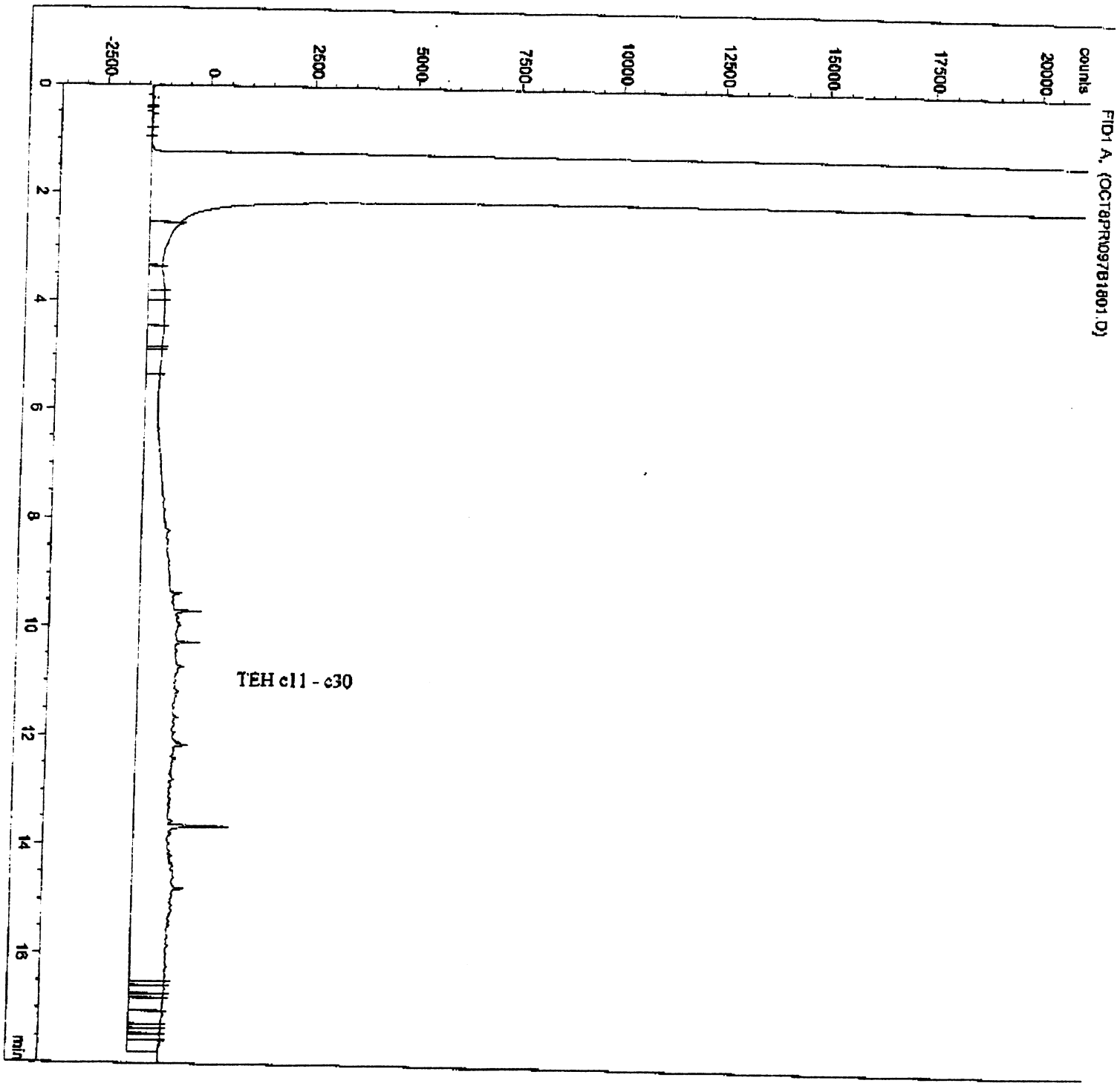


Data File C:\HPCHEM\2\DATA\OCT8PR\097B1801.D Sample Name: 98-58784 1:2

Injection Date : 10/9/98 5:31:22 PM
Sample Name : 98-58784 1:2
Acq. Operator : A. Balkaran

Seq. Line : 18
Vial : 97
Inj : 1
Inj Volume : 1 µl

Acq. Method : C:\HPCHEM\2\METHODS\TEHH2O.M
Last changed : 9/19/98 5:58:54 PM by P. Reeks
Analysis Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/23/98 3:52:26 PM by Paul Reeks
(modified after loading)
Method for analysis of TEH (C11-C30) in soils using DB1 capillary column with modified temperature program. (40 C for 2 min. 20 C/min to 300 C for 3 min)

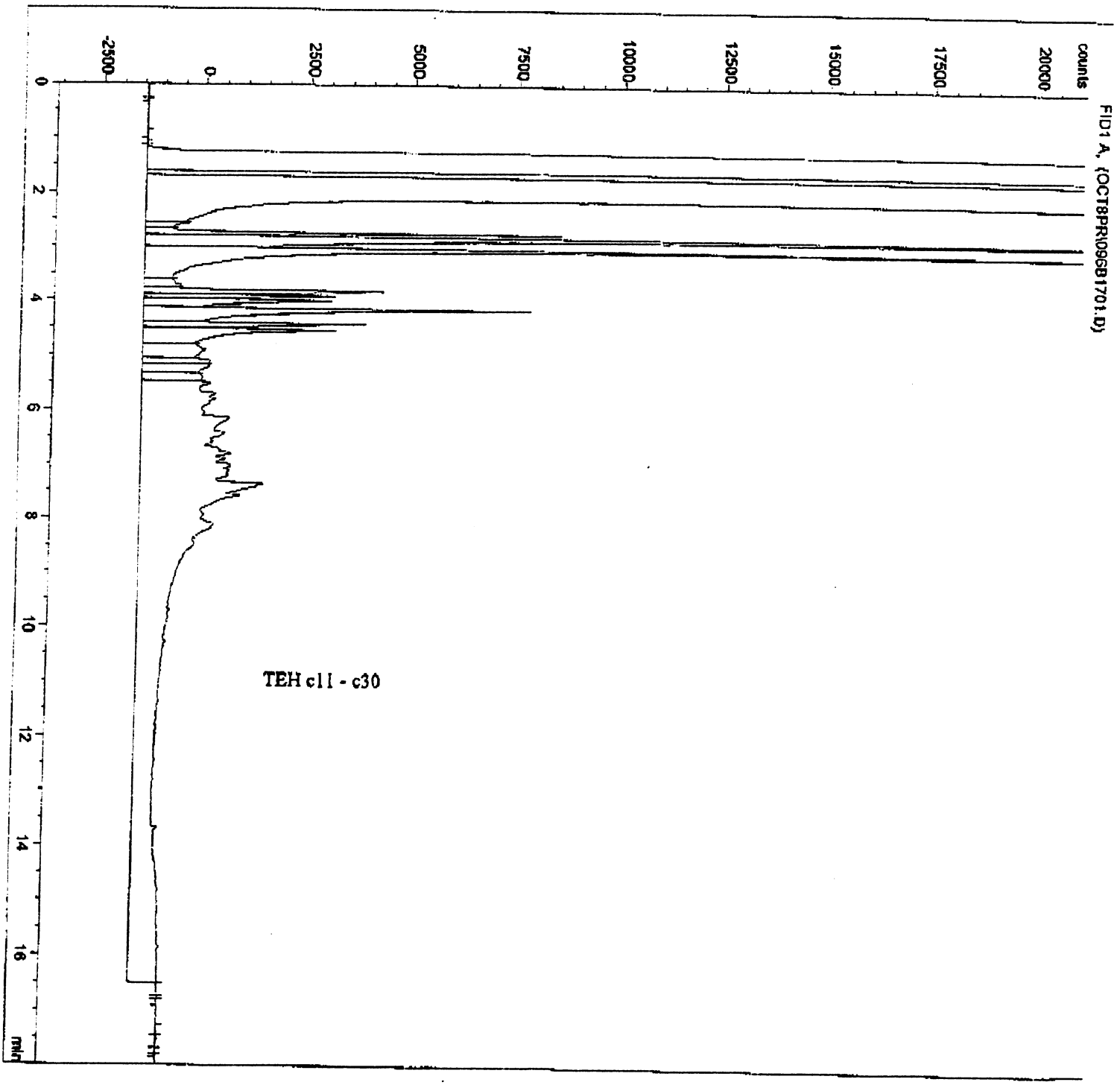


Data File C:\HPCHEM\2\DATA\OCT8PR\096B1701.D Sample Name: 98-58783 1:2

Injection Date : 10/9/98 5:04:42 PM MW14
Sample Name : 98-58783 1:2
Acq. Operator : A. Balkaran

Seq. Line : 17
Vial : 96
Inj : 1
Inj Volume : 1 µl

Acq. Method : C:\HPCHEM\2\METHODS\TEHH2O.M
Last changed : 9/19/98 5:58:54 PM by P. Reeks
Analysis Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/23/98 3:52:26 PM by Paul Reeks
(modified after loading)
Method for analysis of TEH (C11-C30) in soils using DB1 capillary column with modified temperature program. (40 C for 2 min. 20 C/min to 300 C for 3 min)



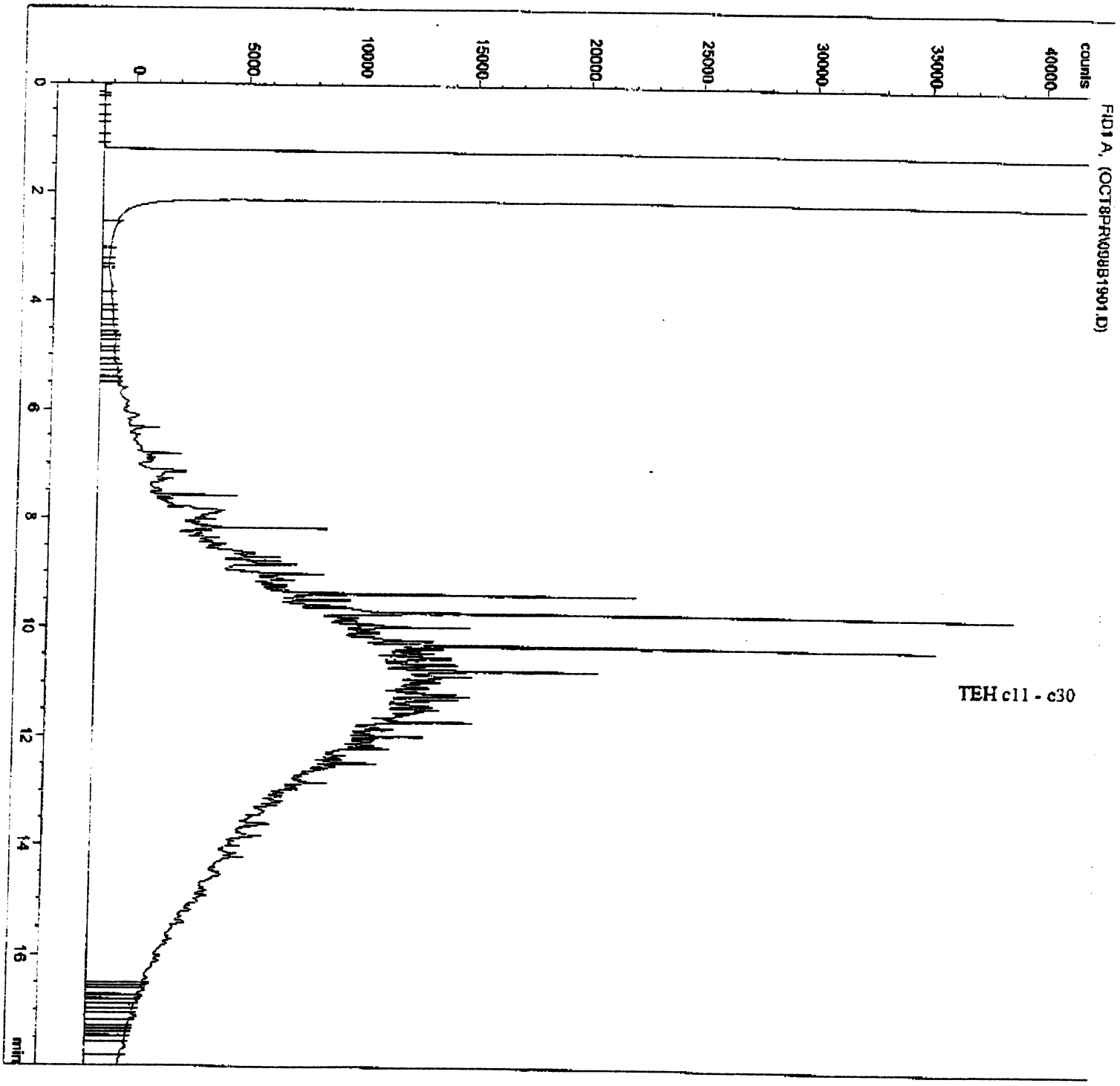
Data File C:\HPCHEM\2\DATA\OCT8PR\098B1901.D Sample Name: 98-58785 1:2

Injection Date : 10/9/98 5:57:49 PM
Sample Name : 98-58785 1:2
Acq. Operator : A. Balkaran MW BA

Seq. Line : 19
Vial : 98
Inj : 1
Inj Volume : 1 µl

Acq. Method : C:\HPCHEM\2\METHODS\TEHH2O.M
Last changed : 9/19/98 5:58:54 PM by P. Reeks
Analysis Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/23/98 3:53:01 PM by Paul Reeks
(modified after loading)

Method for analysis of TEH (C11-C30) in soils using DB1 capillary column with modified temperature program.(40 C for 2 min. 20 C/min to 300 C for 3 min)

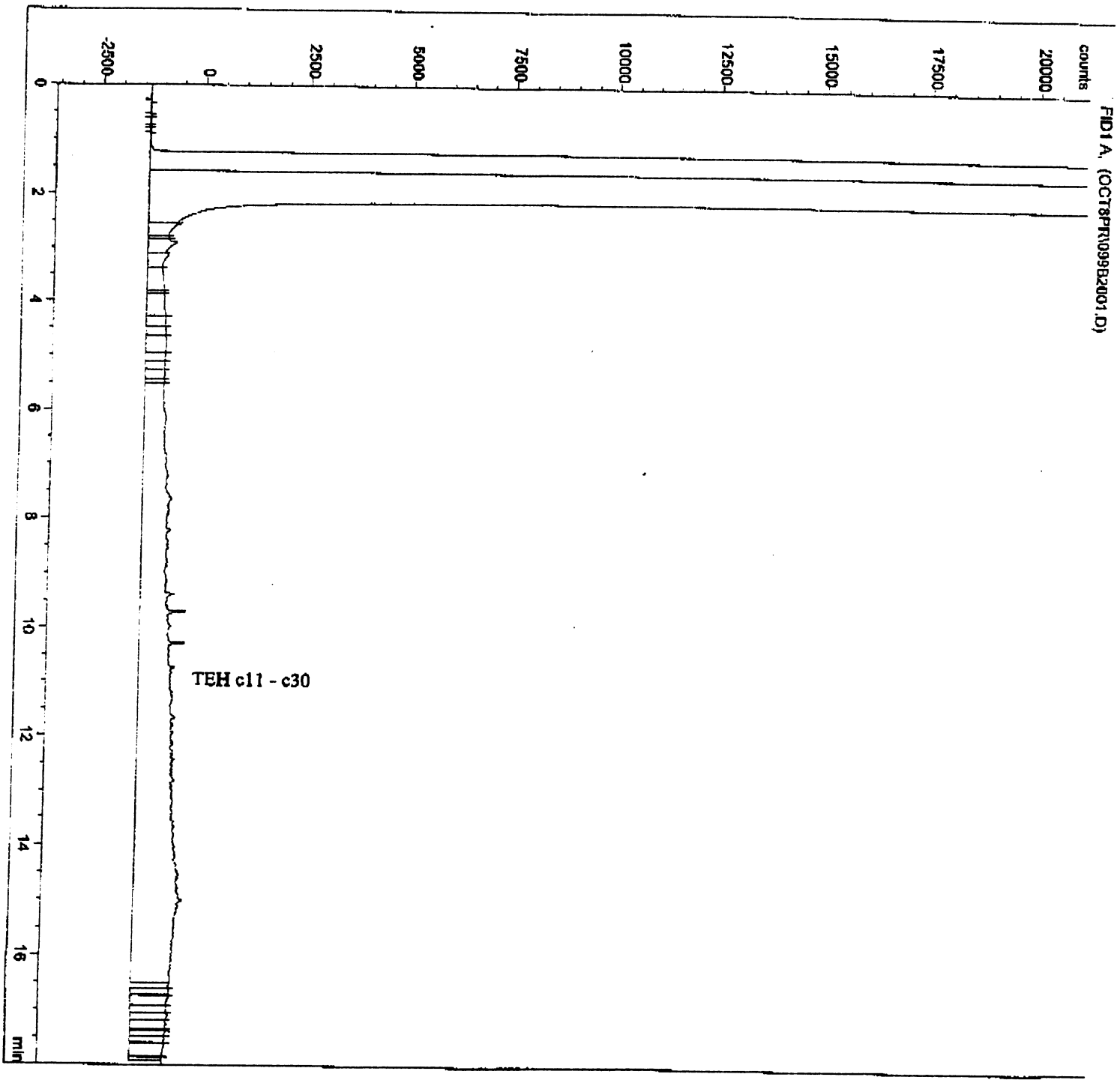


Data File C:\HPCHEM\2\DATA\OCT8PR\099B2001.D Sample Name: 98-58786 1:2

Injection Date : 10/9/98 6:24:15 PM MW23
Sample Name : 98-58786 1:2
Acq. Operator : A. Balkaran

Seq. Line : 20
Vial : 99
Inj : 1
Inj Volume : 1 µl

Acq. Method : C:\HPCHEM\2\METHODS\TEHH2O.M
Last changed : 9/19/98 5:58:54 PM by P. Reeks
Analysis Method : C:\HPCHEM\2\METHODS\TEHSOIL.M
Last changed : 10/23/98 3:53:32 PM by Paul Reeks
(modified after loading)
Method for analysis of TEH (C11-C30) in soils using DB1 capillary column with modified temperature program. (40 C for 2 min. 20 C/min to 300 C for 3 min)



Instrument 2 10/23/98 3:53:34 PM Paul Reeks

APPENDIX F

SITE UTILITY CLEARANCES

ADDRESS LOCATION OF EXCAVATION	1655 18th St (Cdn Tire)
DESCRIPTION	Brandon
ASBUILT NO.	
EXCAVATION NOTICE GIVEN BY	[illegible]
PHONE NO.	204/488-2997
COMPANY OR FIRM	[illegible]
SURVEY DISTRICT	
PROJECT	
NAME OF CONTACT ON SITE	
DATE REQUIRED	98/9/28
TIME	1500

Bore holes

Line Location Request

Pursuant to the Gas Pipeline Excavation Regulation of the Gas Pipeline Act

Centra Gas

Excavation constitutes a danger to the natural gas mains and services indicated below. The following location(s) were marked with yellow paint or stakes with yellow paint markings.

High Pressure	Gas Main	Service Line	Size	Location
		✓		Located - marked. To Stay Clear of S/line + Gas Main With Test holes.

HIGH PRESSURE:

Excavation of High Pressure pipeline locations, denoted by a check-mark in this column, must not proceed without an authorized Centra Gas Manitoba Inc. employee in attendance.

CAUTIONARY NOTES:

All excavation within 90 cm (36 inches) of the location markings must be made by hand digging.

Location markings provided are within 60 cm (24 inches) of the pipe locations.

All excavation must be carried out in accordance with instructions on reverse.

This form must be kept at the work site until all work has been completed.

Keep this form for your records - you may be liable if damage occurs.

For additional information, assistance or to arrange for supervision of high pressure excavation, contact the Centra Gas Operations Office at:

Winnipeg	949-1510
Brandon	727-1486
Elsewhere in Manitoba	~~ZENITH 58501~~

ORDER NO.	TOTAL LOC. STAKED	DATE ADVICE GIVEN	TIME	A.M. / P.M.
		Sept - 28 - 98	1520	

ADVICE GIVEN BY (NAME)	(SIGNATURE)
	[signature]

ADVICE RECEIVED BY (NAME)	(SIGNATURE)
D. Bynsly	[signature]

CUSTOMER COPY

50 PR CABLE SAME TRENCH AS HYDRO EAST SIDE OF BLDG.

N ↑

INSTRUCTIONS TO APPLICANT – PLEASE READ CAREFULLY

1. Requests for a locate should be made at least **2** working days prior to digging. Call MTS anytime **941-7267** (Winnipeg) or **1-611** (Rural).
2. MTS cannot guarantee precise location or depth of facilities. You must **HAND DIG** within one metre (3.28 feet) of markings for paired voice frequency and co-axial cable and within 2.5 metres (8.2 feet) of markings for fibre optic cable.
3. Because markings may disappear, or be displaced, any delays in digging after locate require a new locate.
4. This locate was completed based on information given to MTS' locator at the time of the request or locate. **ANY CHANGES TO LOCATION OR NATURE OF WORK REQUIRE A NEW LOCATE.**
5. You will be liable for damages caused to MTS' facilities if you do not follow these instructions, or abide by the locate.
6. **NOTE FIBRE WATCH REQUIREMENTS – PLEASE CALL THE NUMBER NOTED ABOVE AT LEAST ONE WEEK IN ADVANCE OF EXCAVATION.**

ABOVE ACCEPTED BY: David Bynsly (Print Name) **DATE:** SEPT (Month) 28 (Day) 98 (Year)

APPLICANT'S SIGNATURE [signature] **LOCATOR'S SIGNATURE** W R Baily **I.D. NO**

COPY 1 (WHITE) - APPLICANT COPY 2 (WHITE) - APPLICANT (FOR SITE) COPY 3 (CANARY) - MTS' CABLE REPAIR BUREAU COPY 4 (PINK) - LOCATOR

PLEASE READ IMPORTANT INFORMATION ON REVERSE

APPENDIX G

CERTIFICATE OF TITLE

Cert. No. 146264

MANITOBA

Certificate of Title

UNDER THE REAL PROPERTY ACT.

CANADIAN TIRE CORPORATION, LIMITED

is now seized of an estate in fee simple in possession subject to such encumbrances, liens and interests as are notified by memorandum underwritten (or endorsed hereon) in all that piece or parcel of land known and described as follows,

Lots One to Thirty-eight, both inclusive,
~~rcel One:~~ In the City of Brandon, in the Province of Manitoba, and being in Block One, and Lots One to Eleven, both inclusive, in Block Six, as shown on a Plan registered in the Brandon Land Titles Office as No. 326.

Lots 1-38 block 1, Lots 1-11 B6 Plan 326

rcel Two: ~~In the City of Brandon, in the Province of Manitoba, and being~~ Lots One to Thirty-eight, both inclusive, in Block Two, and Lots Twelve to Twenty-three, both inclusive, in Block Six, as shown on a Plan registered in the Brandon Land Titles Office as No. 326.

1-38 B2 12-33 B6 P 326

rcel Three: In the City of Brandon, in the Province of Manitoba, ~~and being~~ Lots One to Twenty-four, both inclusive, in Block One, and Lots One to Twenty-four, both inclusive, in Block Two, all as shown on a Plan registered in the Brandon Land Titles Office as No. 330, excepting thereout all mines and minerals as reserved in the Grant thereof from The Crown.

1-24 B1 1-24 B2 P 330

Parcel Four: In the City of Brandon, ~~in the Province of Manitoba, and being~~ Lots One to Twenty-four, both inclusive, in Block Eleven, as shown on a Plan of part of said City registered in the Brandon Land Titles Office as No. 276, excepting thereout all mines and minerals as reserved in the Grant thereof from the Crown.

1-24 B11 P 276

Parcel Five: In the City of Brandon, in the Province of Manitoba ~~and being~~ all of Fifteenth Street and all of the Lanes as same are shown on a Plan registered in the Brandon Land Titles Office as No. 330, excepting thereout all mines and minerals as reserved in the Grant thereof from the Crown.

all of 15th St P 330

Parcel Six: In the City of Brandon, in the Province of Manitoba, and being all those portions of the Streets, Avenues and Lanes lying East of the Eastern limit of Eighteenth Street and West of the Eastern limit of the lane on the East side of Blocks Five and Six in Plan No. 326 and the production in a straight line of the said East limit and lying South of the North limit of Ottawa Avenue and North of the North limit of Aberdeen Avenue, as said Streets, Avenues, Lanes and Blocks are shown on a Plan of part of said City registered in the Brandon Land Titles Office as No. 326, excepting out of part of said lands all mines and minerals as reserved in the Grants thereof from the Crown, registered in the said Office as Nos. 51869 and 52949.

Parcel Seven: In the City of Brandon, in the Province of Manitoba, and being all that portion of Ottawa Avenue lying West of the Westerly limit of Fourteenth Street, as same is shown on a Plan of part of said City registered in the Brandon Land Titles Office as No. 227, excepting thereout all mines and minerals as reserved in the Grant thereof from the Crown.

Consent under The Planning Act in any dealings with any part hereof is required. ... No. 226 ... Zoning ... only.

All portions of Sts, Ave + lanes East of E limit of 18th St. + W of E limit of lane on E side of B5+6 P 326

IN WITNESS WHEREOF I have hereunto signed my name and affixed my Seal of office this twenty-fifth day of February One thousand nine hundred and eighty-one.

Signed in the presence of)