

PRE-DESIGN INVESTIGATION RESULTS

VacAir Alloys Division
Frewsburg, New York

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CONESTOGA-ROVERS & ASSOCIATES



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January 15, 1996

Reference No. 2326

Mr. Gregory P. Sutton, P. E.
Environmental Engineer II
New York State Department of Environmental
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270 Michigan Avenue
Buffalo, New York
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Dear Mr. Sutton:

Re: Pre-Design Investigation Reports
VacAir Alloys Division - Frewsburg, New York

Conestoga-Rovers & Associates (CRA's) is pleased to submit, on behalf of Keywell Corp, the enclosed document entitled, "Pre-Design Investigation Results, VacAir Alloys Division, Frewsburg, New York." The document consists of three parts:

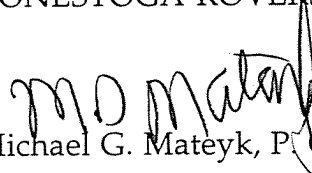
- Part A - Executive Summary;
- Part B - Pre-Design Soil Sampling Report; and
- Part C - Soil Vapor Extraction/ Air Sparging (SVE/AS) Pilot Study Report.

Parts B and C presents the results of these two pre-design investigations conducted in accordance with the approved Work Plans. Part A provides a summary of the findings of the two pre-design studies and presents their impact of the preferred remedial alternative.

Once you have had an opportunity to remove this document, CRA would be pleased to discuss the results with you. During your review, should you have any questions please contact the writer at your convenience.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES



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January 15, 1996

Reference No. 2326

- 2 -

b.c.c Wai Chin Lachell

A

PART A

**EXECUTIVE SUMMARY
PRE-DESIGN SOIL SAMPLING REPORT
SOIL VAPOR EXTRACTION/AIR SPARGING PILOT
STUDY REPORT**

PART A

EXECUTIVE SUMMARY
PRE-DESIGN SOIL SAMPLING REPORT
SOIL VAPOR EXTRACTION/AIR SPARGING PILOT
STUDY REPORT

EXECUTIVE SUMMARY

1.0 INTRODUCTION

A Feasibility Study (FS) Report, dated March 28, 1995, and revised by letter dated August 29, 1995, was prepared for the VacAir Alloys Division Plant Site (Site) in Frewsburg, New York, and submitted to the New York Department of Environmental Conservation (DEC). The FS report stated that a pre-design soil sampling program and a Soil Vapor Extraction (SVE) and Air Sparging (AS) pilot scale study would be performed. The objective of the Pre-Design soil sampling program was to better define the limits of the soil remediation area within the two primary contaminant source areas of the Site identified during the RI. The objective of the SVE/AS pilot study was to further evaluate the effectiveness of the SVE and/or AS technologies in cost effectively remediating the impacted Site soils and in reducing the overall remediation time for the Site. If the pilot study results indicate that SVE and/or AS will technically and cost effectively reduce the overall remediation time for the Site and will achieve the soil Remedial Action Objectives (RAOs), the SVE and/or AS will be implemented in the areas identified in the Pre-Design Soil Sampling Program. If the pilot study concludes that SVE and/or As will not be effective, then alternative technologies will be evaluated and recommended.

The Pre-Design Soil Sampling Program and SVE/AS pilot study were performed in June through October 1995. The following attached reports present the data and information obtained during the two studies:

- i) Pre-Design Soil Sampling Report (Part B); and
- ii) Soil Vapor Extraction/Air Sparging Pilot Study Report (Part C).

The following pages summarizes the results of the two studies and presents their impact on the preferred remedial alternative identified in the Feasibility Study Report.

2.0 PRE-DESIGN SOIL SAMPLING SUMMARY

The objectives of the Pre-Design Soil Sampling Program was to define the limits of the two primary volatile organic compound (VOC) soil contamination areas of the Site in which soil vapor extraction (SVE)/air sparging (AS) or other appropriate soil remedial technology may be performed. In accordance with an NYSDEC approved Pre-Design Soil Sampling Work Plan, dated March 28, 1995 and modified by letter dated June 19, 1995, additional subsurface soil samples were collected from the area north of the Main Building at the Site (North Area) and the area east of the Main Building (Center Soil Area) for the analyses of the Site-specific VOCs. The soil data collected during the Pre-Design Soil Sampling Program and data collected from previous investigation programs. (e.g., Remedial Investigation) were used to define the limits of soil treatment within the two areas based on the following criteria:

- i) detected soil concentrations;
- ii) the NYSDEC maximum soil cleanup objective of 10 ppm for total VOCs (0.7 ppm for trichloroethene); and
- iii) the limitations of SVE/AS or other appropriate soil remedial technology to effectively clean the soils at the Site to low levels.

In general, the Pre-Design Soil Sampling Program determined that the limits of the Center and North Soil Areas were larger than previously estimated in the Feasibility Study (38,000 square feet as opposed to 5,000 square feet). In addition, the geological units, especially the fill materials, were found to be highly variable in their characteristics. In the case of the North Soil Area, the concentration of VOCs was also extremely variable, ranging from non-detect to 21,000 mg/kg. The specific findings for each of the Soil areas are as follows:

Center Soil Area

1. The stratigraphy of the subsurface within the defined area is an unsaturated fill layer, consisting of reworked native silts, sands and gravels, and the saturated upper sand and gravel unit.

2. Non-Aqueous Phased Liquid (NAPL) was not encountered in any of the soil borings advanced within the Center Soil Area.
3. Trichloroethene (TCE) was the most predominant VOC within the Center Soil Area with an average concentration of 20 ppm (21 ppm total VOCs).
4. The Center Soil Area is approximately 10,000 square feet (100 feet by 100 feet).
5. VOC concentrations were above the NYSDEC soil cleanup objectives in the soil below the water table to the top of the confining clay unit (approximately 15 feet below ground surface).
6. The total volume of soil in Center Soil Area is 150,000 cubic feet (10,000 square feet x 15 feet). The upper most 4 feet of soil, does not contain contaminants above cleanup goals. Therefore, the approximate volume of soil containing VOCs above the NYSDEC soil cleanup objectives is 110,000 cubic feet (4,074 cubic yards).

North Soil Area

1. The stratigraphy of the subsurface within the defined area is non-homogeneous. The two impacted geologic units encountered are a fill layer, primarily consisting of debris (i.e., wood, metal turnings, crushed drums, metal scrap, slag) with some reworked native silts, clay and gravel; and the saturated upper sand and gravel unit.
2. Trichloroethene (TCE) was the most predominant VOC within the North Soil Area with an average concentration of 1,700 ppm (2,000 ppm total VOCs). However, the soil concentrations are extremely variable, ranging from non-detect at PDB-3 to 17,000 ppm at TP2-A.

3. NAPL was encountered in the saturated zone of a soil boring advanced within the North Soil Area during the SVE/AS pilot study and a temporary NAPL recovery well was installed and is being pumped.
4. The area of the North Soil Area is approximately 21,000 square feet.
5. VOC concentrations were generally above the NYSDEC soil cleanup objectives in the soil to the top of the confining clay unit (approximately 20 feet below ground surface).
6. The total volume of soil in the North Soil Area is 420,000 cubic feet (21,000 square feet x 20 feet). However, the upper 4 feet of soil does not contain contaminants above cleanup goals. Therefore, the approximate volume of soil containing VOCs above the NYSDEC soil cleanup objectives is 336,000 cubic feet (12,454 cubic yards).

3.0 SVE/AS PILOT STUDY SUMMARY

The objective of the SVE/AS pilot study was to further evaluate the effectiveness of the SVE and/or AS technologies in cost effectively remediating the impacted Site soils and in reducing the overall remediation time for the Site. The SVE/AS pilot study was performed within the North Soil Area in accordance with an NYSDEC approved SVE/AS Pilot Study Work Plan, dated April 21, 1995 and modified by letters dated June 19, 1995, July 27, 1995, and August 15, 1995.

The findings of the pilot study are as follows:

- i) Air Sparging resulted in some reduction of the VOC concentrations in the groundwater. However, the radius of influence is less than seven feet (the exact radius of influence could not be measured) and no measurable increases in groundwater dissolved oxygen levels or in the soil vapor were observed. Accordingly, air sparging would not cost effectively reduce the overall soil or groundwater remediation time within the North and Center Soil Areas.

- ii) The soil permeability to air in the pilot test area was found to be between 1×10^{-7} and 1×10^{-9} cm². This soil permeability is at the low end of range considered suitable for the application SVE technology.
- iii) SVE in conjunction with groundwater pumping (to depress the water table and to the top of the confining clay unit) could effectively reduce VOC concentrations in the impacted soils within the Center Soil Area in six years and could potentially reduce the groundwater remediation time within this area. The extracted soil vapor can be effectively treated with a separate vapor phase carbon unit. Alternatively, it may be feasible to treat the soil vapor in the Plants planned vapor greaser air treatment system. The present cost estimate for the construction, operation and maintenance for an SVE system in the Central Soil Area is approximately \$250,000. This cost assumes an operation time of six years and that a separate vapor phase carbon system will be constructed.
- iv) SVE in conjunction with groundwater pumping would require a minimum of 8 years and up to 30 years to reduce VOC concentrations in the impacted soils within the North Soil Area to meet the Soil RAOs. The long soil remediation time is attributable to the heterogeneous nature of the fill material, the highly variable soil VOC concentration and the presence of NAPL in this area. The extracted soil and gas could be treated with carbon or by catalytic oxidation. However, the use of the Plant's planned vapor degreaser air treatment system can not be considered due the larger soil gas volumes and the presence of vinyl chloride in the soil in this area.

The estimated net present worth cost for an SVE system to treat the entire North Soil Area ranges from approximately \$900,000 (with catalytic oxidation treatment) to \$1,100,000 (with carbon treatment). These cost estimates were based on an operation time of eight years. However, given the presence of NAPL and the high variability of soil VOC concentrations, it is highly unlikely the entire North Soil Area could be remediated in this time frame. Therefore the operational cost

would be much greater. SVE is generally not the preferred technology if cleanup projections exceed 10 years.

4.0 IMPACT ON THE SELECTED REMEDY

The preferred remedy for the Site was originally identified in the FS report dated March 5, 1995 (revised September 1995). The preferred remedy included the treatment of soil in the Center and North Soil Areas by SVE and AS, or other technologies based on the results of these pre-design investigations. The pre-design studies were conducted to determine the suitability of SVE and AS in cost effectively remediating the impacted Site soil and reducing the overall remediation time for the Site. The impact of the pre-design studies on the preferred remedial alternative presented in the FS Report is presented below:

- i) Air Sparging will not be performed at the Site based on its limited effectiveness during the pilot study in remediating the groundwater and saturated soils at the Site.
- ii) Since SVE in conjunction with groundwater extraction could effectively reduce the groundwater remediation time within the Center Soil Area, SVE will be performed within the area defined by the Pre-Design Soil Sampling Investigation.
- iii) The results of the pre-design investigations have shown that the use of SVE is not technically feasible and is not cost effective in remediating the fill/soil and therefore would not reduce the groundwater remediation time within the North Soil Area. This is due to the heterogeneous nature of fill, the highly variable soil VOC concentrations and, most importantly, the presence of NAPL in the fill and native soil. The estimates of cleanup times are difficult to develop given the above-noted conditions. However the range projected is a minimum of eight years to 30 years. The use of SVE for soil remediation is not considered for estimated cleanup times longer than 10 years. Furthermore, since NAPL contamination has been confirmed

to be present within the North Soil Area, remediation of the impacted soil and groundwater to meet the soil and water RAO's is technically impracticable given the nature of NAPL. (The United States Environmental Protection Agency has recognized the technical impracticability of restoring NAPL contaminated groundwater to drinking water standards and have encouraged the issuance of Technical Impracticability Waivers of ARARs for such sites).

Given that SVE will not reduce the length of remediation in the North Soil Area and, as presented in the RA, there is no unacceptable risk to human health and the environment as a result of exposure to the contaminated soil, SVE will not be recommended for the North Soil Area.

- iv) The preferred remedy for the Site also identified NAPL extraction in areas where NAPL was identified on Site during the remedial design. Keywell has installed and operates a "temporary NAPL extraction Well" at the Site. This "temporary NAPL extraction well" has removed a substantial amount of NAPL to date. Based on this success, it is recommended that a more permanent NAPL collection/pumping well system be installed within the North Soil Area as a component of the remedial action.

B

PART B

PRE-DESIGN SOIL SAMPLING REPORT

PRE-DESIGN SOIL SAMPLING REPORT

**VacAir Alloys Division
Frewsburg, New York**

JANUARY 1996

REF. NO. 2326 (23)

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1.0 INTRODUCTION

A Pre-Design Soil Sampling Program was performed at the VacAir Alloys Division Plant Site (Site) located in Frewsburg, New York in June 1995. The objective of the Pre-Design Soil Sampling Program was to define the limits of the primary volatile organic compound (VOC)/soil contamination source areas of the Site in which soil vapor extraction (SVE) air sparging (AS) or other appropriate soil remedial technology may be performed. Additional subsurface soil samples were collected for analysis to supplement the existing database and improve the delineation of the extent of VOCs in the subsurface soil.

The Pre-Design Soil Sampling Program was performed in accordance with the Pre-Design Soil Sampling Program Work Plan (Work Plan), dated March 28, 1995 and approved by the New York State Department of Environmental Conservation (NYSDEC) by letter dated June 19, 1995, as modified by CRA's letter dated June 19, 1995. The sample collection, sample analyses, and health and safety procedures presented in the approved Remedial Investigation/Feasibility Study (RI/FS), Quality Assurance Project Plan (QAPP), and Health and Safety Plan (HASP) were followed during the performance of the Pre-Design Soil Sampling Program, with the exceptions noted in the Work Plan.

This report describes the pre-design soil sampling activities performed, presents the data generated and identifies the areas of soil exceeding remedial action objectives (RAOs).

2.0 SAMPLE COLLECTION

Soil samples were collected by Marcor Environmental (Marcor) of Rochester, New York during the week of June 19, 1995 using a truck-mounted geoprobe unit. A total of 28 soil samples and one duplicate soil sample were collected at the 16 borehole locations identified on Figure 1. At each borehole location, a soil sample was collected for chemical analysis from approximately 3.5 feet to 4.0 feet below ground surface (BGS). At selected borehole locations, additional samples were collected for chemical analysis from approximately 7.5 feet to 8.0 feet BGS. At two locations, PDB-10 and PDB-14, soil samples were collected at the top of the confining clay unit. Sample locations and sampling depths were selected with concurrence from the NYSDEC field representative.

Subsurface soil samples were collected at 4 feet BGS and 8 feet BGS using macro-core samplers. The macro-core sampler is a 4-foot long, 1-inch diameter open tube sampler capable of collecting a continuous 4-foot long soil sample. The macro-core sampler was fitted with a new, clean polycarbonate liner between samples and was driven from the ground surface to 4 feet BGS by the geoprobe's hydraulic unit. In cases where the subsurface soils offered significant resistance to penetration, an air-driven rotary hammer was also used. The air-hammer was also used to penetrate overlying asphalt and concrete, where present. Following the withdrawal of the 0 to 4 foot soil sample, another macro-core sampler, fitted with a clean polycarbonate liner, was inserted into the open borehole to collect a soil sample from 4 to 8 feet BGS.

Soil samples were collected from 14 to 16 feet BGS and 16 to 18 feet BGS at boreholes PDB-10 and PDB-14, respectively, using 2-inch diameter large bore samplers. A drive point was installed in the open end of the large bore sampler and locked in place. The large bore sampler was then advanced to the top of the required sampling interval using the geoprobe unit. The drive point was released and the sampler was advanced two feet to collect a sample.

Once the geoprobe samplers were removed, soil samples were collected for chemical analyses as follows:

- i) the sampler was disassembled and the polycarbonate liner containing the soil sample was removed;
- ii) the polycarbonate liner was cut open longitudinally using a razor knife;
- iii) the soil core was screened for total organic vapors using a photoionization detector (PID) and the reading was recorded;
- iv) the lower most 4 to 6 inches of the soil core was transferred into laboratory supplied sample bottles using a pre-cleaned dedicated stainless steel knife;
- v) the sample bottle was labeled and placed into a cooler with ice;
- vi) the remainder of the soil core was visually examined and briefly logged according to lithology, color, moisture content and unusual features, if any; and
- vii) excess soil material was returned to the borehole.

A soil sample summary is presented in Table 1. The total organic vapor measurements are presented in Table 2.

3.0 SAMPLE ANALYSES AND RESULTS

3.1 FIELD ANALYSIS

Samples collected during the Pre-Design Soil Sampling Program were analyzed on-Site using a mobile laboratory provided by Commonwealth Analytical of Westfield, Massachusetts. The samples were analyzed using USEPA Methods 8010 and 8020 for the following compounds:

- Vinyl Chloride
- 1,1-Dichloroethene
- Trans-1,2-Dichloroethene
- 1,1-Dichloroethane
- Cis-1,2-Dichloroethene
- 1,1,1-Trichloroethane
- Carbon Tetrachloride
- 1,2-Dichloroethane
- Trichloroethene
- Tetrachloroethene

The analytical data report for the on-Site analyses is provided in Appendix A. The results of the data review and validation are provided in Appendix B.

The results of the 29 soil samples (28 investigative samples and 1 duplicate sample) collected and analyzed during the Pre-Design Soil Sampling Program indicate that vinyl chloride, cis-1,2-dichloroethene, trans-1,2-dichloroethene, trichloroethene (TCE), and 1,1-dichloroethene were the only compounds detected. A summary of the detected compounds is provided in Table 2. The total soil VOC concentrations, based on all available data, are illustrated on Plan 1 for the shallow sand and gravel unit and on Plan 2 for the clay confining unit.

The analytical results were compared to the recommended soil cleanup objectives (see Table 2) from NYSDEC Technical and Administrative Guidance Memorandum (TAGM) No. 4046:

Determination of Soil Cleanup Objectives and Cleanup Levels, dated January 24, 1994. TCE and vinyl chloride were the only two compounds that exceeded the respective NYSDEC soil cleanup level in the Pre-Design Soil Sampling Program. Only four samples (PDB-3B, PDB-5B, PDB-10B, and PDB-10C) exceeded the NYSDEC soil cleanup level of 10 ppm for total VOCs. Plans 1 and 2 identify exceedance of the NYSDEC soil cleanup levels in the upper sand and gravel unit and in the clay confining unit, respectively.

3.2 OFF-SITE CONFIRMATION RESULTS

In order to confirm the field analyses, three soil samples were selected at random and taken back to Commonwealth Analytical's Laboratory Facility in Westfield, Massachusetts. The three samples selected for confirmation analysis were: PDB-10C, PDB-13A and PDB-14A. A summary of the detected compounds in the confirmation samples are shown in Table 3. It should be noted that the field lab results were converted from a wet weight basis (as they are generated in the field) to dry weight basis to be directly comparable to the base lab results.

A review of these data indicates that there was a large discrepancy between the concentrations determined in the field and those determined in the base lab for the samples from PDB-10C and PDB-14A. The length of time of storage (eight days) prior to analyses of the confirmatory soil samples by the base lab and matrix variations in the soil samples may have been the cause of discrepancy between the base lab and the mobile lab results.

The data review, presented in Appendix B, determined the field analytical results were suitable for use in this program.

4.0 DISCUSSIONS OF RESULTS

4.1 GENERAL

Based on the analytical results obtained during and prior to the Site Remedial Investigation (RI), the North Soil Area and the Center Soil Area were identified as the primary VOC contaminant source areas at the Site. The vertical extent of VOC contamination in these two areas is limited by the top of the clay confining unit. The approximate horizontal limits of these two areas were initially identified in the Pre-Design Soil Sampling Program Work Plan (see Figure 1). The Pre-Design Soil Sampling Program was performed to better delineate the horizontal limits of these two areas and the soil treatment area. The criteria for identifying the soil treatment area include:

- i) detected soil concentrations;
- ii) the NYSDEC maximum soil cleanup objective of 10 ppm for VOCs (0.7 ppm for TCE); and
- iii) the limits of the SVE/air sparging or other appropriate soil remedial technology to effectively clean the soils at the Site to low levels.

The subsections below discuss the data for the two previously identified soil areas and identifies the horizontal limits of the soil treatment area based on data collected to date (see Plans 1 and 2).

4.2 NORTH SOIL AREA

Boreholes PDB-1, PDB-2, PDB-3, PDB-4, PDB-5, PDB-6, PDB-15, and PDB-16 were advanced within and around the North Hot Spot Area. None of the soil samples collected at the 3.5 to 4.0 foot interval (all above the water table) exceeded the NYSDEC soil cleanup objectives for vinyl chloride, TCE, 1,2-dichloroethene (trans), 1,1-dichloroethene, or total VOCs at borehole locations advanced in or near the North Hot Spot Area.

Soil samples collected at the 7.5 to 8.0 foot interval exceeded the NYSDEC soil cleanup objectives for vinyl chloride, TCE, and/or total VOCs at boreholes PDB-3, PDB-4, and PDB-5. The soil sample collected at borehole PDB-6 at a depth of 7.5 to 8 feet exceeded the cleanup objective for 1,2-DCE. Soil samples collected at locations PDB-1, PDB-2, PDB-15, and PDB-16 contained VOCs below the NYSDEC cleanup objectives.

Using the soil data obtained during the Pre-Design Soil Sampling Program as well as the data from the Site Investigation (SI) and the RI, the limits of North Soil Area were defined. The limits are shown on Figure 2. The area is approximately 21,000 square/feet. VOCs concentrations generally exceeded RAO's through the saturated zone to the top of confining clay unit (approximately 16 feet of soil). Therefore, the approximate volume of soil containing VOCs above RAO's is 336,000 cubic feet.

4.3 CENTER SOIL AREA

Eight borehole locations (PDB-7, PDB-8, PDB-9 PDB-10, PDB-11, PDB-12, PDB-13, and PDB-14) were advanced around and within the Center Hot Spot Area. None of the soil samples collected at the 3.5 to 4.0 feet sample interval contained VOCs above the NYSDEC soil cleanup objectives at the eight borehole locations.

The soil samples collected from the 7.5 to 8.0 foot sample interval contained VOCs above the NYSDEC soil cleanup objectives for TCE and/or total VOCs at locations PDB-10, PDB-11, and PDB-14. The soil sample (PDB-10C) collected at the top of the clay unit (14-16 feet interval) also exceeded the NYSDEC soil cleanup objectives. All of the soil samples which exceeded the cleanup objectives were collected below the water table. None of the NYSDEC soil cleanup objectives were exceeded at locations PDB-7, PDB-8, PDB-9, PDB-12, and PDB-13.

The limits of the Center Soil Area are also shown on Figure 2. This area is approximately 10,000 square feet. The exceedances of

RAO's occur primarily in the saturated zone shown to the top of the confining clay unit (approximately 11 feet of soil). The approximate volume of soil exceeding RAO's is 110,000 cubic feet.

FIGURES

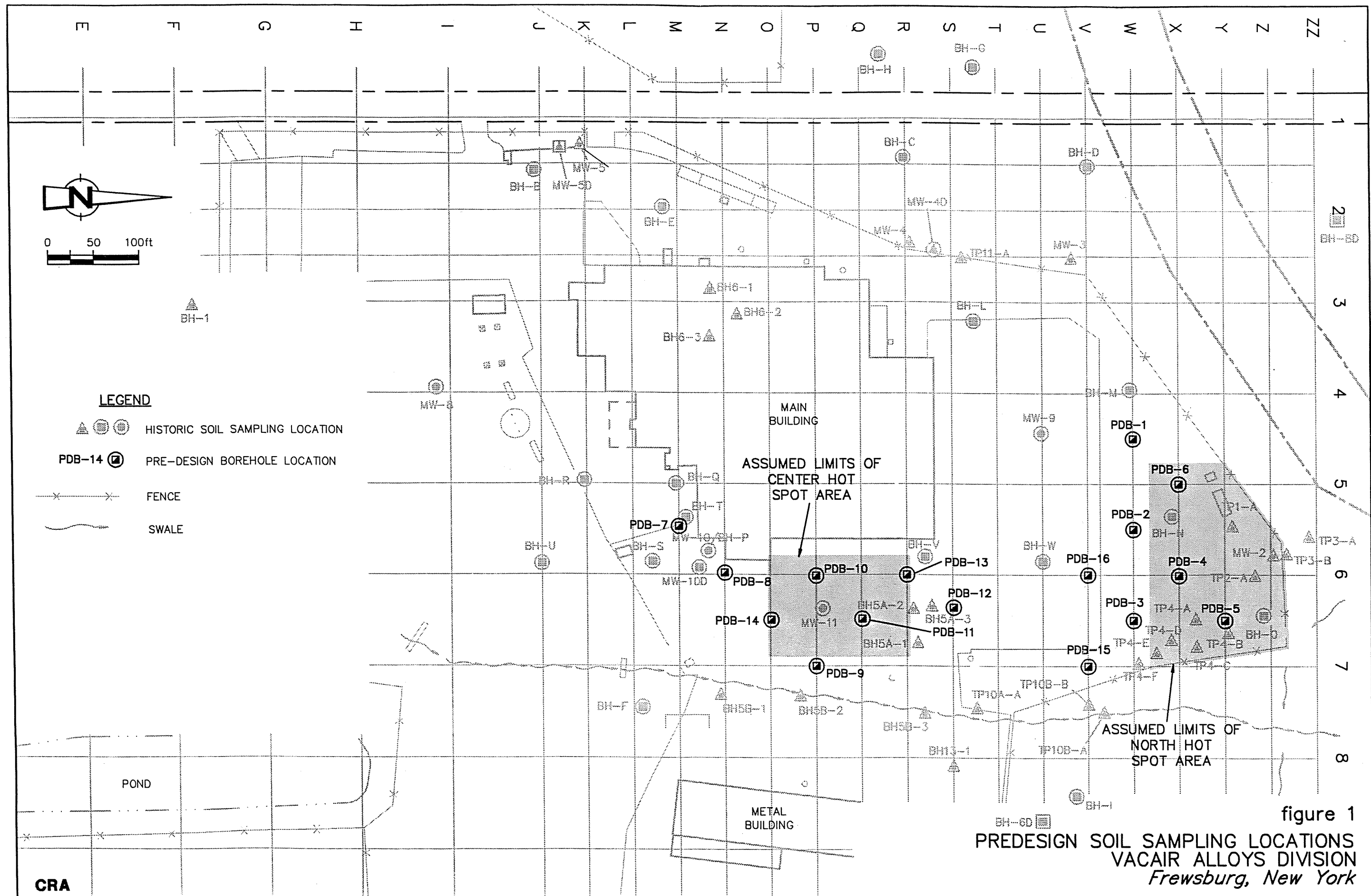
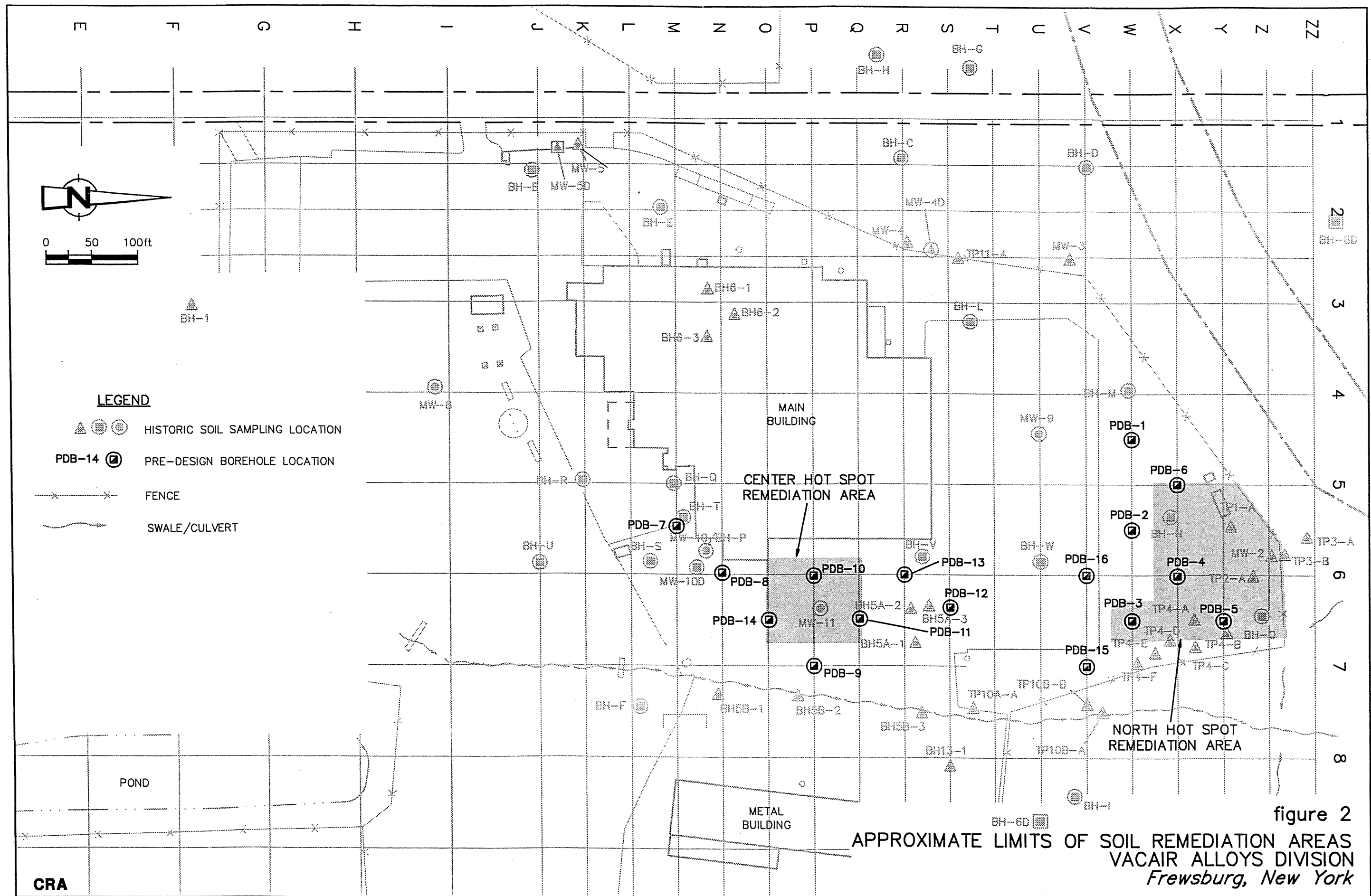


figure 1
PREDESIGN SOIL SAMPLING LOCATIONS
VACAIR ALLOYS DIVISION
Frewsburg, New York



TABLES

TABLE 1

SAMPLE SUMMARY
PRE-DESIGN SOIL SAMPLING PROGRAM
VACAIR ALLOYS DIVISION
JUNE 1995

Sample ID	Sample Date	Soil Remediation Area	Borehole Location	Sample Depth (Feet BGS)	Geologic Unit	Water Table Encountered (Yes/No)	Comments
PDB-1A	06/20/95	North	PDB-1	3.5-4.0	Fill	No	
PDB-2A	06/20/95	North	PDB-2	3.5-4.0	Fill	No	
PDB-3A	06/20/95	North	PDB-3	3.5-4.0	Fill	No	
PDB-3B	06/20/95	North	PDB-3	7.5-8.0	Sand/Gravel	No	
PDB-4A	06/20/95	North	PDB-4	3.5-4.0	Fill	No	
PDB-4B	06/20/95	North	PDB-4	7.5-8.0	Sand/Gravel	Yes	
PDB-5A	06/20/95	North	PDB-5	3.5-4.0	Fill	No	
PDB-5B	06/20/95	North	PDB-5	7.5-8.0	Sand/Gravel	No	
PDB-6A	06/20/95	North	PDB-6	3.5-4.0	Fill	No	
PDB-6B	06/20/95	North	PDB-6	7.5-8.0	Sand/Gravel	Yes	
PDB-7A	06/20/95	Center	PDB-7	3.5-4.0	Sand/Gravel	Yes	
PDB-8A	06/20/95	Center	PDB-8	3.5-4.0	Sand/Gravel	Yes	
PDB-9A	06/20/95	Center	PDB-9	3.5-4.0	Sand/Gravel	No	
PDB-10A	06/20/95	Center	PDB-10	3.5-4.0	Sand/Gravel	No	
PDB-10B	06/20/95	Center	PDB-10	7.5-8.0	Sand/Gravel	Yes	
PDB-10C	06/21/95	Center	PDB-10	14-16	Clay	Yes	Top of confining clay unit
PDB-11A	06/20/95	Center	PDB-11	3.5-4.0	Fill	No	
PDB-11B	06/20/95	Center	PDB-11	7.5-8.0	Sand/Gravel	Yes	
PDB-12A	06/20/95	Center	PDB-12	3.5-4.0	Sand/Gravel	No	
PDB-13A	06/21/95	Center	PDB-13	3.5-4.0	Fill	No	
PDB-13B	06/21/95	Center	PDB-13	7.5-8.0	Sand/Gravel	Yes	
PDB-14A	06/21/95	Center	PDB-14	3.5-4.0	Sand/Gravel	Yes	
PDB-14B	06/21/95	Center	PDB-14	7.5-8.0	Sand/Gravel	Yes	

TABLE 1

SAMPLE SUMMARY
PRE-DESIGN SOIL SAMPLING PROGRAM
VACAIR ALLOYS DIVISION
JUNE 1995

Sample ID	Sample Date	Soil Remediation Area	Borehole Location	Sample Depth (Feet BGS)	Geologic Unit	Water Table Encountered (Yes/No)	Comments
PDB-14C	06/21/95	Center	PDB-14	16-18	Clay	Yes	Top of confining clay unit
PDB-15A	06/21/95	North	PDB-15	3.5-4.0	Fill	No	
PDB-15B	06/21/95	North	PDB-15	7.5-8.0	Sand/Gravel	No	
PDB-16A	06/21/95	North	PDB-16	3.5-4.0	Sand/Gravel	No	
PDB-16B	06/21/95	North	PDB-16	7.5-8.0	Sand/Gravel	No	
PDB-30A	06/20/95	Center	PDB-30	3.5-4.0	Fill	No	Duplicate of PDB-11A

Notes:

BGS - Below Ground Surface

TABLE 2

SUMMARY OF DETECTED COMPOUNDS
PRE-DESIGN SOIL SAMPLING PROGRAM
VACAIR ALLOYS DIVISION
JUNE 1995

Sample ID	Depth (Feet BGS)	Total Organic Vapor (1) (ppm)	Vinyl Chloride (µg/kg)	TCE (µg/kg)	1,2-DCE (cis) (µg/kg)	1,2-DCE (trans) (µg/kg)	1,1-DCE (µg/kg)	Total VOCs (µg/kg)
NYSDEC Soil Cleanup Objective (2)	-	-	200	700	NA	300	400	10,000
PDB-1A	3.5-4.0	0.2	ND(1.0)	1.9	2.8	ND(1.0)	ND(1.0)	4.7
PDB-2A	3.5-4.0	0	ND(1.0)	1.4	ND(1.0)	ND(1.0)	ND(1.0)	1.4
PDB-3A	3.5-4.0	42	130	ND(10)	470	ND(1.0)	ND(1.0)	600
PDB-3B	7.5-8.0	115	[5,400]	ND(100)	51,000	ND(100)	170	[56,570]
PDB-4A	3.5-4.0	4.8	ND(1.0)	1.3	2.2	ND(1.0)	ND(1.0)	3.5
PDB-4B	7.5-8.0	21	[200]	[2,100]	4,100	ND(100)	ND(100)	6,400
PDB-5A	3.5-4.0	5.0	ND(5.0)	ND(5.0)	ND(5.0)	ND(5)	ND(5.0)	ND
PDB-5B	7.5-8.0	135.8	[1,000]	ND(100)	11,000	ND(100)	ND(100)	[12,000]
PDB-6A	3.5-4.0	3.6	ND(5.0)	12	5.5	ND(5)	ND(5.0)	17.5
PDB-6B	7.5-8.0	10.8	ND(100)	410	4,600	ND(100)	ND(100)	5,010
PDB-7A	3.5-4.0	0	ND(1.0)	1.7	ND(1.0)	ND(1.0)	ND(1.0)	1.7
PDB-8A	3.5-4.0	0.1	ND(1.0)	1.3	ND(1.0)	ND(1.0)	ND(1.0)	1.3
PDB-9A	3.5-4.0	0.2	ND(1.0)	5.4	ND(1.0)	ND(1.0)	ND(1.0)	5.4
PDB-10A	3.5-4.0	0.3	ND(1.0)	25.0	8.2	ND(1.0)	ND(1.0)	33.2
PDB-10B	7.5-8.0	28.4	ND(1,000)	[55,000]	1,400	ND(1,000)	ND(1,000)	[56,400]
PDB-10C	14-16	18	ND(1,000)	[21,000]	2,300	ND(1,000)	ND(1,000)	[23,300]
PDB-11A/PDB-30A	3.5-4.0	3.2	ND(5.0)/ND(10.0)	260/400	27/40	ND(5)/ND(10)	ND(5.0)/ND(10)	287/480
PDB-11B	7.5-8.0	3.4	ND(5.0)	[910]	200	ND(5)	ND(5.0)	1,110
PDB-12A	3.5-4.0	2.3	ND(5.0)	63.0	31	ND(5)	ND(5.0)	94
PDB-13A	3.5-4.0	0.2	ND(1.0)	32.0	ND(1.0)	ND(1.0)	ND(1.0)	32

TABLE 2

SUMMARY OF DETECTED COMPOUNDS
PRE-DESIGN SOIL SAMPLING PROGRAM
VACAIR ALLOYS DIVISION
JUNE 1995

Sample ID	Depth (Feet BGS)	Total Organic Vapor (1) (ppm)	Vinyl Chloride (µg/kg)	TCE (µg/kg)	1,2-DCE (cis) (µg/kg)	1,2-DCE (trans) (µg/kg)	1,1-DCE (µg/kg)	Total VOCs (µg/kg)
PDB-13B	7.5-8.0	NR	ND(1.0)	140	12.0	ND(10)	ND(10)	152
PDB-14A	3.5-4.0	13	8.4	700	120	1.5	ND(1.0)	829.9
PDB-14B	7.5-8.0	4.9	ND(5.0)	[870]	140	ND(5)	ND(5.0)	1,010
PDB-14C	16-18	1.0	ND(1.0)	5.3	ND(1.0)	ND(1.0)	ND(1.0)	5.3
PDB-15A	3.5-4.0	0	ND(1.0)	ND(5.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND
PDB-15B	7.5-8.0	0	ND(1.0)	ND(5.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND
PDB-16A	3.5-4.0	<5	ND(1.0)	ND(5.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND
PDB-16B	7.5-8.0	<5	ND(1.0)	ND(5.0)	ND(1.0)	ND(1.0)	ND(1.0)	ND

Notes:

(1) As reported by a photoionization detector used in the field in ppm meter units.

(2) As presented in NYSDEC TAGM No. 4046: Determination of Soil Cleanup Objectives and Cleanup Levels, dated January 24, 1994.

BGS - Below Ground Surface

NA - Not Available

ND () - Not detected at the detected limit stated within the parenthesis

TCE - Trichloroethene

1,2-DCE - 1,2-Dichloroethene

1,1-DCE - 1,1-Dichloroethene

VOCs - Volatile Organic Compounds

[] - Exceeds cleanup objective

TABLE 3
SUMMARY OF DETECTED COMPOUNDS
CONFIRMATION SAMPLES
PRE-DESIGN SOIL SAMPLING PROGRAM
VACAIR ALLOYS PROGRAM
JUNE 1995

<i>Sample ID</i>	<i>Analyte</i>	<i>Mobile Lab Result* (µg/kg)</i>	<i>Base Lab Result (µg/kg)</i>
PDB-10C	Trichloroethene	26,000	9,400
	Cis-1,2-dichloroethene	2,800	810
PDB-13A	Trichloroethene	36	15
PDB-14A	Trichloroethene	760	66
	Cis-1,2-dichloroethene	130	10

Note:

* Field results corrected for percent solids.

APPENDIX A

ANALYTICAL DATA REPORT



Commonwealth Analytical

2 August 1995
F-053

Mr. Paul McMahon
Conestoga Rovers Associates
2055 Niagara Falls Blvd.
Suite 3
Niagara Falls, NY 14304

RE:
Field Analytical Report
VacAir Alloys Site, Frewsburg, NY

Dear Mr. McMahon;

Enclosed please find the final results and report on the field investigation conducted at the above-mentioned site. This five section report includes a narrative, analytical results, quality control results, field notes and copies of the chromatograms.

I trust this provides you with the necessary information. If you have any questions on this report, please do not hesitate to contact me.

Very truly yours,
COMMONWEALTH ANALYTICAL

Stephen L. Knollmeyer
Laboratory Director

j:\ltr\slk\rpt\cra.fin

Drinking Water • Wastewater • Hazardous Waste • Toxicity Testing • Mobile Laboratory

Westfield Executive Park • 53 Southampton Road • Westfield, MA 01085-5308 • Tel 413-572-3200 • Fax 413-572-3215

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SECTION 1.0

Narrative

Narrative

A soil investigation was conducted at the CRA site in Frewsburg, New York from June 20 - 21, 1994. Twenty-nine (29) soil samples were collected over a 2 day period and were delivered to the mobile lab and analyzed for Volatile Organic Compounds (VOCs) to define the extent of soil contamination by chlorinated VOCs.

The target compounds for this investigation were:

Vinyl chloride	1,1,1-Trichloroethane
1,1-Dichloroethene	Carbon tetrachloride
t-1,2-Dichloroethene	1,2-Dichloroethane
1,1-Dichloroethane	Trichloroethene
c-1,2-Dichloroethene	Tetrachloroethene

Sample Collection

Soil samples were collected by the client and placed in two 40 mL volatile vials and delivered to the mobile laboratory for analysis.

The following samples were received and analyzed on June 20, 1995:

<u>Sample ID</u>	<u>Matrix</u>	<u>Receipt/Analysis Date</u>
PDB-1A	Soil	6/20/95
PDB-2A	Soil	6/20/95
PDB-3A	Soil	6/20/95
PDB-3B	Soil	6/20/95
PDB-4A	Soil	6/20/95
PDB-4B	Soil	6/20/95
PDB-5A	Soil	6/20/95
PDB-5B	Soil	6/20/95
PDB-6A	Soil	6/20/95
PDB-6B	Soil	6/20/95
PDB-7A	Soil	6/20/95
PDB-8A	Soil	6/20/95
PDB-9A	Soil	6/20/95
PDB-10A	Soil	6/20/95
PDB-11A	Soil	6/20/95
PDB-11B (analyzed 6/21)	Soil	6/20/95
PDB-12A	Soil	6/20/95
PDB-30A	Soil	6/20/95

The following samples were received and analyzed on June 21, 1995:

<u>Sample ID</u>	<u>Matrix</u>	<u>Receipt/Analysis Date</u>
PDB-13A	Soil	6/21/95
PDB-13B	Soil	6/21/95
PDB-14A	Soil	6/21/95
PDB-14B	Soil	6/21/95
PDB-14C	Soil	6/21/95
PDB-10B	Soil	6/21/95
PDB-10C	Soil	6/21/95
PDB-15A	Soil	6/21/95
PDB-15B	Soil	6/21/95
PDB-16A	Soil	6/21/95
PDB-16B	Soil	6/21/95

Sample Analysis

All samples delivered to the mobile laboratory were analyzed for VOC's using a Hewlett-Packard Model 5890 II Gas Chromatograph (GC) with an electrolytic conductivity (ELCD) detector. An OI Analytical Model 4560 Purge & Trap sample concentrator was used to purge the VOC's from the sample matrix, concentrate them onto a sorbent trap and desorb them onto the GC system. An OI Analytical MPM-16 multi-sampler was used to allow sample analysis to continue while the mobile laboratory was unmanned. The analytical system and parameters are similar to those used in EPA Method 8010. Data was processed on a Dell 486 DX/50 Personal Computer using HP Chemstation Software. Reports were generated with a customized Microsoft Excel reporting program. Copies of each day's sample results were delivered to the on-site personnel as they were made available.

Volatile Organics Quality Control (QC)

Listed below is a description of the QC analysis and the acceptance criteria for the volatile organics analysis conducted in the field:

1. Initial Calibration - A 3-point initial calibration was conducted on the analytical system prior to project initiation. The instrument was calibrated and the correlation coefficient (r) calculated for each analyte. For all analytes the (r) value should have been greater than 0.990 or recalibration was performed.

2. Calibration Check Standards - At the beginning of each day, after every 10 samples and at the end of each day a mid-point calibration check standard was analyzed to verify that the analytical sensitivity did not change from the initial calibration. Percent Recovery (%R) values were calculated for each analyte and compared to the 75-125% criteria. If the %R value was outside the control limits the analyst noted this on the QC form. If significant variances were observed, the system was recalibrated.
3. Quality Control Check Standards - A QCCS was analyzed on a daily basis and used to verify the accuracy of the calibration standards. The QCCS was a standard from a second source, other than the calibration standards. %R values were calculated and compared to the 75-125% criteria.
4. Method Blanks - A sample of analyte-free water was processed at the beginning of the day and after every 10 sample analyses to verify that the analytical system was contaminant-free. Concentrations of detected analytes should have been less than ½ the method detection limit. Small contaminants may have been noted as detected in the blank and labelled with a "B". Significant contaminant levels necessitate corrective action, i.e. cleaning of the instrument.
5. Surrogate Standards - Surrogate standards were added to all samples, standards and blanks to measure the potential for matrix interferences. %R values were calculated (appear in comments section of the data pages) and were compared to the 80-120% criteria. Small deviations were marked as outside control limits while large deviations necessitated reanalysis.
6. Duplicates - Ten percent (10%) of all samples were analyzed in duplicate on a daily basis to determine the precision of the analyses. Relative Percent Difference (RID) values were calculated and compared to the 30% acceptance limit. Values over this level required corrective action if significant, otherwise they were highlighted as outside QC limits.
7. Matrix Spike Analyses - Ten percent (10%) of the samples analyzed on each day were spiked with a mid-level standard. The %R values were calculated and should have been 75-125%.
8. Base Laboratory Confirmation - Ten percent (10%) of the samples analyzed in the field were returned to the base laboratory for confirmation analysis following either EPA Method 8010/8020 or 8240. The field data and base lab data were compared and should not have differed by more than an order of magnitude for soils and five times for water samples.

The results of these quality control analyses are presented in Section 3.0 of this report and copies of the chromatograms are included in Section 5.0.

Confirmation Results
Volatile Organic Compounds - 8010

VacAir Alloys - Frewsburg, NY
June 20-21, 1995

Sample ID	Analyte	Field Result (ug/kg)*	Base Lab Result (ug/kg)	%RPD
PDB-10C	Trichloroethene	26000	9400	94%
	Cis 1,2-Dichloroethene	2800	810	110%
PDB-13A	Trichloroethene	36	15	82%
	Trichlorofluoromethane	NA	BQL	NA
	Cis 1,2-Dichloroethene	ND	BQL	NA
PDB-14A	Trichloroethene	760	66	168%
	Cis 1,2-Dichloroethene	130	10	171%

*Field results corrected for solid percent.

Base laboratory results analyzed at Commonwealth Analytical, a Massachusetts Certified laboratory (M-MA-014), by EPA Method 8010.

SECTION 2.0

Analytical Results
6/20/95

Field Report

PROJECT: VacAir Alloys Division
Frewsburg, New York
CLIENT: Conestoga-Rovers & Associates, Inc.
2055 Niagara Falls Blvd.
Niagara Falls, New York 14304

Matrix: SOIL
Analyst: TJS
File #: 004F0101.D
Instr. #: GC # 3
Date Coll: 6/20/95
Date Analyzed: 6/20/95 11:04
Dilution Factor: 1
Method: 8010WAS.MTH
Sample Wt. (g): 5
MeOH Extract: No
MeOH Vol. (ml): 0
Extract Vol. (ml): 0

Sample ID: PDB-1A
GC Sample ID: PDB-1A 5.0 g
W.O. #: 0

RESULTS:

EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	1.0	ND
1,1 DICHLOROETHENE	1.0	ND
t-1,2-DICHLOROETHENE	1.0	ND
1,1-DICHLOROETHANE	1.0	ND
c-1,2-DICHLOROETHENE	1.0	2.8
1,1,1-TRICHLOROETHANE	1.0	ND
CARBON TET.	1.0	ND
1,2-DICHLOROETHANE	1.0	ND
TRICHLOROETHENE	1.0	1.9
TETRACHLOROETHENE	1.0	ND

% Solids: 100
Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020
from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A.
Office of Solid Waste and Emergency Response, Washington, D.C., November 1986.
Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments: Surrogate Recovery = 97 %

Signed TJS 6-20-95

Reviewed MAJ 7-26-95

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT:	VacAir Alloys Division Frewsburg, New York	CLIENT:	Conestoga-Rovers & Associates, Inc. 2055 Niagara Falls Blvd. Niagara Falls, New York 14304
Sample ID:	PDB-2A	GC Sample ID:	PDB-2A 5.0 g
W.O. #:	0		

Matrix:	SOIL	Analyst:	TJS
File #:	008F0101.D	Instr. #:	GC # 3
Date Coll:	6/20/95	Date Analyzed:	6/20/95 12:39
Dilution Factor:	1	Method:	8010WAS.MTH
Sample Wt. (g):	5	MeOH Extract:	No
MeOH Vol. (ml):	0	Extract Vol. (ml):	0

RESULTS:
EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	1.0	ND
1,1 DICHLOROETHENE	1.0	ND
1,1,2-DICHLOROETHENE	1.0	ND
1,1-DICHLOROETHANE	1.0	ND
o-1,2-DICHLOROETHENE	1.0	ND
1,1,1TRICHLOROETHANE	1.0	ND
CARBON TET.	1.0	ND
1,2-DICHLOROETHANE	1.0	ND
TRICHLOROETHENE	1.0	1.4
TETRACHLOROETHENE	1.0	ND

% Solids:

100

Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020 from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A. Office of Solid Waste and Emergency Response, Washington, D.C., November 1986. Field report is preliminary until reviewed and signed.

ND = Not Detected

NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments:

Surrogate Recovery = 82 %

Signed

6-20-95

Reviewed

mjs 7-26-95

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT: VacAir Alloys Division
Frewsburg, New York
CLIENT: Conestoga-Rovers & Associates, Inc.
2055 Niagara Falls Blvd.
Niagara Falls, New York 14304

Matrix: SOIL
Analyst: TJS
File #: 006F0101.D
Instr. #: GC # 3
Date Coll: 6/20/95
Date Analyzed: 6/20/95 11:50
Dilution Factor: 10
Method: 8010WAS.MTH
Sample Wt. (g): 0.5
MeOH Extract: No
MeOH Vol. (ml): 0
Extract Vol. (ml): 0

Sample ID: PDB-3A
GC Sample ID: PDB-3A 0.5 g
W.O. #: 0

RESULTS:

EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	10.0	130.0
1,1-DICHLOROETHENE	10.0	ND
t-1,2-DICHLOROETHENE	10.0	ND
1,1-DICHLOROETHANE	10.0	ND
c-1,2-DICHLOROETHENE	10.0	470.0
1,1,1-TRICHLOROETHANE	10.0	ND
CARBON TET.	10.0	ND
1,2-DICHLOROETHANE	10.0	ND
TRICHLOROETHENE	10.0	BQL
TETRACHLOROETHENE	10.0	ND

% Solids: 100
Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020
from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A.
Office of Solid Waste and Emergency Response, Washington, D.C., November 1986.
Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments: Surrogate Recovery = 106 %
c-1,2-DCE was reported from file 024, run with a 100 X dilution.

Signed TJS 6-20-95

Reviewed mag 7-26-95

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT:	VacAir Alloys Division Frewsburg, New York
CLIENT:	Conestoga-Rovers & Associates, Inc. 2055 Niagara Falls Blvd. Niagara Falls, New York 14304
Sample ID:	PDB-3B
GC Sample ID:	PDB-3B 50 uL
W.O. #:	0
Matrix:	SOIL
Analyst:	TJS
File #:	007F0101.D
Instr. #:	GC # 3
Date Coll:	6/20/95
Date Analyzed:	6/20/95 12:12
Dilution Factor:	100
Method:	8010WAS.MTH
Sample Wt. (g):	5
MeOH Extract:	Yes
MeOH Vol. (ml):	5
Extract Vol. (ml):	0.05

RESULTS: EPA Method 8010/8020 Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	100.0	5400.0
1,1 DICHLOROETHENE	100.0	170.0
1,1,2-DICHLOROETHENE	100.0	BQL
1,1-DICHLOROETHANE	100.0	ND
c-1,2-DICHLOROETHENE	100.0	51000.0
1,1,1-TRICHLOROETHANE	100.0	ND
CARBON TET.	100.0	ND
1,2-DICHLOROETHANE	100.0	ND
TRICHLOROETHENE	100.0	ND
TETRACHLOROETHENE	100.0	ND

% Solids:

100

Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020 from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A. Office of Solid Waste and Emergency Response, Washington, D.C., November 1986. Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed
BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments:

Surrogate Recovery = 115 %

Vinyl chloride and c-1,2-DCE were reported from file 021, run at 1000 X dilution.

Signed

6-20-95

Reviewed

ma 7-26-95

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT: VacAir Alloys Division
Frewsburg, New York
CLIENT: Conestoga-Rovers & Associates, Inc.
2055 Niagara Falls Blvd.
Niagara Falls, New York 14304

Matrix: SOIL
Analyst: TJS
File #: 013F0101.D
Instr. #: GC # 3
Date Coll: 6/20/95
Date Analyzed: 6/20/95 14:29
Dilution Factor: 1
Method: 8010WAS.MTH
Sample Wt. (g): 5
MeOH Extract: No
MeOH Vol. (ml): 0
Extract Vol. (ml): 0

Sample ID: PDB-4A
GC Sample ID: PDB-4A 5.0 g
W.O. #: 0

RESULTS:

EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	1.0	ND
1,1 DICHLOROETHENE	1.0	ND
t-1,2-DICHLOROETHENE	1.0	ND
1,1-DICHLOROETHANE	1.0	ND
c-1,2-DICHLOROETHENE	1.0	2.2
111TRICHLOROETHANE	1.0	ND
CARBON TET.	1.0	ND
1,2-DICHLOROETHANE	1.0	ND
TRICHLOROETHENE	1.0	1.3
TETRACHLOROETHENE	1.0	ND

% Solids: 100
Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020
from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A.
Office of Solid Waste and Emergency Response, Washington, D.C., November 1986.
Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments: Surrogate Recovery = 87 %

Signed JS 6-20-95

Reviewed MAJ 7-26-95

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT:	VacAir Alloys Division Frewsburg, New York	CLIENT:	Conestoga-Rovers & Associates, Inc. 2055 Niagara Falls Blvd. Niagara Falls, New York 14304
Sample ID:	PDB-4B	GC Sample ID:	PDB-4B 50 uL
W.O. #:	0		

Matrix:	SOIL	Analyst:	TJS
File #:	014F0101.D	Instr. #:	GC # 3
Date Coll:	6/20/95	Date Analyzed:	6/20/95 14:51
Dilution Factor:	100	Method:	8010WAS.MTH
Sample Wt. (g):	5	MeOH Extract:	Yes
MeOH Vol. (ml):	5	Extract Vol. (ml):	0.05

RESULTS:
EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	100.0	200.0
1,1 DICHLOROETHENE	100.0	ND
1,1,2-DICHLOROETHENE	100.0	ND
1,1-DICHLOROETHANE	100.0	ND
o-1,2-DICHLOROETHENE	100.0	4100.0
1,1,1-TRICHLOROETHANE	100.0	ND
CARBON TET.	100.0	ND
1,2-DICHLOROETHANE	100.0	ND
TRICHLOROETHENE	100.0	2100.0
TETRACHLOROETHENE	100.0	ND

% Solids:

100

Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020 from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A. Office of Solid Waste and Emergency Response, Washington, D.C., November 1986. Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed
B = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments:

Surrogate Recovery = 121 % *

Signed  6.20.95
Reviewed mgs 7.26.95

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT: VacAir Alloys Division
Frewsburg, New York
CLIENT: Conestoga-Rovers & Associates, Inc.
2055 Niagara Falls Blvd.
Niagara Falls, New York 14304

Matrix: SOIL
Analyst: TJS
File #: 015F0101.D
Instr. #: GC # 3
Date Coll: 6/20/95
Date Analyzed: 6/20/95 15:14
Dilution Factor: 5
Method: 8010WAS.MTH
Sample Wt. (g): 1.0
MeOH Extract: No
MeOH Vol. (ml): 0
Extract Vol. (ml): 0

Sample ID: PDB-5A
GC Sample ID: PDB-5A 1.0 g
W.O. #: 0

RESULTS:

EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	5.0	ND
1,1 DICHLOROETHENE	5.0	ND
t-1,2-DICHLOROETHENE	5.0	ND
1,1-DICHLOROETHANE	5.0	ND
c-1,2-DICHLOROETHENE	5.0	BQL
111TRICHLOROETHANE	5.0	ND
CARBON TET.	5.0	ND
1,2-DICHLOROETHANE	5.0	ND
TRICHLOROETHENE	5.0	BQL
TETRACHLOROETHENE	5.0	ND

% Solids: 100
Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020
from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A.
Office of Solid Waste and Emergency Response, Washington, D.C., November 1986.
Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments: Surrogate Recovery = 108 %

Signed JS 6.20.95

Reviewed ms 7.26.95

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT:		VacAir Alloys Division
CLIENT:		Frewsburg, New York
		Conestoga-Rovers & Associates, Inc.
		2055 Niagara Falls Blvd.
		Niagara Falls, New York 14304
Sample ID:	PDB-5B	
GC Sample ID:	PDB-5B 50 uL	
W.O. #:	0	
Matrix:	SOIL	
Analyst:	TJS	
File #:	012F0101.D	
Instr. #:	GC # 3	
Date Coll:	6/20/95	
Date Analyzed	6/20/95 14:07	
Dilution Factor:	100	
Method:	8010WAS.MTH	
Sample Wt. (g):	5	
MeOH Extract:	Yes	
MeOH Vol. (ml):	5	
Extract Vol. (ml):	0.05	

RESULTS:
EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	100.0	1000.0
1,1 DICHLOROETHENE	100.0	ND
1,1,2-DICHLOROETHENE	100.0	ND
1,1-DICHLOROETHANE	100.0	ND
c-1,2-DICHLOROETHENE	100.0	11000.0
1,1,1,2-TETRACHLOROETHANE	100.0	ND
CARBON TET.	100.0	ND
1,2-DICHLOROETHANE	100.0	ND
TRICHLOROETHENE	100.0	ND
TETRACHLOROETHENE	100.0	ND

% Solids:

100

Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020 from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A. Office of Solid Waste and Emergency Response, Washington, D.C., November 1986. Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed
BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments:

Surrogate Recovery = 117 %

Vinyl chloride and c-1,2-DCE were reported from file 022, run with a 500 X dilution.

Signed

[Signature]

Reviewed

mgy-2695

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT: VacAir Alloys Division
Frewsburg, New York
CLIENT: Conestoga-Rovers & Associates, Inc.
2055 Niagara Falls Blvd.
Niagara Falls, New York 14304

Matrix: SOIL
Analyst: TJS
File #: 023F0101.D
Instr. #: GC # 3
Date Coll: 6/20/95
Date Analyzed: 6/20/95 18:12
Dilution Factor: 5
Method: 8010WAS.MTH
Sample Wt. (g): 1
MeOH Extract: No
MeOH Vol. (ml): 0
Extract Vol. (ml): 0

Sample ID: PDB-6A
GC Sample ID: PDB-6A 1.0 g
W.O. #: 0

RESULTS: EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	5.0	ND
1,1 DICHLOROETHENE	5.0	ND
t-1,2-DICHLOROETHENE	5.0	ND
1,1-DICHLOROETHANE	5.0	ND
c-1,2-DICHLOROETHENE	5.0	5.5
111TRICHLOROETHANE	5.0	ND
CARBON TET.	5.0	ND
1,2-DICHLOROETHANE	5.0	ND
TRICHLOROETHENE	5.0	12.0
TETRACHLOROETHENE	5.0	ND

% Solids: 100
Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020 from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A. Office of Solid Waste and Emergency Response, Washington, D.C., November 1986. Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments: Surrogate Recovery = 94 %

Signed [Signature] 6-20-95

Reviewed MA 7-26-95

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT: VacAir Alloys Division
CLIENT: Frewsburg, New York
 Conestoga-Rovers & Associates, Inc.
 2055 Niagara Falls Blvd.
 Niagara Falls, New York 14304

Sample ID: PDB-6B
GC Sample ID: PDB-6B 50 uL
W.O. #: 0

Matrix: SOIL
Analyst: TJS
File #: 025F0101.D
Instr. #: GC # 3
Date Coll: 6/20/95
Date Analyzed: 6/20/95 18:56
Dilution Factor: 100
Method: 8010WAS.MTH
Sample Wt. (g): 5
MeOH Extract: Yes
MeOH Vol. (ml): 5
Extract Vol. (ml) 0.05

RESULTS: EPA Method 8010/8020
 Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	100.0	BQL
1,1 DICHLOROETHENE	100.0	ND
1,1,2-DICHLOROETHENE	100.0	ND
1,1-DICHLOROETHANE	100.0	ND
c-1,2-DICHLOROETHENE	100.0	4600.0
1,1,1,1-TETRACHLOROETHANE	100.0	ND
CARBON TET.	100.0	ND
1,2-DICHLOROETHANE	100.0	ND
TRICHLOROETHENE	100.0	410.0
TETRACHLOROETHENE	100.0	ND

% Solids:

100

Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020 from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A. Office of Solid Waste and Emergency Response, Washington, D.C., November 1986. Field report is preliminary until reviewed and signed.

ND = Not Detected
 NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
 B = Detected in the laboratory blank

Comments:

Surrogate Recovery = 124 % *

Signed JTS 6-21-95

Reviewed may 17 1995

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT: VacAir Alloys Division
Frewsburg, New York
CLIENT: Conestoga-Rovers & Associates, Inc.
2055 Niagara Falls Blvd.
Niagara Falls, New York 14304

Matrix: SOIL
Analyst: TJS
File #: 026F0101.D
Instr. #: GC # 3
Date Coll: 6/20/95
Date Analyzed: 6/20/95 19:18
Dilution Factor: 1
Method: 8010WAS.MTH
Sample Wt. (g): 5
MeOH Extract: No
MeOH Vol. (ml): 0
Extract Vol. (ml): 0

Sample ID: PDB-7A
GC Sample ID: PDB-7A 5.0 g
W.O. #: 0

RESULTS:

EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	1.0	ND
1,1-DICHLOROETHENE	1.0	ND
t-1,2-DICHLOROETHENE	1.0	ND
1,1-DICHLOROETHANE	1.0	ND
c-1,2-DICHLOROETHENE	1.0	ND
111TRICHLOROETHANE	1.0	ND
CARBON TET.	1.0	ND
1,2-DICHLOROETHANE	1.0	ND
TRICHLOROETHENE	1.0	1.7
TETRACHLOROETHENE	1.0	ND

% Solids: 100
Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020
from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A.
Office of Solid Waste and Emergency Response, Washington, D.C., November 1986.
Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments: Surrogate Recovery = 91 %

Signed TJS 6-21-95

Reviewed mrg 7-26-95

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT:

VacAir Alloys Division
Frewsburg, New York

CLIENT:

Conestoga-Rovers & Associates, Inc.
2055 Niagara Falls Blvd.
Niagara Falls, New York 14304

Sample ID: PDB-8A
GC Sample ID: PDB-8A 5.0 g
W.O. #: 0

RESULTS: EPA Method 8010/8020 Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	1.0	ND
1,1 DICHLOROETHENE	1.0	ND
1,1-2-DICHLOROETHENE	1.0	ND
1,1-DICHLOROETHANE	1.0	ND
o-1,2-DICHLOROETHENE	1.0	ND
1,1,1-TRICHLOROETHANE	1.0	ND
CARBON TET.	1.0	ND
1,2-DICHLOROETHANE	1.0	ND
TRICHLOROETHENE	1.0	1.3
TETRACHLOROETHENE	1.0	ND

% Solids:

100

Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020 from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A. Office of Solid Waste and Emergency Response, Washington, D.C., November 1986. Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments:

Surrogate Recovery = 106 %

Signed JS 6-24-95

Reviewed mary z. 7/6/95

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT: VacAir Alloys Division
Frewsburg, New York
CLIENT: Conestoga-Rovers & Associates, Inc.
2055 Niagara Falls Blvd.
Niagara Falls, New York 14304

Matrix: SOIL
Analyst: TJS
File #: 028F0101.D
Instr. #: GC # 3
Date Coll: 6/20/95
Date Analyzed: 6/20/95 20:02
Dilution Factor: 1
Method: 8010WAS.MTH
Sample Wt. (g): 5
MeOH Extract: No
MeOH Vol. (ml): 0
Extract Vol. (ml): 0

Sample ID: PDB-9A
GC Sample ID: PDB-9A 5.0 g
W.O. #: 0

RESULTS:

EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	1.0	ND
1,1-DICHLOROETHENE	1.0	ND
t-1,2-DICHLOROETHENE	1.0	ND
1,1-DICHLOROETHANE	1.0	ND
c-1,2-DICHLOROETHENE	1.0	ND
1,1,1-TRICHLOROETHANE	1.0	ND
CARBON TET.	1.0	ND
1,2-DICHLOROETHANE	1.0	ND
TRICHLOROETHENE	1.0	5.4
TETRACHLOROETHENE	1.0	ND

% Solids: 100
Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020
from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A.
Office of Solid Waste and Emergency Response, Washington, D.C., November 1986.
Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments: Surrogate Recovery = 109 %

Signed

TJS 6-21-95

Reviewed

mty 7-26-95

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT: VacAir Alloys Division
CLIENT: Conestoga-Rovers & Associates, Inc.
 2055 Niagara Falls Blvd.
 Niagara Falls, New York 14304

Sample ID: PDB-10A
GC Sample ID: PDB-10A 5.0 g
W.O. #: 0

Matrix: SOIL
Analyst: TJS
File #: 029F0101.D
Instr. #: GC # 3
Date Coll: 6/20/95
Date Analyzed: 6/20/95 20:24
Dilution Factor: 1
Method: 8010WAS.MTH
Sample Wt. (g): 5
MeOH Extract: No
MeOH Vol. (ml): 0
Extract Vol. (ml): 0

RESULTS: EPA Method 8010/8020
 Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	1.0	ND
1,1 DICHLOROETHENE	1.0	ND
1,1,2-DICHLOROETHENE	1.0	ND
1,1-DICHLOROETHANE	1.0	ND
c-1,2-DICHLOROETHENE	1.0	8.2
1,1,1,1-TETRACHLOROETHANE	1.0	ND
CARBON TET.	1.0	ND
1,2-DICHLOROETHANE	1.0	ND
TRICHLOROETHENE	1.0	25.0
TETRACHLOROETHENE	1.0	ND

% Solids:

100

Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020 from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A. Office of Solid Waste and Emergency Response, Washington, D.C., November 1986. Field report is preliminary until reviewed and signed.

ND = Not Detected
 NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
 B = Detected in the laboratory blank

Comments:

Surrogate Recovery = 87 %

Signed: 6-24-95
 Reviewed: 6/27/95

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT: VacAir Alloys Division
Frewsburg, New York
CLIENT: Conestoga-Rovers & Associates, Inc.
2055 Niagara Falls Blvd.
Niagara Falls, New York 14304

Matrix: SOIL
Analyst: TJS
File #: 030F0101.D
Instr. #: GC # 3
Date Coll: 6/20/95
Date Analyzed: 6/20/95 20:46
Dilution Factor: 5
Method: 8010WAS.MTH
Sample Wt. (g): 1
MeOH Extract: No
MeOH Vol. (ml): 0
Extract Vol. (ml): 0

Sample ID: PDB-11A
GC Sample ID: PDB-11A 1.0 g
W.O. #: 0

RESULTS:

EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	5.0	ND
1,1-DICHLOROETHENE	5.0	ND
1,2-DICHLOROETHENE	5.0	ND
1,1-DICHLOROETHANE	5.0	ND
1,2-DICHLOROETHANE	5.0	27.0
1,1,1-TRICHLOROETHANE	5.0	ND
CARBON TET.	5.0	ND
1,2-DICHLOROETHANE	5.0	ND
TRICHLOROETHENE	5.0	260.0
TETRACHLOROETHENE	5.0	ND

% Solids: 100
Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020
from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A.
Office of Solid Waste and Emergency Response, Washington, D.C., November 1986.
Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments: Surrogate Recovery = 104 %

Signed TJS 6.21.95

Reviewed MA 7.26.95

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT:	VacAir Alloys Division Frewsburg, New York Conestoga-Rovers & Associates, Inc.
CLIENT:	2055 Niagara Falls Blvd. Niagara Falls, New York 14304
Sample ID:	PDB-12A
GC Sample ID:	PDB-12A 1.0 g
W.O. #:	0
Matrix:	SOIL
Analyst:	TJS
File #:	033F0101.D
Instr. #:	GC # 3
Date Coll:	6/20/95
Date Analyzed	6/20/95 21:53
Dilution Factor:	5
Method:	8010WAS.MTH
Sample Wt. (g):	1
MeOH Extract:	No
MeOH Vol. (ml):	0
Extract Vol. (ml):	0

RESULTS:
EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	5.0	ND
1,1 DICHLOROETHENE	5.0	ND
1,1,2-DICHLOROETHENE	5.0	ND
1,1-DICHLOROETHANE	5.0	ND
c-1,2-DICHLOROETHENE	5.0	31.0
1,1,1,1-TETRACHLOROETHANE	5.0	ND
CARBON TET.	5.0	ND
1,2-DICHLOROETHANE	5.0	ND
TRICHLOROETHENE	5.0	63.0
TETRACHLOROETHENE	5.0	ND

% Solids:

100

Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020 from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A. Office of Solid Waste and Emergency Response, Washington, D.C., November 1986. Field report is preliminary until reviewed and signed.

ND = Not Detected

NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments:

Surrogate Recovery = 99 %

Signed

18-6-21-95

Reviewed

mg 7-26-95

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT: VacAir Alloys Division
Frewsburg, New York
CLIENT: Conestoga-Rovers & Associates, Inc.
2055 Niagara Falls Blvd.
Niagara Falls, New York 14304

Matrix: SOIL
Analyst: TJS
File #: 034F0101.D
Instr. #: GC # 3
Date Coll: 6/20/95
Date Analyzed: 6/20/95 22:15
Dilution Factor: 10
Method: 8010WAS.MTH
Sample Wt. (g): 0.5
MeOH Extract: No
MeOH Vol. (ml): 0
Extract Vol. (ml) 0

Sample ID: PDB-30A
GC Sample ID: PDB-30A 0.5 g
W.O. #: 0

RESULTS:

EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	10.0	ND
1,1 DICHLOROETHENE	10.0	ND
t-1,2-DICHLOROETHENE	10.0	ND
1,1-DICHLOROETHANE	10.0	ND
c-1,2-DICHLOROETHENE	10.0	40.0
111TRICHLOROETHANE	10.0	ND
CARBON TET.	10.0	ND
1,2-DICHLOROETHANE	10.0	ND
TRICHLOROETHENE	10.0	440.0
TETRACHLOROETHENE	10.0	ND

% Solids: 100
Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020
from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A.
Office of Solid Waste and Emergency Response, Washington, D.C., November 1986.
Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments: Surrogate Recovery = 95 %

Signed TJS 6-21-95

Reviewed mjs 7-26-95

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Analytical Results

6/21/95

Field Report

PROJECT: VacAir Alloys Division
Frewsburg, New York
CLIENT: Conestoga-Rovers & Associates, Inc.
2055 Niagara Falls Blvd.
Niagara Falls, New York 14304

Matrix: SOIL
Analyst: TJS
File #: 014F0101.D
Instr. #: GC # 3
Date Coll: 6/21/95
Date Analyzed: 6/21/95 12:57
Dilution Factor: 1000
Method: 8010WAS.MTH
Sample Wt. (g): 5
MeOH Extract: ~~NO~~ YES ~~8/2/95~~
MeOH Vol. (ml): 0
Extract Vol. (ml): 0

Sample ID: PDB-10B
GC Sample ID: PDB-10B 5.0 uL
W.O. #: 0

RESULTS:

EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	1000.0	ND
1,1-DICHLOROETHENE	1000.0	ND
t-1,2-DICHLOROETHENE	1000.0	ND
1,1-DICHLOROETHANE	1000.0	ND
c-1,2-DICHLOROETHENE	1000.0	1400.0
1,1,1-TRICHLOROETHANE	1000.0	ND
CARBON TET.	1000.0	ND
1,2-DICHLOROETHANE	1000.0	ND
TRICHLOROETHENE	5000.0	55000.0
TETRACHLOROETHENE	1000.0	ND

% Solids: 100
Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020 from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A. Office of Solid Waste and Emergency Response, Washington, D.C., November 1986. Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments: Surrogate Recovery = 98 %

Signed TJS 6-21-95

Reviewed _____

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT:	VacAir Alloys Division Frewsburg, New York Conestoga-Rovers & Associates, Inc.
CLIENT:	2055 Niagara Falls Blvd. Niagara Falls, New York 14304
Sample ID:	PDB-10C
GC Sample ID:	PDB-10C 5.0 uL
W.O. #:	0
Matrix:	SOIL
Analyst:	TJS
File #:	020F0101.D
Instr. #:	GC # 3
Date Coll:	6/21/95
Date Analyzed:	6/21/95 15:10
Dilution Factor:	1000
Method:	8010WAS.MTH
Sample Wt. (g):	5
MeOH Extract:	Me YES SW 4/2
MeOH Vol. (ml):	0
Extract Vol. (ml):	0

RESULTS:
EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	1000.0	ND
1,1 DICHLOROETHENE	1000.0	ND
1,1,2-DICHLOROETHENE	1000.0	ND
1,1-DICHLOROETHANE	1000.0	ND
c-1,2-DICHLOROETHENE	1000.0	2300.0
1,1,1,2-TETRACHLOROETHANE	1000.0	ND
CARBON TET.	1000.0	ND
1,2-DICHLOROETHANE	1000.0	ND
TRICHLOROETHENE	5000.0	21000.0
TETRACHLOROETHENE	1000.0	ND

% Solids:

100

Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020 from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A. Office of Solid Waste and Emergency Response, Washington, D.C., November 1986. Field report is preliminary until reviewed and signed.

ND = Not Detected

NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments:

Surrogate Recovery = 107 %

Signed

[Signature]

Reviewed

[Signature]

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT: VacAir Alloys Division
Frewsburg, New York
CLIENT: Conestoga-Rovers & Associates, Inc.
2055 Niagara Falls Blvd.
Niagara Falls, New York 14304

Matrix: SOIL
Analyst: TJS
File #: 004F0101.D
Instr. #: GC # 3
Date Coll: 6/20/95
Date Analyzed: 6/21/95 9:12
Dilution Factor: 100
Method: 8010WAS.MTH
Sample Wt. (g): 5
MeOH Extract: Yes
MeOH Vol. (ml): 5
Extract Vol. (ml) 0.05

Sample ID: PDB-11B
GC Sample ID: PDB-11B 50 uL
W.O. #: 0

RESULTS:

EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	5.0	BQL
1,1 DICHLOROETHENE	5.0	ND
t-1,2-DICHLOROETHENE	5.0	ND
1,1-DICHLOROETHANE	5.0	ND
c-1,2-DICHLOROETHENE	5.0	200.0
111TRICHLOROETHANE	5.0	ND
CARBON TET.	5.0	ND
1,2-DICHLOROETHANE	5.0	ND
TRICHLOROETHENE	5.0	910.0
TETRACHLOROETHENE	5.0	ND

% Solids: 100
Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020 from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A. Office of Solid Waste and Emergency Response, Washington, D.C., November 1986. Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments: Surrogate Recovery = 113 %
Results for Vinyl chloride and c-1,2-DCE were reported from file 032, run on 6/20/95.

Signed TJS 6-21-95

Reviewed MAC 7-26-95

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT:	VacAir Alloys Division Frewsburg, New York Conestoga-Rovers & Associates, Inc.
CLIENT:	2055 Niagara Falls Blvd. Niagara Falls, New York 14304
Sample ID:	PDB-13A
GC Sample ID:	PDB-13A 5.0 g
W.O. #:	0
Matrix:	SOIL
Analyst:	TJS
File #:	009F0101.D
Instr. #:	GC # 3
Date Coll:	6/21/95
Date Analyzed:	6/21/95 11:07
Dilution Factor:	1
Method:	8010WAS.MTH
Sample Wt. (g):	5
MeOH Extract:	No
MeOH Vol. (ml):	0
Extract Vol. (ml):	0

RESULTS:
EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	1.0	ND
1,1 DICHLOROETHENE	1.0	ND
1,1,2-DICHLOROETHENE	1.0	ND
1,1-DICHLOROETHANE	1.0	ND
c-1,2-DICHLOROETHENE	1.0	ND
1,1,1,1-TETRACHLOROETHANE	1.0	ND
CARBON TET.	1.0	ND
1,2-DICHLOROETHANE	1.0	ND
TRICHLOROETHENE	5.0	32.0
TETRACHLOROETHENE	1.0	ND

% Solids:

100

Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020 from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A. Office of Solid Waste and Emergency Response, Washington, D.C., November 1986. Field report is preliminary until reviewed and signed.

ND = Not Detected

NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments:

Surrogate Recovery = 94 %

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Signed

6-21-95

Reviewed

May 7, 1995

Field Report

PROJECT: VacAir Alloys Division
Frewsburg, New York
CLIENT: Conestoga-Rovers & Associates, Inc.
2055 Niagara Falls Blvd.
Niagara Falls, New York 14304

Matrix: SOIL
Analyst: TJS
File #: 016F0101.D
Instr. #: GC # 3
Date Coll: 6/21/95
Date Analyzed: 6/21/95 13:41
Dilution Factor: 10
Method: 8010WAS.MTH
Sample Wt. (g): 0.5
MeOH Extract: No
MeOH Vol. (ml): 0
Extract Vol. (ml): 0

Sample ID: PDB-13B
GC Sample ID: PDB-13B 0.5 g
W.O. #: 0

RESULTS:

EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	10.0	ND
1,1 DICHLOROETHENE	10.0	ND
t-1,2-DICHLOROETHENE	10.0	ND
1,1-DICHLOROETHANE	10.0	ND
c-1,2-DICHLOROETHENE	10.0	12.0
111TRICHLOROETHANE	10.0	ND
CARBON TET.	10.0	ND
1,2-DICHLOROETHANE	10.0	ND
TRICHLOROETHENE	50.0	140.0
TETRACHLOROETHENE	10.0	ND

% Solids: 100
Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020
from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A.
Office of Solid Waste and Emergency Response, Washington, D.C., November 1986.
Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments: Surrogate Recovery = 100 %

Signed TJS 6-21-95

Reviewed may 7. 2095

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT:	VacAir Alloys Division Frewsburg, New York Conestoga-Rovers & Associates, Inc.
CLIENT:	2055 Niagara Falls Blvd. Niagara Falls, New York 14304
Sample ID:	PDB-14A
GC Sample ID:	PDB-14A 5.0 g
W.O. #:	0
Matrix:	SOIL
Analyst:	TJS
File #:	011F0101.D
Instr. #:	GC # 3
Date Coll:	6/21/95
Date Analyzed:	6/21/95 11:51
Dilution Factor:	1
Method:	8010WAS.MTH
Sample Wt. (g):	5
MeOH Extract:	No
MeOH Vol. (ml):	0
Extract Vol. (ml):	0

RESULTS:
EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	1.0	8.4
1,1 DICHLOROETHENE	1.0	BQL
1,1-2-DICHLOROETHENE	1.0	1.5
1,1-DICHLOROETHANE	1.0	ND
c-1,2-DICHLOROETHENE	1.0	120.0 *
1,1,1-TRICHLOROETHANE	1.0	ND
CARBON TET.	1.0	ND
1,2-DICHLOROETHANE	1.0	ND
TRICHLOROETHENE	5.0	700.0 *
TETRACHLOROETHENE	1.0	ND

% Solids:

100

Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020 from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A. Office of Solid Waste and Emergency Response, Washington, D.C., November 1986. Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed
BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments:

Surrogate Recovery = 89 %

* c-1,2-DCE and TCE were reported from file 021, run at 100 X dilution

Signed

6-21-95

Reviewed

mtj.1631

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT: VacAir Alloys Division
Frewsburg, New York
CLIENT: Conestoga-Rovers & Associates, Inc.
2055 Niagara Falls Blvd.
Niagara Falls, New York 14304

Matrix: SOIL
Analyst: TJS
File #: 012F0101.D
Instr. #: GC # 3
Date Coll: 6/21/95
Date Analyzed: 6/21/95 12:13
Dilution Factor: 5
Method: 8010WAS.MTH
Sample Wt. (g): 1
MeOH Extract: No
MeOH Vol. (ml): 0
Extract Vol. (ml): 0

Sample ID: PDB-14B
GC Sample ID: PDB-14B 1.0 g
W.O. #: 0

RESULTS:

EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	5.0	ND
1,1 DICHLOROETHENE	5.0	ND
t-1,2-DICHLOROETHENE	5.0	ND
1,1-DICHLOROETHANE	5.0	ND
c-1,2-DICHLOROETHENE	5.0	140.0
111TRICHLOROETHANE	5.0	ND
CARBON TET.	5.0	ND
1,2-DICHLOROETHANE	5.0	ND
TRICHLOROETHENE	25.0	870.0 *
TETRACHLOROETHENE	5.0	ND

% Solids: 100
Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020
from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A.
Office of Solid Waste and Emergency Response, Washington, D.C., November 1986.
Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments: Surrogate Recovery = 100 %
* TCE reported from file 018, run at 100 X dilution

Signed TJS 6-21-95

Reviewed mary T. 6/21/95

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT:	VacAir Alloys Division Frewsburg, New York Conestoga-Rovers & Associates, Inc.	CLIENT:	Niagara Falls, New York 14304
Sample ID:	PDB-14C	GC Sample ID:	PDB-14C 5.0 g
W.O. #:	0		
Matrix:	SOIL	Analyst:	TJS
File #:	019F0101.D	Instr. #:	GC # 3
Date Coll:	6/21/95	Date Analyzed:	6/21/95 14:48
Dilution Factor:	1	Method:	8010WAS.MTH
Sample Wt. (g):	5	MeOH Extract:	No
MeOH Vol. (ml):	0	Extract Vol. (ml):	0

RESULTS:
EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	1.0	ND
1,1 DICHLOROETHENE	1.0	ND
1,1,2-DICHLOROETHENE	1.0	ND
1,1-DICHLOROETHANE	1.0	ND
c-1,2-DICHLOROETHENE	1.0	ND
1,1,1,1-TETRACHLOROETHANE	1.0	ND
CARBON TET.	1.0	ND
1,2-DICHLOROETHANE	1.0	ND
TRICHLOROETHENE	5.0	5.3
TETRACHLOROETHENE	1.0	ND

% Solids:

100

Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020 from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A. Office of Solid Waste and Emergency Response, Washington, D.C., November 1986. Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed
BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments:

Surrogate Recovery = 78 % *

Signed 6-21-95 msj
Reviewed msj 7-26-95

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT: VacAir Alloys Division
Frewsburg, New York
CLIENT: Conestoga-Rovers & Associates, Inc.
2055 Niagara Falls Blvd.
Niagara Falls, New York 14304

Matrix: SOIL
Analyst: TJS
File #: 024F0101.D
Instr. #: GC # 3
Date Coll: 6/21/95
Date Analyzed: 6/21/95 16:38
Dilution Factor: 1
Method: 8010WAS.MTH
Sample Wt. (g): 5
MeOH Extract: No
MeOH Vol. (ml): 0
Extract Vol. (ml): 0

Sample ID: PDB-15A
GC Sample ID: PDB-15A 5.0 g
W.O. #: 0

RESULTS:

EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	1.0	ND
1,1 DICHLOROETHENE	1.0	ND
t-1,2-DICHLOROETHENE	1.0	ND
1,1-DICHLOROETHANE	1.0	ND
c-1,2-DICHLOROETHENE	1.0	ND
111TRICHLOROETHANE	1.0	ND
CARBON TET.	1.0	ND
1,2-DICHLOROETHANE	1.0	ND
TRICHLOROETHENE	5.0	ND
TETRACHLOROETHENE	1.0	ND

% Solids: 100
Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020
from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A.
Office of Solid Waste and Emergency Response, Washington, D.C., November 1986.
Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments: Surrogate Recovery = 84 %

Signed TJS 6-21-95

Reviewed MA 7-26-95

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT: Vacair Alloys Division
CLIENT: Frewsburg, New York
 Conestoga-Rovers & Associates, Inc.
 2055 Niagara Falls Blvd.
 Niagara Falls, New York 14304

Sample ID: PDB-15B
GC Sample ID: PDB-15B 5.0 g
W.O. #: 0

Matrix: SOIL
Analyst: TJS
File #: 025F0101.D
Instr. #: GC # 3
Date Coll: 6/21/95
Date Analyzed: 6/21/95 17:00
Dilution Factor: 1
Method: 8010WAS.MTH
Sample Wt. (g): 5
MeOH Extract: No
MeOH Vol. (ml): 0
Extract Vol. (ml): 0

RESULTS: EPA Method 8010/8020
 Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	1.0	ND
1,1 DICHLOROETHENE	1.0	ND
1,1,2-DICHLOROETHENE	1.0	ND
1,1-DICHLOROETHANE	1.0	ND
o-1,2-DICHLOROETHENE	1.0	ND
1,1,1,1-TETRACHLOROETHANE	1.0	ND
CARBON TET.	1.0	ND
1,2-DICHLOROETHANE	1.0	ND
TRICHLOROETHENE	5.0	ND
TETRACHLOROETHENE	1.0	ND

% Solids:

100

Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020 from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A. Office of Solid Waste and Emergency Response, Washington, D.C., November 1986. Field report is preliminary until reviewed and signed.

ND = Not Detected
 NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
 B = Detected in the laboratory blank

Comments:

Surrogate Recovery = 106 %

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Signed

6-21-95

Reviewed

mmj22635

Field Report

PROJECT: VacAir Alloys Division
Frewsburg, New York
CLIENT: Conestoga-Rovers & Associates, Inc.
2055 Niagara Falls Blvd.
Niagara Falls, New York 14304

Matrix: SOIL
Analyst: TJS
File #: 032F0101.D
Instr. #: GC # 3
Date Coll: 6/21/95
Date Analyzed: 6/21/95 19:35
Dilution Factor: 1
Method: 8010WAS.MTH
Sample Wt. (g): 5
MeOH Extract: No
MeOH Vol. (ml): 0
Extract Vol. (ml): 0

Sample ID: PDB-16A
GC Sample ID: PDB-16A 5.0 g
W.O. #: 0

RESULTS:

EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	1.0	ND
1,1 DICHLOROETHENE	1.0	ND
t-1,2-DICHLOROETHENE	1.0	ND
1,1-DICHLOROETHANE	1.0	ND
c-1,2-DICHLOROETHENE	1.0	ND
111TRICHLOROETHANE	1.0	ND
CARBON TET.	1.0	ND
1,2-DICHLOROETHANE	1.0	ND
TRICHLOROETHENE	5.0	ND
TETRACHLOROETHENE	1.0	ND

% Solids: 100
Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020
from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A.
Office of Solid Waste and Emergency Response, Washington, D.C., November 1986.
Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments: Surrogate Recovery = 85 %

Signed JS 6.22.95

Reviewed may 7.7.95

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT:	VacAir Alloys Division Frewsburg, New York Conestoga-Rovers & Associates, Inc.
CLIENT:	2055 Niagara Falls Blvd. Niagara Falls, New York 14304
Sample ID:	PDB-16B
GC Sample ID:	PDB-16B 5.0 g
W.O. #:	0
Matrix:	SOIL
Analyst:	TJS
File #:	027F0101.D
Instr. #:	GC # 3
Date Coll:	6/21/95
Date Analyzed	6/21/95 17:44
Dilution Factor:	1
Method:	8010WAS.MTH
Sample Wt. (g):	5
MeOH Extract:	No
MeOH Vol. (ml):	0
Extract Vol. (ml):	0

RESULTS:
EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	1.0	ND
1,1 DICHLOROETHENE	1.0	ND
1,1,2-DICHLOROETHENE	1.0	ND
1,1-DICHLOROETHANE	1.0	ND
o-1,2-DICHLOROETHENE	1.0	ND
1,1,1,1-TETRACHLOROETHANE	1.0	ND
CARBON TET.	1.0	ND
1,2-DICHLOROETHANE	1.0	ND
TRICHLOROETHENE	5.0	ND
TETRACHLOROETHENE	1.0	ND

% Solids:

100

Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020 from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A. Office of Solid Waste and Emergency Response, Washington, D.C., November 1986. Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments:

Surrogate Recovery = 103 %

Signed J.S. C-22-55

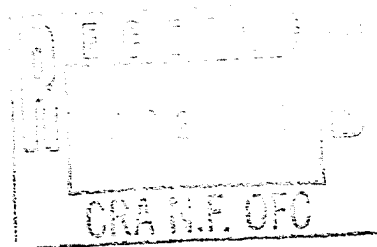
Reviewed

mm7.7635

Commonwealth Analytical

Mobile Laboratory

(413)572-3200



**QUALITY ASSESSMENT REPORT
FOR
LABORATORY ANALYSES**

CLIENT NAME: CONESTOGA ROVERS ASSOCIATES

WORK ORDER #: 9506447

BLANK RESULTS SUMMARY

WORK ORDER NO. 9506447

SAMPLE ID = LB, FB, TB (LB=Laboratory Blank, FB=Field Blank, TB=Trip Blank)

SAMPLE ID	ANALYSIS	DATE OF EXTRACTION	DATE OF ANALYSIS	BLANK MATRIX	ANALYTE DETECTED	CONCENTRATION
LB	8010	NONE	06/29/95	WATER	NONE DETECTED	
LB	8010	NONE	06/29/95	WATER	NONE DETECTED	

MATRIX SPIKE/MATRIX SPIKE DUPLICATE RESULTS VOLATILE ORGANIC COMPOUNDS

DATE COLLECTED: 06/20/95-08/21/95

DATE ANALYZED: 06/29/95

SAMPLE IDENTIFICATION: PDB-14A

WORK ORDER NO.: 9506447

ANALYSIS: 8010

SAMPLE RESULT and SPIKE ADDED are in units of $\mu\text{g}/\text{kg}$.

% RECOVERY and RELATIVE PERCENT DIFFERENCE (RPD) are in units of percent

ANALYTE	SAMPLE RESULT	SPIKE ADDED	% RECOVERY	% RECOVERY	RPD	QC LIMITS RPD %REC
1,1-DICHLOROETHENE	< 10	200	124	132	6	14 61-145
BENZENE	< 10	200	108	125	15	11 76-127
TRICHLOROETHENE	66	200	130	112	12	14 71-120
TOLUENE	< 10	200	113	132	16	13 76-125
CHLOROBENZENE	< 10	200	89	118	29*	13 75-130

(*) outside QC limits



**SURROGATE PERCENT RECOVERY RESULTS
VOLATILE ORGANIC COMPOUNDS**

ANALYSIS: 8010

DATE COLLECTED: 06/20/95-06/21/95

WORK ORDER NO. 9506447

DATE ANALYZED: 06/29/95

SURROGATE % RECOVERY and QC LIMITS are in units of percent

SAMPLE ID	SURROGATE % RECOVERY	
	S1	S2
PDB-10C	118	108
PDB-13A	102	84
PDB-14A	79	86

QC LIMITS

 = 1,2-DICHLOROETHANE 60 - 140
 = BROMOFLUOROBENZENE 71 - 149

QUALITY ASSESSMENT NARRATIVE
FOR
WORK ORDER 9506447

INTRODUCTION

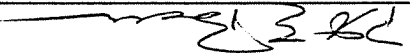
This narrative contains a description of those Quality Control (QC) parameters that did not satisfy criteria during analysis of the samples listed below. The samples were collected on June 20 and June 21, 1995 at the following locations:

PDB-10C
PDB-13A
PDB-14A

ORGANICS

Precision criteria was not met for Chlorobenzene, RPD was 29% with an acceptance limit of 21%. All other QC criteria was met.

The Quality Assessment Report for these samples is enclosed herein.



Peter E Bowser
Quality Assurance Coordinator
Date 8/18/95

J:\QC\NARR.



SAMPLE PREPARATION INFORMATION FOR WORKORDER 9506447

Organics:

Soil Sample PDB-13A was analyzed using Method 8010 for a low level soil. Samples PDB-10C and PDB-14A were analyzed using Method 8010 for medium to high level soil.

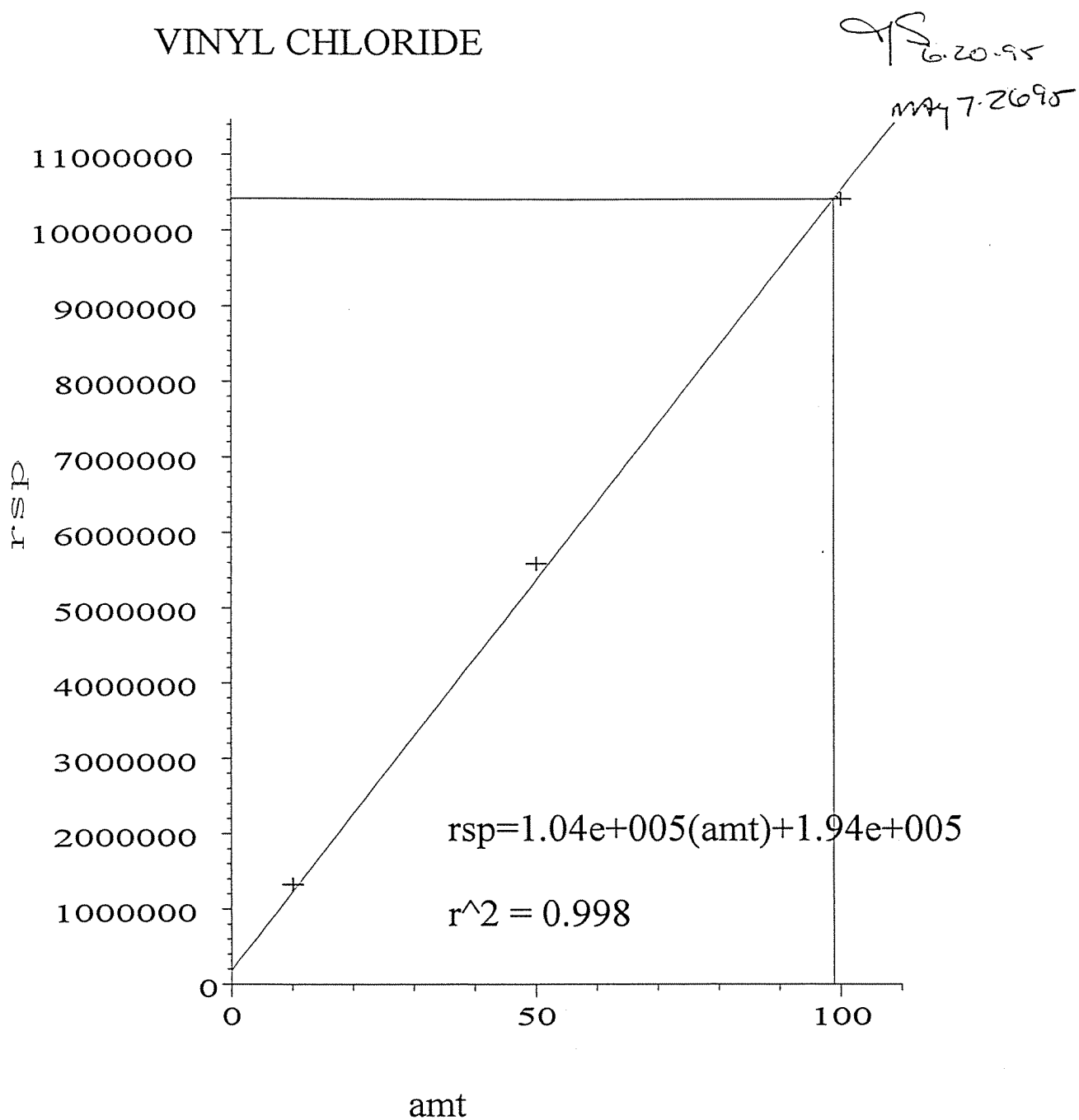
SECTION 3.0

Quality Control Analyses
6/20/95

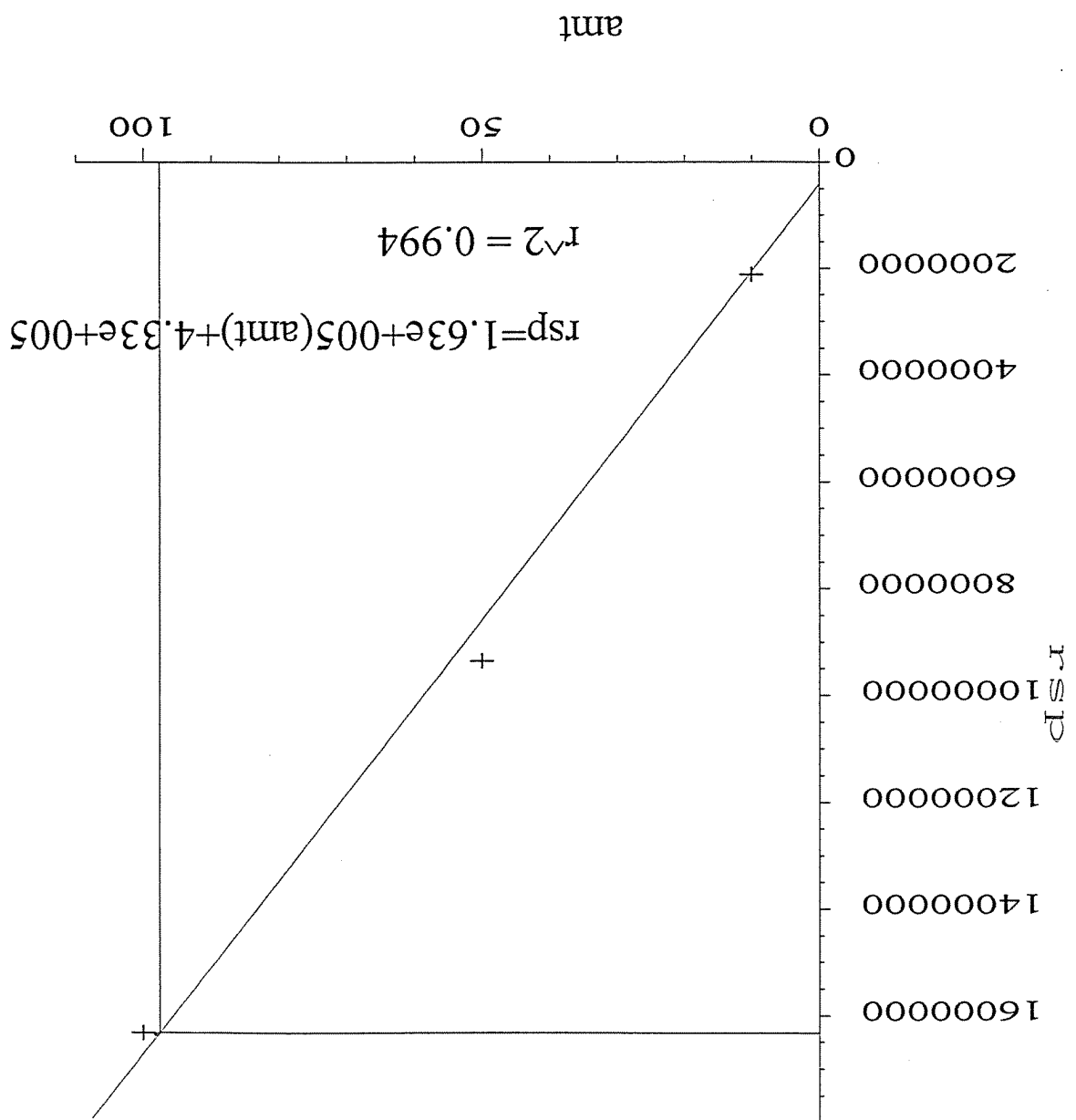
3 level calibration standard curves
(10 ng, 50 ng, 100 ng)

Method 8210 WAS. Standards run 6-19-95

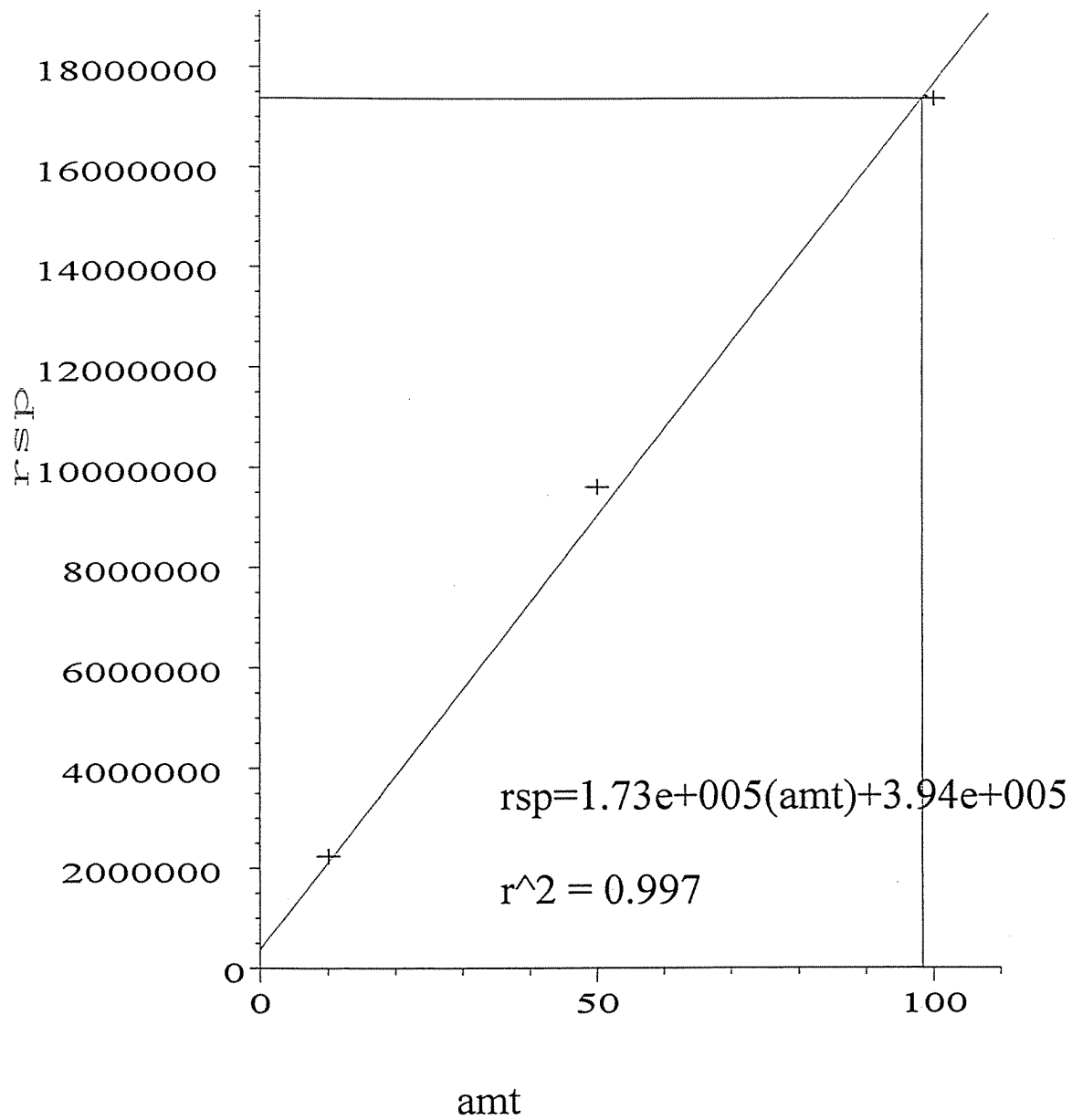
Calibration entered 6-20-95



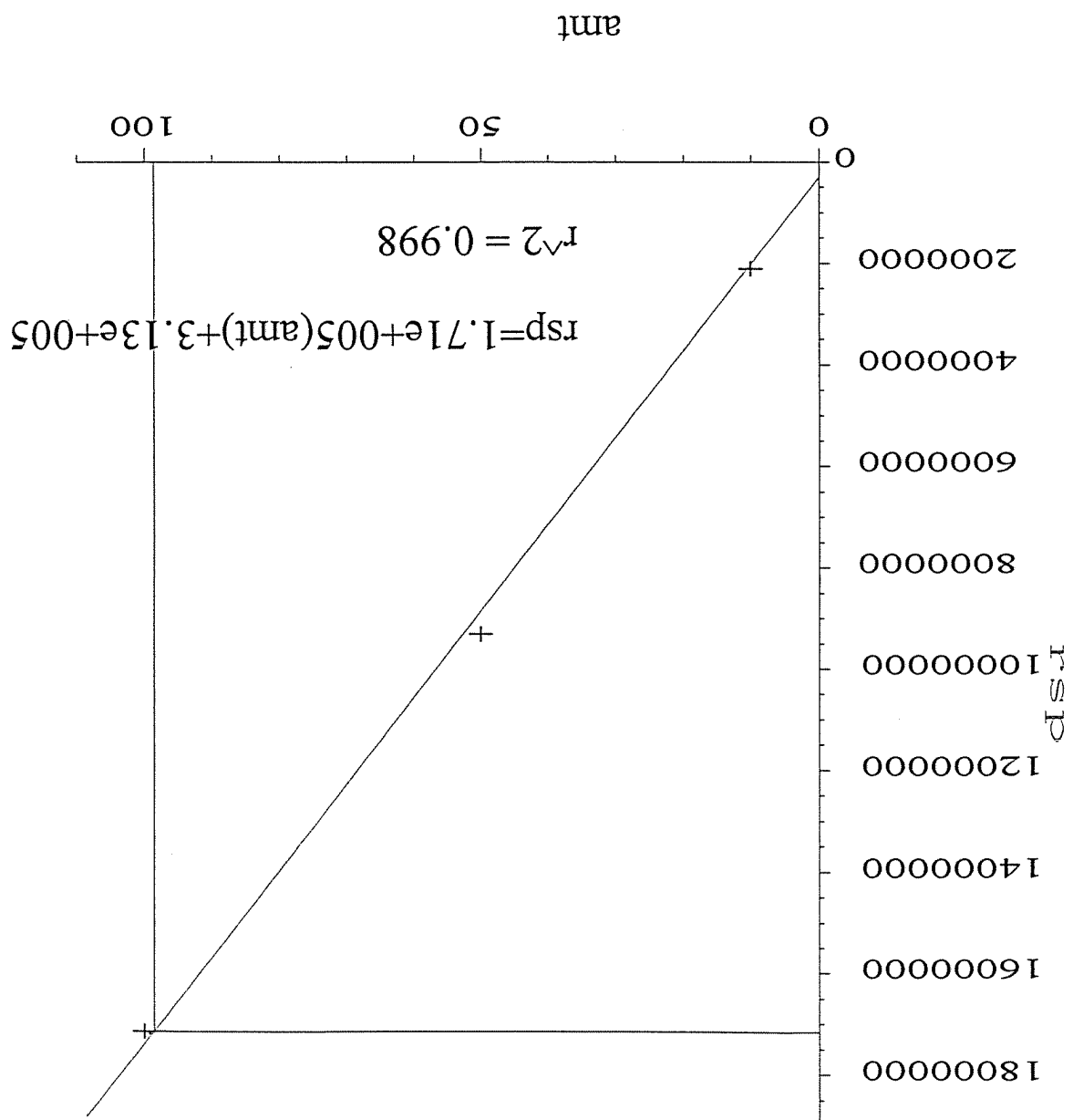
1,1 DICHLOROETHENE



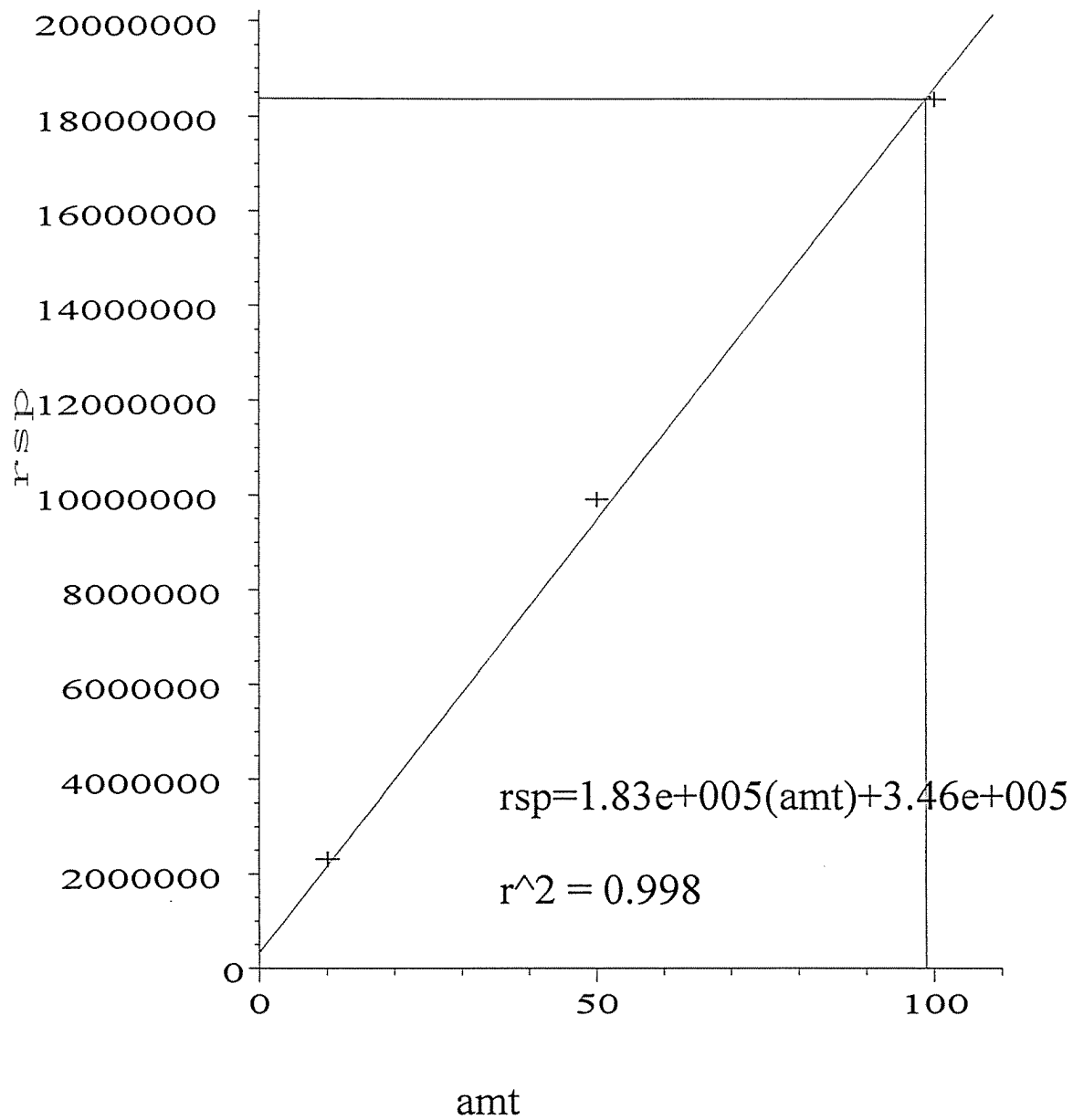
t-1,2-DICHLOROETHENE



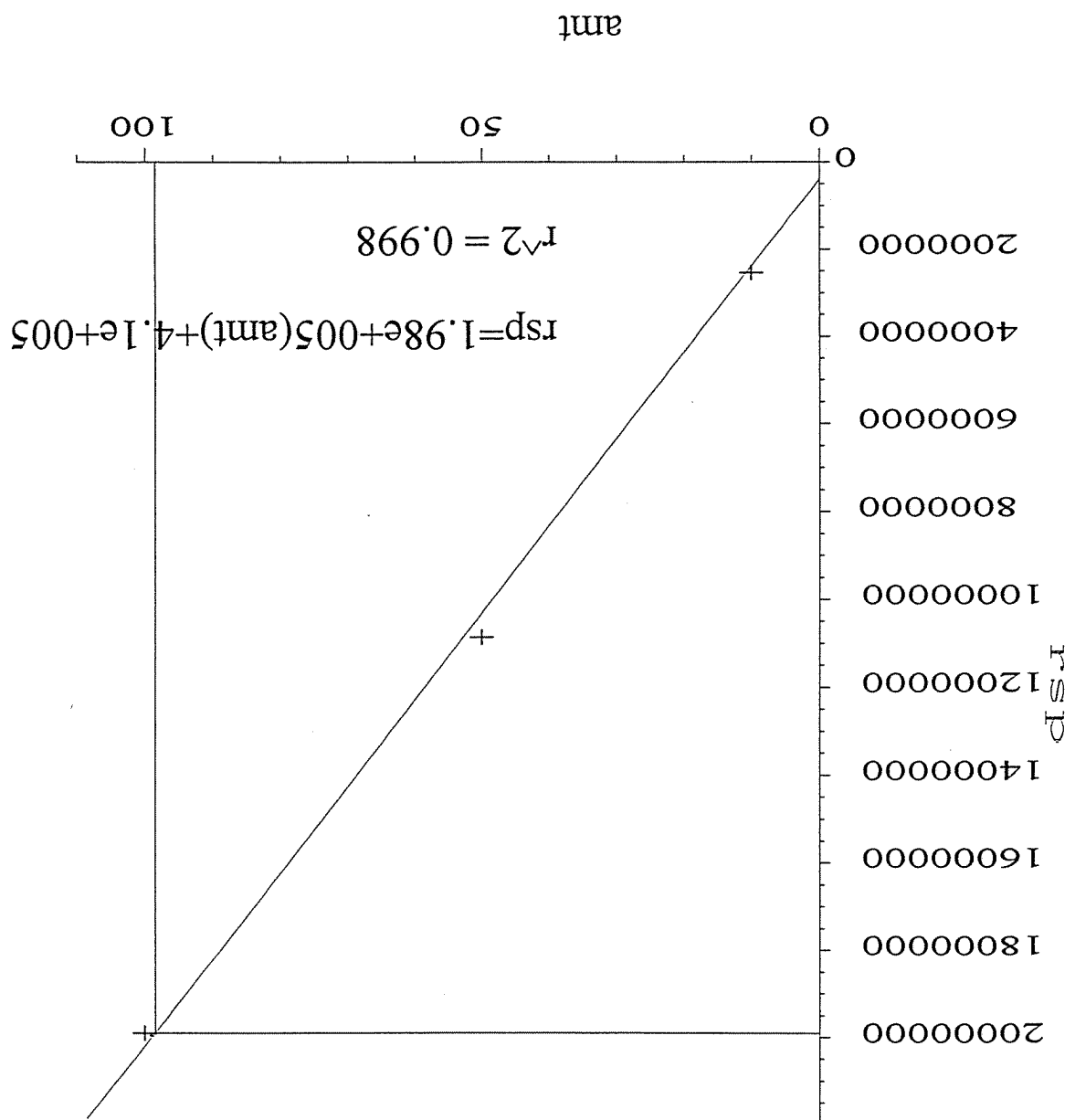
1,1-DICHLOROETHANE



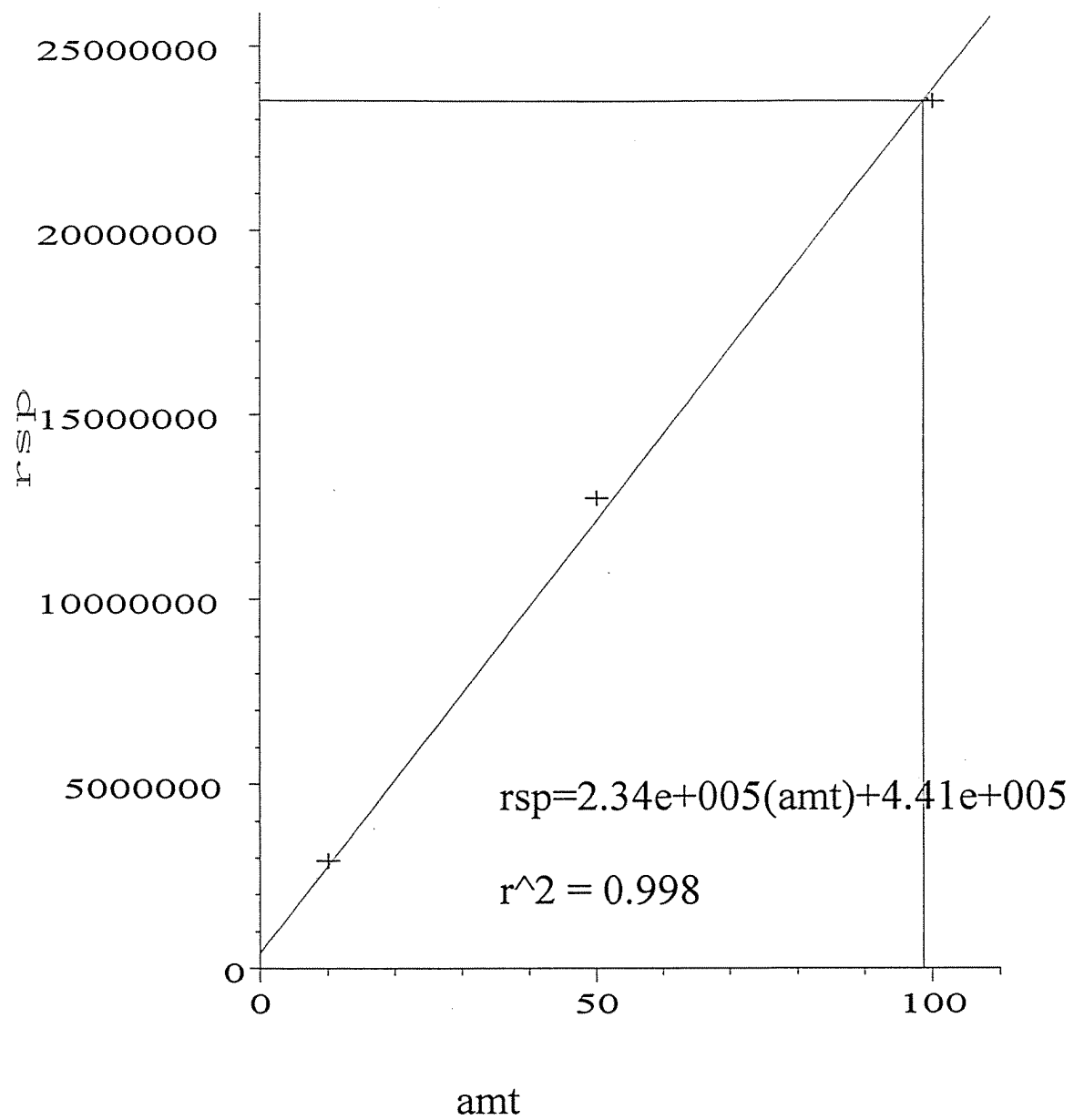
c-1,2-DICHLOROETHENE



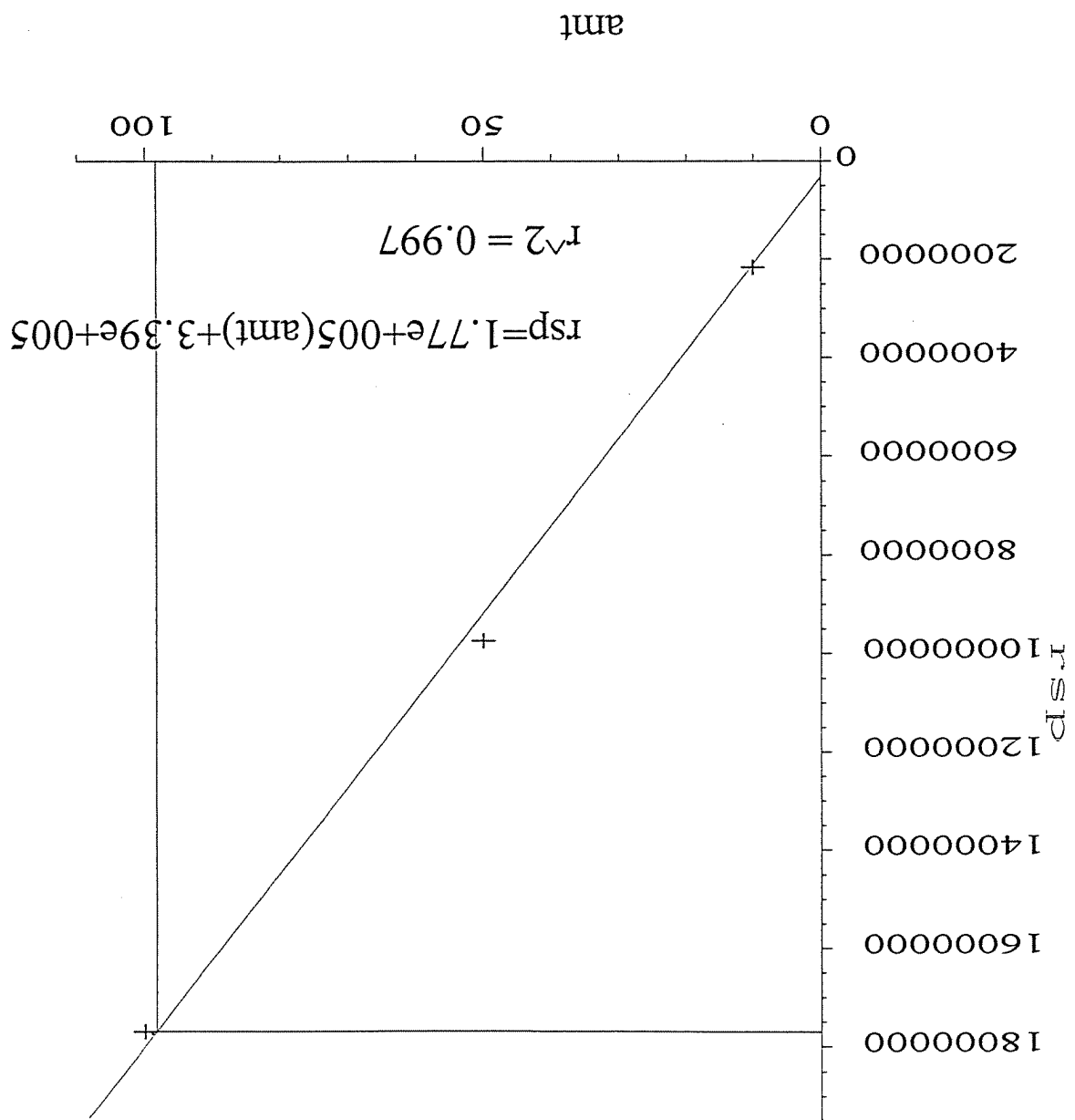
111TRICHLOROETHANE



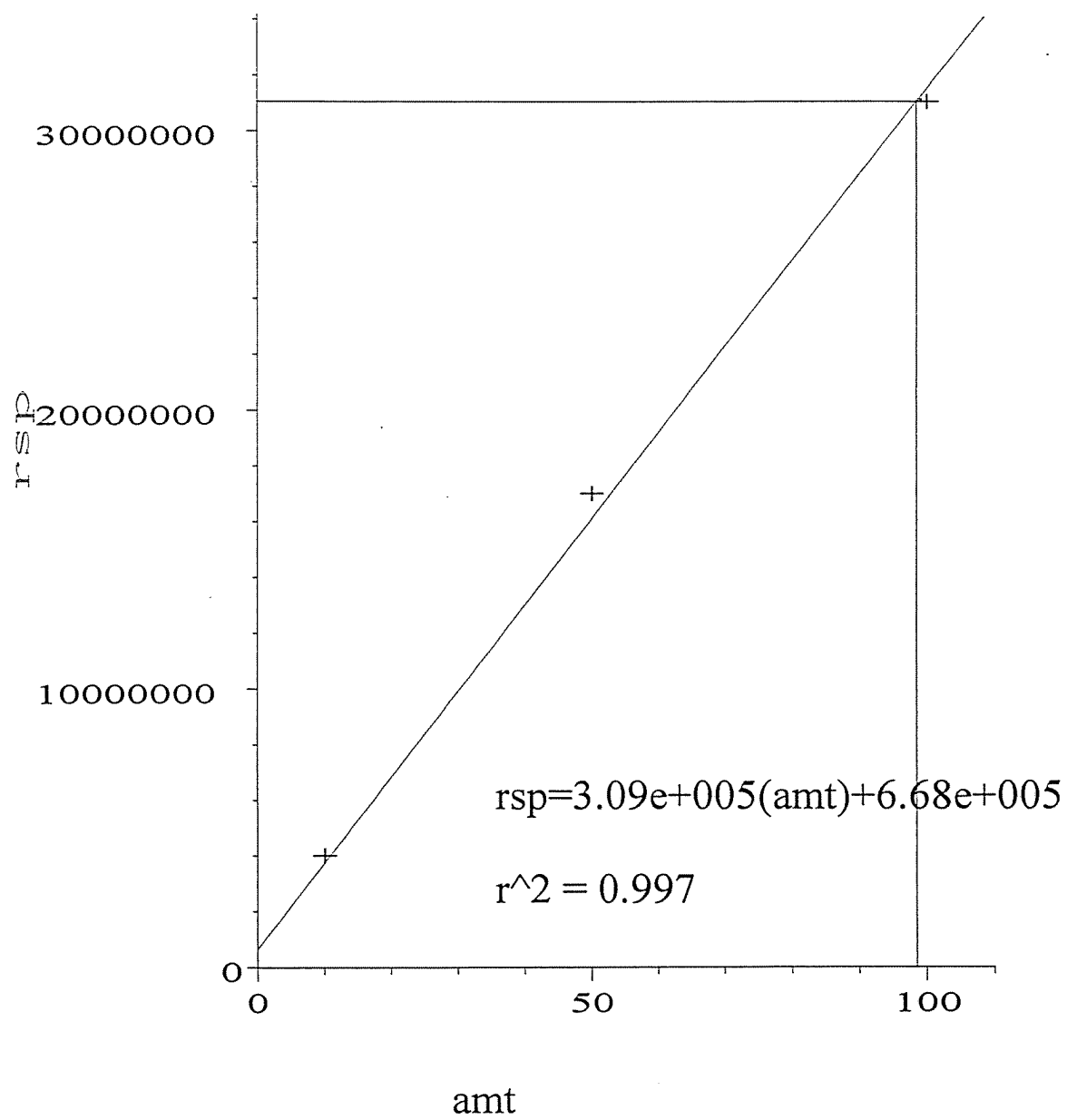
CARBON TET.



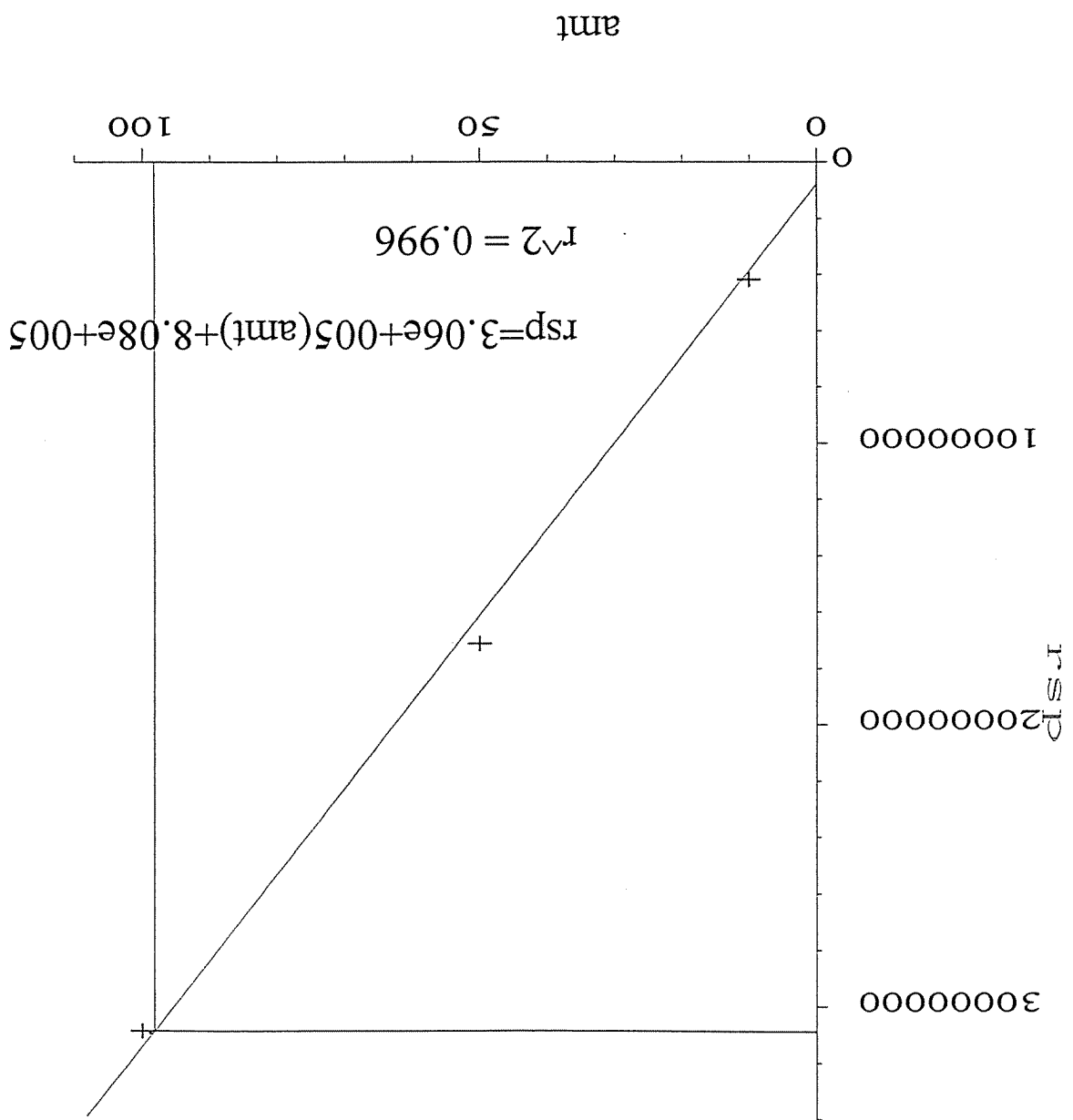
1,2-DICHLOROETHANE



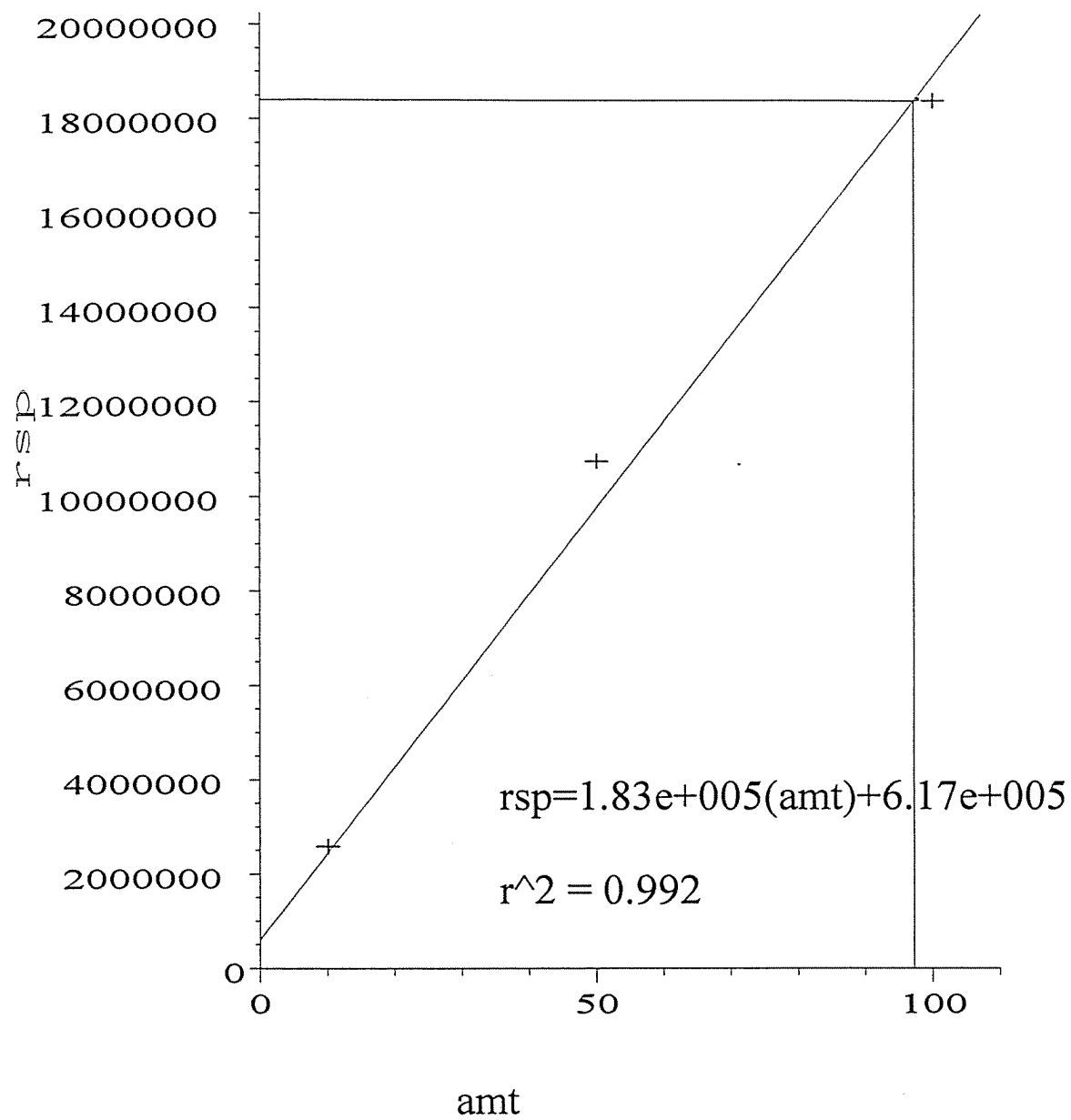
TRICHLOROETHENE



TETRACHLOROETHENE

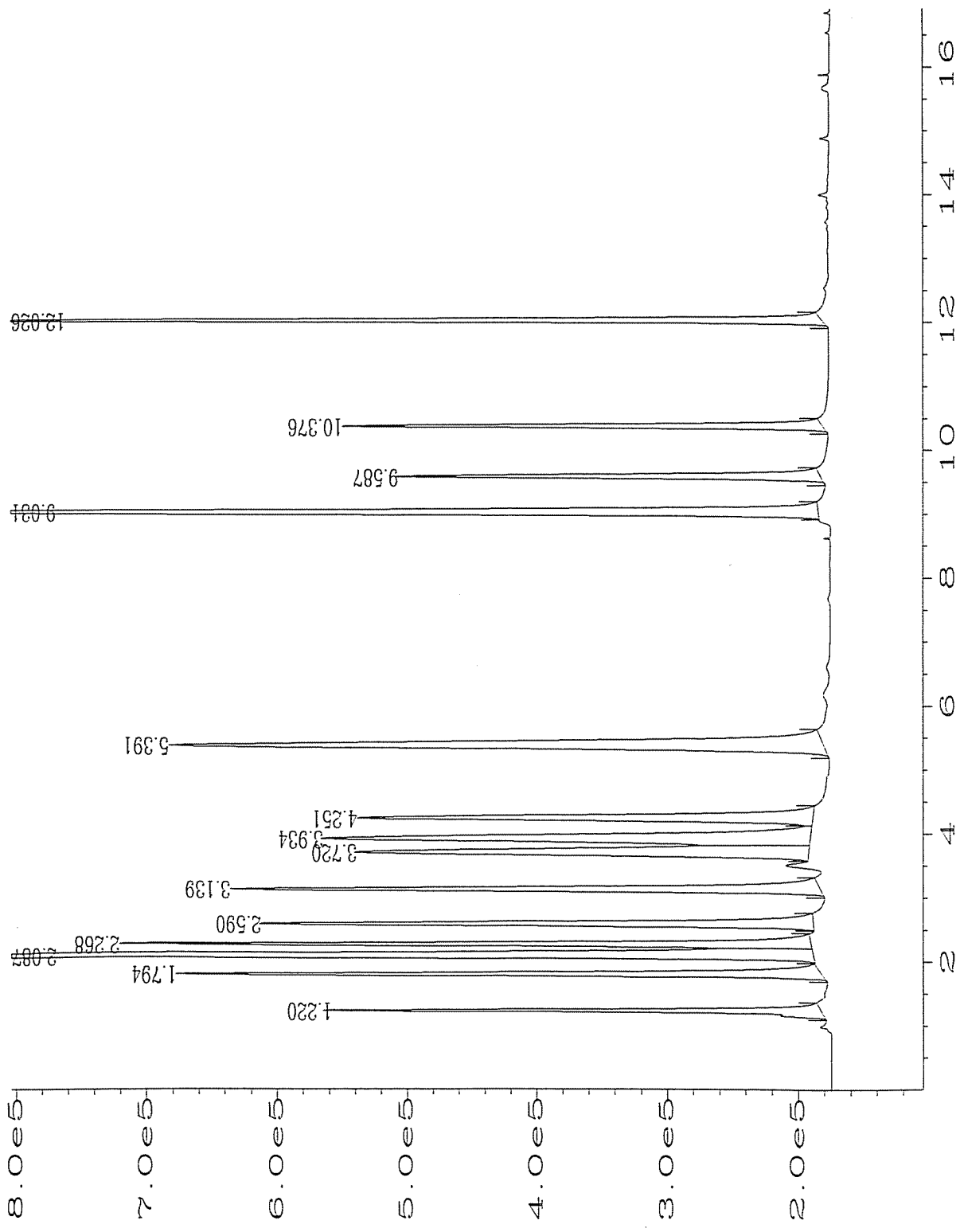


1,4-DICHLOROBUTANE



Sample Log Table

Vial Line Num.	Sample Name	Sample Multiplier Amount	ISTD Amount	Cal. Line	Method Name	Inj/ Vial
FRONT						
1	1	blank			8010WAS	1
1	2	10 ng Std -level 2 cal. std			8010WAS	1
1	3	50 ng Std			8010WAS	1
1	4	100 ng Std			8010WAS	1
1	5	50 ng Std -level 1 cal. std			8010WAS	1
1	6	10 ng Std			8010WAS	1
1	7	100 ng Std -level 3 cal. Std			8010WAS	1
REAR						
1	51	blank			8020WAS	1
1	52	10 ng Std			8020WAS	1
1	53	50 ng Std			8020WAS	1
1	54	100 ng Std			8020WAS	1
1	55	50 ng Std			8020WAS	1
1	56	10 ng Std			8020WAS	1
1	57	100 ng Std			8020WAS	1

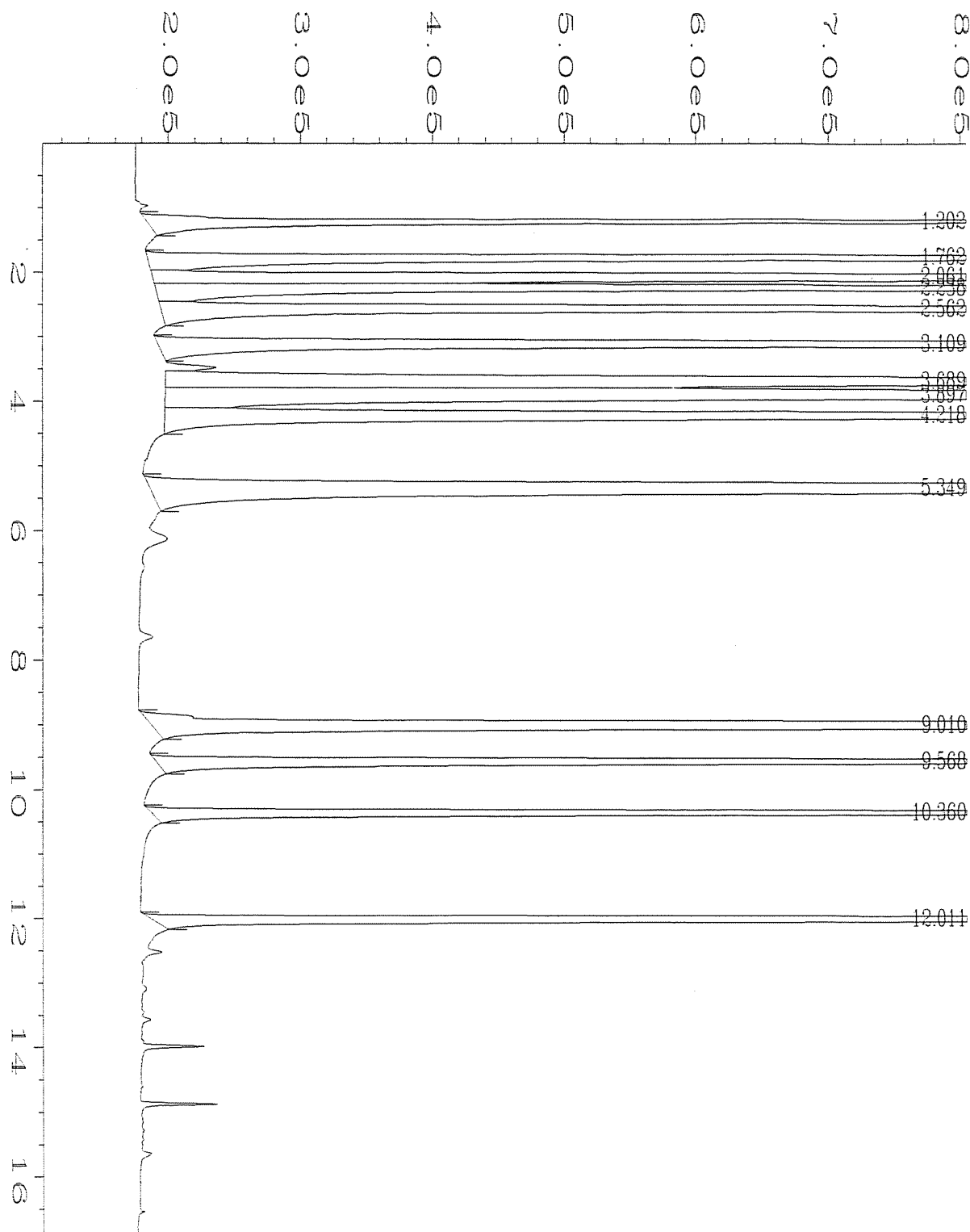


Data File Name

C:\HPCHEM\1\DATA\061995-3\002F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : 10 ng Std
 Run Time Bar Code :
 Acquired on : 20 Jun 95 00:05 AM
 Report Created on : 20 Jun 95 09:32 AM
 Last Recalib on : 20 Jun 95 09:11 AM
 Multiplier : 1

Page Number : 1
 Vial Number : 2
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.M
 Analysis Method : 8010WAS.M
 Sample Amount : 0
 ISTD Amount :



Data File Name	: C:\HPCHEM\1\DATA\061995-3\005F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 5
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: 50 ng Std	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 20 Jun 95 01:11 AM	Analysis Method	: 8010WAS.MTH
Report Created on:	20 Jun 95 09:32 AM	Sample Amount	: 0
Last Recalib on	: 20 Jun 95 09:11 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\061995-3\002F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : 10 ng Std
 Run Time Bar Code :
 Acquired on : 20 Jun 95 00:05 AM
 Report Created on: 20 Jun 95 09:32 AM
 Last Recalib on : 20 Jun 95 09:11 AM
 Multiplier : 1
 Analysts Method : 8010WAS.MTH
 Instrument Method: 8010WAS.MTH
 Sequence Line : 1
 Injection Number : 1
 Vial Number : 2
 Page Number : 1
 Sample Amount : 0
 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\061995-3\002F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.220	1323046	BB	0.051	1	11.115	VINYL CHLORIDE
1.794	2118402	BB	0.064	1	11.106	1,1 DICHLOROETHENE
2.087	5855593	BV	0.064	1	16.939	METHYLENE CHLORIDE
2.268	2243527	VB	0.064	1	11.190	t-1,2-DICHLOROETHENE
2.590	2113648	BB	0.074	1	11.084	1,1-DICHLOROETHANE
3.139	2315771	BB	0.075	1	11.302	c-1,2-DICHLOROETHENE
3.720	2537208	BV	0.095	1	11.410	1,1,1-TRICHLOROETHANE
3.934	2933982	VV	0.099	1	11.291	CARBON TET.
4.251	2164633	VB	0.085	1	10.663	1,2-DICHLOROETHANE
5.391	4003572	BB	0.121	1	11.439	TRICHLOROETHENE
9.031	4201845	BB	0.081	1	11.846	TETRACHLOROETHENE
12.026	2585079	BB	0.060	1-R	9.777	1,4-DICHLOROBUTANE

Time Reference Peak
 12
 Expected RT 12.011
 Actual RT 12.026
 Difference 0.1%

External Standard Report

```

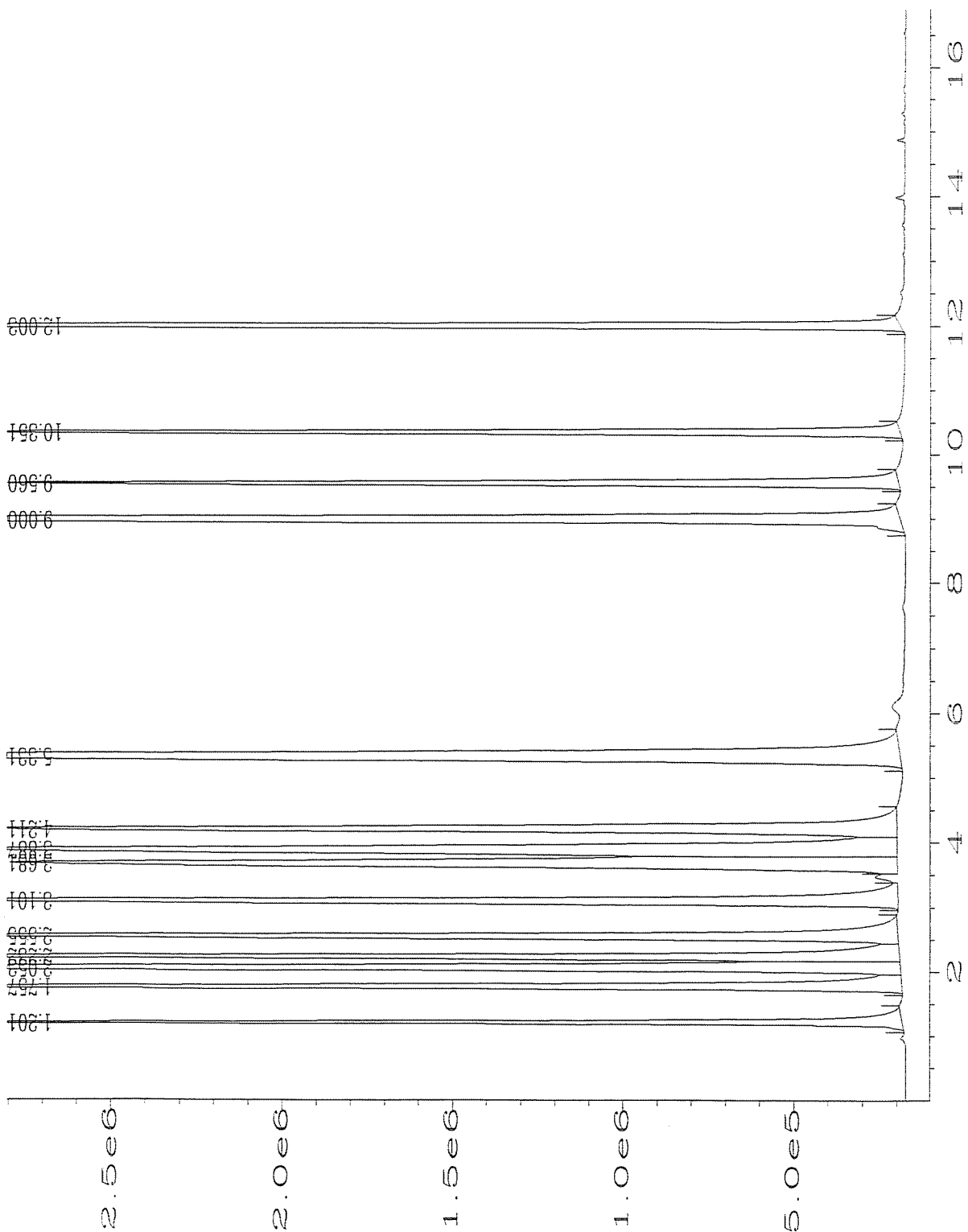
Data File Name       : C:\HPCHEM\1\DATA\061995-3\005F0101.D
Operator            : TJS                               Page Number       : 1
Instrument          : GC # 3                             Vial Number        : 5
Sample Name        : 50 ng Std                         Injection Number    : 1
Run Time Bar Code  :                                     Sequence Line      : 1
Acquired on        : 20 Jun 95  01:11 AM               Instrument Method   : 8010WAS.MTH
Report Created on   : 20 Jun 95  09:32 AM               Analysis Method    : 8010WAS.MTH
Last Recalib on    : 20 Jun 95  09:11 AM               Sample Amount      : 0
Multiplier         : 1                                   ISTD Amount        :
  
```

Sig. 1 in C:\HPCHEM\1\DATA\061995-3\005F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.202	5483325	BB	0.048	1	51.364	VINYL CHLORIDE
1.762	8734874	BV	0.066	1	51.954	1,1-DICHLOROETHENE
2.061	1.45238E+007	VV	0.062	1	54.849	METHYLENE CHLORIDE
2.238	9190444	VV	0.065	1	51.544	t-1,2-DICHLOROETHENE
2.562	8858897	VB	0.075	1	50.718	1,1-DICHLOROETHANE
3.109	9450020	BB	0.077	1	50.505	c-1,2-DICHLOROETHENE
3.689	1.02174E+007	VV	0.092	1	50.405	111TRICHLOROETHANE
3.897	1.20178E+007	VV	0.106	1	50.279	CARBON TET.
4.218	9456419	VB	0.090	1	52.059	1,2-DICHLOROETHANE
5.349	1.60344E+007	BB	0.103	1	50.584	TRICHLOROETHENE
9.010	1.5998E+007	BB	0.074	1	50.577	TETRACHLOROETHENE
12.011	1.16405E+007	BB	0.061	1-R	58.887	1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
12	12.011	12.011	0.0%

Data File Name : C:\HPCHEM\1\DATA\061995-3\007F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : 100 ng Std
 Run Time Bar Code :
 Acquired on : 20 Jun 95 01:55 AM
 Report Created on : 20 Jun 95 09:31 AM
 Last Recalib on : 20 Jun 95 09:11 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 7
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.M
 Analysis Method : 8010WAS.M
 Sample Amount : 0
 ISTD Amount :



External Standard Report

```

Data File Name      : C:\HPCHEM\1\DATA\061995-3\007F0101.D
Operator           : TJS
Instrument          : GC # 3
Sample Name        : 100 ng Std
Run Time Bar Code  :
Acquired on        : 20 Jun 95   01:55 AM
Report Created on   : 20 Jun 95   09:32 AM
Last Recalib on    : 20 Jun 95   09:11 AM
Multiplier         : 1
Page Number        : 1
Vial Number        : 7
Injection Number    : 1
Sequence Line      : 1
Instrument Method   : 8010WAS.MTH
Analysis Method     : 8010WAS.MTH
Sample Amount       : 0
ISTD Amount         :
  
```

Sig. 1 in C:\HPCHEM\1\DATA\061995-3\007F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.201	1.03694E+007	BB	0.050	1	98.634	VINYL CHLORIDE
1.757	1.64875E+007	BV	0.066	1	99.816	1,1-DICHLOROETHENE
2.053	2.55059E+007	VV	0.067	1	102.878	METHYLENE CHLORIDE
2.232	1.75307E+007	VV	0.065	1	99.993	t-1,2-DICHLOROETHENE
2.555	1.72664E+007	VB	0.074	1	100.119	1,1-DICHLOROETHANE
3.101	1.83824E+007	BV	0.078	1	99.590	c-1,2-DICHLOROETHENE
3.681	2.00262E+007	VV	0.096	1	100.208	111TRICHLOROETHANE
3.887	2.34472E+007	VV	0.106	1	99.333	CARBON TET.
4.211	1.78205E+007	VB	0.086	1	99.543	1,2-DICHLOROETHANE
5.331	3.08128E+007	BB	0.103	1	98.668	TRICHLOROETHENE
9.000	3.08363E+007	BB	0.082	1	99.297	TETRACHLOROETHENE
12.003	1.87049E+007	BB	0.058	1-R	97.199	1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
12	12.011	12.003	-0.1%

Matrix Spike/Surrogate Recovery Field Report

Analyst: TJS

File #: C:\HPCHEM\1\DATA\062095-3\001F0101.D

Instr. #: GC # 3

Method: 8010WAS.MTH

Date Collected: 6/20/95

Date Analyzed: 6/20/95

Sample Name: 50 ng std

W.O. #: 50 ng Std

Surrogate Recovery

Compound	ng	ng spiked	% Recovery	Low CL	High CL
1,4-DICHLOROBUTANE	57	50	115	80	120

Matrix Spike

Compound	ng	ng spiked	% Recovery	Low CL	High CL
VINYL CHLORIDE	56	50	112	75	125
1,1 DICHLOROETHENE	56	50	112	75	125
t-1,2-DICHLOROETHENE	57	50	114	75	125
1,1-DICHLOROETHANE	56	50	113	75	125
c-1,2-DICHLOROETHENE	56	50	112	75	125
111TRICHLOROETHANE	55	50	111	75	125
CARBON TET.	55	50	110	75	125
1,2-DICHLOROETHANE	55	50	110	75	125
TRICHLOROETHENE	56	50	112	75	125
TETRACHLOROETHENE	57	50	113	75	125

1/8
6.20.95
mg 72645

Field Report

PROJECT :	VacAir Alloys Division Frewsburg, New York Conestoga-Rovers & Associates, Inc. 2055 Niagara Falls Blvd. Niagara Falls, New York 14304
CLIENT:	
Sample ID:	method blank
GC Sample ID:	method blank
W.O. #:	0

Matrix:	WATER
Analyst:	TJS
File #:	002F0101.D
Instr. #:	GC # 3
Date Coll:	6/20/95
Date Analyzed:	6/20/95 9:50
Dilution Factor:	1
Method:	8010WAS.MTH

RESULTS:
EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/L	RESULT ug/L
VINYL CHLORIDE	1.0	ND
1,1 DICHLOROETHENE	1.0	ND
1,1,2-DICHLOROETHENE	1.0	ND
1,1-DICHLOROETHANE	1.0	ND
c-1,2-DICHLOROETHENE	1.0	ND
1,1,1-TRICHLOROETHANE	1.0	ND
CARBON TET.	1.0	ND
1,2-DICHLOROETHANE	1.0	ND
TRICHLOROETHENE	1.0	ND
TETRACHLOROETHENE	1.0	ND

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020 from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A. Office of Solid Waste and Emergency Response, Washington, D.C., November 1986. Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed
BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments:

Surrogate Recovery = 110 %

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Signed TJS 6/21/95

Reviewed may 27 1995

Matrix Spike/QC Std. Field Report

Analyst: TJS

File #: C:\HPCHEM1\DATA\062095-3\003F0101.D

Instr. #: GC # 3

Method: 8010WAS.MTH

Date Collected: 6/20/95

Date Analyzed: 6/20/95

Sample Name: QCCS Purge.A40ng

W.O. #: QCCS Purge.A 40 ng

Surrogate Recovery

Compound	ng	ng spiked	% Recovery	Low CL	High CL
1,4-DICHLOROBUTANE	52	50	104	80	120

QC Std. Recovery

Compound	ng	ng spiked	% Recovery	Low CL	High CL
1,1 DICHLOROETHENE	46	40	116	75	125
1,1-DICHLOROETHANE	42	40	106	75	125
CARBON TET.	41	40	103	75	125
TRICHLOROETHENE	40	40	100	75	125
TETRACHLOROETHENE	42	40	106	75	125

TJS
6-20-95

may 7 26 95

Matrix Spike/Surrogate Recovery Field Report

Analyst: TJS
 File #: C:\HPCHEM\1\DATA\062095-3\018F0101.D
 Instr. #: GC # 3
 Method: 8010WAS.MTH
 Date Collected: 6/20/95
 Date Analyzed: 6/20/95
 Sample Name: 50 ng Std
 W.O. #: 50 ng Std

Surrogate Recovery				
Compound	ng	spiked	Recovery %	
1,4-DICHLOROBUTANE	61	50	122 *	Low CL 80 High CL 120

Matrix Spike				
Compound	ng	spiked	Recovery %	
VINYL CHLORIDE	53	50	106	Low CL 75 High CL 125
1,1-DICHLOROETHENE	58	50	115	Low CL 75 High CL 125
t-1,2-DICHLOROETHENE	59	50	118	Low CL 75 High CL 125
1,1-DICHLOROETHANE	59	50	118	Low CL 75 High CL 125
c-1,2-DICHLOROETHENE	59	50	117	Low CL 75 High CL 125
1,1,1-TRICHLOROETHANE	57	50	114	Low CL 75 High CL 125
CARBON TET.	58	50	116	Low CL 75 High CL 125
1,2-DICHLOROETHANE	59	50	118	Low CL 75 High CL 125
TRICHLOROETHENE	60	50	120	Low CL 75 High CL 125
TETRACHLOROETHENE	58	50	116	Low CL 75 High CL 125

6.20.95
 7.26.95

Field Report

PROJECT: VacAir Alloys Division
Frewsburg, New York
CLIENT: Conestoga-Rovers & Associates, Inc.
2055 Niagara Falls Blvd.
Niagara Falls, New York 14304

Matrix: SOIL
Analyst: TJS
File #: 019F0101.D
Instr. #: GC # 3
Date Coll: 6/20/95
Date Analyzed: 6/20/95 16:43
Dilution Factor: 100
Method: 8010WAS.MTH
Sample Wt. (g): 5
MeOH Extract: Yes
MeOH Vol. (ml): 5
Extract Vol. (ml): 0.05

Sample ID: PDB-4B Dup
GC Sample ID: PDB-4B Dup 50 uL
W.O. #: 0

RESULTS:

EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	100.0	160.0
1,1 DICHLOROETHENE	100.0	ND
t-1,2-DICHLOROETHENE	100.0	ND
1,1-DICHLOROETHANE	100.0	ND
c-1,2-DICHLOROETHENE	100.0	3900.0
1,1,1-TRICHLOROETHANE	100.0	ND
CARBON TET.	100.0	ND
1,2-DICHLOROETHANE	100.0	ND
TRICHLOROETHENE	100.0	2000.0
TETRACHLOROETHENE	100.0	ND

Sample
Result ug/kg
200

RPD
22%

4100

5.0%

2100

4.9%

TJS
6-20-95

% Solids: 100
Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020
from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A.
Office of Solid Waste and Emergency Response, Washington, D.C., November 1986.
Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments: Surrogate Recovery = 125 % *
Duplicate analysis

Signed TJS 6-20-95

Reviewed mg 7-26-95

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Matrix Spike/Surrogate Recovery Field Report

Analyst: TJS
 File #: C:\HPCHEM\1\DATA\062095-3\020F0101.D
 Instr. #: GC # 3
 Method: 8010WAS.MTH
 Date Collected: 6/20/95
 Date Analyzed: 6/20/95
 Sample Name: PDB-1A MS 50 ng
 W.O. #: 0

Surrogate Recovery				
Compound	ng	spiked	Recovery	
1,4-DICHLOROBUTANE	47	50	93	
				Low CL 80
				High CL 120

Matrix Spike				
Compound	ng	spiked	Recovery	
VINYL CHLORIDE	53	50	106	
1,1-DICHLOROETHENE	53	50	106	
1,1,2-DICHLOROETHENE	59	50	119	
1,1-DICHLOROETHANE	55	50	110	
c-1,2-DICHLOROETHENE	91	50	183-1542 *	
1,1,1-TRICHLOROETHANE	53	50	107	
CARBON TET.	54	50	108	
1,2-DICHLOROETHANE	47	50	94	
TRICHLOROETHENE	57	50	114 96%	
TETRACHLOROETHENE	41	50	83	
				Low CL 75
				High CL 125

AS
 6-20-95
 mcs 7-26-95

Field Report

PROJECT: VacAir Alloys Division
Frewsburg, New York
CLIENT: Conestoga-Rovers & Associates, Inc.
2055 Niagara Falls Blvd.
Niagara Falls, New York 14304

Matrix: SOIL
Analyst: TJS
File #: 035F0101.D
Instr. #: GC # 3
Date Coll: 6/20/95
Date Analyzed: 6/20/95 22:37
Dilution Factor: 5
Method: 8010WAS.MTH
Sample Wt. (g): 1
MeOH Extract: No
MeOH Vol. (ml): 0
Extract Vol. (ml): 0

Sample ID: PDB-11A Dup
GC Sample ID: PDB-11A Dup 1.0
W.O. #: 0

RESULTS:

EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg	Sample Result ug/kg	RPD
VINYL CHLORIDE	5.0	ND		
1,1-DICHLOROETHENE	5.0	ND		
1,2-DICHLOROETHENE	5.0	ND		
1,1-DICHLOROETHANE	5.0	ND		
c-1,2-DICHLOROETHENE	5.0	24.0	27.0	12%
1,1,1-TRICHLOROETHANE	5.0	ND		
CARBON TET.	5.0	ND		
1,2-DICHLOROETHANE	5.0	ND		
TRICHLOROETHENE	5.0	260.0	260.0	0%
TETRACHLOROETHENE	5.0	ND		

7/5 6-21-95

% Solids: 100
Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020 from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A. Office of Solid Waste and Emergency Response, Washington, D.C., November 1986. Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments: Surrogate Recovery = 94 %
Duplicate analysis

Signed TJS 6-21-95

Reviewed May 7 1995

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Matrix Spike/Surrogate Recovery Field Report

Analyst: TJS
 File #: C:\HPCHEM\1\DATA\062095-3\036F0101.D
 Instr. #: GC # 3
 Method: 8010WAS.MTH
 Date Collected: 6/20/95
 Date Analyzed: 6/21/95
 Sample Name: PDB-11A MS 50 ng
 W.O. #: 0

Surrogate Recovery				
Compound	ng	spiked	Recovery	
1,4-DICHLOROBUTANE	46	50	92	
				Low CL 80
				High CL 120

Matrix Spike				
Compound	ng	spiked	Recovery	
VINYL CHLORIDE	47	50	95	
1,1-DICHLOROETHENE	48	50	96	
1,1,2-DICHLOROETHENE	51	50	101	
1,1-DICHLOROETHANE	50	50	100	
c-1,2-DICHLOROETHENE	50	50	106	
1,1,1-TRICHLOROETHANE	50	50	99	
CARBON TET.	48	50	96	
1,2-DICHLOROETHANE	49	50	98	
TRICHLOROETHENE	50	50	846	
TETRACHLOROETHENE	45	50	89	
				Low CL 75
				High CL 125

93 C-24-95
 M477-2631

Matrix Spike/Surrogate Recovery Field Report

Analyst: TJS

File #: C:\HPCHEM\1\DATA\062095-3\037F0101.D

Instr. #: GC # 3

Method: 8010WAS.MTH

Date Collected: 6/20/95

Date Analyzed: 6/21/95

Sample Name: 50 ng std

W.O. #: 50 ng Std

Surrogate Recovery

Compound	ng	ng spiked	% Recovery	Low CL	High CL
1,4-DICHLOROBUTANE	48	50	95	80	120

Matrix Spike

Compound	ng	ng spiked	% Recovery	Low CL	High CL
VINYL CHLORIDE	48	50	96	75	125
1,1 DICHLOROETHENE	49	50	98	75	125
t-1,2-DICHLOROETHENE	52	50	103	75	125
1,1-DICHLOROETHANE	52	50	103	75	125
c-1,2-DICHLOROETHENE	51	50	103	75	125
111TRICHLOROETHANE	50	50	101	75	125
CARBON TET.	50	50	100	75	125
1,2-DICHLOROETHANE	50	50	99	75	125
TRICHLOROETHENE	60	50	120	75	125
TETRACHLOROETHENE	49	50	98	75	125

TJS
6-21-95

May 7 2005

Field Report

PROJECT :	VacAir Alloys Division Frewsburg, New York
CLIENT:	Conestoga-Rovers & Associates, Inc. 2055 Niagara Falls Blvd. Niagara Falls, New York 14304
Sample ID:	method blank
GC Sample ID:	method blank
W.O. #:	0
Matrix:	WATER
Analyst:	TJS
File #:	038F0101.D
Instr. #:	GC # 3
Date Coll:	6/20/95
Date Analyzed:	6/20/95 23:43
Dilution Factor:	1
Method:	8010WAS.MTH

RESULTS:

EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/L	RESULT ug/L
VINYL CHLORIDE	1.0	ND
1,1 DICHLOROETHENE	1.0	ND
1,1,2-DICHLOROETHENE	1.0	ND
1,1-DICHLOROETHANE	1.0	ND
c-1,2-DICHLOROETHENE	1.0	ND
1,1,1-TRICHLOROETHANE	1.0	ND
CARBON TET.	1.0	ND
1,2-DICHLOROETHANE	1.0	ND
TRICHLOROETHENE	1.0	2.0 *
TETRACHLOROETHENE	1.0	ND

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020 from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A. Office of Solid Waste and Emergency Response, Washington, D.C., November 1986. Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed
BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments:

Surrogate Recovery = 98 %

Signed 6-24-95

Commonwealth Analytical
Mobile Laboratory
(413)572-3200

Reviewed may 7 2095

Quality Control Analyses

6/21/95

Matrix Spike/Surrogate Recovery Field Report

Analyst: TJS

File #: C:\HPCHEM\1\DATA\062195-3\001F0101.D

Instr. #: GC # 3

Method: 8010WAS.MTH

Date Collected: 6/21/95

Date Analyzed: 6/21/95

Sample Name: 50 ng std

W.O. #: 50 ng Std

Surrogate Recovery

Compound	ng	ng spiked	% Recovery	Low CL	High CL
1,4-DICHLOROBUTANE	49	50	97	80	120

Matrix Spike

Compound	ng	ng spiked	% Recovery	Low CL	High CL
VINYL CHLORIDE	49	50	99	75	125
1,1 DICHLOROETHENE	51	50	102	75	125
t-1,2-DICHLOROETHENE	52	50	104	75	125
1,1-DICHLOROETHANE	52	50	105	75	125
c-1,2-DICHLOROETHENE	52	50	105	75	125
111TRICHLOROETHANE	53	50	105	75	125
CARBON TET.	52	50	104	75	125
1,2-DICHLOROETHANE	53	50	105	75	125
TRICHLOROETHENE	54	50	108	75	125
TETRACHLOROETHENE	52	50	104	75	125

TJS
6-21-95
MAY 7 2695

Matrix Spike/QC Std. Field Report

Analyst: TJS
 File #: C:\HPCHEM\1\DATA\062195-3\002F0101.D
 Instr. #: GC # 3
 Method: 8010WAS.MTH
 Date Collected: 6/21/95
 Date Analyzed: 6/21/95
 Sample Name: QCCS Purge.A40ng
 W.O. #: QCCS Purge.A 40 ng

Surrogate Recovery

Compound	ng	spiked	% Recovery	Low CL	High CL
1,4-DICHLOROBUTANE	51	50	102	80	120

QC Std. Recovery

Compound	ng	spiked	% Recovery	Low CL	High CL
1,1-DICHLOROETHENE	43	40	108	75	125
1,1-DICHLOROETHANE	42	40	105	75	125
CARBON TET.	42	40	104	75	125
TRICHLOROETHENE	49	40	122	75	125
TETRACHLOROETHENE	43	40	106	75	125

JS
 6-21-95
 m/172645

Field Report

PROJECT: VacAir Alloys Division
Frewsburg, New York
CLIENT: Conestoga-Rovers & Associates, Inc.
2055 Niagara Falls Blvd.
Niagara Falls, New York 14304

Matrix: SOIL
Analyst: TJS
File #: 007F0101.D
Instr. #: GC # 3
Date Coll: 6/20/95
Date Analyzed: 6/21/95 10:19
Dilution Factor: 100
Method: 8010WAS.MTH
Sample Wt. (g): 5
MeOH Extract: Yes
MeOH Vol. (ml): 5
Extract Vol. (ml): 0.05

Sample ID: PDB-11B Dup
GC Sample ID: PDB-11B Dup 50uL
W.O. #: 0

RESULTS:

EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	100.0	ND
1,1 DICHLOROETHENE	100.0	ND
t-1,2-DICHLOROETHENE	100.0	ND
1,1-DICHLOROETHANE	100.0	ND
c-1,2-DICHLOROETHENE	100.0	BQL
1,1,1-TRICHLOROETHANE	100.0	ND
CARBON TET.	100.0	ND
1,2-DICHLOROETHANE	100.0	ND
TRICHLOROETHENE	100.0	1000.0
TETRACHLOROETHENE	100.0	ND

Sample
Result ug/kg

RFD

BQL (100x LIL)

NA

910

9.4%

TJS
6-21-95

% Solids: 100
Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020
from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A.
Office of Solid Waste and Emergency Response, Washington, D.C., November 1986.
Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments: Surrogate Recovery = 113 %
Duplicate analysis

Signed TJS 6-21-95

Reviewed may 7 1995

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT :

Vacair Alloys Division
Frewsburg, New York

CLIENT:

Conestoga-Rovers & Associates, Inc.
2055 Niagara Falls Blvd.
Niagara Falls, New York 14304

Sample ID:
GC Sample ID:
W.O. #:

method blank
method blank
0

RESULTS:
EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/L	RESULT ug/L
VINYL CHLORIDE	1.0	ND
1,1 DICHLOROETHENE	1.0	ND
1,1,2-DICHLOROETHENE	1.0	ND
1,1-DICHLOROETHANE	1.0	ND
c-1,2-DICHLOROETHENE	1.0	ND
1,1,1-TRICHLOROETHANE	1.0	ND
CARBON TET.	1.0	ND
1,2-DICHLOROETHANE	1.0	ND
TRICHLOROETHENE	5.0	ND
TETRACHLOROETHENE	1.0	ND

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020 from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A. Office of Solid Waste and Emergency Response, Washington, D.C., November 1986. Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed
BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments:

Surrogate Recovery = 106 %

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Signed

6-28-95

Reviewed

6-28-95

Matrix:

Analyst:

TJS

File #:

008F0101.D

Instr. #:

GC # 3

Date Coll:

6/21/95

Date Analyzed:

6/21/95 10:41

Dilution Factor:

1

Method:

8010WAS.MTH

Matrix Spike/Surrogate Recovery Field Report

Analyst: TJS

File #: C:\HPCHEM1\DATA\062195-3\022F0101.D

Instr. #: GC # 3

Method: 8010WAS.MTH

Date Collected: 6/21/95

Date Analyzed: 6/21/95

Sample Name: 50 ng Std

W.O. #: 50 ng Std

Surrogate Recovery

Compound	ng	ng spiked	% Recovery	Low CL	High CL
1,4-DICHLOROBUTANE	59	50	118	80	120

Matrix Spike

Compound	ng	ng spiked	% Recovery	Low CL	High CL
VINYL CHLORIDE	52	50	105	75	125
1,1-DICHLOROETHENE	55	50	110	75	125
t-1,2-DICHLOROETHENE	57	50	114	75	125
1,1-DICHLOROETHANE	55	50	111	75	125
c-1,2-DICHLOROETHENE	55	50	110	75	125
1,1,1-TRICHLOROETHANE	54	50	108	75	125
CARBON TET.	56	50	111	75	125
1,2-DICHLOROETHANE	52	50	105	75	125
TRICHLOROETHENE	64	50	127 *	75	125
TETRACHLOROETHENE	58	50	116	75	125

TJS
6-21-95

may 7 2095

Matrix Spike/Surrogate Recovery Field Report

Analyst: TJS
 File #: C:\HPCHEM\1\DATA\062195-3\028F0101.D
 Instr. #: GC # 3
 Method: 8010WAS.MTH
 Date Collected: 6/21/95
 Date Analyzed: 6/21/95
 Sample Name: PDB-13B MS 50ng
 W.O. #: PDB-13B MS

Surrogate Recovery				
Compound	ng	spiked	Recovery %	
1,4-DICHLOROBUTANE	49	50	98	
				Low CL 80
				High CL 120

Matrix Spike				
Compound	ng	spiked	Recovery %	
VINYL CHLORIDE	46	50	92	
1,1-DICHLOROETHENE	48	50	96	
1,1,2-DICHLOROETHENE	49	50	99	
1,1-DICHLOROETHANE	48	50	96	
c-1,2-DICHLOROETHENE	52	50	104	
1,1,1-TRICHLOROETHANE	47	50	94	
CARBON TET.	48	50	95	
1,2-DICHLOROETHANE	45	50	91	
TRICHLOROETHENE	98	50	196	
TETRACHLOROETHENE	48	50	96	
				Low CL 75
				High CL 125

JS
 6-22-95
 MAY 17 1995

Field Report

PROJECT: VacAir Alloys Division
Frewsburg, New York
CLIENT: Conestoga-Rovers & Associates, Inc.
2055 Niagara Falls Blvd.
Niagara Falls, New York 14304

Matrix: SOIL
Analyst: TJS
File #: 029F0101.D
Instr. #: GC # 3
Date Coll: 6/21/95
Date Analyzed: 6/21/95 18:29
Dilution Factor: 100
Method: 8010WAS.MTH
Sample Wt. (g): 5
MeOH Extract: Yes
MeOH Vol. (ml): 5
Extract Vol. (ml): 0.05

Sample ID: PDB-14A Dup
GC Sample ID: PDB-14A Dup 100X
W.O. #: 0

RESULTS:

EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	100.0	ND
1,1-DICHLOROETHENE	100.0	ND
t-1,2-DICHLOROETHENE	100.0	ND
1,1-DICHLOROETHANE	100.0	ND
c-1,2-DICHLOROETHENE	100.0	120.0
1,1,1-TRICHLOROETHANE	100.0	ND
CARBON TET.	100.0	ND
1,2-DICHLOROETHANE	100.0	ND
TRICHLOROETHENE	500.0	630.0
TETRACHLOROETHENE	100.0	ND

Sample
Result ug/kg

R.P.D

140

15%

870

32%

TS
6.22-95

% Solids: 100
Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020
from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A.
Office of Solid Waste and Emergency Response, Washington, D.C., November 1986.
Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments: Surrogate Recovery = 108 %
Duplicate analysis

Signed TS 6.22-95

Reviewed my 7.26.95

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Matrix Spike/Surrogate Recovery Field Report

Analyst: TJS
 File #: C:\HPCHEM\1\DATA\062195-3\030F0101.D
 Instr. #: GC # 3
 Method: 8010WAS.MTH
 Date Collected: 6/21/95
 Date Analyzed: 6/21/95
 Sample Name: 50 ng Std
 W.O. #: 50 ng Std

Surrogate Recovery				
Compound	ng	spiked	Recovery %	
1,4-DICHLOROBUTANE	56	50	113	
			Low CL	80
			High CL	120

Matrix Spike				
Compound	ng	spiked	Recovery %	
VINYL CHLORIDE	49	50	98	
1,1-DICHLOROETHENE	52	50	104	
1,1,2-DICHLOROETHENE	52	50	104	
1,1-DICHLOROETHANE	52	50	104	
c-1,2-DICHLOROETHENE	53	50	105	
1,1,1-TRICHLOROETHANE	52	50	104	
CARBON TET.	52	50	104	
1,2-DICHLOROETHANE	52	50	103	
TRICHLOROETHENE	54	50	108	
TETRACHLOROETHENE	53	50	106	
			Low CL	75
			High CL	125

6-22-95
 may 7-26-95

Field Report

PROJECT: VacAir Alloys Division
Frewsburg, New York
CLIENT: Conestoga-Rovers & Associates, Inc.
2055 Niagara Falls Blvd.
Niagara Falls, New York 14304

Matrix: SOIL
Analyst: TJS
File #: 031F0101.D
Instr. #: GC # 3
Date Coll: 6/21/95
Date Analyzed: 6/21/95 19:13
Dilution Factor: 1
Method: 8010WAS.MTH
Sample Wt. (g): 5
MeOH Extract: No
MeOH Vol. (ml): 0
Extract Vol. (ml): 0

Sample ID: method blank
GC Sample ID: method blank
W.O. #: 0

RESULTS:

EPA Method 8010/8020 Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/kg	RESULT ug/kg
VINYL CHLORIDE	1.0	ND
1,1 DICHLOROETHENE	1.0	ND
t-1,2-DICHLOROETHENE	1.0	ND
1,1-DICHLOROETHANE	1.0	ND
c-1,2-DICHLOROETHENE	1.0	ND
111TRICHLOROETHANE	1.0	ND
CARBON TET.	1.0	ND
1,2-DICHLOROETHANE	1.0	ND
TRICHLOROETHENE	5.0	ND
TETRACHLOROETHENE	1.0	ND

% Solids: 100
Soil results reported on wet weight basis.

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020 from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A. Office of Solid Waste and Emergency Response, Washington, D.C., November 1986. Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed

BQL = Detected below the minimum quantitation limit
B =Detected in the laboratory blank

Comments: Surrogate Recovery = 103 %

Signed TJS 6-22-95

Reviewed MAC 7-26-95

Commonwealth Analytical

Mobile Laboratory

(413)572-3200

Field Report

PROJECT :	VacAir Alloys Division Frewsburg, New York
CLIENT:	Conestoga-Rovers & Associates, Inc. 2055 Niagara Falls Blvd. Niagara Falls, New York 14304
Sample ID:	method blank
GC Sample ID:	method blank
W.O. #:	0
Matrix:	WATER
Analyst:	TJS
File #:	023F0101.D
Instr. #:	GC # 3
Date Coll:	6/21/95
Date Analyzed:	6/21/95 16:16
Dilution Factor:	1
Method:	8010WAS.MTH

EPA Method 8010/8020
Gas Chromatography for Volatile Organics

COMPOUND	DET. LIMIT ug/L	RESULT ug/L
VINYL CHLORIDE	1.0	ND
1,1 DICHLOROETHENE	1.0	ND
1,1,2-DICHLOROETHENE	1.0	ND
1,1-DICHLOROETHANE	1.0	ND
o-1,2-DICHLOROETHENE	1.0	ND
1,1,1-TRICHLOROETHANE	1.0	ND
CARBON TET.	1.0	ND
1,2-DICHLOROETHANE	1.0	ND
TRICHLOROETHENE	5.0	ND
TETRACHLOROETHENE	1.0	ND

RESULTS:

Notes:

Volatile Organic Compounds analyzed using EPA methods 8010/8020 from Test Methods for Evaluating Solid Waste, SW 846, U.S. E.P.A. Office of Solid Waste and Emergency Response, Washington, D.C., November 1986. Field report is preliminary until reviewed and signed.

ND = Not Detected
NA = Not Analyzed
BQL = Detected below the minimum quantitation limit
B = Detected in the laboratory blank

Comments:

Surrogate Recovery = 116 %

Commonwealth Analytical

Mobile Laboratory

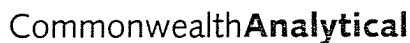
(413)572-3200

Signed 6-21-95

Reviewed May 17, 1995

SECTION 4.0

Field Notes & Chain of Custody Forms

[illegible]



Commonwealth Analytical

Conestoga-Rovers & Associates/VacAir Alloys, Frewsburg, NY
Mobile laboratory field TCE results
June 21, 1995

Sample ID	Date Coll.	Date Analyzed	Dilution	TCE result (ug/kg wet weight)
PDB-13A	6/21/95	6/21/95	-	32 ug/kg
PDB-13B	6/21/95	6/21/95	10 X	140 ug/kg
PDB-14A	6/21/95	6/21/95	100 X	700 ug/kg
PDB-14B	6/21/95	6/21/95	100 X	870 ug/kg
PDB-14C	6/21/95	6/21/95	-	5.3 ug/kg
PDB-10B	6/21/95	6/21/95	1000 X	55,000 ug/kg
PDB-10C	6/21/95	6/21/95	1000 X	21,000 ug/kg
PDB-15A	6/21/95	6/21/95	-	< 5.0 ug/kg
PDB-15B	6/21/95	6/21/95	-	< 5.0 ug/kg
PDB-16A	6/21/95	6/21/95	-	< 5.0 ug/kg
PDB-16B	6/21/95	6/21/95	-	< 5.0 ug/kg

Results are reported on a wet weight basis.

Westfield Executive Park • 53 Southampton Road • Westfield, MA 01085-5308 • Tel 413-572-3200 • Fax 413-572-3215
12020 Sunrise Valley Drive • Suite 100 • Reston, VA 22091-3429 • Tel 703-391-2770 • Fax 703-391-2766
CRA62195.XLS
Drinking Water • Wastewater • Hazardous Waste • Toxicity Testing • Mobile Laboratory
Division of Tighe & Bond, Inc

CHAIN OF CUSTODY RECORD

cc: P. McHatten

CRA

CONESTOGA-ROVERS & ASSOCIATES
2055 Niagara Falls Blvd. Suite Three
Niagara Falls, NY 14304 (716)297-6150

SHIPPED TO (Laboratory Name):

(TRANSFERRED ON-SITE)

COMMONWEALTH ENV.

REFERENCE NUMBER: 2326

VACAIR AUTO'S PREDESIGN

SOIL SAMPLING

SAMPLER'S
SIGNATURE: *[Signature]*

PRINTED
NAME: Douglas J. OSCAL

PARAMETERS
10E

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	CONTAINERS	PARAMETERS	REMARKS
	6/24/95	0945	PDB-1A	Soil	1	X	
		1000	PDB-2A		1	X	
		1025	PDB-3A		1	X	
		1040	PDB-3B		1	X	
		1100	PDB-4A		1	X	
		1110	PDB-4B		1	X	
		1130	PDB-5A		1	X	
		1155	PDB-5B		1	X	
		1215	PDB-6A		1	X	
		1235	PDB-6B		1	X	
		1420	PDB-7A		1	X	
		1445	PDB-8A		1	X	
		1510	PDB-9A		1	X	
		1530	PDB-10A		1	X	
		1600	PDB-11A		1	X	
		1610	PDB-11B		1	X	
		1635	PDB-12A		1	X	
TOTAL NUMBER OF CONTAINERS							HEALTH/CHEMICAL HAZARDS

RELINQUISHED BY: *[Signature]*

DATE: 6/24/95

RECEIVED BY: *[Signature]*

DATE: 6/20/95

RELINQUISHED BY: *[Signature]*

DATE: 6/20/95

RECEIVED BY: *[Signature]*

DATE: 6/20/95

RELINQUISHED BY: *[Signature]*

DATE: 6/20/95

RECEIVED BY: *[Signature]*

DATE: 6/20/95

METHOD OF SHIPMENT:

WAY BILL No.

White
Yellow
Pink
Goldenrod

SAMPLE TEAM:

RECEIVED FOR LABORATORY BY:

Nº NF- 1746

DATE: TIME:

CHAIN OF CUSTODY RECORD

cc: P. McMurdo

SHIPPED TO (Laboratory Name):
(TEAS STEEL AND SITE)
CARBONUS ET AL. EDV.

REFERENCE NUMBER: 2326
 UAFHR PRE-DESIGNS
 Soil Samples

PRINTED
NAME:

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	No. CONTAINERS	REMARKS
62095	1700		PD3-30A	1	X	
62105	0805		PD3-13A	1	X	
62115	0825		PD3-13B	1	X	
			PD3-14A	1	X	
	0900		PD3-14B	1	X	
	0910		PD3-14C	1	X	
	0955		PD3-10B	1	X	
	1030		PD3-10C	1	X	
	1050		PD3-15A	1	X	
	1150		PD3-15B	1	X	
	1205		PD3-16A	1	X	
	1220		PD3-16B	1	X	
	1230					

TOTAL NUMBER OF CONTAINERS

HEALTH/CHEMICAL HAZARDS

RELINQUISHED BY:

DATE 4-15-87 21/95

RECEIVED BY:

DATE:

①

TIME:

②

TIME:

RELINQUISHED BY:

DATE:

RECEIVED BY:

DATE:

②

TIME:

③

TIME:

BEING ISSUED BY:

DATE:

RECEIVED BY:

DATE:

REMOVED BY: (3)

TIME:

4

TIME:

METHOD OF SHIPMENT:

WAY BILL No.

White	-Fully Executed Conv	SAMPLE TEAM:
-------	----------------------	--------------

RECEIVED FOR LABORATORY BY:

Yellow –Receiving Laboratory Copy

NE-1747

Pink
-Shipper Copy

DATE: _____ TIME: _____

Golden.

-Sampler Copy

SECTION 5.0

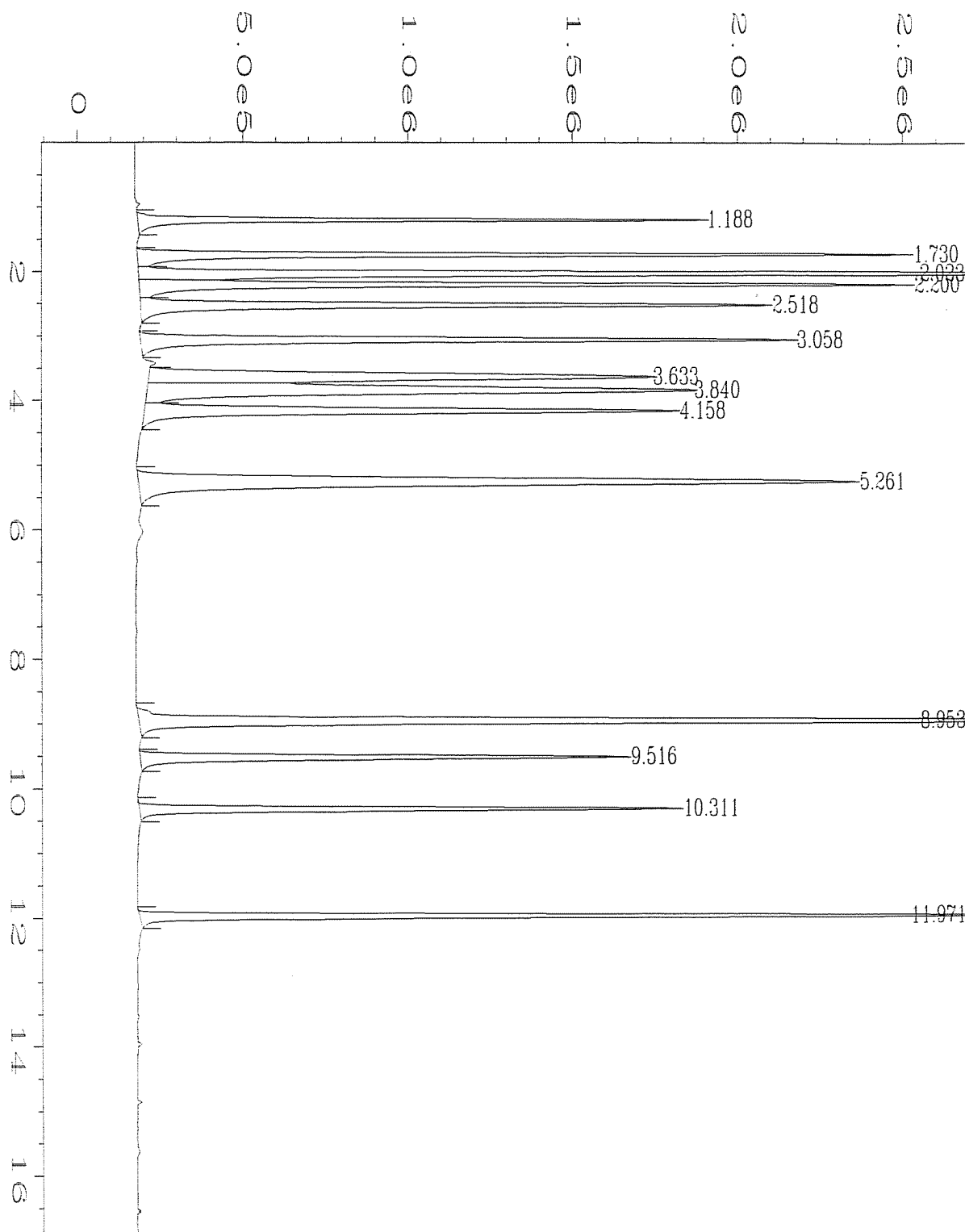
Chromatograms 6/20/95

Sample Log Table

Seq. Line	Vial Num.	Sample Name	Sample Amount	Multiplier	ISTD Amount	Cal. Line	Method Name	Inj/Vial
FRONT								
1	1	50 ng std					8010WAS	1
1	2	method blank					8010WAS	1
1	3	QCCS Purge.A40ng					8010WAS	1
1	4	PDB-1A 5.0 g					8010WAS	1
1	5	PDB-2A 5.0 g - new, low surr. rec.					8010WAS	1
1	6	PDB-3A 0.5 g - new w/ 100x dilution					8010WAS	1
1	7	PDB-3B 50 uL - new w/ 1000x dilution					8010WAS	1
1	✓8	PDB-2A 5.0 g					8010WAS	1
1	9	PDB-4A 5.0 g - new, low surr. rec.					8010WAS	1
1	10	PDB-4B 0.5 g - new & 100x dilution					8010WAS	1
1	11	PDB-5A 5.0 g - new, low surr. rec.					8010WAS	1
1	12	PDB-5B 50 uL - new w/ 500x dilution					8010WAS	1
1	✓13	PDB-4A 5.0 g					8010WAS	1
1	✓14	PDB-4B 50 uL					8010WAS	1
1	✓15	PDB-5A 1.0 g					8010WAS	1
1	16	PDB-6A 2.5 g - new, low surr. rec.					8010WAS	1
1	17	PDB-6B 0.5 g - new & 100x dilution					8010WAS	1
1	18	50 ng Std					8010WAS	1
1	19	PDB-4B Dup 50 uL					8010WAS	1
1	20	PDB-1A MS 50 ng					8010WAS	1
1	✓21	PDB-3B 5.0 uL					8010WAS	1
1	✓22	PDB-5B 10 uL					8010WAS	1
1	✓23	PDB-6A 1.0 g					8010WAS	1
1	✓24	PDB-3A 50 uL					8010WAS	1
1	✓25	PDB-6B 50 uL					8010WAS	1
1	26	PDB-7A 5.0 g					8010WAS	1
1	27	PDB-8A 5.0 g					8010WAS	1
1	28	PDB-9A 5.0 g					8010WAS	1
1	29	PDB-10A 5.0 g					8010WAS	1
1	30	PDB-11A 1.0 g					8010WAS	1
1	31	blank					8010WAS	1
1	32	PDB-11B 1.0 g - new & 100x dilution					8010WAS	1
1	33	PDB-12A 1.0 g					8010WAS	1
1	34	PDB-30A 0.5 g					8010WAS	1
1	35	PDB-11A Dup 1.0					8010WAS	1
1	36	PDB-11A MS 50 ng					8010WAS	1
1	37	50 ng std					8010WAS	1
1	38	method blank					8010WAS	1
REAR								
1	51	50 ng Std					8020WAS	1
1	52	method blank					8020WAS	1
1	53	QCCS Purge.A40ng					8020WAS	1
1	54	PDB-1A 5.0 g					8020WAS	1
1	55	PDB-2A 5.0 g					8020WAS	1
1	56	PDB-3A 0.5 g					8020WAS	1
1	57	PDB-3B 50 uL					8020WAS	1
1	58	PDB-2A 5.0 g					8020WAS	1
1	59	PDB-4A 5.0 g					8020WAS	1
1	60	PDB-4B 0.5 g					8020WAS	1
1	61	PDB-5A 5.0 g					8020WAS	1
1	62	PDB-5B 50 uL					8020WAS	1

Sample Log Table

Seq. Vial	Sample	Line Num.	Name	Amount	Sample Multiplier	ISTD	Cal.	Amount Line	Method	Name	Vial
1	PDB-4A	63	5.0 g					8020WAS	1	8020WAS	1
1	PDB-4B	64	50 uL					8020WAS	1	8020WAS	1
1	PDB-5A	65	1.0 g					8020WAS	1	8020WAS	1
1	PDB-6A	66	2.5 g					8020WAS	1	8020WAS	1
1	PDB-6B	67	0.5 g					8020WAS	1	8020WAS	1
1	50 ng Std	68						8020WAS	1	8020WAS	1
1	PDB-4B Dup	69	50 uL					8020WAS	1	8020WAS	1
1	PDB-1A MS	70	50 ng					8020WAS	1	8020WAS	1
1	PDB-3B	71	5.0 uL					8020WAS	1	8020WAS	1
1	PDB-5B	72	10 uL					8020WAS	1	8020WAS	1
1	PDB-6A	73	1.0 g					8020WAS	1	8020WAS	1
1	PDB-3A	74	50 uL					8020WAS	1	8020WAS	1
1	PDB-6B	75	50 uL					8020WAS	1	8020WAS	1
1	PDB-7A	76	5.0 g					8020WAS	1	8020WAS	1
1	PDB-8A	77	5.0 g					8020WAS	1	8020WAS	1
1	PDB-9A	78	5.0 g					8020WAS	1	8020WAS	1
1	PDB-10A	79	5.0 g					8020WAS	1	8020WAS	1
1	PDB-11A	80	1.0 g					8020WAS	1	8020WAS	1
1	blank	81						8020WAS	1	8020WAS	1
1	PDB-11B	82	1.0 g					8020WAS	1	8020WAS	1
1	PDB-12A	83	1.0 g					8020WAS	1	8020WAS	1
1	PDB-30A	84	0.5 g					8020WAS	1	8020WAS	1
1	PDB-11A Dup	85	1.0					8020WAS	1	8020WAS	1
1	PDB-11A MS	86	50 ng					8020WAS	1	8020WAS	1
1	50 ng std	87						8020WAS	1	8020WAS	1
1	method blank	88						8020WAS	1	8020WAS	1



Data File Name	: C:\HPCHEM\1\DATA\062095-3\001F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 1
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: 50 ng std	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 20 Jun 95 09:28 AM	Analysis Method	: 8010WAS.MTH
Report Created on:	20 Jun 95 09:57 AM	Sample Amount	: 0
Last Recalib on	: 20 Jun 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\001F0101.D

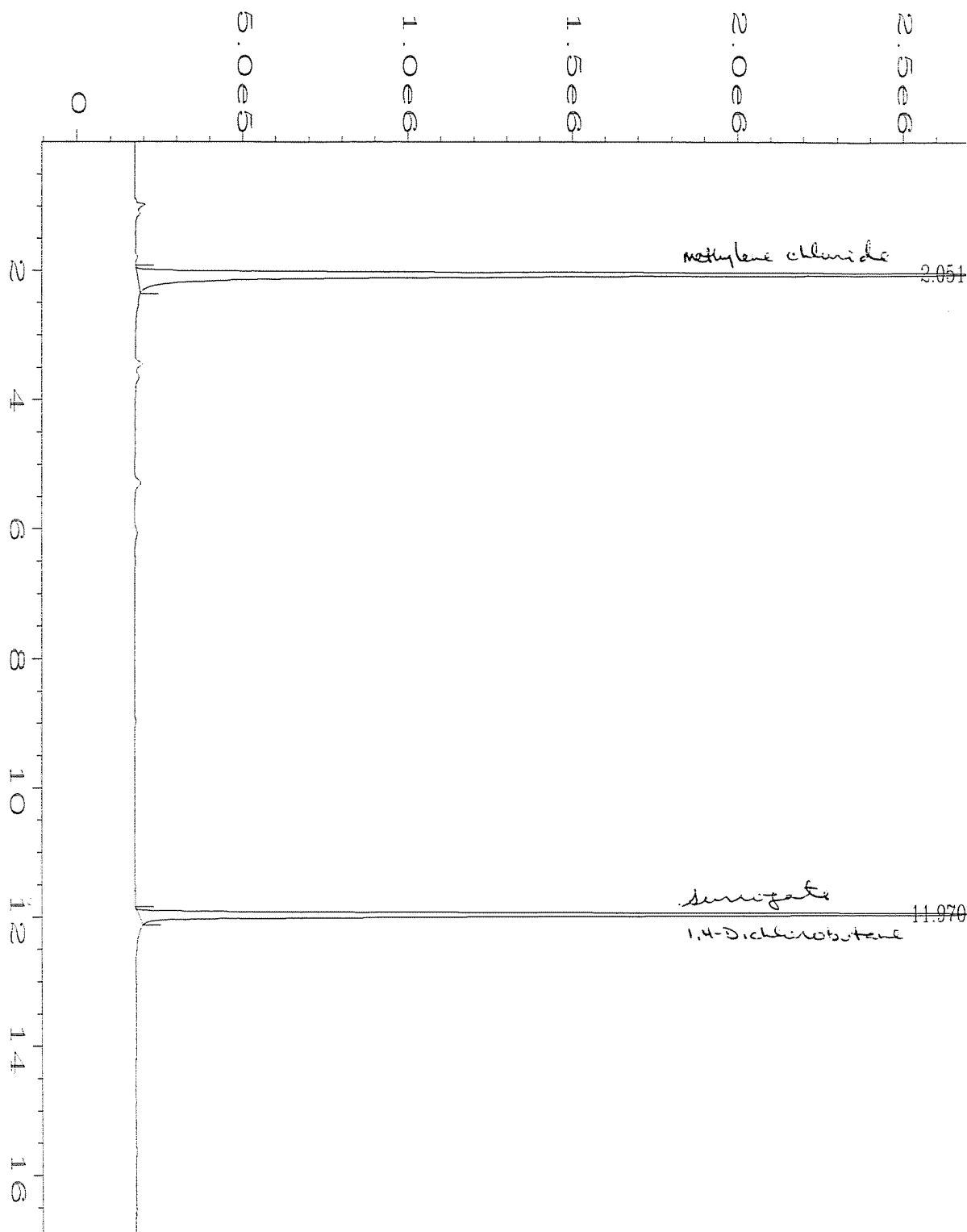
Operator : TJS
 Instrument : GC # 3
 Sample Name : 50 ng std
 Run Time Bar Code :
 Acquired on : 20 Jun 95 09:28 AM
 Report Created on: 20 Jun 95 09:57 AM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Analysis Method : 8010WAS.MTH
 Instrument Method: 8010WAS.MTH
 Sequence Line : 1
 Injection Number : 1
 Vial Number : 1
 Page Number : 1
 Sample Amount :
 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\001F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.188	6013804	BB	0.050	1	56.205	VINYL CHLORIDE
1.730	9595312	BV	0.060	1	56.223	1,1 DICHLOROETHENE
2.200	1.02532E+007	VV	0.065	1	57.054	t-1,2-DICHLOROETHENE
2.518	9945233	VB	0.076	1	56.352	1,1-DICHLOROETHANE
3.058	1.05882E+007	BB	0.080	1	56.054	c-1,2-DICHLOROETHENE
3.633	1.13511E+007	BV	0.113	1	55.261	1,1,1-TRICHLOROETHANE
3.840	1.33611E+007	VV	0.123	1	55.168	CARBON TET.
4.158	1.00584E+007	VB	0.093	1	55.032	1,2-DICHLOROETHANE
5.261	1.79255E+007	BB	0.126	1	55.866	TRICHLOROETHENE
8.953	1.81707E+007	BB	0.085	1	56.661	TETRACHLOROETHENE
11.971	1.11106E+007	BB	0.061	1-R	57.353	1,4-DICHLOROBUTANE

Time Reference Peak
 11
 Expected RT 12.015
 Actual RT 11.971
 Difference -0.4%

6-20-95
 mg 7.765



Data File Name	: C:\HPCHEM\1\DATA\062095-3\002F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 2
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: method blank	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 20 Jun 95 09:50 AM	Analysis Method	: 8010WAS.MTH
Report Created on:	20 Jun 95 10:10 AM	Sample Amount	: 0
Last Recalib on	: 20 Jun 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\002F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : method blank
 Run Time Bar Code :
 Acquired on : 20 Jun 95 09:50 AM
 Report Created on : 20 Jun 95 10:10 AM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 2
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\002F0101.D

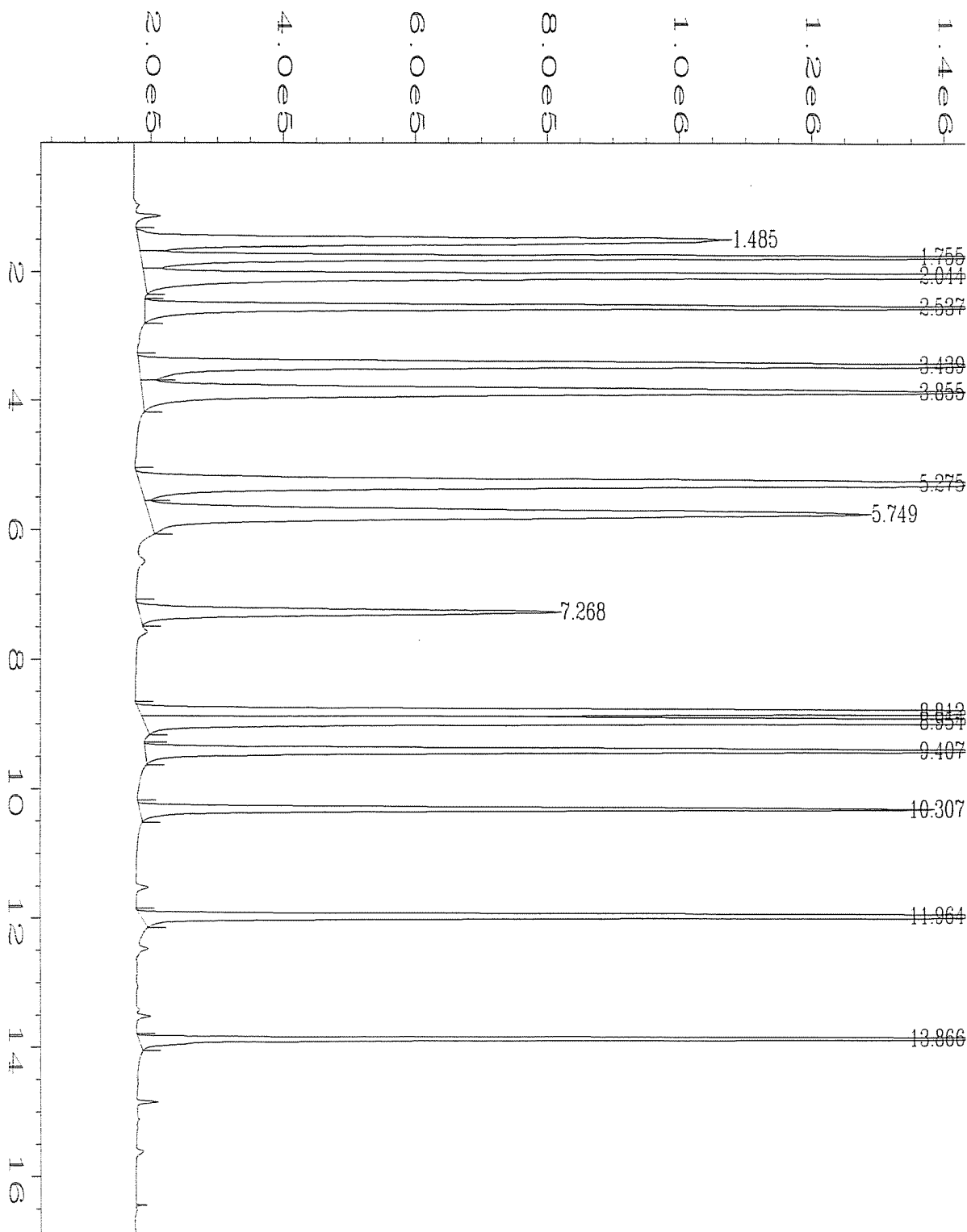
Ret Time	Area	Type	Width	Ref#	ng	Name
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1.210	*	not found			1	VINYL CHLORIDE
1.769	*	not found			1	1,1-DICHLOROETHENE
2.245	*	not found			1	t-1,2-DICHLOROETHENE
2.569	*	not found			1	1,1-DICHLOROETHANE
3.115	*	not found			1	c-1,2-DICHLOROETHENE
3.693	*	not found			1	1,1,1-TRICHLOROETHANE
3.906	*	not found			1	CARBON TET.
4.228	*	not found			1	1,2-DICHLOROETHANE
5.358	*	not found			1	TRICHLOROETHENE
9.013	*	not found			1	TETRACHLOROETHENE
11.970	1.06946E+007	BB	0.059	1-R	55.079	1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
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Not all calibrated peaks were found

6.235
 7.265



Data File Name	: C:\HPCHEM\1\DATA\062095-3\003F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 3
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: QCCS Purge.A40ng	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 20 Jun 95 10:12 AM	Analysis Method	: 8010WAS.MTH
Report Created on:	20 Jun 95 10:29 AM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\003F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : QCCS Purge.A40ng
 Run Time Bar Code :
 Acquired on : 20 Jun 95 10:12 AM
 Report Created on: 20 Jun 95 10:29 AM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 3
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\003F0101.D

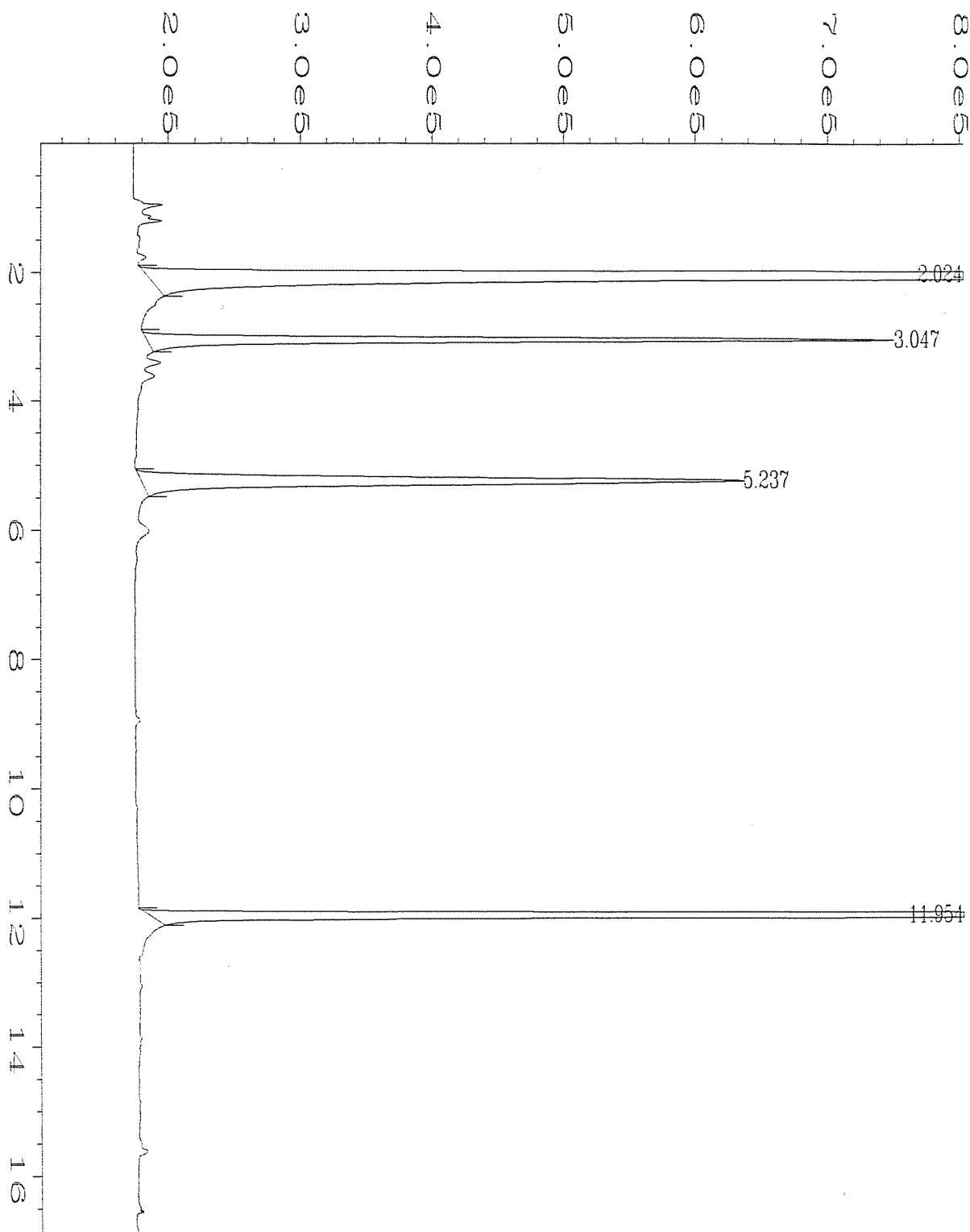
Ret Time	Area	Type	Width	Ref#	ng	Name
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1.210	* not found			1		VINYL CHLORIDE
1.755	7981974	VV	0.064	1	46.323	1,1 DICHLOROETHENE
2.245	* not found			1		t-1,2-DICHLOROETHENE
2.537	7572373	BB	0.074	1	42.470	1,1-DICHLOROETHANE
3.115	* not found			1		c-1,2-DICHLOROETHENE
3.693	* not found			1		1,1,1TRICHLOROETHANE
3.855	1.00524E+007	VB	0.119	1	41.040	CARBON TET.
4.228	* not found			1		1,2-DICHLOROETHANE
5.275	1.30349E+007	BV	0.123	1	40.034	TRICHLOROETHENE
8.954	1.38185E+007	VB	0.082	1	42.459	TETRACHLOROETHENE
11.964	1.01641E+007	BB	0.059	1-R	52.180	1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
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Not all calibrated peaks were found

ms 7.2645
 6.22.55



Data File Name	: C:\HPCHEM\1\DATA\062095-3\004F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 4
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-1A 5.0 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 20 Jun 95 11:04 AM	Analysis Method	: 8010WAS.MTH
Report Created on:	20 Jun 95 11:21 AM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\004F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-1A 5.0 g
 Run Time Bar Code :
 Acquired on : 20 Jun 95 11:04 AM
 Report Created on: 20 Jun 95 11:21 AM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 4
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

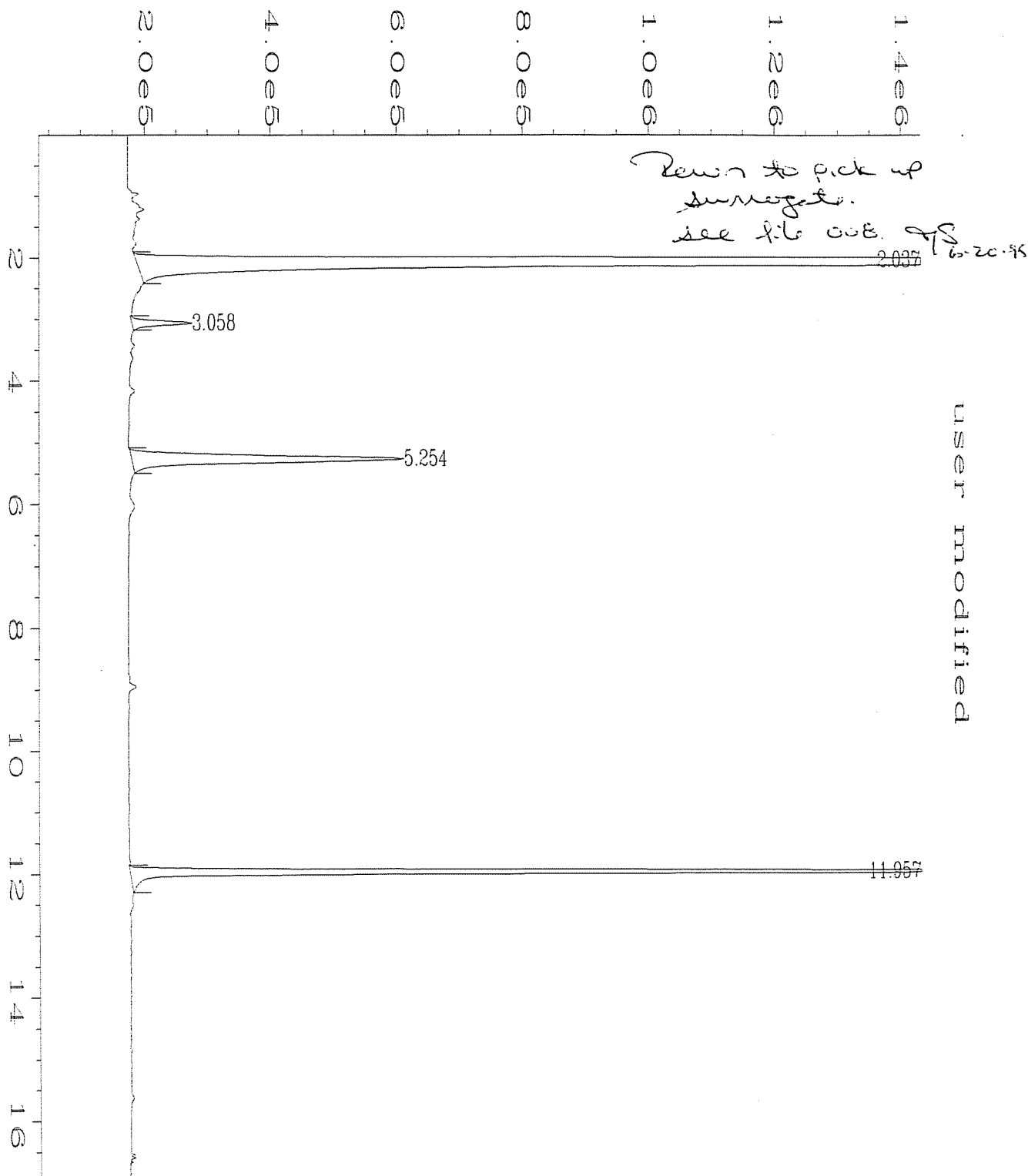
Sig. 1 in C:\HPCHEM\1\DATA\062095-3\004F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.210	*	not found	*	1		VINYL CHLORIDE
1.769	*	not found	*	1		1,1 DICHLOROETHENE
2.245	*	not found	*	1		t-1,2-DICHLOROETHENE
2.569	*	not found	*	1		1,1-DICHLOROETHANE
3.047	2918377	BB	0.076	1	14.080	c-1,2-DICHLOROETHENE
3.693	*	not found	*	1		1,1TRICHLOROETHANE
3.906	*	not found	*	1		CARBON TET.
4.228	*	not found	*	1		1,2-DICHLOROETHANE
5.237	3581947	BB	0.101	1	9.433	TRICHLOROETHENE
9.013	*	not found	*	1		TETRACHLOROETHENE
11.954	9493570	BB	0.052	1-R	48.515	1,4-DICHLOROBUTANE

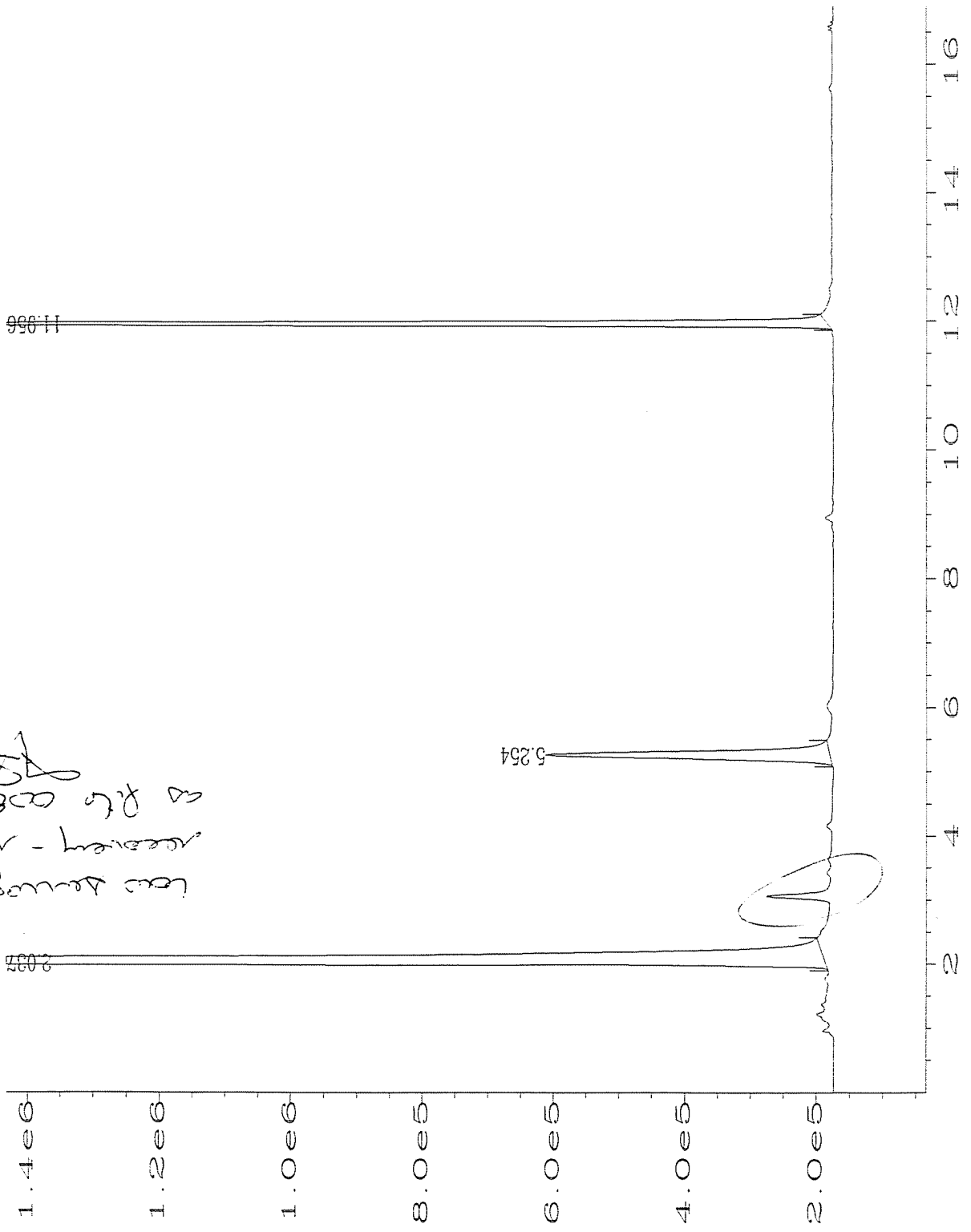
Time Reference Peak
 11
 Expected RT 12.015
 Actual RT 11.954
 Difference -0.5%

Not all calibrated peaks were found

6.20.95
 mg 7.2045



Data File Name	: C:\HPCHEM\1\DATA\062095-3\005F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 5
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-2A 5.0 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method	: 8010WAS.MTH
Acquired on	: 20 Jun 95 11:28 AM	Analysis Method	: 8010WAS.MTH
Report Created on:	: 20 Jun 95 11:48 AM	Sample Amount	: 0
Last Recalib on	: 20 Jun 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		



Data File Name : C:\HPCHEM\1\DATA\062095-3\005F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-2A 5.0 g
 Run Time Bar Code :
 Acquired on : 20 Jun 95 11:28 AM
 Report Created on : 20 Jun 95 11:45 AM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1

Page Number : 1
 Vial Number : 5
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.1
 Analysis Method : 8010WAS.M.H
 Sample Amount : 0
 ISTD Amount :

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\005F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 5
 Sample Name : PDB-2A 5.0 g Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 20 Jun 95 11:28 AM Instrument Method: 8010WAS.MTH
 Report Created on: 20 Jun 95 11:48 AM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 Jun 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\005F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.210	* not found *			1		VINYL CHLORIDE
1.769	* not found *			1		1,1 DICHLOROETHENE
2.245	* not found *			1		t-1,2-DICHLOROETHENE
2.569	* not found *			1		1,1-DICHLOROETHANE
3.058	484398 MM	0.085	1	0.760		c-1,2-DICHLOROETHENE
3.693	* not found *		1			111TRICHLOROETHANE
3.906	* not found *		1			CARBON TET.
4.228	* not found *		1			1,2-DICHLOROETHANE
5.254	3410305 BB	0.099	1	8.878		TRICHLOROETHENE
9.013	* not found *		1			TETRACHLOROETHENE
11.957	7222992 MM	0.066	1-R	36.105		1,4-DICHLOROBUTANE 7222

Time Reference Peak	Expected RT	Actual RT	Difference
11	12.015	11.957	-0.5%

cc = 80-120%

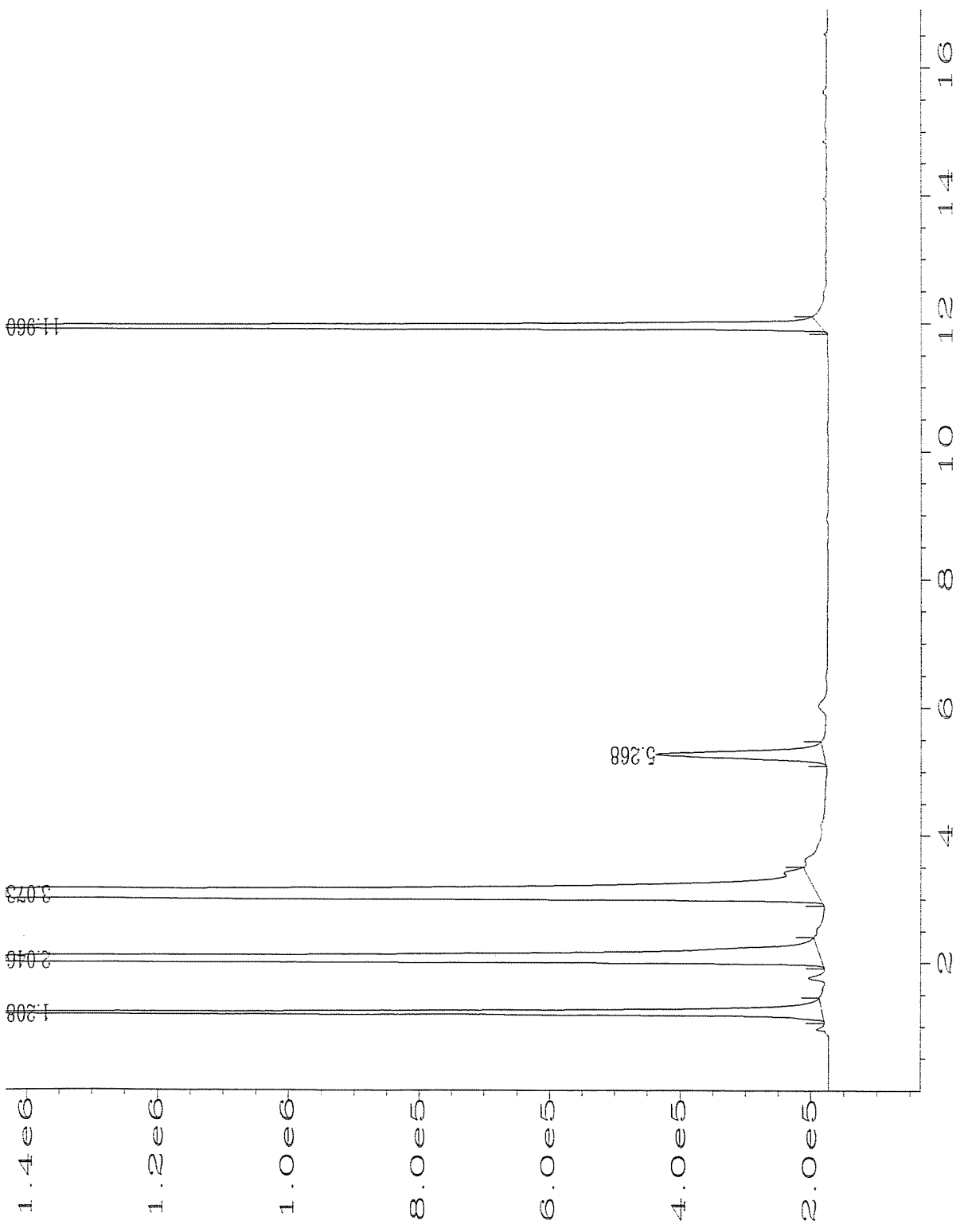
Not all calibrated peaks were found

User Modified

low surrogate recovery -
 seen as 8.6 carb.

7/6/95

Data File Name : C:\HPCHEM\1\DATA\062095-3\006F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-3A 0.5 g
 Run Time Bar Code :
 Acquired on : 20 Jun 95 11:50 AM
 Report Created on : 20 Jun 95 12:07 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 6
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.M
 Analysis Method : 8010WAS.M
 Sample Amount : 0
 ISTD Amount :



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\006F0101.D
 rator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 6
 Sample Name : PDB-3A 0.5 g Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 20 Jun 95 11:50 AM Instrument Method: 8010WAS.MTH
 Report Created on: 20 Jun 95 12:07 PM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 JUN 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\006F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.208	6708825	BB	0.055	1	62.917	VINYL CHLORIDE
1.769	* not found *			1		1,1 DICHLOROETHENE
2.245	* not found *			1		t-1,2-DICHLOROETHENE
2.569	* not found *			1		1,1-DICHLOROETHANE
3.073	5.887E+007	BB	0.083	1	320.279	c-1,2-DICHLOROETHENE
3.693	* not found *			1		111TRICHLOROETHANE
3.906	* not found *			1		CARBON TET.
4.228	* not found *			1		1,2-DICHLOROETHANE
5.268	1974340	BB	0.095	1	4.229	TRICHLOROETHENE
9.013	* not found *			1		TETRACHLOROETHENE
11.960	1.03239E+007	BB	0.060	1-R	53.053	1,4-DICHLOROBUTANE

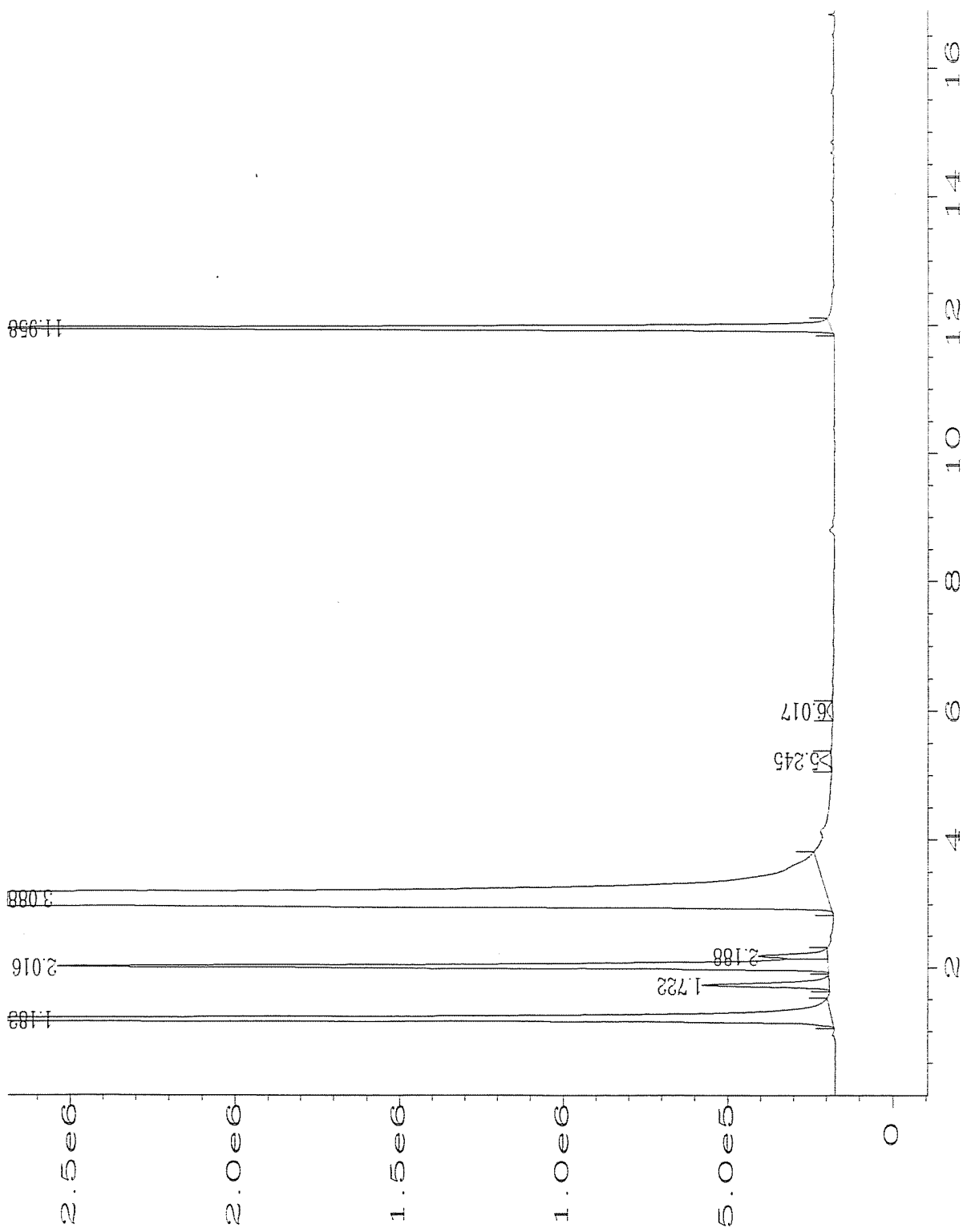
Time Reference Peak	Expected RT	Actual RT	Difference
11	12.015	11.960	-0.5%

Not all calibrated peaks were found

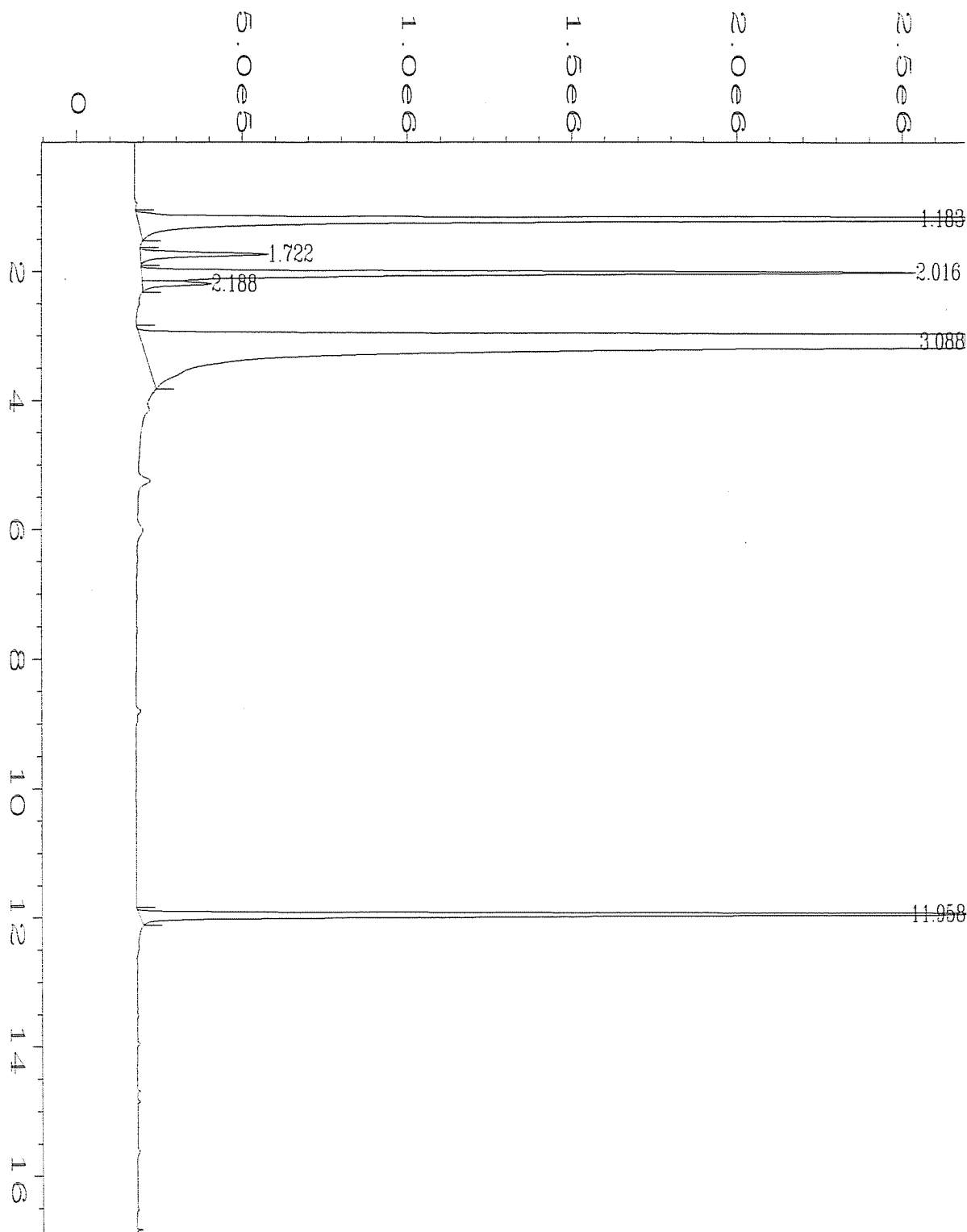
Handwritten signature
 6-20-95

mg 7-2695

user modified



Data File Name : C:\HPCHEM\1\DATA\062095-3\007F0101.D
Operator : TJS
Instrument : GC # 3
Sample Name : PDB-3B 50 uL
Run Time Bar Code :
Acquired on : 20 Jun 95 12:12 PM
Report Created on: 20 Jun 95 12:37 PM
Last Recalib on : 20 Jun 95 09:55 AM
Multiplier : 1
Page Number : 1
Vial Number : 7
Injection Number : 1
Sequence Line : 1
Instrument Method: 8010WAS.M
Analysis Method : 8010WAS.M
Sample Amount : 0
ISTD Amount :



Data File Name	: C:\HPCHEM\1\DATA\062095-3\007F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 7
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-3B 50 uL	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Required on	: 20 Jun 95 12:12 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	20 Jun 95 12:37 PM	Sample Amount	: 0
Last Recalib on	: 20 Jun 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\007F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-3B 50 uL
 Run Time Bar Code :
 Acquired on : 20 Jun 95 12:12 PM
 Report Created on: 20 Jun 95 12:37 PM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 7
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\007F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.183	2.61425E+007	BB	0.053	1	250.610	VINYL CHLORIDE
1.722	1.779469	BB	0.066	1	8.262	1,1 DICHLOROETHENE
2.188	930062	VB	0.064	1	3.104	1,1,2-DICHLOROETHENE
2.569	* not found	*		1		1,1-DICHLOROETHANE
3.088	1.62343E+008	BB	0.130	1	886.539	C-1,2-DICHLOROETHENE
3.693	* not found	*		1		1,1,1,1-TETRACHLOROETHANE
3.906	* not found	*		1		CARBON TET.
4.228	* not found	*		1		1,2-DICHLOROETHANE
5.245	279712	MM	0.130	1	-1.257	TRICHLOROETHENE
9.013	* not found	*		1		TETRACHLOROETHENE
11.958	1.11734E+007	BB	0.055	1-R	57.697	1,4-DICHLOROBUTANE

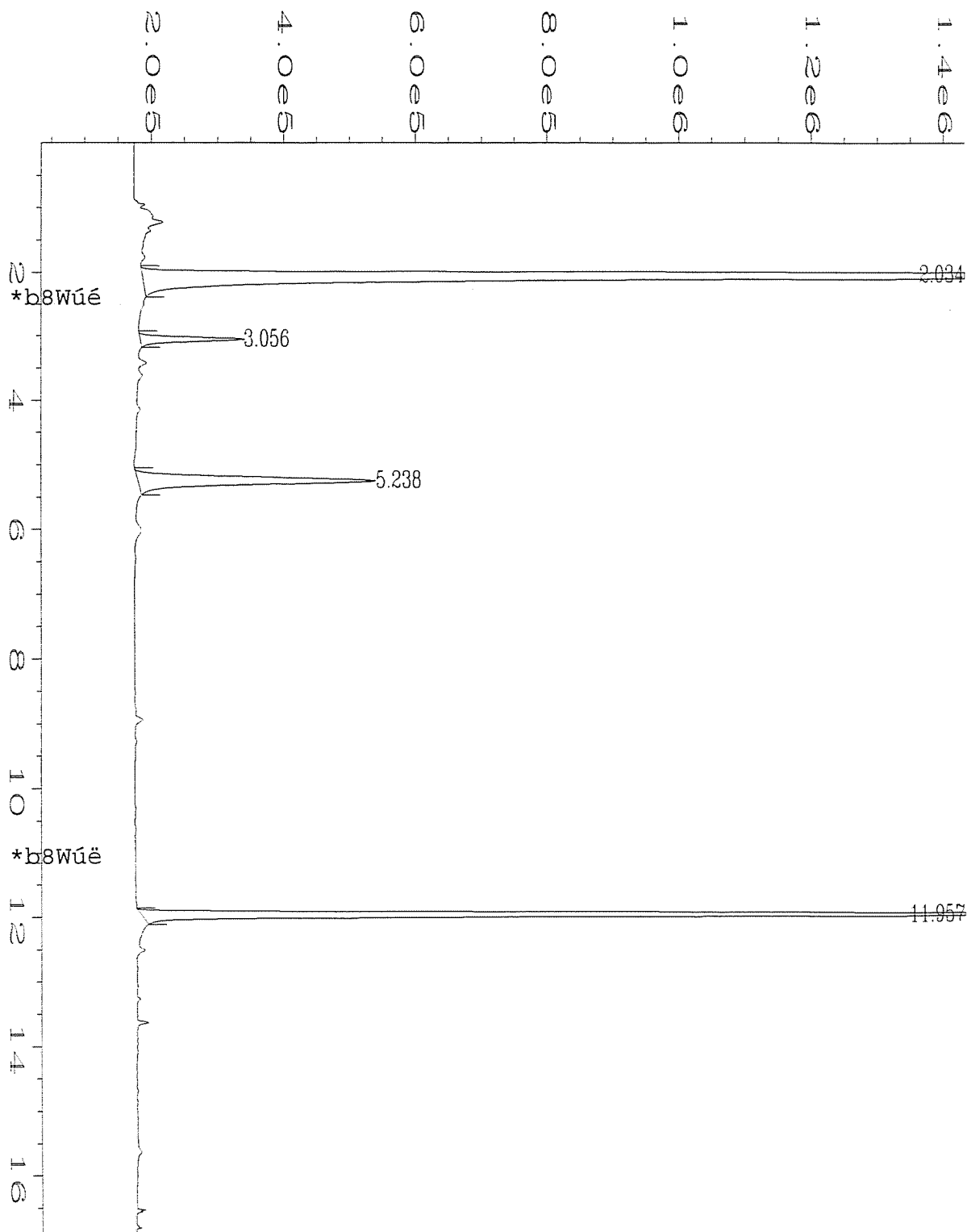
Time Reference Peak
 11
 Expected RT 12.015
 Actual RT 11.958
 Difference -0.5%

Not all calibrated peaks were found

User Modified

6.20.95

may 7.26.95



Data File Name	: C:\HPCHEM\1\DATA\062095-3\008F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 8
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-2A 5.0 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 20 Jun 95 12:39 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	20 Jun 95 12:56 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\008F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-2A 5.0 g
 Run Time Bar Code :
 Acquired on : 20 Jun 95 12:39 PM
 Report Created on : 20 Jun 95 12:56 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 8
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

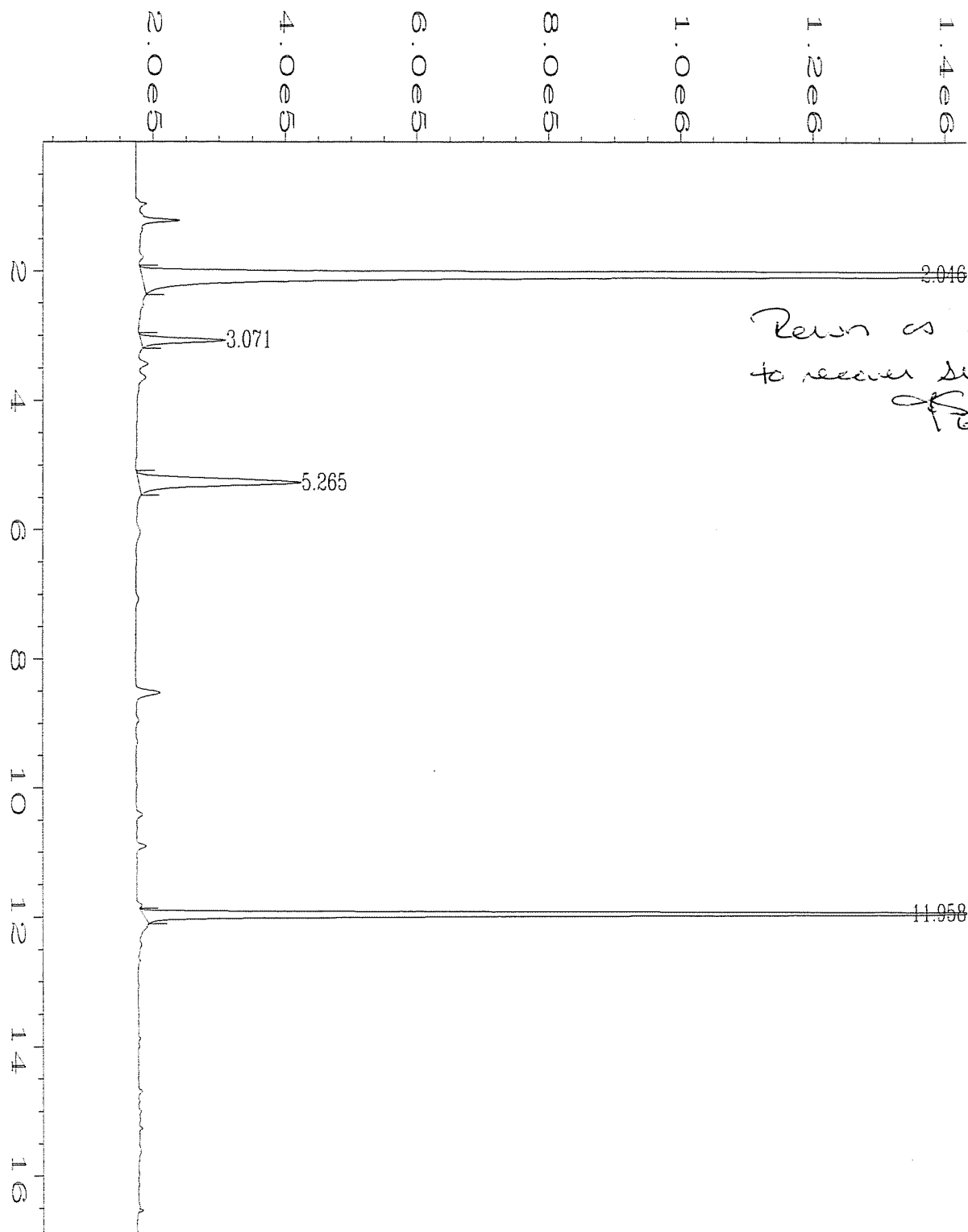
Sig. 1 in C:\HPCHEM\1\DATA\062095-3\008F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.210	* not found	*				VINYL CHLORIDE
1.769	* not found	*				1,1 DICHLOROETHENE
2.245	* not found	*				t-1,2-DICHLOROETHENE
2.569	* not found	*				1,1-DICHLOROETHANE
3.056	734187 BB	0.067	1			2.127 c-1,2-DICHLOROETHENE
3.693	* not found	*	1			1,1TRICHLOROETHANE
3.906	* not found	*	1			CARBON TET.
4.228	* not found	*	1			1,2-DICHLOROETHANE
5.238	2808996 BB	0.098	1			6.931 TRICHLOROETHENE
9.013	* not found	*	1			TETRACHLOROETHENE
11.957	8144244 BB	0.059	1-R			41.140 1,4-DICHLOROBUTANE

Time Reference Peak
 11
 Expected RT 12.015
 Actual RT 11.957
 Difference -0.5%

Not all calibrated peaks were found

6.2095
 May 7.26.95



Revised as file 013
to receive sample
6-20-95

Data File Name	: C:\HPCHEM\1\DATA\062095-3\009F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 9
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-4A 5.0 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 20 Jun 95 01:01 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	20 Jun 95 01:18 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\009F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-4A 5.0 g
 Run Time Bar Code :
 Acquired on : 20 Jun 95 01:01 PM
 Report Created on: 20 Jun 95 01:19 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 9
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

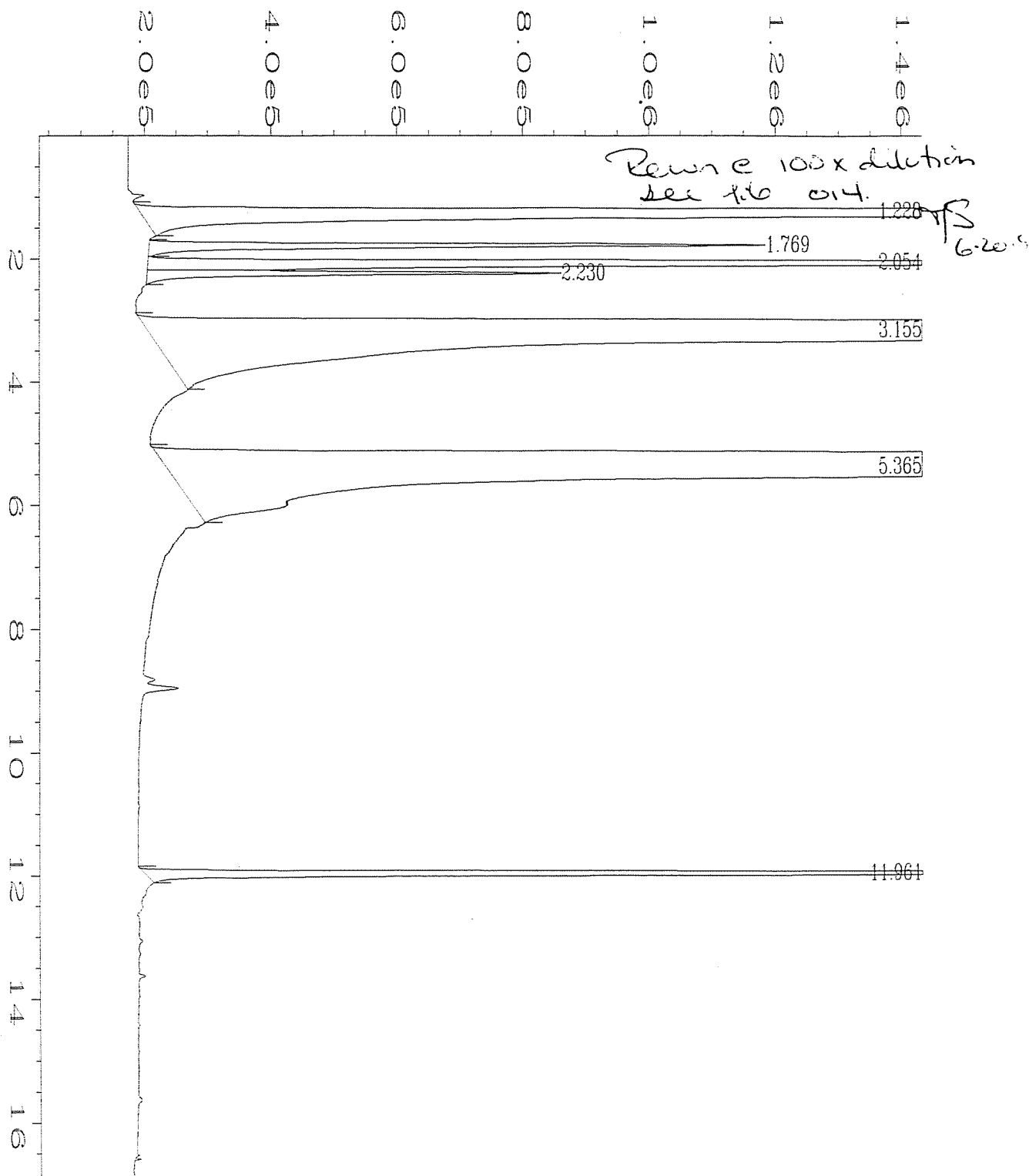
Sig. 1 in C:\HPCHEM\1\DATA\062095-3\009F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.210	*	not found	*	1		VINYL CHLORIDE
1.769	*	not found	*	1		1,1 DICHLOROETHENE
2.245	*	not found	*	1		t-1,2-DICHLOROETHENE
2.569	*	not found	*	1		1,1-DICHLOROETHANE
3.071	BB	625215	0.069	1	1.530	c-1,2-DICHLOROETHENE
3.693	*	not found	*	1		1,1TRICHLOROETHANE
3.906	*	not found	*	1		CARBON TET.
4.228	*	not found	*	1		1,2-DICHLOROETHANE
5.265	BB	1871090	0.097	1	3.895	TRICHLOROETHENE
9.013	*	not found	*	1		TETRACHLOROETHENE
11.958	BB	6316705	0.057	1-R	31.151	1,4-DICHLOROBUTANE

Time Reference Peak
 11
 Expected RT 12.015
 Actual RT 11.958
 Difference -0.5%

Not all calibrated peaks were found

Run as file 013 to
 recover sample
 6-20-95



Data File Name	: C:\HPCHEM\1\DATA\062095-3\010F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 10
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-4B 0.5 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method	: 8010WAS.MTH
Acquired on	: 20 Jun 95 01:23 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	: 20 Jun 95 01:40 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\010F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-4B 0.5 g
 Run Time Bar Code :
 Acquired on : 20 Jun 95 01:23 PM
 Report Created on: 20 Jun 95 01:40 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Sample Amount :
 STD Amount :
 Analysis Method : 8010WAS.MTH
 Instrument Method: 8010WAS.MTH
 Sequence Line : 1
 Injection Number : 1
 Vial Number : 10
 Page Number : 1

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\010F0101.D

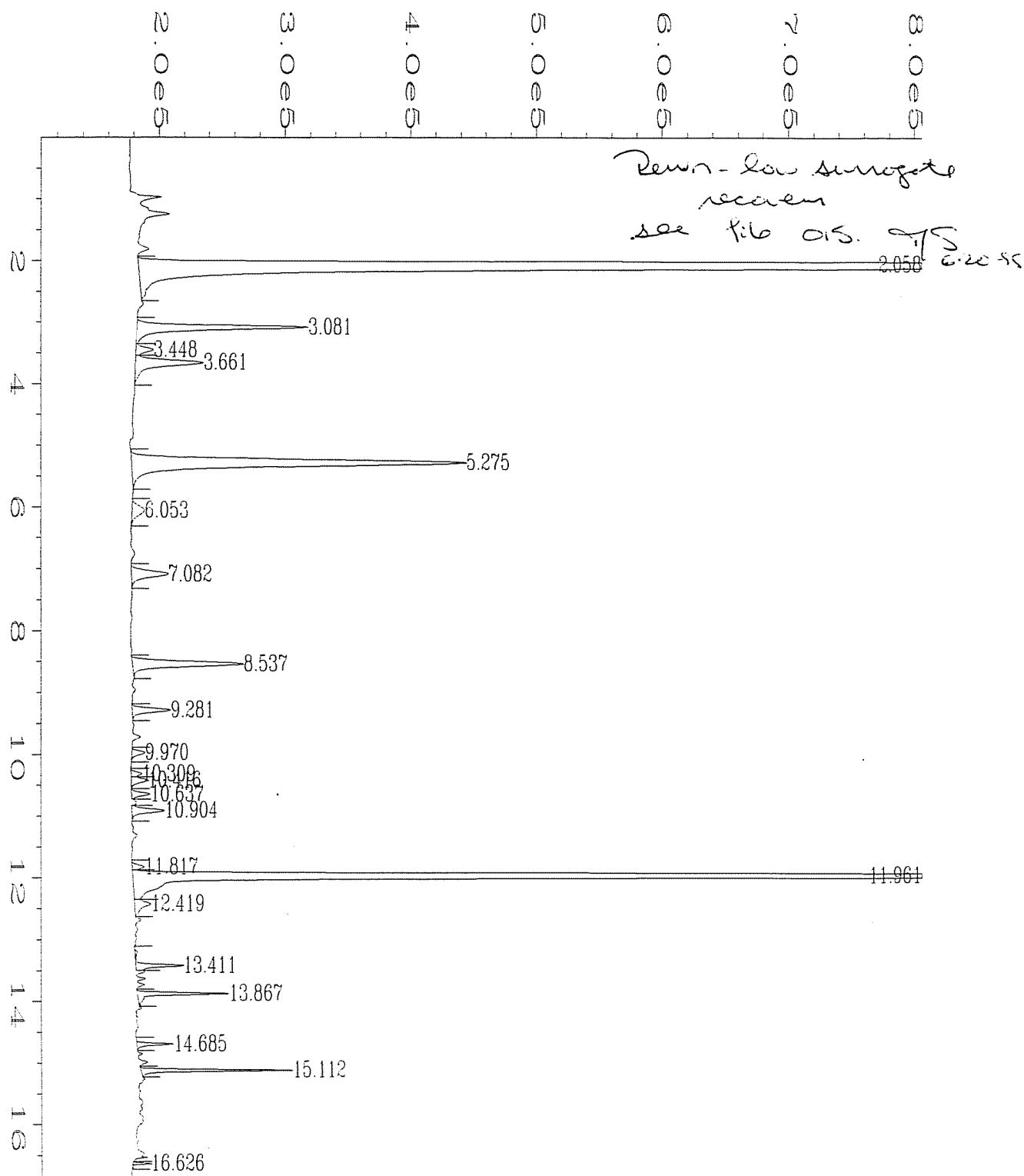
Ret Time Area Type Width Ref# Name

1.228	5.92054E+007	BB	0.069	1	569.936	VINYL CHLORIDE
1.769	4441776	BV	0.063	1	24.599	1,1 DICHLOROETHENE
2.230	2780712	VB	0.064	1	13.813	t-1,2-DICHLOROETHENE
2.569	*	not found	*	1		1,1-DICHLOROETHANE
3.155	2.19818E+008	BB	0.173	1	1201.078	c-1,2-DICHLOROETHENE
3.693	*	not found	*	1		1,1TRICHLOROETHANE
3.906	*	not found	*	1		CARBON TET.
4.228	*	not found	*	1		1,2-DICHLOROETHANE
5.365	2.63853E+008	BB	0.205	1	851.980	TRICHLOROETHENE
9.013	*	not found	*	1		TETRACHLOROETHENE
11.961	1.01515E+007	BB	0.058	1-R	52.111	1,4-DICHLOROBUTANE

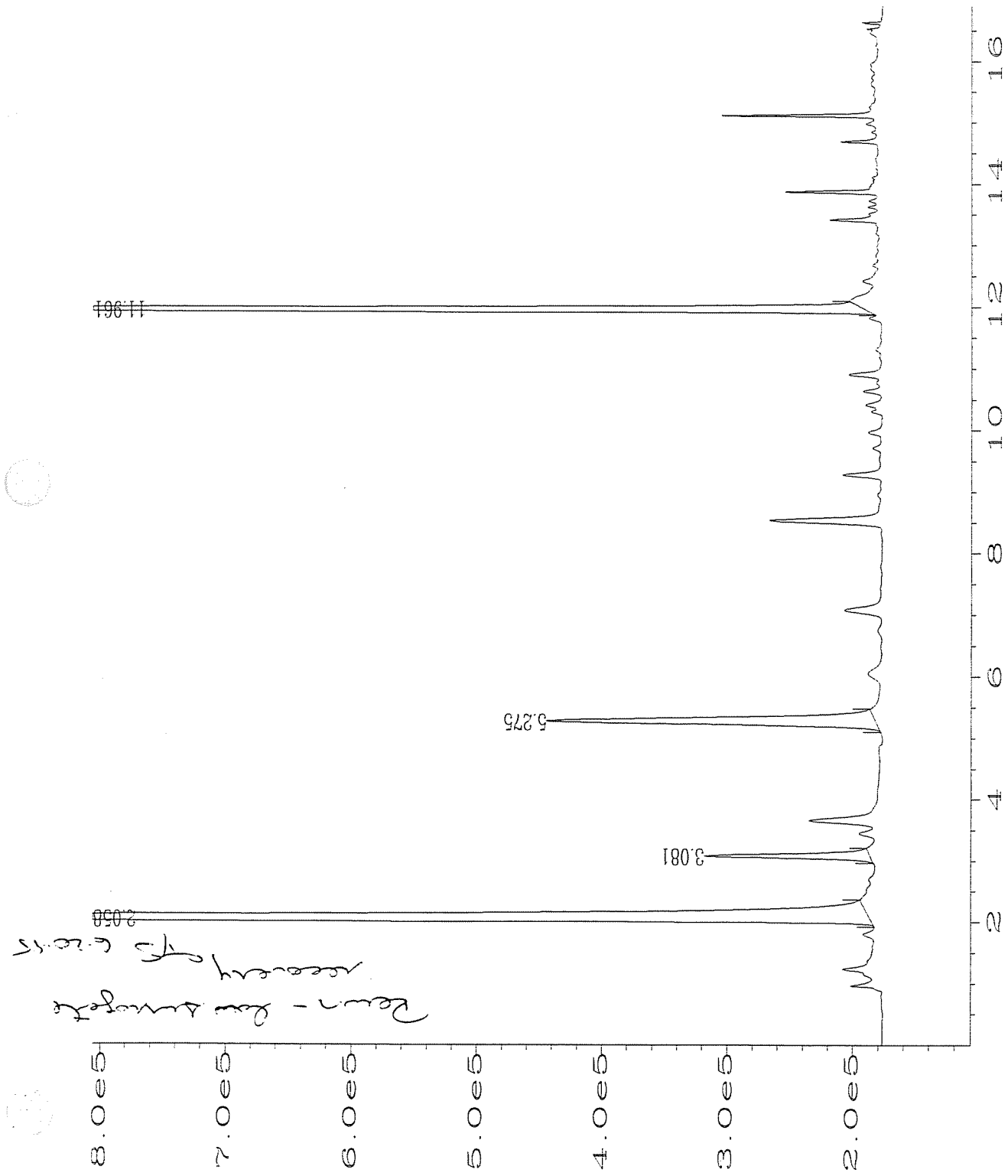
Time Reference Peak
 11
 Expected RT 12.015
 Actual RT 11.961
 Difference -0.4%

Not all calibrated peaks were found

Column = 100K dilution
 See file on
 7/5 6-14-95



Data File Name	: C:\HPCHEM\1\DATA\062095-3\011F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 11
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-5A 5.0 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 20 Jun 95 01:45 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	20 Jun 95 02:31 PM	Sample Amount	: 0
Last Recalib on	: 20 Jun 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		



Data File Name : C:\HPCHEM\1\DATA\062095-3\011F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-5A 5.0 g
 Run Time Bar Code :
 Acquired on : 20 Jun 95 01:45 PM
 Report Created on : 20 Jun 95 02:02 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 11
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.1
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\011F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 11
 Sample Name : PDB-5A 5.0 g Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 20 Jun 95 01:45 PM Instrument Method: 8010WAS.MTH
 Report Created on: 20 Jun 95 02:31 PM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 Jun 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\011F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.210	* not found *			1		VINYL CHLORIDE
1.769	* not found *			1		1,1 DICHLOROETHENE
2.245	* not found *			1		t-1,2-DICHLOROETHENE
2.569	* not found *			1		1,1-DICHLOROETHANE
3.081	744380	BV	0.078	1	2.183	c-1,2-DICHLOROETHENE
3.661	398783	VB	0.099	1	-0.0554	111TRICHLOROETHANE
3.906	* not found *			1		CARBON TET.
4.228	* not found *			1		1,2-DICHLOROETHANE
5.275	2136517	BB	0.106	1	4.754	TRICHLOROETHENE
9.013	* not found *			1		TETRACHLOROETHENE
11.961	6762458	VV	0.061	1-R	33.587	1,4-DICHLOROBUTANE 6762

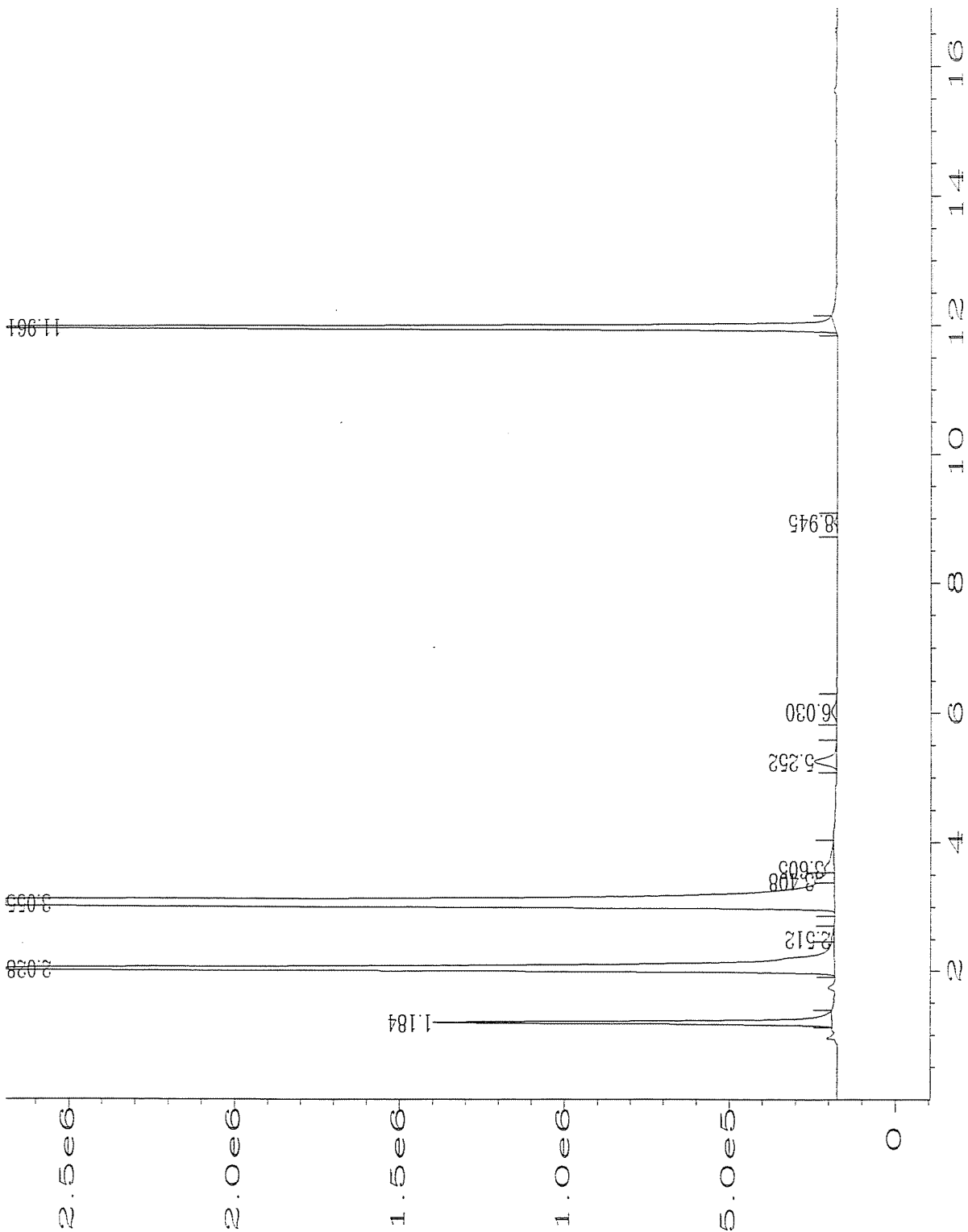
Time Reference Peak	Expected RT	Actual RT	Difference
11	12.015	11.961	-0.4%

Not all calibrated peaks were found

Review - low surrogate rec.
 See file 015.
 6/20/95

Data File Name : C:\HPCHEM\1\DATA\062095-3\012F0101.D

Operator : TJS
Instrument : GC # 3
Sample Name : PDB-5B 50 uL
Run Time Bar Code :
Acquired on : 20 Jun 95 02:07 PM
Report Created on : 20 Jun 95 02:40 PM
Last Recalib on : 20 Jun 95 09:55 AM
Multiplier : 1
Page Number : 1
Vial Number : 12
Injection Number : 1
Sequence Line : 1
Instrument Method : 8010WAS.M
Analysis Method : 8010WAS.M
Sample Amount : 0
ISTD Amount :



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\012F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 12
 Sample Name : PDB-5B 50 uL Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 20 Jun 95 02:07 PM Instrument Method: 8010WAS.MTH
 Report Created on: 20 Jun 95 02:40 PM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 Jun 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\012F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.184	4014181	BB	0.051	1	36.892	VINYL CHLORIDE
1.769	* not found *			1		1,1 DICHLOROETHENE
2.245	* not found *			1		t-1,2-DICHLOROETHENE
2.512	67296	VB	0.093	1	-1.436	1,1-DICHLOROETHANE
3.055	5.19375E+007	BV	0.079	1	282.340	c-1,2-DICHLOROETHENE
3.605	365269	VB	0.158	1	-0.225	111TRICHLOROETHANE
3.906	* not found *			1		CARBON TET.
4.228	* not found *			1		1,2-DICHLOROETHANE
5.252	540959	BB	0.107	1	-0.411	TRICHLOROETHENE
8.945	59473	BB	0.084	1	-2.443	TETRACHLOROETHENE
11.961	1.13245E+007	BB	0.054	1-R	58.523	1,4-DICHLOROBUTANE

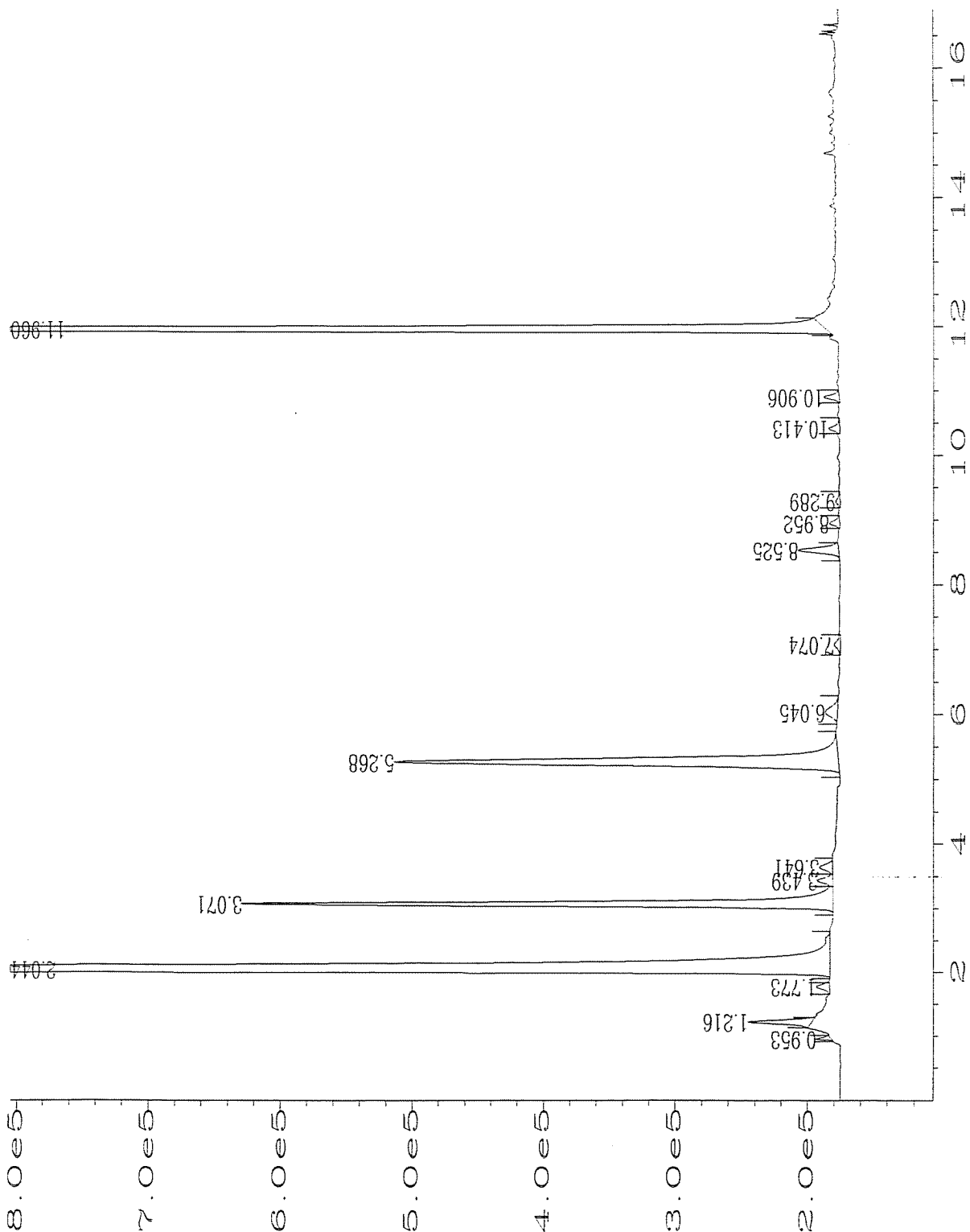
Time Reference Peak	Expected RT	Actual RT	Difference
11	12.015	11.961	-0.4%

Not all calibrated peaks were found

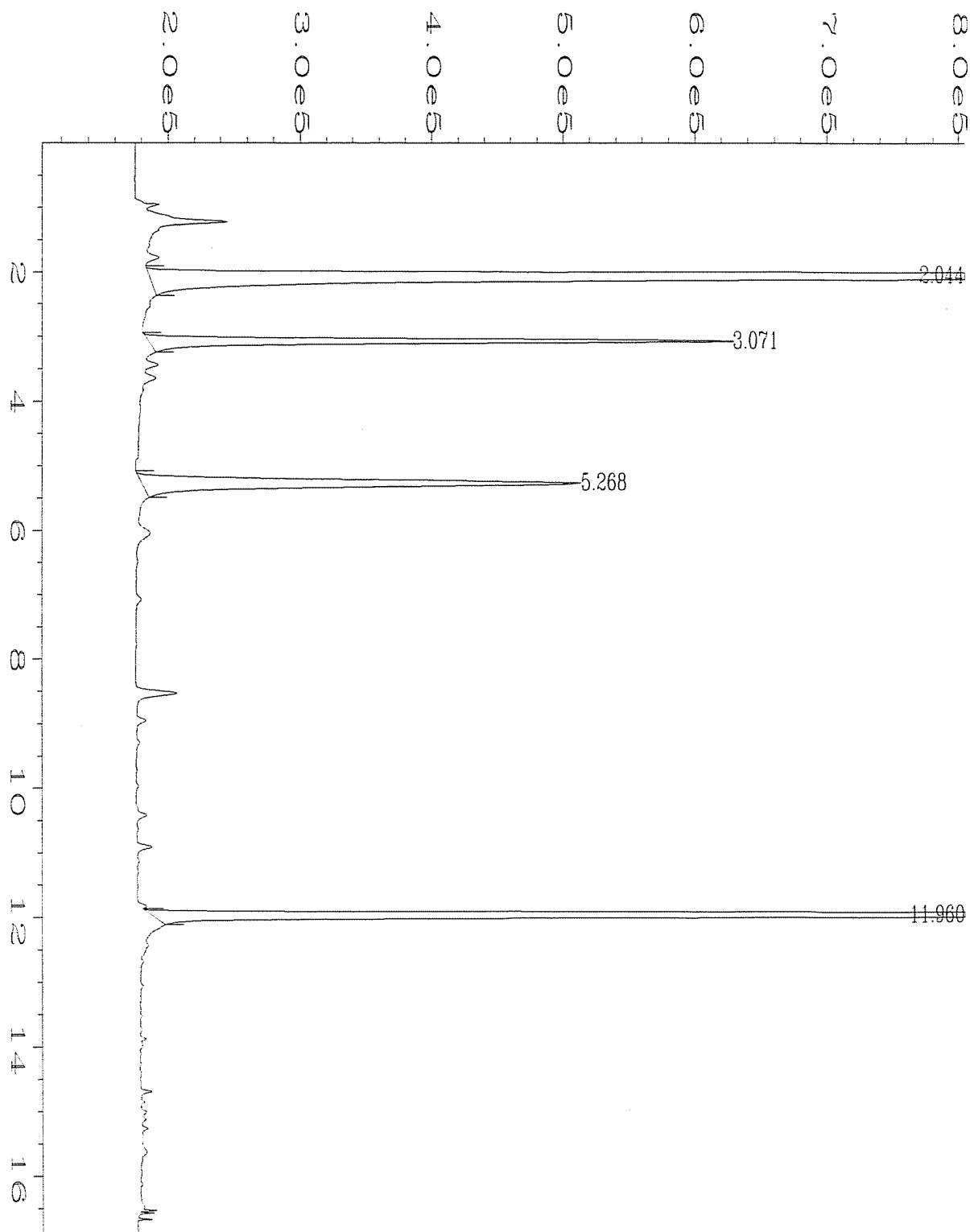
Handwritten signature
 6-20-95
 May 7 2095

Data File Name : C:\HPCHEM\1\DATA\062095-3\013F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-4A 5.0 g
 Run Time Bar Code :
 Acquired on : 20 Jun 95 02:29 PM
 Report Created on : 20 Jun 95 02:49 PM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1

Page Number : 1
 Vial Number : 13
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.M
 Analysis Method : 8010WAS.M
 Sample Amount : 0
 ISTD Amount :



user modified



Data File Name	: C:\HPCHEM\1\DATA\062095-3\013F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 13
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-4A 5.0 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 20 Jun 95 02:29 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	20 Jun 95 02:46 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\013F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-4A 5.0 g
 Run Time Bar Code :
 Acquired on : 20 Jun 95 02:29 PM
 Report Created on: 20 Jun 95 02:49 PM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 13
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\013F0101.D

Ret Time Area Type Width Ref# Name

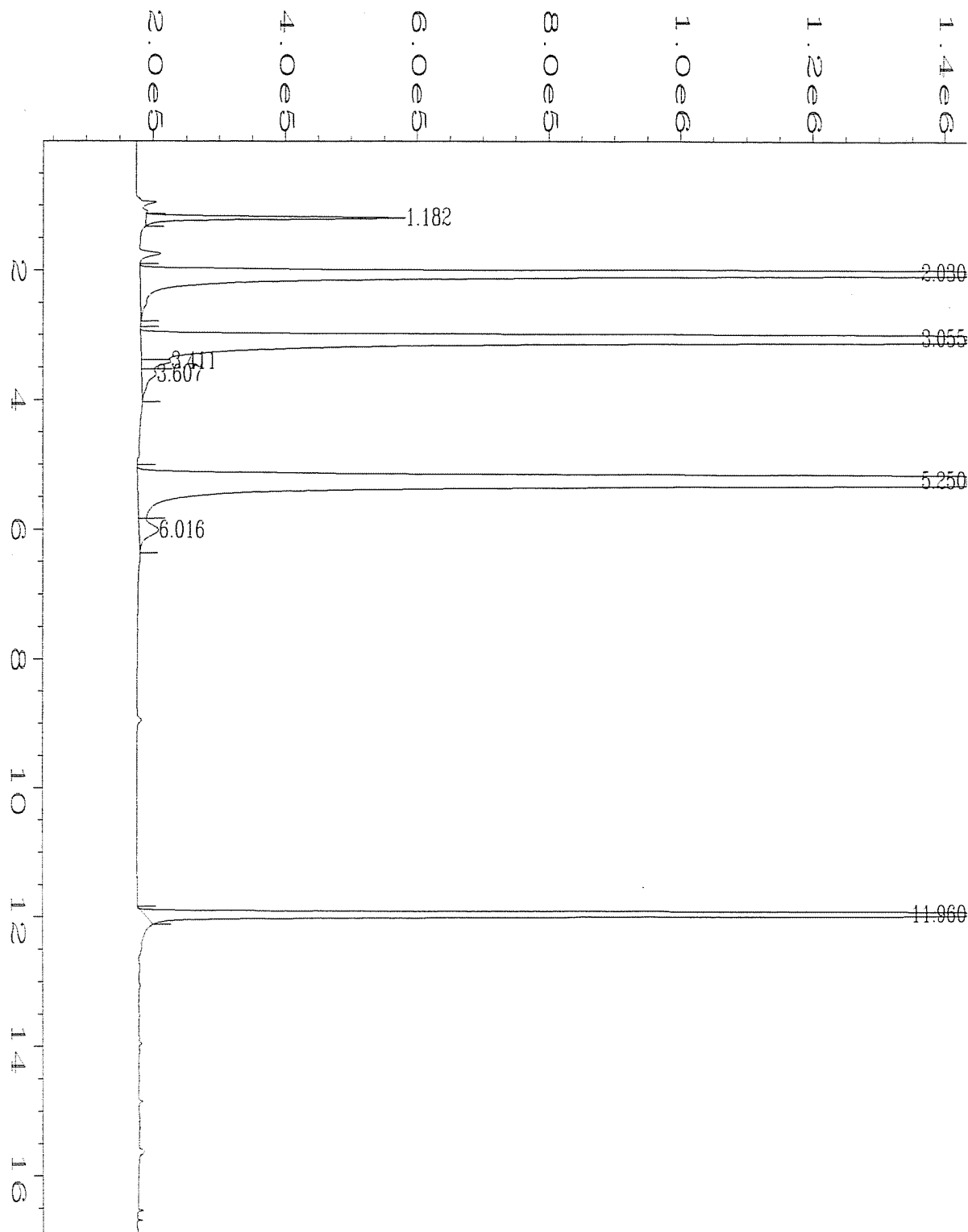
1.216	203031	MM	0.070	1	0.0834	VINYL CHLORIDE
1.773	56867	MM	0.095	1	-2.308	1,1-DICHLOROETHENE
2.245	* not found *			1		t-1,2-DICHLOROETHENE
2.569	* not found *			1		1,1-DICHLOROETHANE
3.071	2337187	BV	0.079	1	10.899	c-1,2-DICHLOROETHENE
3.641	66293	VB	0.087	1	-1.735	1,1,1-TRICHLOROETHANE
3.906	* not found *			1		CARBON TET.
4.228	* not found *			1		1,2-DICHLOROETHANE
5.268	2710672	BB	0.103	1	6.613	TRICHLOROETHENE
8.952	41910	MM	0.094	1	-2.500	TETRACHLOROETHENE
11.960	8599532	BB	0.057	1-R	43.628	1,4-DICHLOROBUTANE

Not all calibrated peaks were found

User Modified

Time Reference Peak	Expected RT	Actual RT	Difference
11	12.015	11.960	-0.5%

6.2095
 11.960



Data File Name	: C:\HPCHEM\1\DATA\062095-3\014F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 14
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-4B 50 uL	Sequence Line	: 1
Run Time Bar Code:		Instrument Method	: 8010WAS.MTH
Acquired on	: 20 Jun 95 02:51 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	20 Jun 95 03:11 PM	Sample Amount	: 0
Last Recalib on	: 20 Jun 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\014F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-4B 50 uL
 Run Time Bar Code :
 Acquired on : 20 Jun 95 02:51 PM
 Report Created on : 20 Jun 95 03:11 PM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 14
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

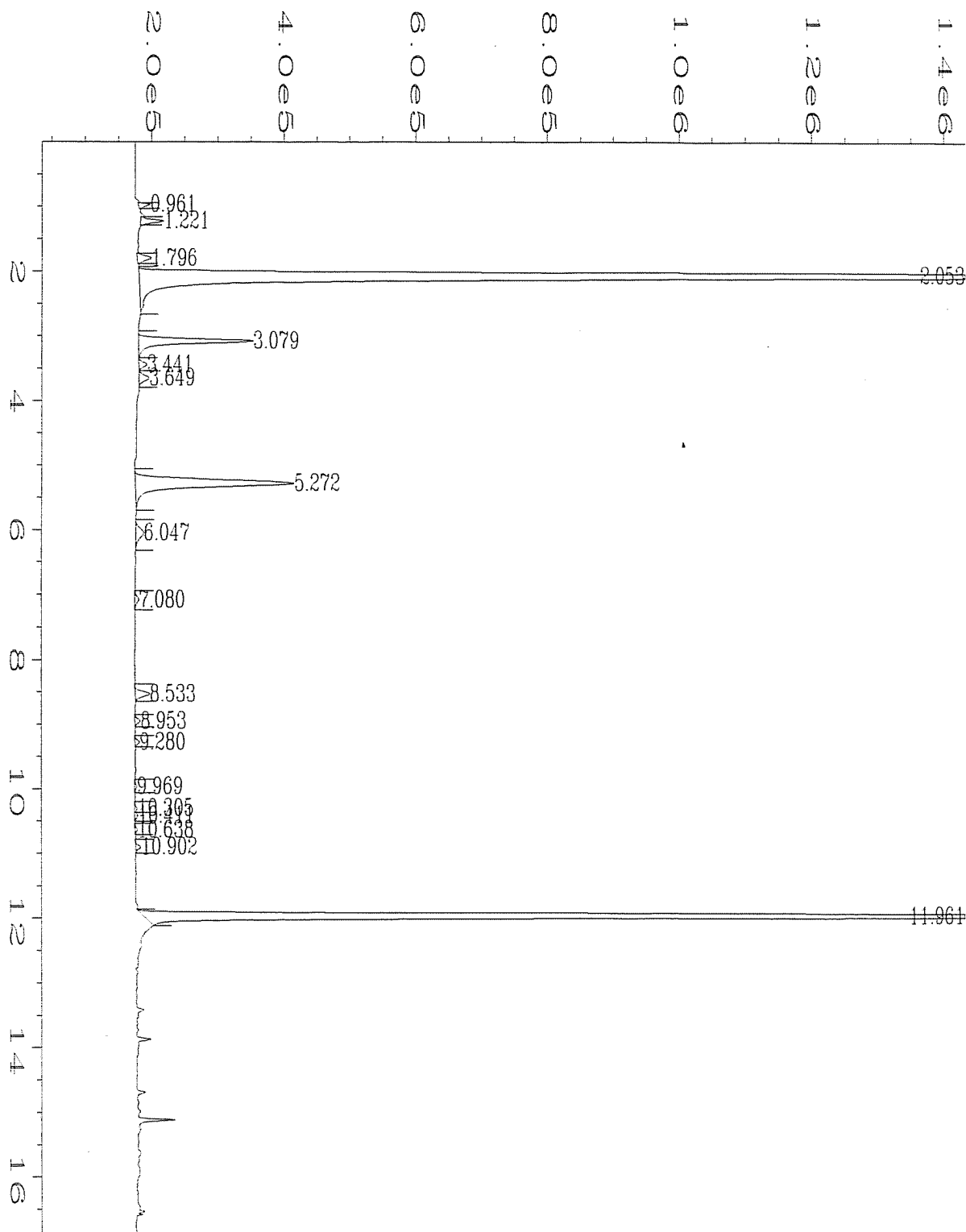
Sig. 1 in C:\HPCHEM\1\DATA\062095-3\014F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.182	1238884	BB	0.048	1	10.088	VINYL CHLORIDE
1.769	* not found	*		1		1,1 DICHLOROETHENE
2.245	* not found	*		1		t-1,2-DICHLOROETHENE
2.569	* not found	*		1		1,1-DICHLOROETHANE
3.055	3.79942E+007	BV	0.081	1	206.034	c-1,2-DICHLOROETHENE
3.607	288014	VB	0.160	1	-0.615	1,1TRICHLOROETHANE
3.906	* not found	*		1		CARBON TET.
4.228	* not found	*		1		1,2-DICHLOROETHANE
5.250	3.36998E+007	BV	0.105	1	106.930	TRICHLOROETHENE
9.013	* not found	*		1		TETRACHLOROETHENE
11.960	1.17249E+007	BB	0.054	1-R	60.711	1,4-DICHLOROBUTANE

Not all calibrated peaks were found

Time Reference Peak 11
 Expected RT 12.015
 Actual RT 11.960
 Difference -0.5%

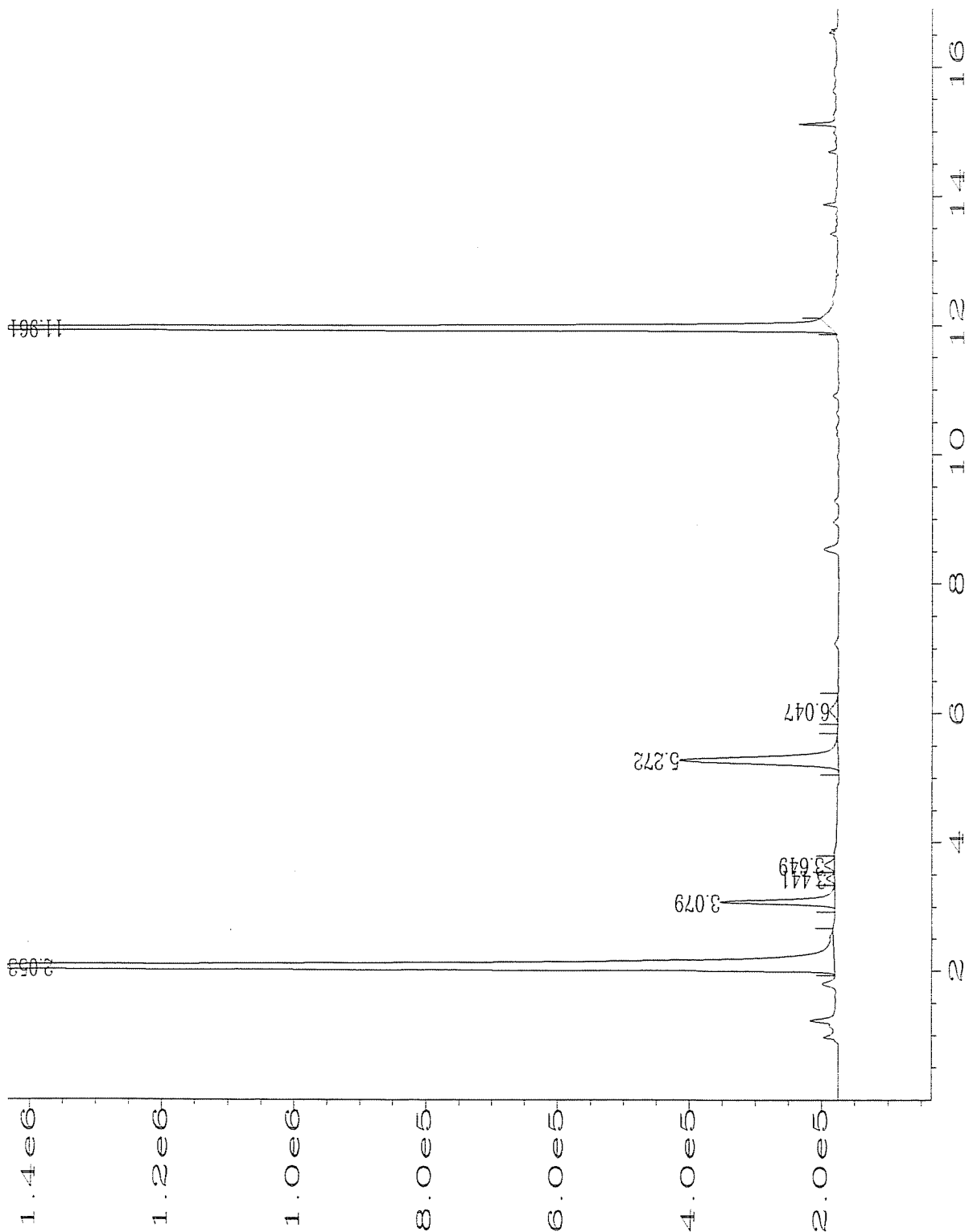
6.28-55
 12.96 R
 11.960



user modified

Data File Name	: C:\HPCHEM\1\DATA\062095-3\015F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 15
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-5A 1.0 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 20 Jun 95 03:14 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	20 Jun 95 03:34 PM	Sample Amount	: 0
Last Recalib on	: 20 Jun 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

Data File Name : C:\HPCHEM\1\DATA\062095-3\015F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-5A 1.0 g
 Run Time Bar Code :
 Acquired on : 20 Jun 95 03:14 PM
 Report Created on: 20 Jun 95 03:31 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 15
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.M
 Analysis Method : 8010WAS.M
 Sample Amount : 0
 ISTD Amount :



External Standard Report

```

Data File Name      : C:\HPCHEM\1\DATA\062095-3\015F0101.D
Operator           : TJS                               Page Number      : 1
Instrument          : GC # 3                           Vial Number       : 15
Sample Name        : PDB-5A 1.0 g                     Injection Number  : 1
Run Time Bar Code  :                               Sequence Line     : 1
Acquired on        : 20 Jun 95 03:14 PM               Instrument Method : 8010WAS.MTH
Report Created on   : 20 Jun 95 03:34 PM               Analysis Method  : 8010WAS.MTH
Last Recalib on    : 20 Jun 95 09:55 AM               Sample Amount     : 0
Multiplier         : 1                               ISTD Amount       :
  
```

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\015F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.221	131963	MM	0.063	1	-0.603	VINYL CHLORIDE
1.796	114465	MM	0.090	1	-1.955	1,1-DICHLOROETHENE
2.245	* not found *			1		t-1,2-DICHLOROETHENE
2.569	* not found *			1		1,1-DICHLOROETHANE
3.079	899060	BV	0.075	1	3.029	c-1,2-DICHLOROETHENE
3.649	97569	VB	0.082	1	-1.577	111TRICHLOROETHANE
3.906	* not found *			1		CARBON TET.
4.228	* not found *			1		1,2-DICHLOROETHANE
5.272	1901550	BB	0.105	1	3.993	TRICHLOROETHENE
8.953	41042	MM	0.088	1	-2.503	TETRACHLOROETHENE
11.961	1.04658E+007	BB	0.054	1-R	53.829	1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
11	12.015	11.961	-0.4%

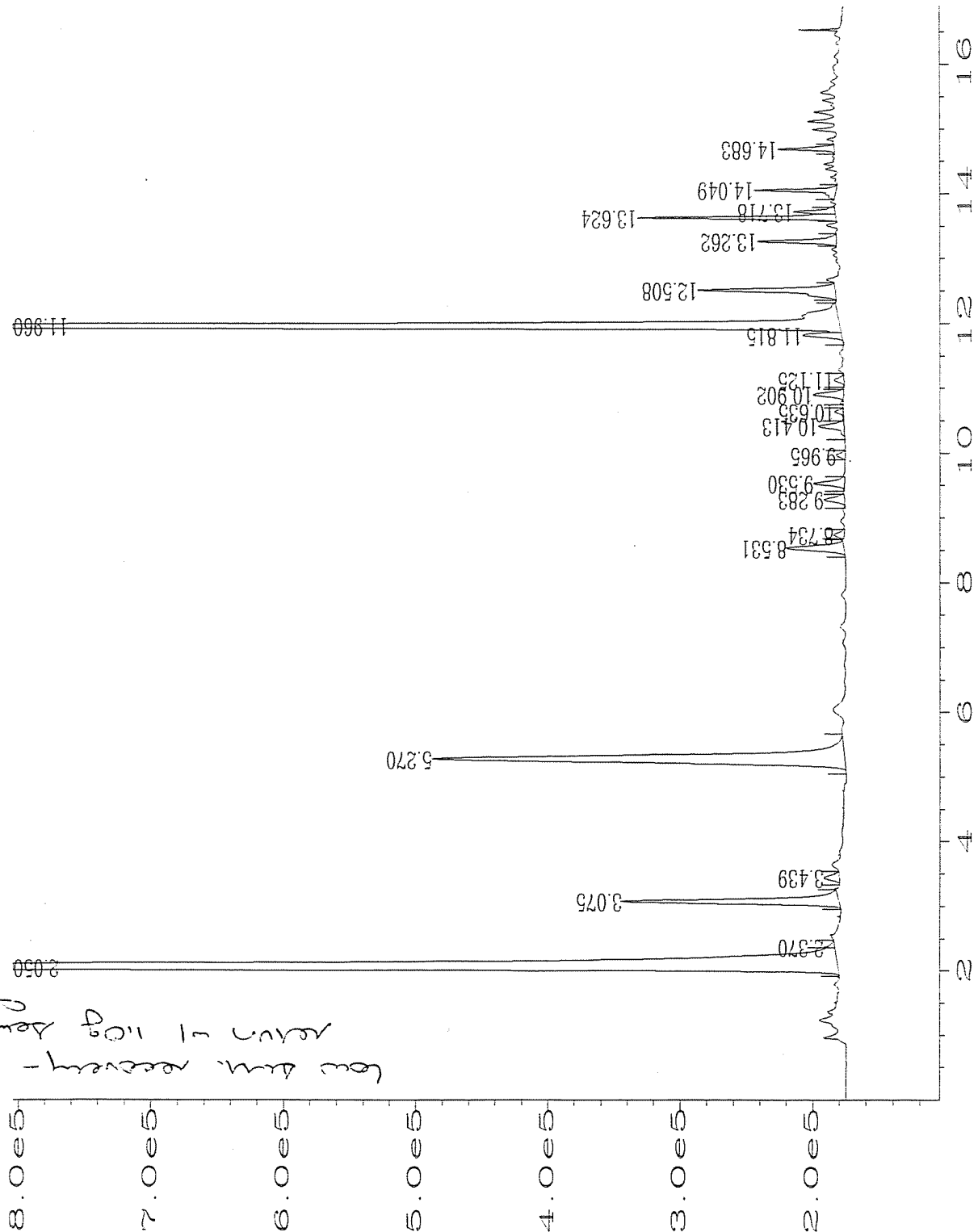
Not all calibrated peaks were found

User Modified

Handwritten: 6.20.95
May 7.26.95

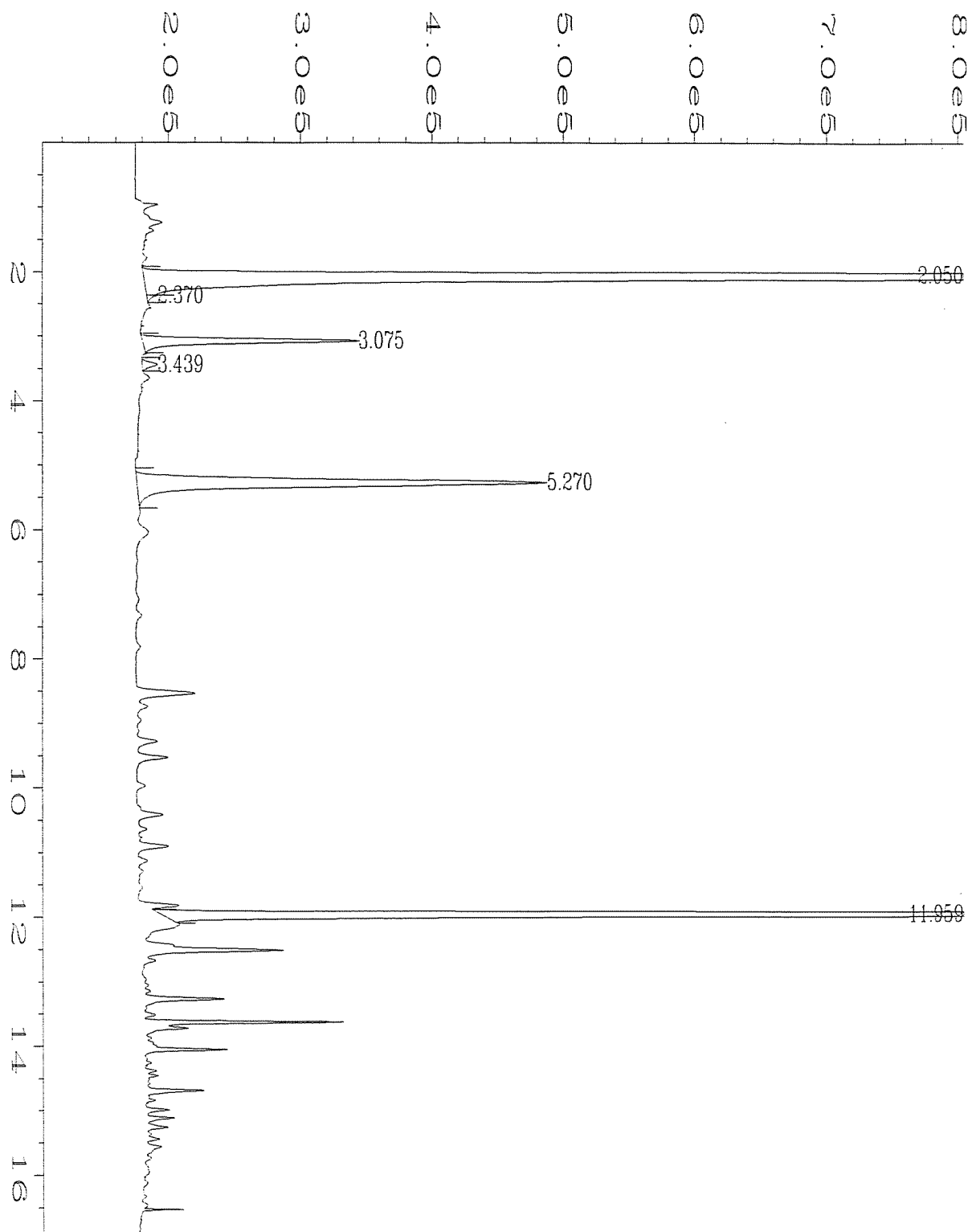
low dm. recovery -
 11.0g sample
 9/18
 6.22e7

user modified



Data File Name : C:\HPCHEM\1\DATA\062095-3\016F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-6A 2.5 g
 Run Time Bar Code :
 Acquired on : 20 Jun 95 03:36 PM
 Report Created on: 20 Jun 95 03:56 PM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1

Page Number : 1
 Vial Number : 16
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.1
 Analysis Method : 8010WAS.MH
 Sample Amount : 0
 ISTD Amount :



Data File Name	: C:\HPCHEM\1\DATA\062095-3\016F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 16
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-6A 2.5 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 20 Jun 95 03:36 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	20 Jun 95 03:53 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\016F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-6A 2.5 g
 Run Time Bar Code :
 Acquired on : 20 Jun 95 03:36 PM
 Report Created on : 20 Jun 95 03:56 PM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 16
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\016F0101.D

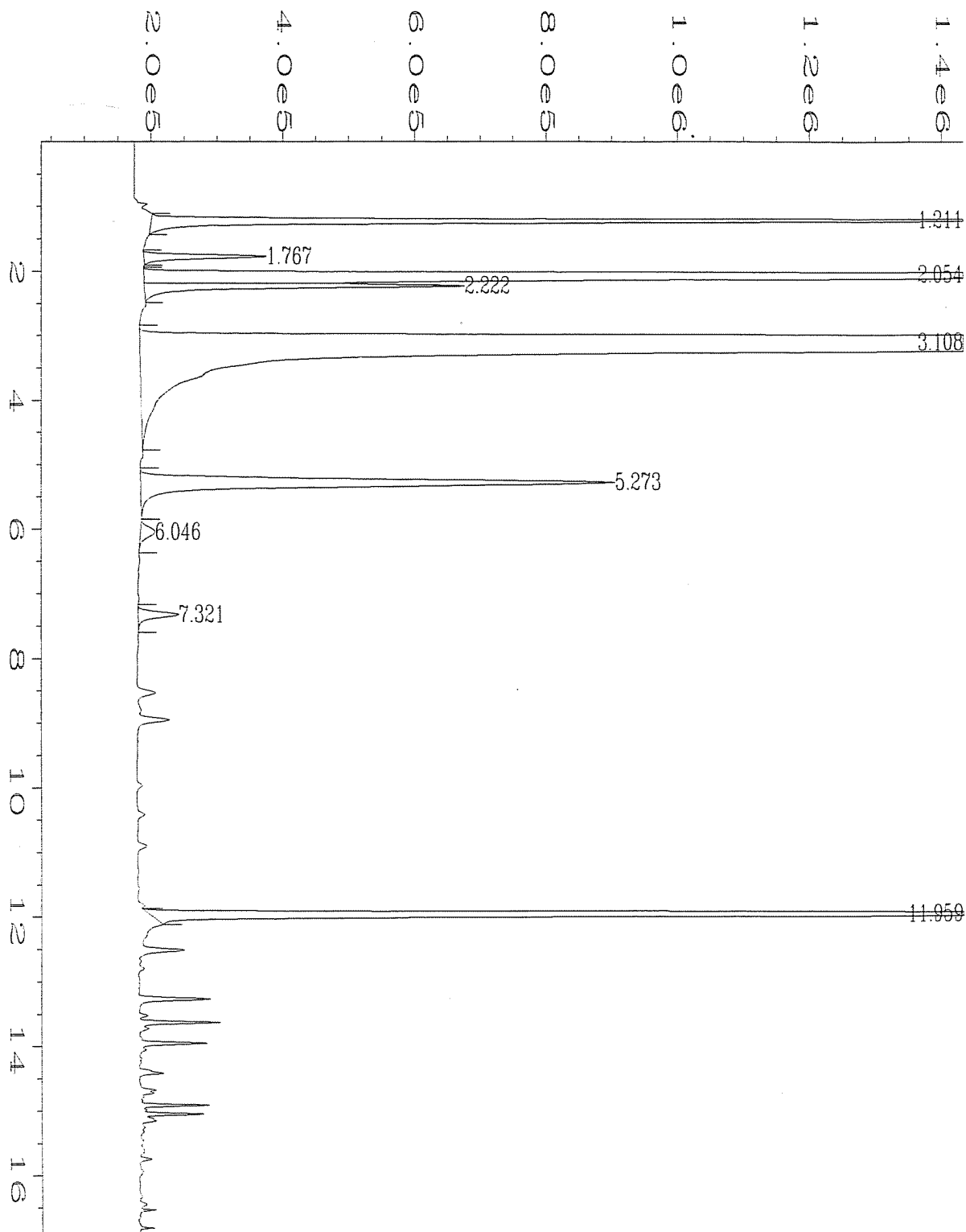
Ret Time	Area	Type	Width	Ref#	ng	Name
1.210	* not found					VINYL CHLORIDE
1.769	* not found					1,1 DICHLOROETHENE
2.245	* not found					t-1,2-DICHLOROETHENE
2.569	* not found					1,1-DICHLOROETHANE
3.075	* not found					831786 BV
3.693	* not found					111TRICHLOROETHANE
3.906	* not found					CARBON TET.
4.228	* not found					1,2-DICHLOROETHANE
5.270	* not found					2493815 BB
9.013	* not found					TRICHLOROETHENE
11.960	7147964 FM	0.066	1-R			1,4-DICHLOROBUTANE

Time Reference Peak
 11
 Expected RT 12.015
 Actual RT 11.960
 Difference -0.5%

Not all calibrated peaks were found

User Modified

Return 11.08 Sample
 7/6/2005



Data File Name	: C:\HPCHEM\1\DATA\062095-3\017F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 17
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-6B 0.5 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 20 Jun 95 03:58 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	20 Jun 95 04:15 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\017F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-6B 0.5 g
 Run Time Bar Code :
 Acquired on : 20 Jun 95 03:58 PM
 Report Created on: 20 Jun 95 04:15 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 17
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\017F0101.D

Ret Time Area Type Width Ref# Name

1.211	6126619	BB	0.055	1	VINYL CHLORIDE ✓
1.767	816819	BB	0.064	1	1,1-DICHLOROETHENE ✓
2.222	2252945	VV	0.066	1	1,1,2-DICHLOROETHENE ✓
2.569	* not found *			1	1,1-DICHLOROETHANE
3.108	1.48631E+008	BB	0.119	1	C-1,2-DICHLOROETHENE
3.693	* not found *			1	1,1,1-TRICHLOROETHANE
3.906	* not found *			1	CARBON TET.
4.228	* not found *			1	1,2-DICHLOROETHANE
5.273	5804010	BB	0.103	1	TRICHLOROETHENE ✓
9.013	* not found *			1	TETRACHLOROETHENE
11.959	1.13884E+007	BB	0.054	1-R	1,4-DICHLOROBUTANE 11.959

Time Reference Peak 11
 Expected RT 12.015
 Actual RT 11.959
 Difference -0.5%

Not all calibrated peaks were found

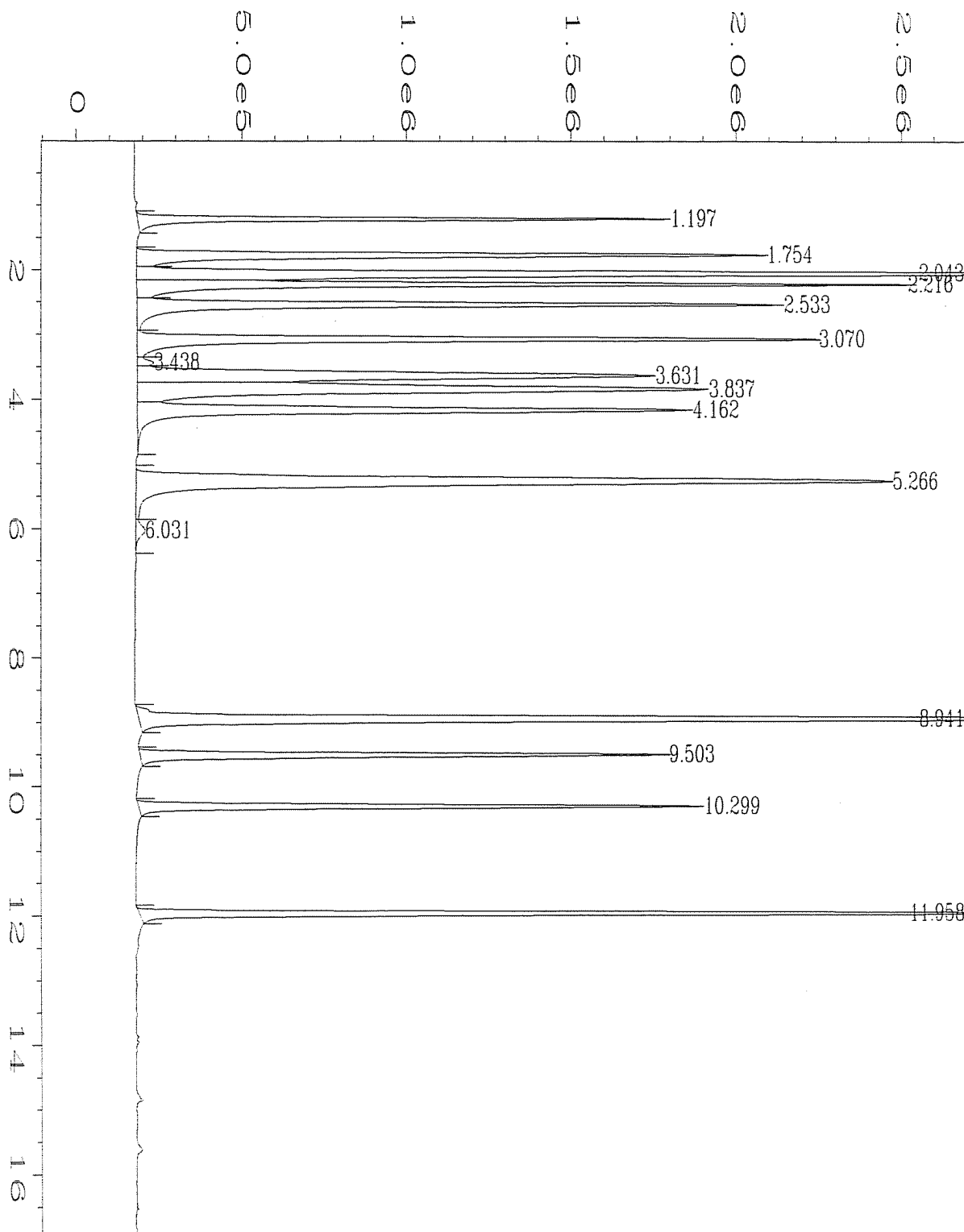
Report: - Vinyl chloride

- 1,2-DCE

- TCE from this run

Run e 100x for C-1,2-DCE

9/5/2005



Data File Name	: C:\HPCHEM\1\DATA\062095-3\018F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 18
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: 50 ng Std	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 20 Jun 95 04:20 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	20 Jun 95 04:38 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\018F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : 50 ng Std
 Run Time Bar Code :
 Acquired on : 20 Jun 95 04:20 PM
 Report Created on : 20 Jun 95 04:38 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 18
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

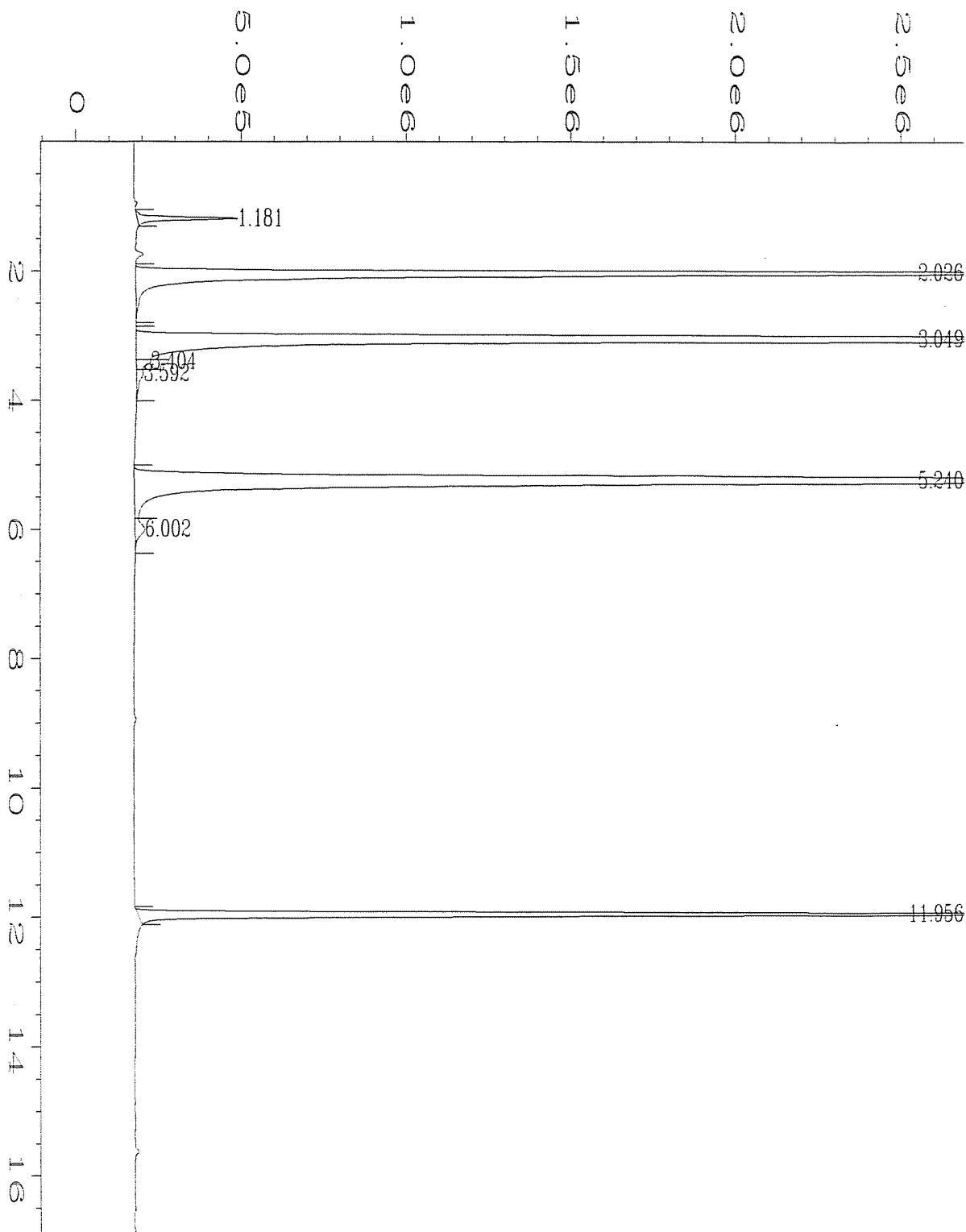
Sig. 1 in C:\HPCHEM\1\DATA\062095-3\018F0101.D

Ret Time Area Type Width Ref# Name

1.197	5669671	BB	0.052	1	52.881	VINYL CHLORIDE
1.754	9811807	BV	0.074	1	57.551	1,1-DICHLOROETHENE
2.216	1.06322E+007	VV	0.061	1	59.247	t-1,2-DICHLOROETHENE
2.533	1.03939E+007	VV	0.077	1	58.976	1,1-DICHLOROETHANE
3.070	1.10473E+007	VV	0.077	1	58.566	c-1,2-DICHLOROETHENE
3.631	1.17384E+007	VV	0.093	1	57.217	1,1,1-TRICHLOROETHANE
3.837	1.40215E+007	VV	0.107	1	57.988	CARBON TET.
4.162	1.07433E+007	VB	0.091	1	58.910	1,2-DICHLOROETHANE
5.266	1.9224E+007	BV	0.107	1	60.070	TRICHLOROETHENE
8.941	1.86125E+007	BB	0.077	1	58.103	TETRACHLOROETHENE
11.958	1.17686E+007	BB	0.054	1-R	60.950	1,4-DICHLOROBUTANE

Time Reference Peak
 11
 Expected RT 12.015
 Actual RT 11.958
 Difference -0.5%

62095
 7-2695



Data File Name	: C:\HPCHEM\1\DATA\062095-3\019F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 19
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-4B Dup 50 uL	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Required on	: 20 Jun 95 04:43 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	20 Jun 95 05:00 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\019F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-4B Dup 50 uL
 Run Time Bar Code :
 Acquired on : 20 Jun 95 04:43 PM
 Report Created on: 20 Jun 95 05:00 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 19
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\019F0101.D

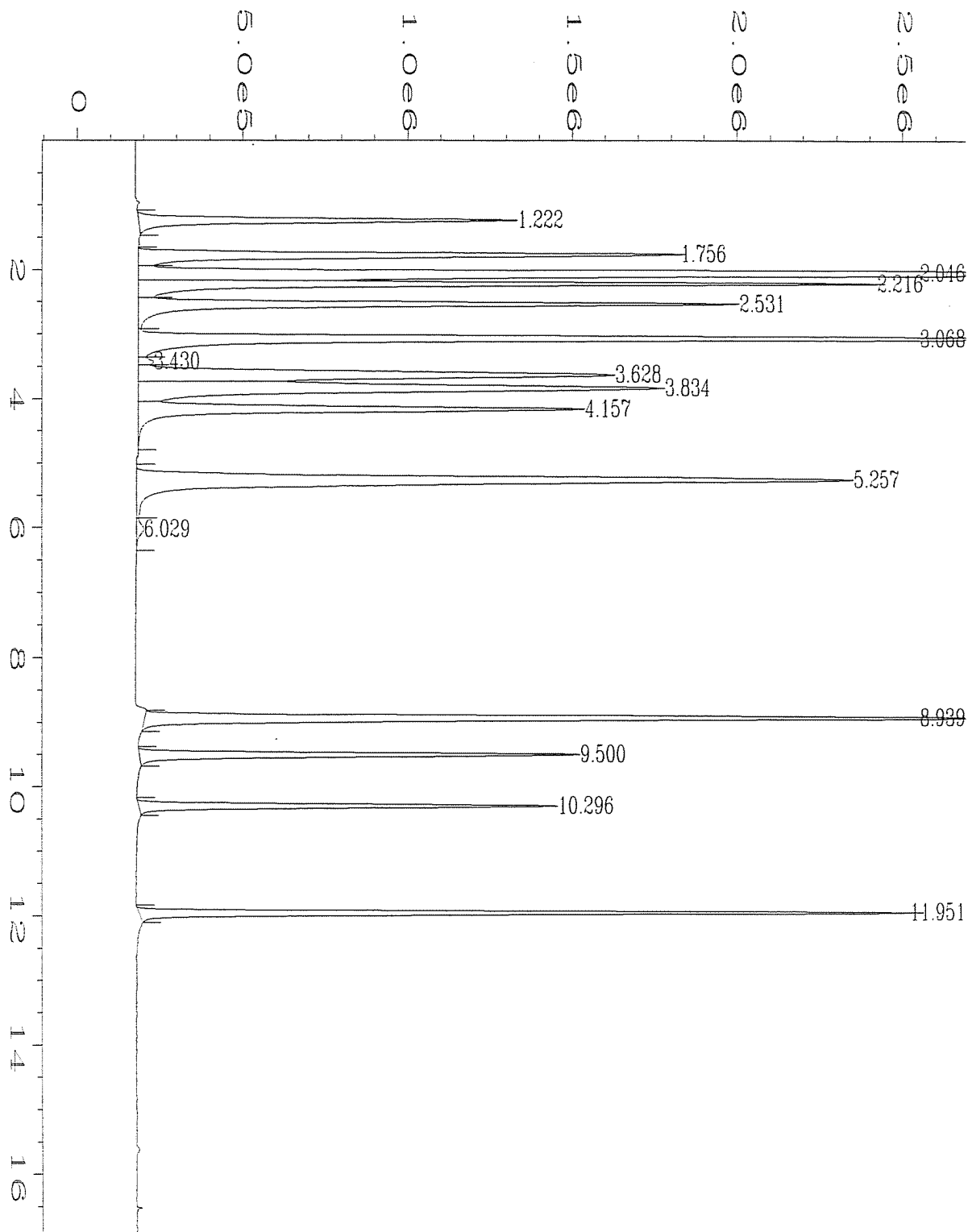
Ret Time	Area	Type	Width	Ref#	ng	Name
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1.181	1017197	BB	0.050	1	7.947	VINYL CHLORIDE
1.769	*	not found	*	1		1,1 DICHLOROETHENE
2.245	*	not found	*	1		t-1,2-DICHLOROETHENE
2.569	*	not found	*	1		1,1-DICHLOROETHENE
3.049	3.56084E+007	BV	0.081	1	192.978	c-1,2-DICHLOROETHENE
3.592	252477	VB	0.152	1	-0.794	1,1,1-TRICHLOROETHANE
3.906	*	not found	*	1		CARBON TET.
4.228	*	not found	*	1		1,2-DICHLOROETHANE
5.240	3.15126E+007	BV	0.102	1	99.850	TRICHLOROETHENE
9.013	*	not found	*	1		TETRACHLOROETHENE
11.956	1.20172E+007	BB	0.054	1-R	62.309	1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
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Not all calibrated peaks were found

62095
 mes 7/26/95



Data File Name	: C:\HPCHEM\1\DATA\062095-3\020F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 20
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-1A MS 50 ng	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 20 Jun 95 05:05 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	20 Jun 95 05:22 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\020F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-1A MS 50 ng
 Run Time Bar Code :
 Acquired on : 20 Jun 95 05:05 PM
 Report Created on: 20 Jun 95 05:22 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 20
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

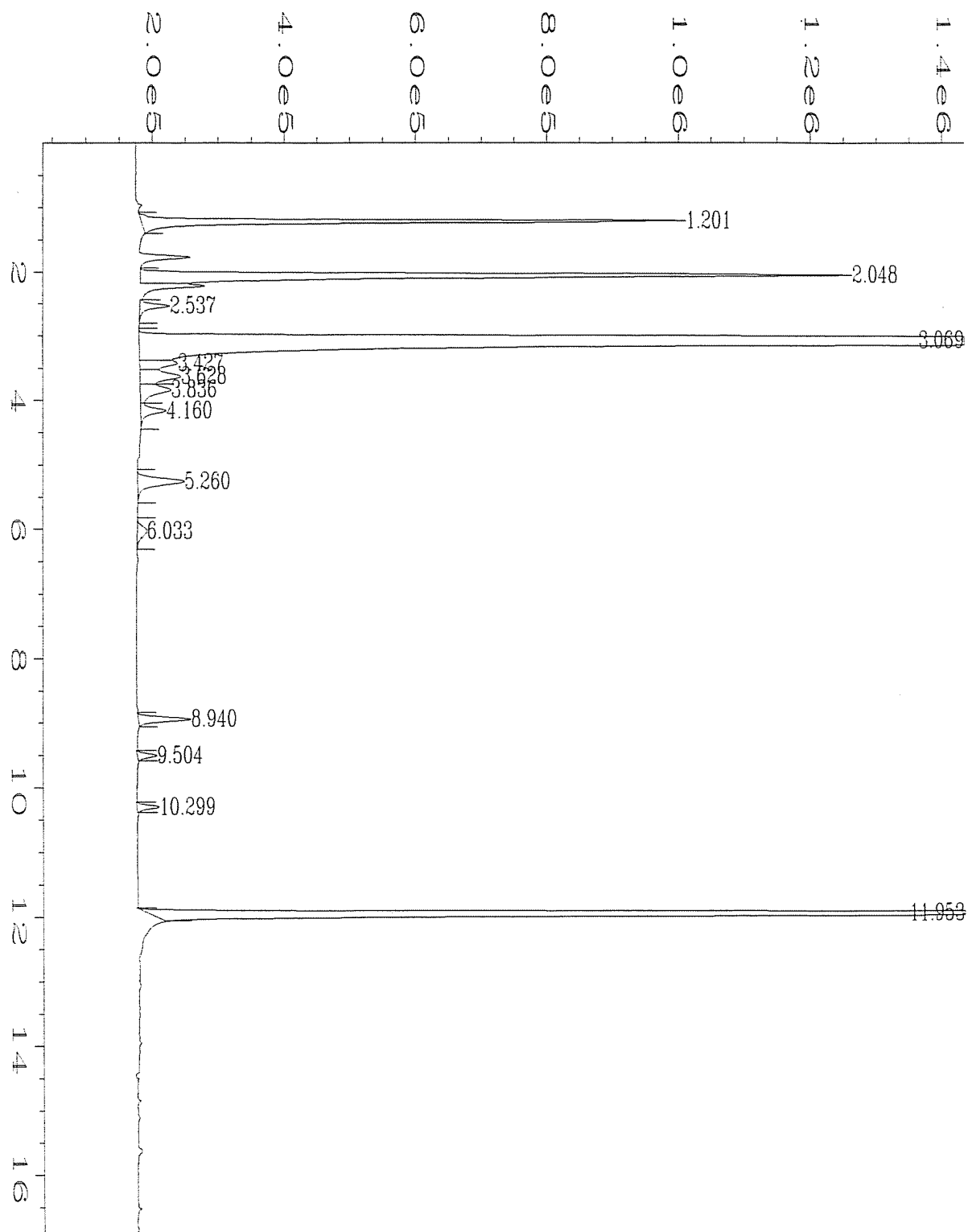
Sig. 1 in C:\HPCHEM\1\DATA\062095-3\020F0101.D

Ret Time Area Type Width Ref# ng Name

1.222	5658176	BB	0.067	1	52.770	VINYL CHLORIDE
1.756	9080370	BV	0.079	1	53.063	1,1 DICHLOROETHENE
2.216	1.06542E+007	VV	0.067	1	59.374	t-1,2-DICHLOROETHENE
2.531	9726943	VV	0.077	1	55.075	1,1-DICHLOROETHANE
3.068	1.70635E+007	VV	0.077	1	91.490	c-1,2-DICHLOROETHENE
3.628	1.09634E+007	VV	0.094	1	53.303	1,1,1-TRICHLOROETHANE
3.834	1.30304E+007	VV	0.107	1	53.756	CARBON TET.
4.157	8680473	VB	0.089	1	47.229	1,2-DICHLOROETHANE
5.257	1.8258E+007	BV	0.104	1	56.942	TRICHLOROETHENE
8.939	1.34768E+007	BB	0.071	1	41.343	TETRACHLOROETHENE
11.951	9159705	BB	0.059	1-R	46.690	1,4-DICHLOROBUTANE

Time Reference Peak Expected RT Actual RT Difference
 11 12.015 11.951 -0.5%

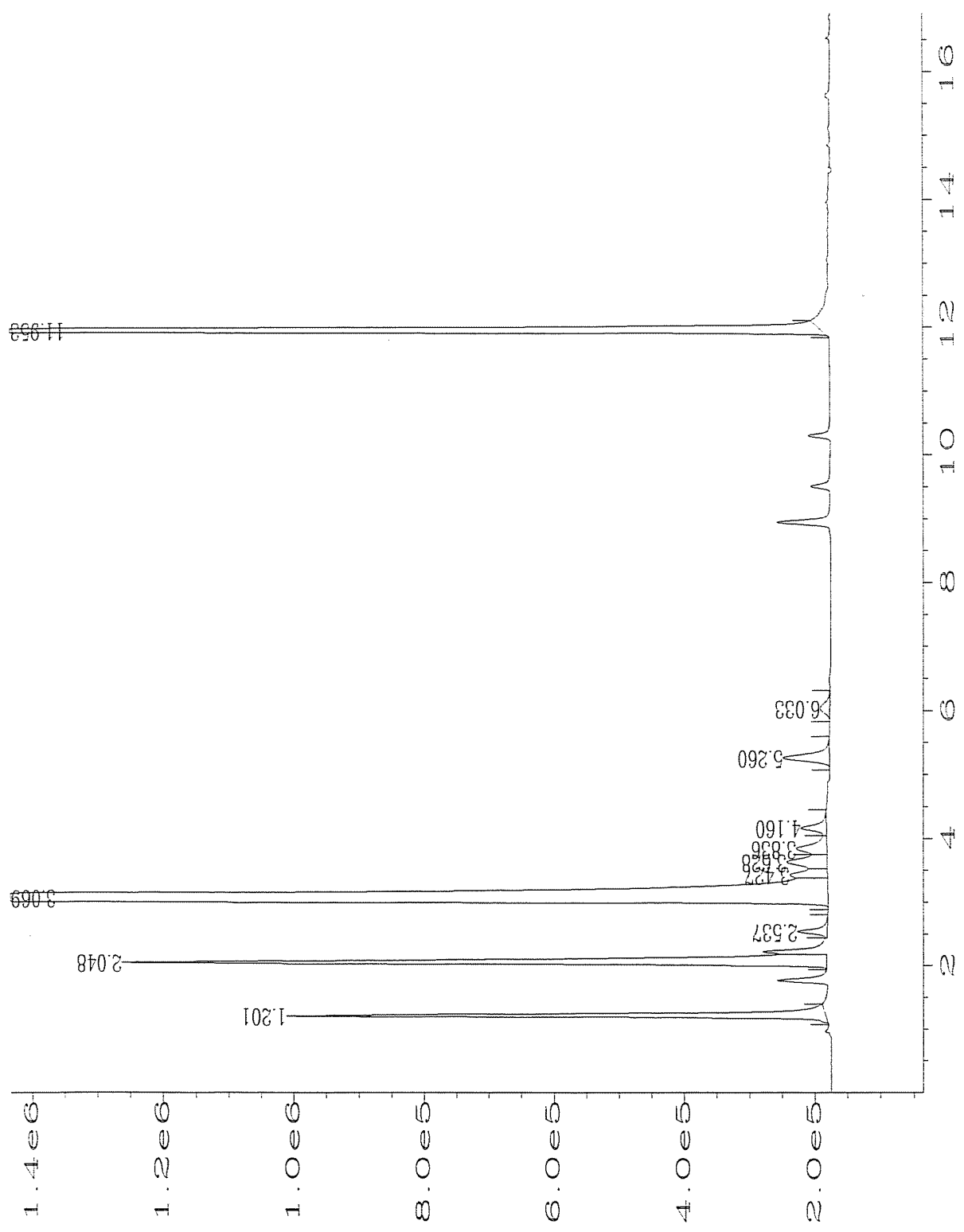
7.2695
 11.951



user modified

Data File Name	: C:\HPCHEM\1\DATA\062095-3\021F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 21
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-3B 5.0 uL	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 20 Jun 95 05:28 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	20 Jun 95 06:26 PM	Sample Amount	: 0
Last Recalib on	: 20 Jun 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

Data File Name : C:\HPCHEM\1\DATA\062095-3\021F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-3B 5.0 uL
 Run Time Bar Code :
 Acquired on : 20 Jun 95 05:28 PM
 Report Created on : 20 Jun 95 05:45 PM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 21
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.M
 Analysis Method : 8010WAS.M
 Sample Amount : 0
 ISTD Amount :



External Standard Report

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Data File Name      : C:\HPCHEM\1\DATA\062095-3\021F0101.D
Operator           : TJS
Instrument          : GC # 3
Sample Name        : PDB-3B 5.0 uL
Run Time Bar Code  :
Acquired on        : 20 Jun 95 05:28 PM
Report Created on   : 20 Jun 95 06:26 PM
Last Recalib on    : 20 Jun 95 09:55 AM
Multiplier         : 1
Page Number        : 1
Vial Number        : 21
Injection Number    : 1
Sequence Line      : 1
Instrument Method   : 8010WAS.MTH
Analysis Method     : 8010WAS.MTH
Sample Amount      : 0
ISTD Amount        :
  
```

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\021F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.201	3005590	BB	0.054	1	27.151	VINYL CHLORIDE
1.769	* not found *			1		1,1 DICHLOROETHENE
2.245	* not found *			1		t-1,2-DICHLOROETHENE
2.537	249423	VB	0.079	1	-0.371	1,1-DICHLOROETHANE
3.069	4.73694E+007	BV	0.082	1	257.341	c-1,2-DICHLOROETHENE
3.628	562607	VV	0.112	1	0.772	111TRICHLOROETHANE
3.836	438478	VV	0.116	1	-0.0116	CARBON TET.
4.160	281069	VB	0.096	1	-0.331	1,2-DICHLOROETHANE
5.260	570414	BB	0.100	1	-0.316	TRICHLOROETHENE
8.940	393446	MM	0.082	1	-1.353	TETRACHLOROETHENE
11.953	1.19058E+007	MM	0.062	1-R	61.699	1,4-DICHLOROBUTANE ✓

Time Reference Peak	Expected RT	Actual RT	Difference
11	12.015	11.953	-0.5%

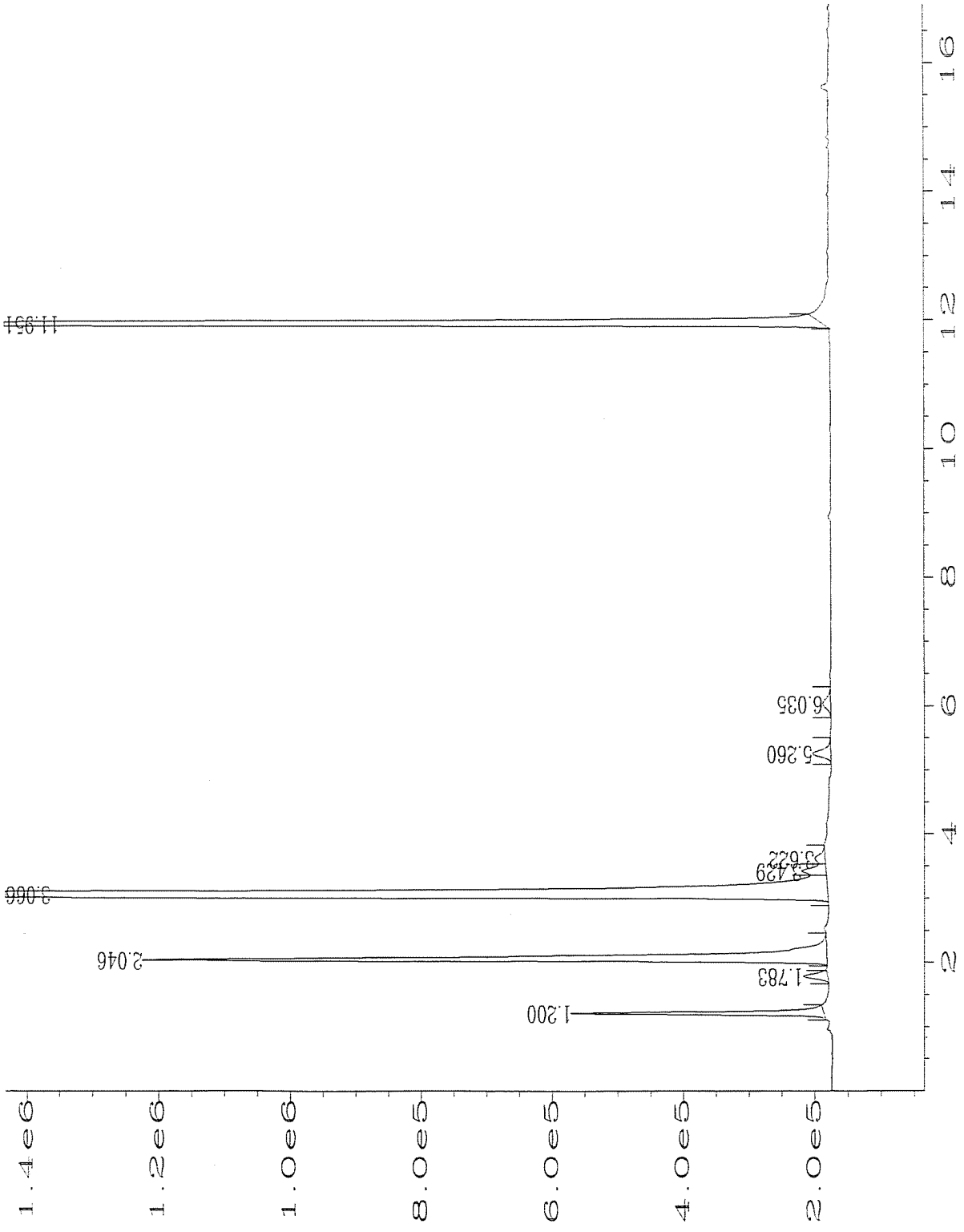
Not all calibrated peaks were found

User Modified

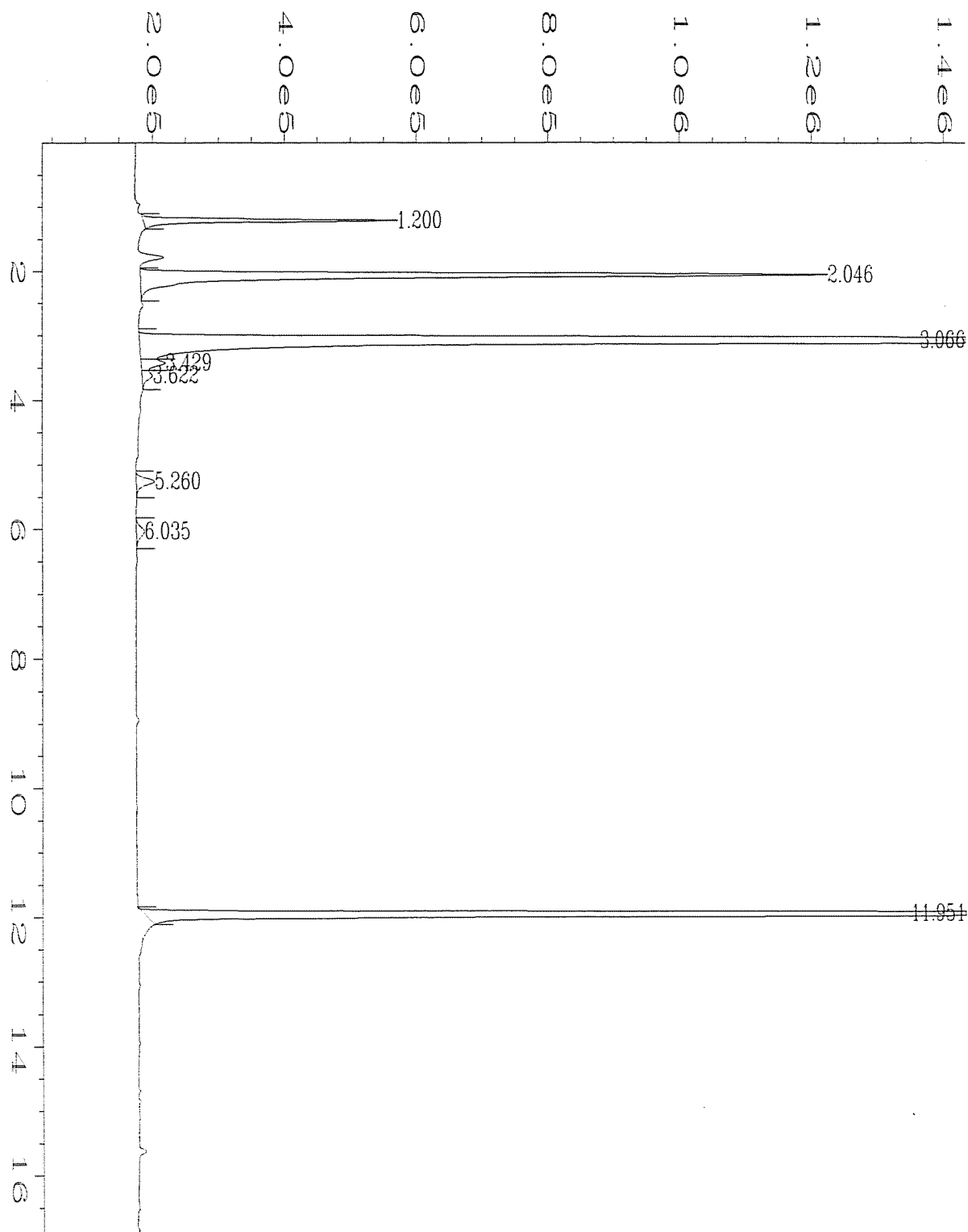
TS 6.20.95

may 7.26.95

Data File Name : C:\HPCHEM\1\DATA\062095-3\022F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-5B 10 uL
 Run Time Bar Code :
 Acquired on : 20 Jun 95 05:50 PM
 Report Created on : 20 Jun 95 06:27 PM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 22
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.M
 Analysis Method : 8010WAS.M
 Sample Amount : 0
 ISTD Amount :



user modified



Data File Name	: C:\HPCHEM\1\DATA\062095-3\022F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 22
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-5B 10 uL	Sequence Line	: 1
Run Time Bar Code:		Instrument Method	: 8010WAS.MTH
Acquired on	: 20 Jun 95 05:50 PM	Analysis Method	: 8010WAS.MTH
Report Created on	: 20 Jun 95 06:07 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\022F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-5B 10 uL
 Run Time Bar Code :
 Acquired on : 20 Jun 95 05:50 PM
 Report Created on : 20 Jun 95 06:27 PM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 22
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\022F0101.D

Ret Time Area Type Width Ref# Name

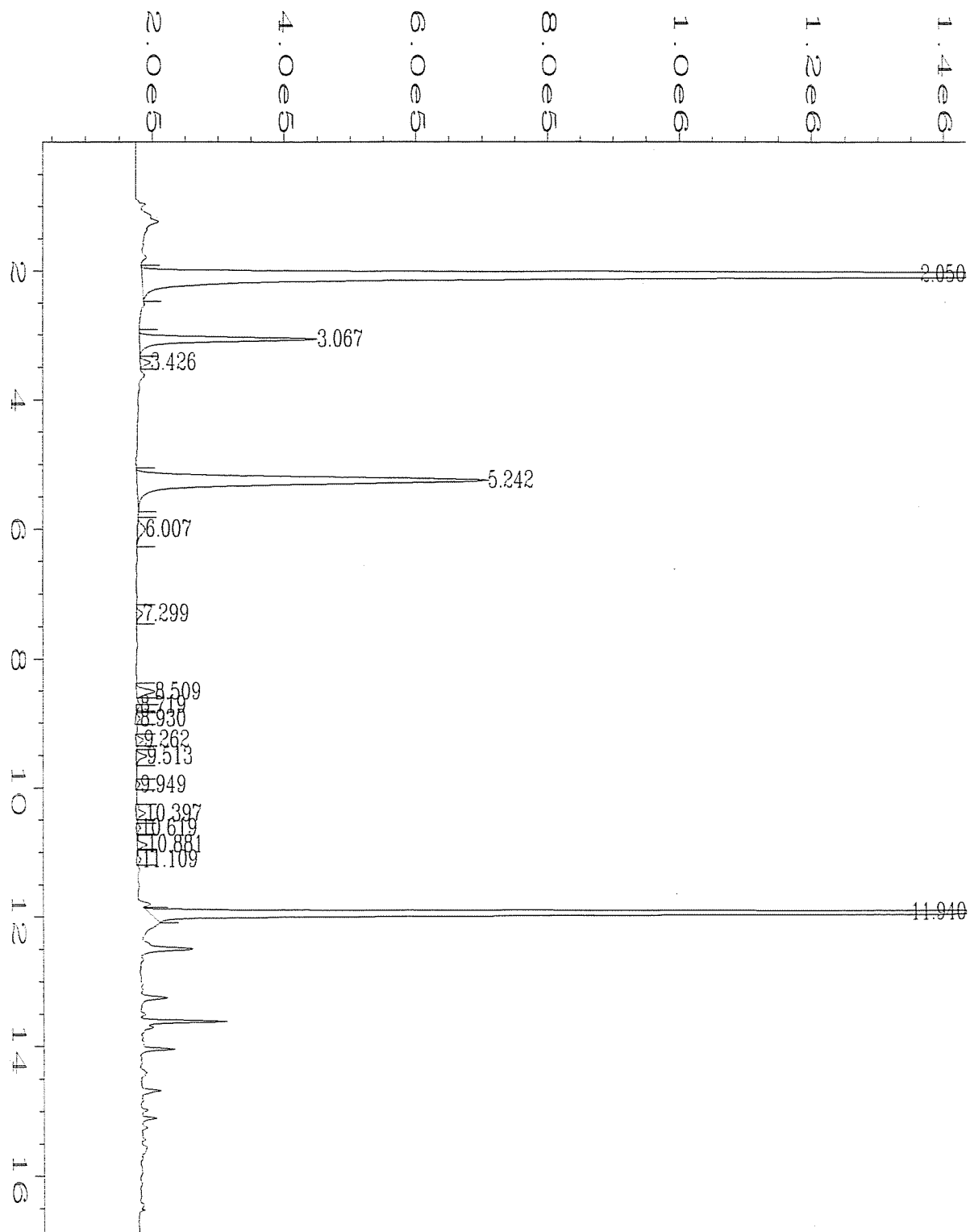
1.200	1277599	BB	0.050	1	10.462	VINYL CHLORIDE
1.783	211228	MM	0.094	1	-1.361	1,1-DICHLOROETHENE
2.245	* not found *			1		t-1,2-DICHLOROETHENE
2.569	* not found *			1		1,1-DICHLOROETHANE
3.066	2.05295E+007	BV	0.076	1	110.458	c-1,2-DICHLOROETHENE
3.622	135633	VB	0.107	1	-1.384	1,1,1-TRICHLOROETHANE
3.906	* not found *			1		CARBON TET.
4.228	* not found *			1		1,2-DICHLOROETHANE
5.260	215421	BB	0.096	1	-1.465	TRICHLOROETHENE
9.013	* not found *			1		TETRACHLOROETHENE
11.951	1.23422E+007	MM	0.062	1-R	64.085	1,4-DICHLOROBUTANE

Time Reference Peak
 11
 Expected RT 12.015
 Actual RT 11.951
 Difference -0.5%

Not all calibrated peaks were found

User Modified

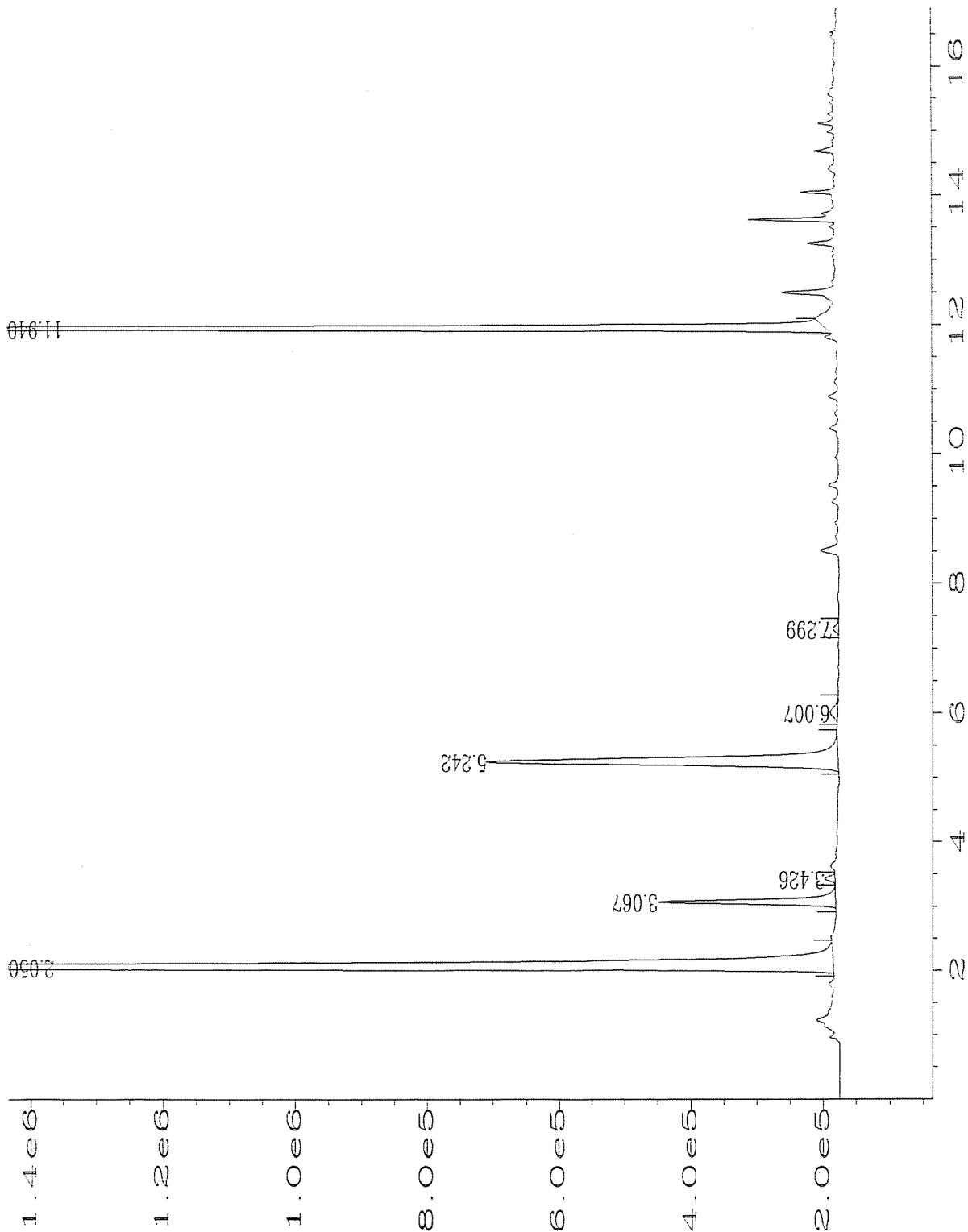
6-20-95
 May 7 2095



user modified

Data File Name	: C:\HPCHEM\1\DATA\062095-3\023F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 23
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-6A 1.0 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method	: 8010WAS.MTH
quired on	: 20 Jun 95 06:12 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	20 Jun 95 06:31 PM	Sample Amount	: 0
Last Recalib on	: 20 Jun 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

Data File Name : C:\HPCHEM\1\DATA\062095-3\023F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-6A 1.0 g
 Run Time Bar Code :
 Acquired on : 20 Jun 95 06:12 PM
 Report Created on : 20 Jun 95 06:29 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 23
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.M
 Analysts Method : 8010WAS.M
 Sample Amount : 0
 ISTD Amount :



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\023F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 23
 Sample Name : PDB-6A 1.0 g Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 20 Jun 95 06:12 PM Instrument Method: 8010WAS.MTH
 Report Created on: 20 Jun 95 06:31 PM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 Jun 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\023F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.210	* not found *			1		VINYL CHLORIDE
1.769	* not found *			1		1,1 DICHLOROETHENE
2.245	* not found *			1		t-1,2-DICHLOROETHENE
2.569	* not found *			1		1,1-DICHLOROETHANE
3.067	1348831	BV	0.076	1	5.490	c-1,2-DICHLOROETHENE
3.693	* not found *			1		111TRICHLOROETHANE
3.906	* not found *			1		CARBON TET.
4.228	* not found *			1		1,2-DICHLOROETHANE
5.242	4229999	BB	0.104	1	11.531	TRICHLOROETHENE
8.930	42556	MM	0.112	1	-2.498	TETRACHLOROETHENE
11.940	9206880	BB	0.053	1-R	46.948	1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
11	12.015	11.940	-0.6%

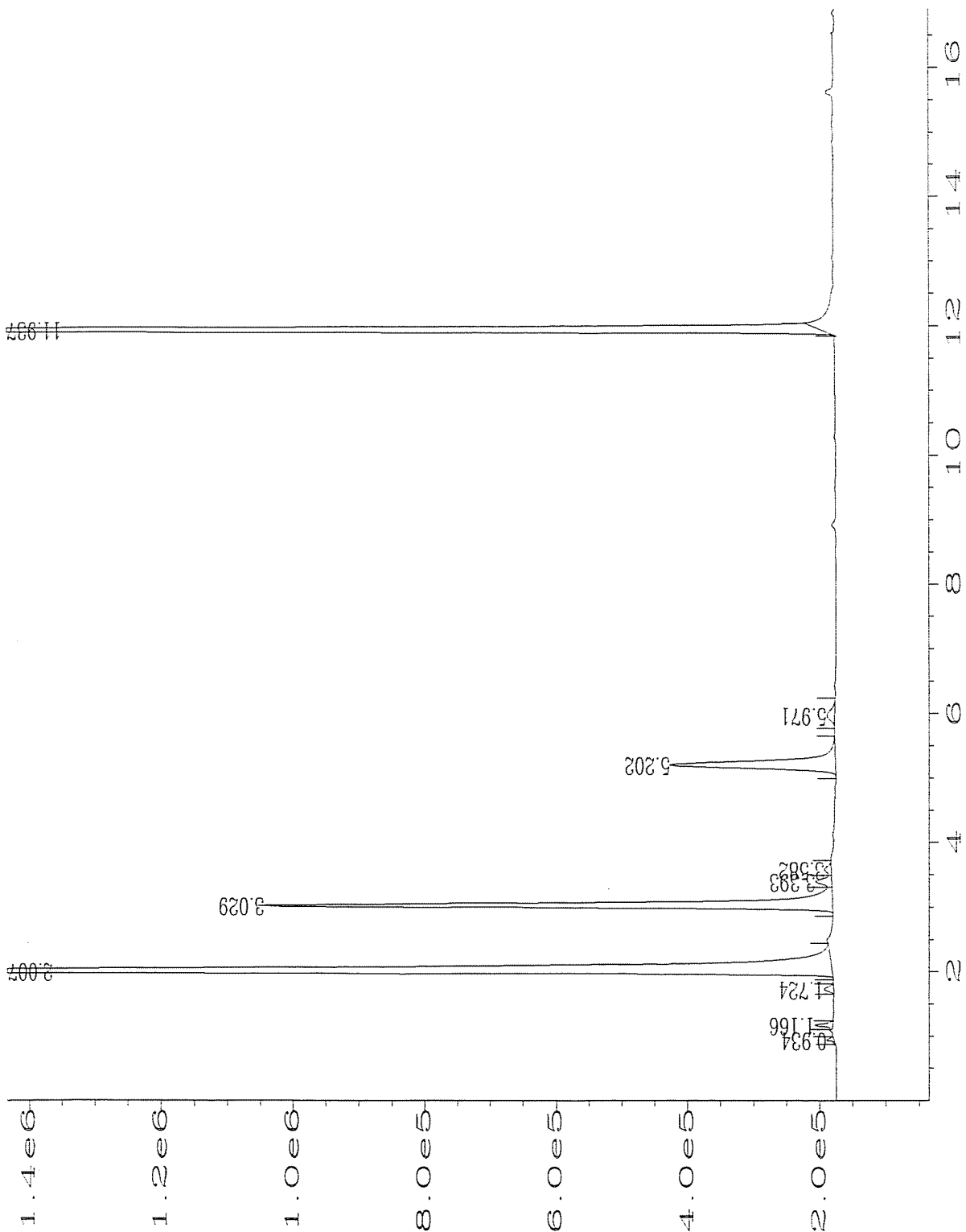
Not all calibrated peaks were found

User Modified

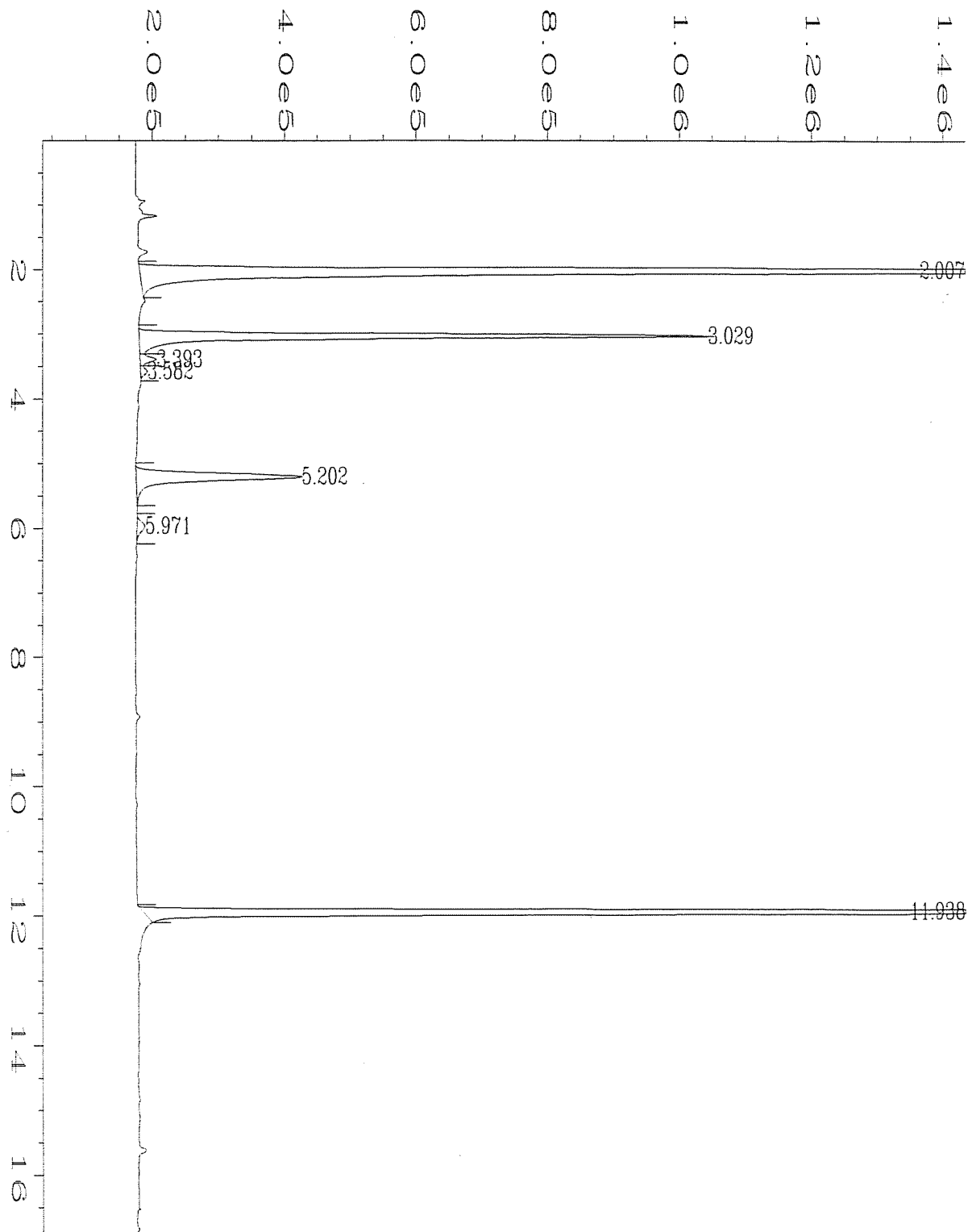
 6-20-95

Data File Name : C:\HPCHEM\1\DATA\062095-3\024F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-3A 50 uL
 Run Time Bar Code :
 Acquired on : 20 Jun 95 06:34 PM
 Report Created on : 20 Jun 95 06:54 PM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1

Page Number : 1
 Vial Number : 24
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.
 Analysis Method : 8010WAS.MIF
 Sample Amount : 0
 ISTD Amount :



user modified



Data File Name	: C:\HPCHEM\1\DATA\062095-3\024F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 24
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-3A 50 uL	Sequence Line	: 1
Run Time Bar Code:		Instrument Method	: 8010WAS.MTH
Acquired on	: 20 Jun 95 06:34 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	: 20 Jun 95 06:51 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\024F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-3A 50 uL
 Run Time Bar Code :
 Acquired on : 20 Jun 95 06:34 PM
 Report Created on: 20 Jun 95 06:54 PM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 24
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\024F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
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1.210	*	not found	*	1		VINYL CHLORIDE
1.724	74007	MM	0.084	1	-2.203	1,1 DICHLOROETHENE
2.245	*	not found	*	1		t-1,2-DICHLOROETHENE
2.569	*	not found	*	1		1,1-DICHLOROETHANE
3.029	4603650	BV	0.068	1	23.303	c-1,2-DICHLOROETHENE
3.582	74978	VB	0.089	1	-1.691	1,1,1-TRICHLOROETHANE
3.906	*	not found	*	1		CARBON TET.
4.228	*	not found	*	1		1,2-DICHLOROETHANE
5.202	2007021	BB	0.100	1	4.335	TRICHLOROETHENE
9.013	*	not found	*	1		TETRACHLOROETHENE
11.937	1.1923E+007	MM	0.063	1-R	61.794	1,4-DICHLOROBUTANE

Not all calibrated peaks were found

User Modified

Time Reference Peak	Expected RT	Actual RT	Difference
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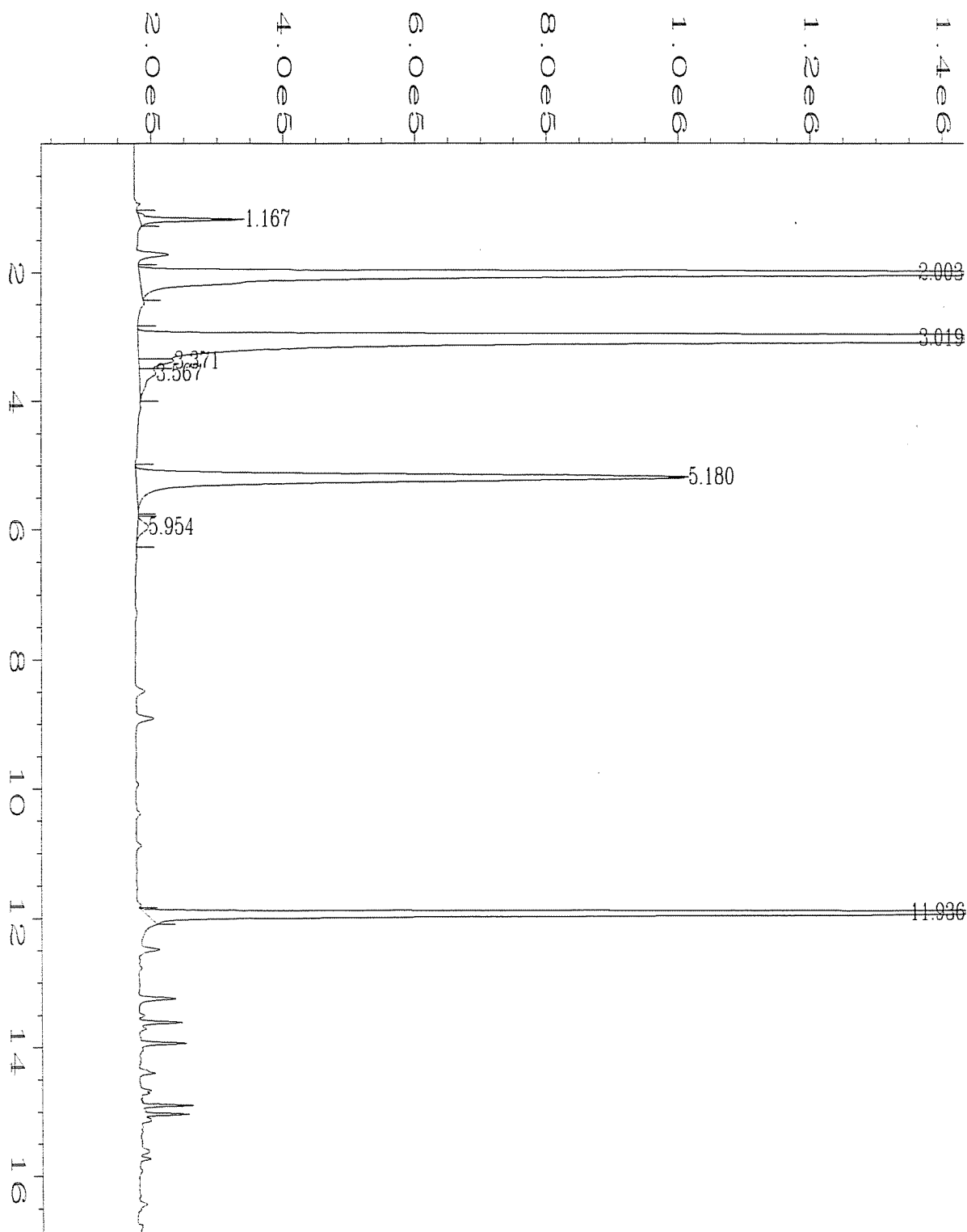
11	12.015	11.937	-0.06%
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6.20.95

report only C-1,2-DCE

6.20.95

may 7.2.95



Data File Name	: C:\HPCHEM\1\DATA\062095-3\025F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 25
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-6B 50 uL	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Required on	: 20 Jun 95 06:56 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	21 Jun 95 08:08 AM	Sample Amount	: 0
Last Recalib on	: 20 Jun 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\025F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-6B 50 uL
 Run Time Bar Code :
 Acquired on : 20 Jun 95 06:56 PM
 Report Created on: 21 Jun 95 08:08 AM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 25
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\025F0101.D

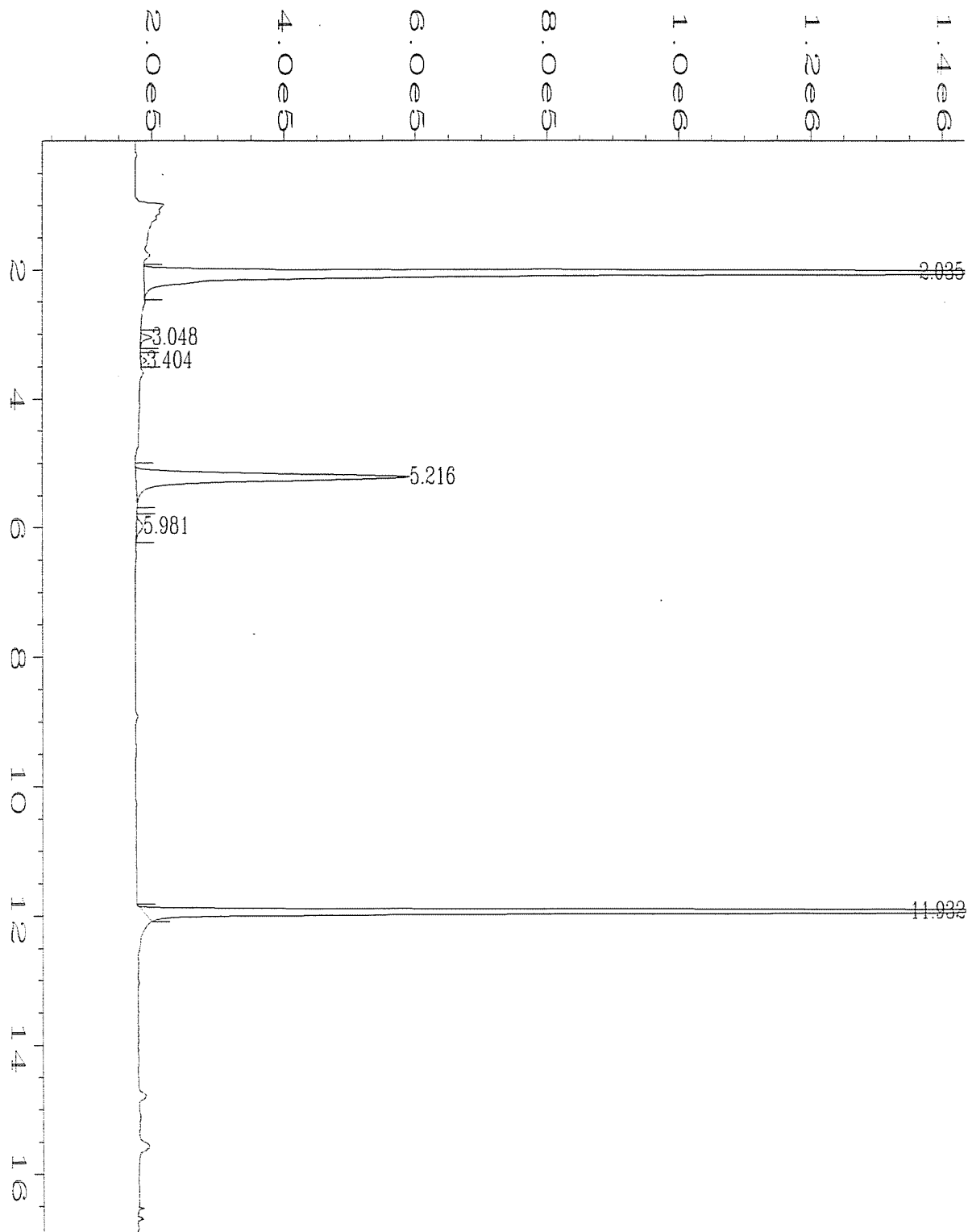
Ret Time	Area	Type	Width	Ref#	ng	Name
----------	------	------	-------	------	----	------

1.167	521668	BB	0.049	1	3.161	VINYL CHLORIDE
1.692	* not found	*		1		1,1 DICHLORETHENE
2.145	* not found	*		1		t-1,2-DICHLORETHENE
2.452	* not found	*		1		1,1-DICHLORETHANE
3.019	4.25049E+007	BV	0.084	1	230.720	c-1,2-DICHLORETHENE
3.567	330067	VB	0.161	1	-0.402	1,1TRICHLOROETHANE
3.724	* not found	*		1		CARBON TET.
4.049	* not found	*		1		1,2-DICHLORETHANE
5.180	6939486	BB	0.109	1	20.302	TRICHLOROETHENE
8.828	* not found	*		1		TETRACHLOROETHENE
11.936	1.19685E+007	BB	0.056	1-R	62.043	1,4-DICHLOROBUTANE

Not all calibrated peaks were found

Time Reference Peak	Expected RT	Actual RT	Difference
---------------------	-------------	-----------	------------

6.24.55
 mes 7.26.55



Data File Name	: C:\HPCHEM\1\DATA\062095-3\026F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 26
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-7A 5.0 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method	: 8010WAS.MTH
Required on	: 20 Jun 95 07:18 PM	Analysis Method	: 8010WAS.MTH
Report Created on	: 20 Jun 95 07:35 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\026F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-7A 5.0 g
 Run Time Bar Code :
 Acquired on : 20 Jun 95 07:18 PM
 Report Created on: 20 Jun 95 07:35 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 26
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\026F0101.D

Ret Time Area Type Width Ref# ng Name

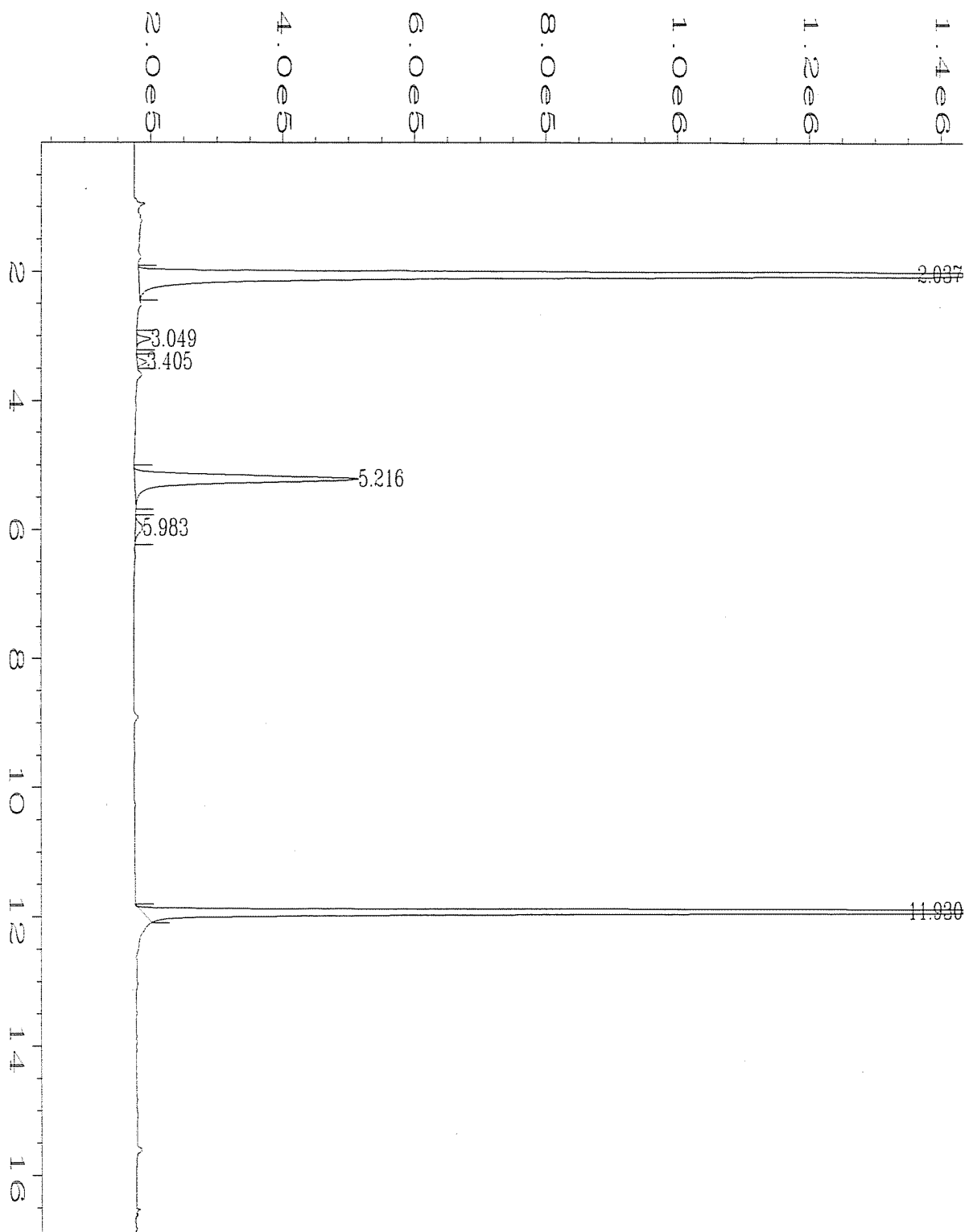
1.210	* not found		1		VINYL CHLORIDE
1.769	* not found		1		1,1-DICHLOROETHENE
2.245	* not found		1		1,1,2-DICHLOROETHENE
2.569	* not found		1		1,1-DICHLOROETHANE
3.048		77778	BB	0.065	-1.465
3.693	* not found		1		1,1,2-DICHLOROETHANE
3.906	* not found		1		CARBON TET.
4.228	* not found		1		1,2-DICHLOROETHANE
5.216		3274839	BB	0.101	8.439
9.013	* not found		1		TETRACHLOROETHENE
11.932		8926680	BB	0.057	45.417
			1-R		1,4-DICHLOROBUTANE

Time Reference Peak
 11
 Expected RT 12.015
 Actual RT 11.932
 Difference -0.7%

Not all calibrated peaks were found

6-24-95

MS 7.2625



Data File Name	: C:\HPCHEM\1\DATA\062095-3\027F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 27
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-8A 5.0 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 20 Jun 95 07:40 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	20 Jun 95 07:57 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\027F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-8A 5.0 g
 Run Time Bar Code :
 Acquired on : 20 Jun 95 07:40 PM
 Report Created on: 20 Jun 95 07:57 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Sample Amount :
 Analysis Method : 8010WAS.MTH
 Instrument Method: 8010WAS.MTH
 Sequence Line : 1
 Injection Number : 1
 Vial Number : 27
 Page Number : 1
 ISTD Amount :
 Sample Amount : 0

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\027F0101.D

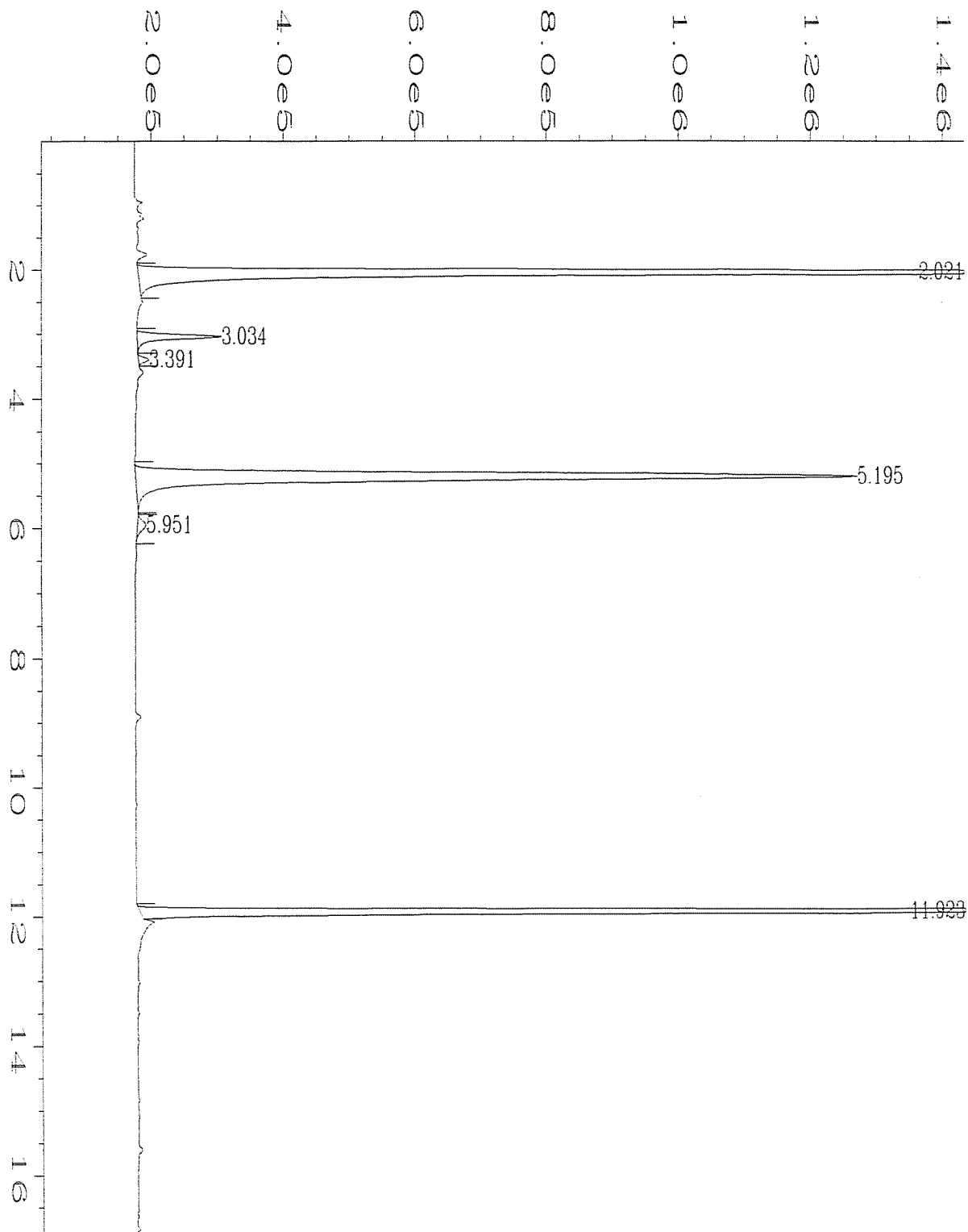
Ret Time	Area	Type	Width	Ref#	ng	Name
----------	------	------	-------	------	----	------

1.210	*	not found	*	1		VINYL CHLORIDE
1.769	*	not found	*	1		1,1 DICHLOROETHENE
2.245	*	not found	*	1		t-1,2-DICHLOROETHENE
2.569	*	not found	*	1		1,1-DICHLOROETHANE
3.049		101657 BB	0.072	1	-1.335	c-1,2-DICHLOROETHENE
3.693	*	not found	*	1		1,1TRICHLOROETHANE
3.906	*	not found	*	1		CARBON TET.
4.228	*	not found	*	1		1,2-DICHLOROETHANE
5.216		2721696 BB	0.097	1	6.648	TRICHLOROETHENE
9.013	*	not found	*	1		TETRACHLOROETHENE
11.930		1.03409E+007 BB	0.059	1-R	53.146	1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
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Not all calibrated peaks were found

95-6-21-55
 mg 7.2615



Data File Name	: C:\HPCHEM\1\DATA\062095-3\028F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 28
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-9A 5.0 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method	: 8010WAS.MTH
Acquired on	: 20 Jun 95 08:02 PM	Analysis Method	: 8010WAS.MTH
Report Created on	: 20 Jun 95 08:19 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\028F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-9A 5.0 g
 Run Time Bar Code :
 Acquired on : 20 Jun 95 08:02 PM
 Report Created on: 20 Jun 95 08:19 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 28
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\028F0101.D

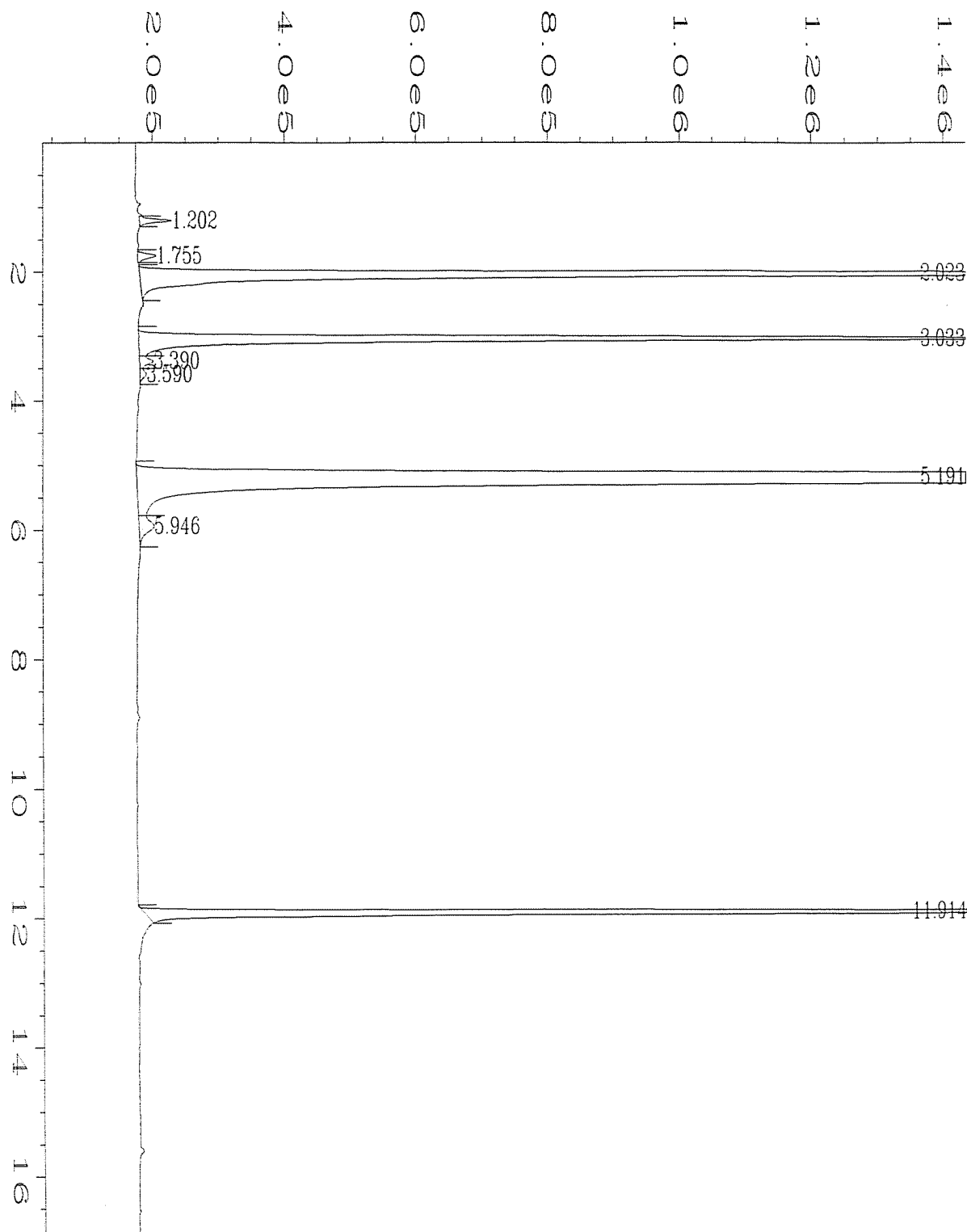
Ret Time	Area	Type	Width	Ref#	ng	Name
----------	------	------	-------	------	----	------

1.210	*	not found	*	1		VINYL CHLORIDE
1.769	*	not found	*	1		1,1-DICHLOROETHENE
2.245	*	not found	*	1		t-1,2-DICHLOROETHENE
2.569	*	not found	*	1		1,1-DICHLOROETHANE
3.034	BV	652663	0.072	1	1.681	c-1,2-DICHLOROETHENE
3.693	*	not found	*	1		1,1,1-TRICHLOROETHANE
3.906	*	not found	*	1		CARBON TET.
4.228	*	not found	*	1		1,2-DICHLOROETHANE
5.195	BB	8964040	0.099	1	26.856	TRICHLOROETHENE
9.013	*	not found	*	1		TETRACHLOROETHENE
11.923	BB	1.05483E+007	0.052	1-R	54.280	1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
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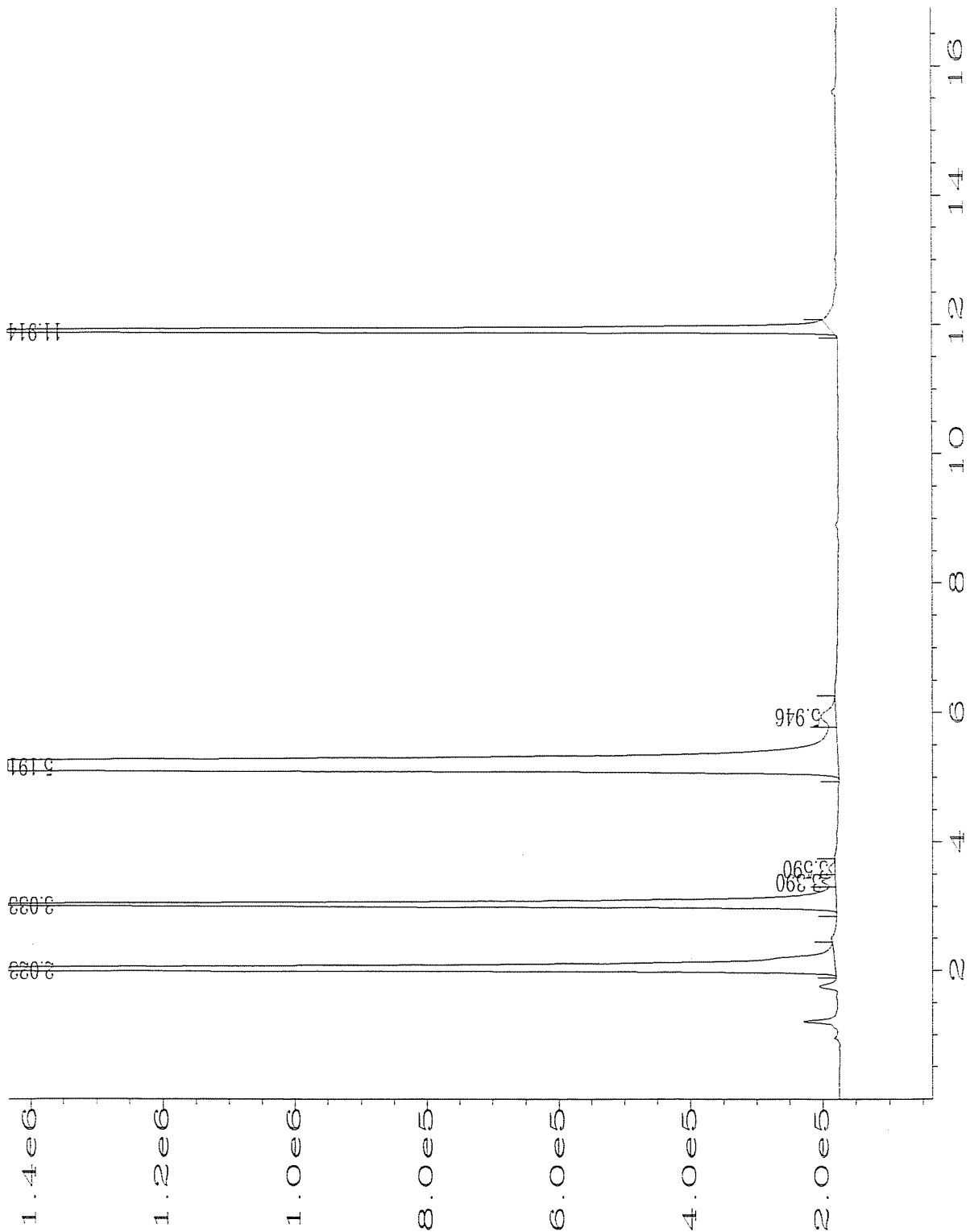
Not all calibrated peaks were found

6.21.55
 m37.2695



Data File Name	: C:\HPCHEM\1\DATA\062095-3\029F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 29
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-10A 5.0 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
quired on	: 20 Jun 95 08:24 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	21 Jun 95 08:11 AM	Sample Amount	: 0
Last Recalib on	: 20 Jun 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

Data File Name : C:\HPCHEM\1\DATA\062095-3\029F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-10A 5.0 g
 Run Time Bar Code :
 Acquired on : 20 Jun 95 08:24 PM
 Report Created on : 20 Jun 95 08:41 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 29
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\029F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 29
 Sample Name : PDB-10A 5.0 g Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 20 Jun 95 08:24 PM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 08:11 AM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 Jun 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\029F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.151	* not found *			1		VINYL CHLORIDE
1.692	* not found *			1		1,1 DICHLOROETHENE
2.145	* not found *			1		t-1,2-DICHLOROETHENE
2.452	* not found *			1		1,1-DICHLOROETHANE
3.033	7816621 BV	0.077	1	40.886		c-1,2-DICHLOROETHENE
3.590	75717 VB	0.099	1	-1.687		111TRICHLOROETHANE
3.724	* not found *		1			CARBON TET.
4.049	* not found *		1			1,2-DICHLOROETHANE
5.191	3.89529E+007 BV	0.105	1	123.936		TRICHLOROETHENE
8.828	* not found *		1			TETRACHLOROETHENE
11.914	8601126 BB	0.059	1-R	43.637		1,4-DICHLOROBUTANE

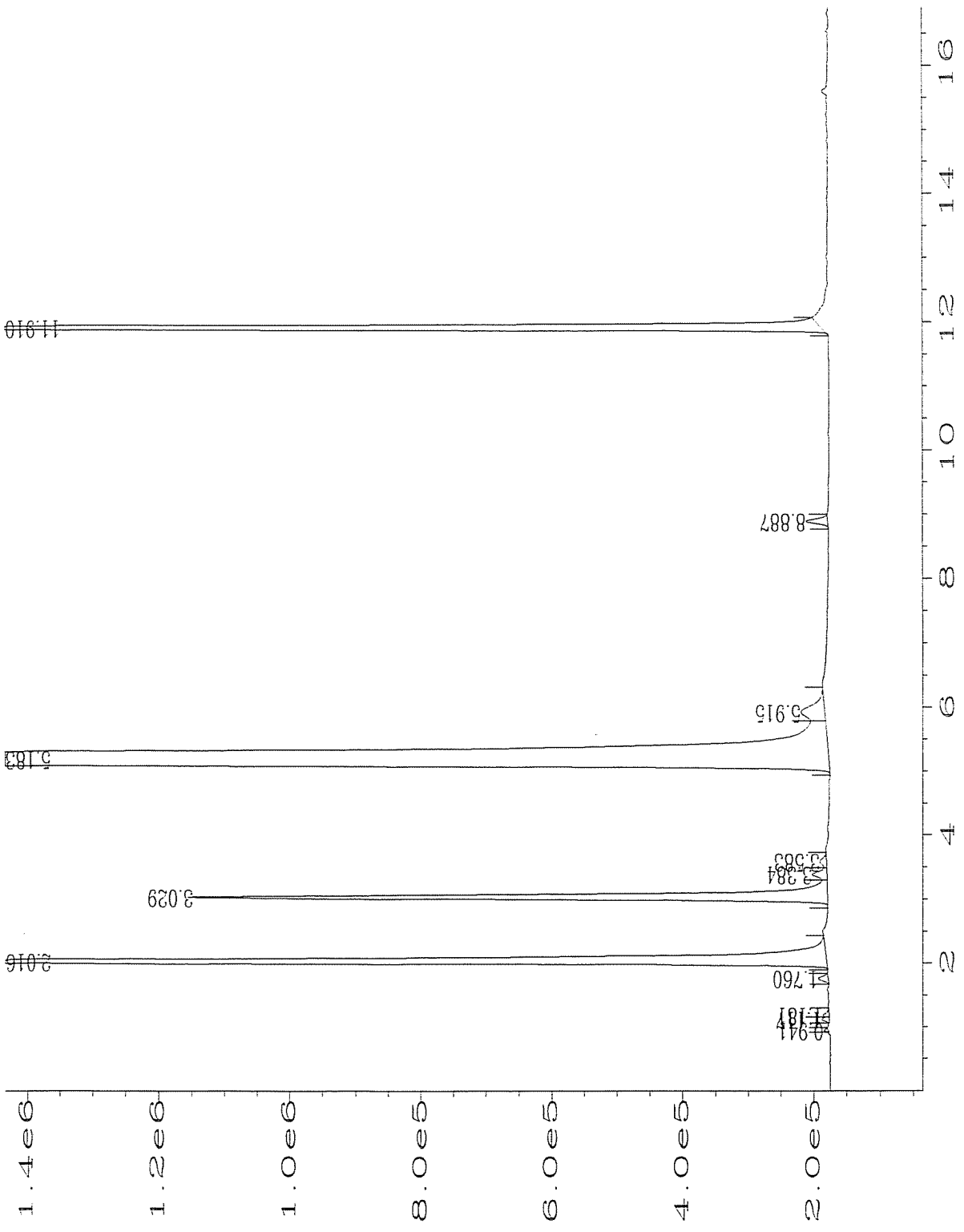
Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.914	0.3%

Not all calibrated peaks were found

User Modified

TS 6.21.95
 me 7.26.95

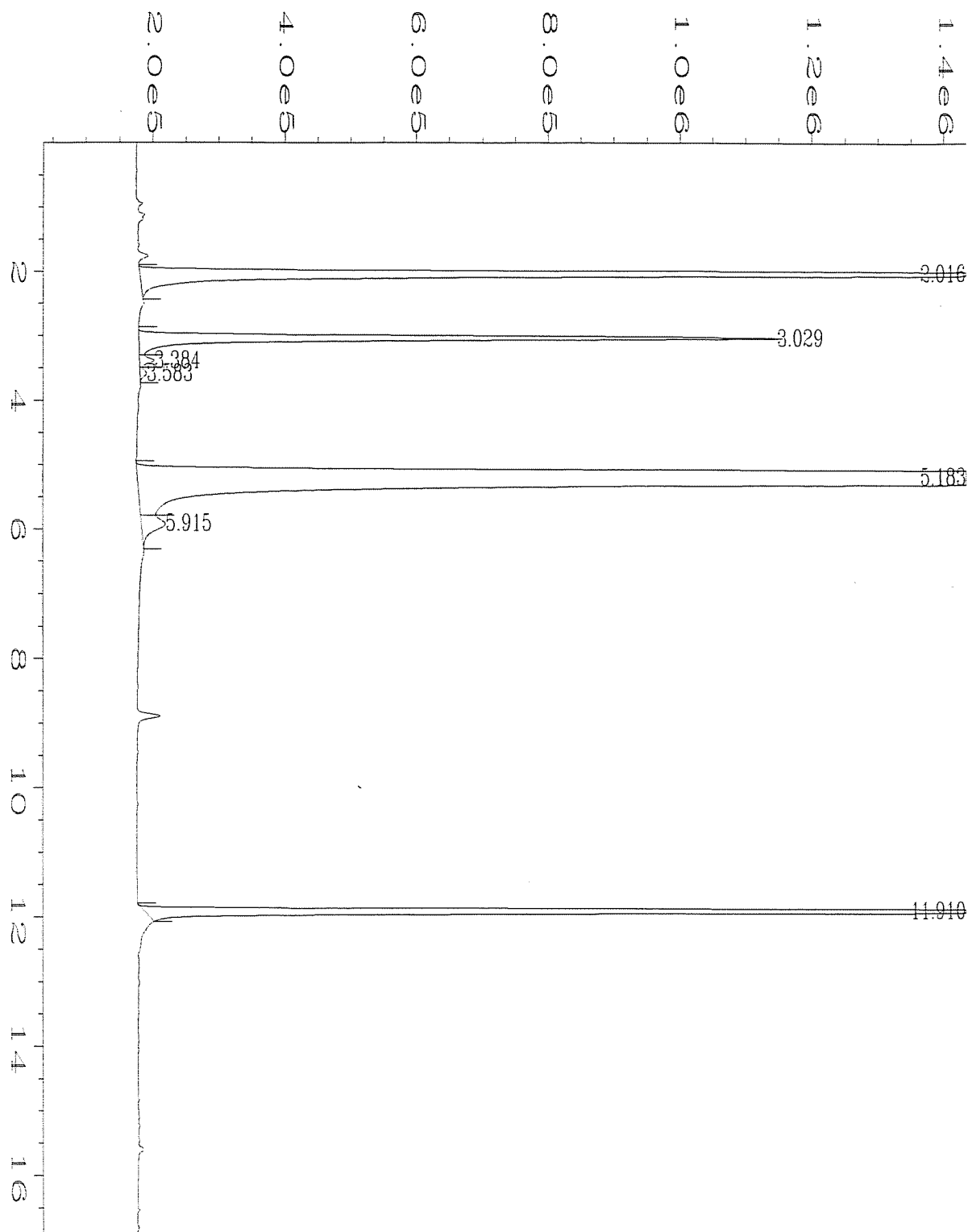
user modified



Data File Name : C:\HPCHEM\1\DATA\062095-3\030F0101.D

Operator : TJS
Instrument : GC # 3
Sample Name : PDB-11A 1.0 g
Run Time Bar Code :
Acquired on : 20 Jun 95 08:46 PM
Report Created on : 21 Jun 95 08:12 AM
Last Recalib on : 20 Jun 95 09:55 AM
Multiplier : 1

Page Number : 1
Vial Number : 30
Injection Number : 1
Sequence Line : 1
Instrument Method : 8010WAS.M
Analysis Method : 8010WAS.M
Sample Amount : 0
ISTD Amount :



Data File Name	: C:\HPCHEM\1\DATA\062095-3\030F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 30
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-11A 1.0 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method	: 8010WAS.MTH
Required on	: 20 Jun 95 08:46 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	20 Jun 95 09:03 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\030F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-11A 1.0 g
 Run Time Bar Code :
 Acquired on : 20 Jun 95 08:46 PM
 Report Created on : 21 Jun 95 08:12 AM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 30
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\030F0101.D

Ret Time Area Type Width Ref# ng Name

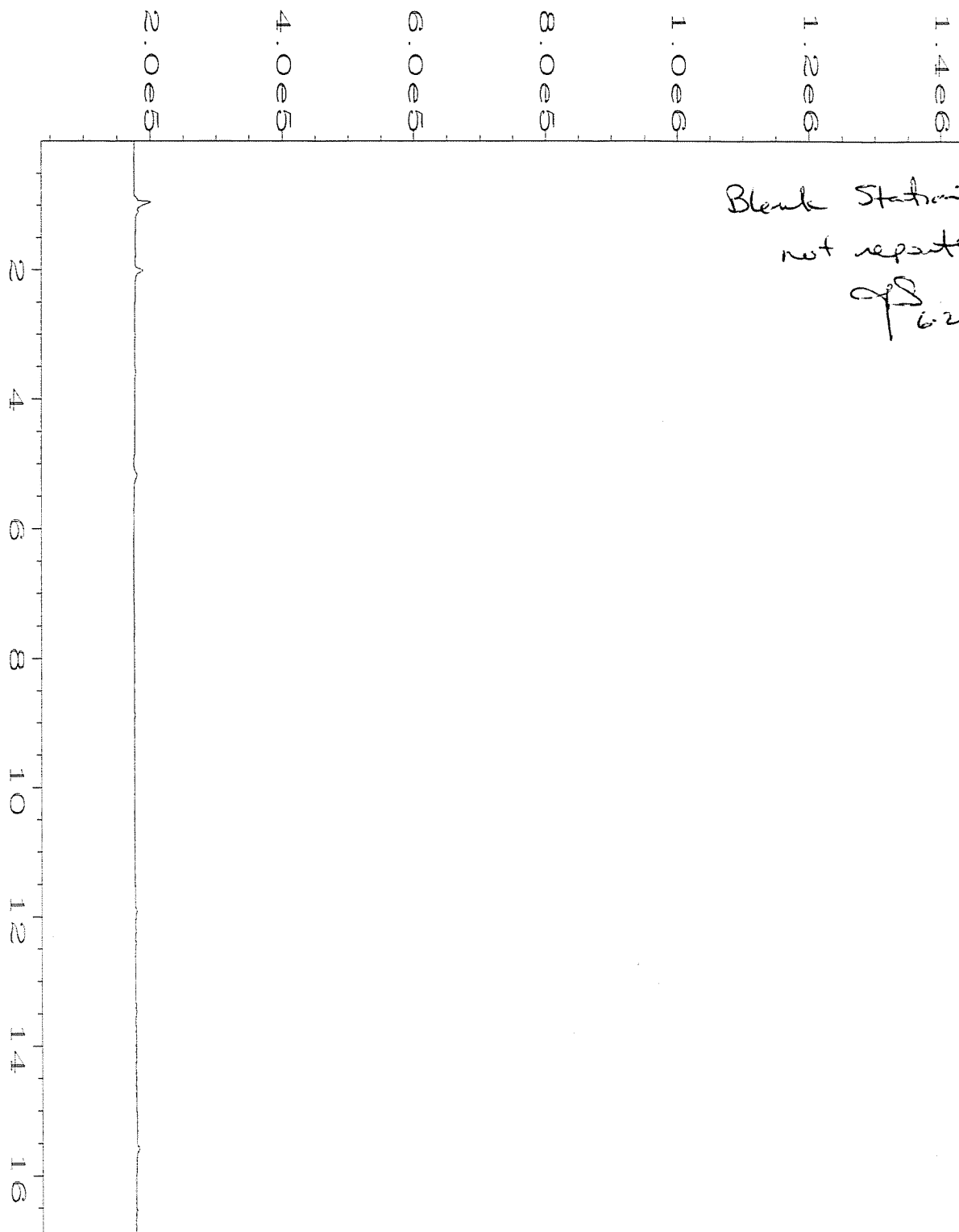
1.181	36650	FM	0.066	1	-1.524	VINYL CHLORIDE
1.692	*	not found	*	1		1,1 DICHLOROETHENE
2.145	*	not found	*	1		t-1,2-DICHLOROETHENE
2.452	*	not found	*	1		1,1-DICHLOROETHANE
3.029	5179117	BV	0.073	1	26.452	c-1,2-DICHLOROETHENE
3.583	72777	VB	0.095	1	-1.702	1,1,1-TRICHLOROETHANE
3.724	*	not found	*	1		CARBON TET.
4.049	*	not found	*	1		1,2-DICHLOROETHANE
5.183	8.13775E+007	BV	0.112	1	261.272	TRICHLOROETHENE
8.887	166372	MM	0.084	1	-2.094	TETRACHLOROETHENE
11.910	1.01391E+007	BB	0.060	1-R	52.043	1,4-DICHLOROBUTANE

Time Reference Peak
 11
 Expected RT 11.884
 Actual RT 11.910
 Difference 0.2%

Not all calibrated peaks were found

User Modified

6-2-95
 May 7 2095



Data File Name	: C:\HPCHEM\1\DATA\062095-3\031F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 31
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: blank	Sequence Line	: 1
Run Time Bar Code:		Instrument Method	: 8010WAS.MTH
Acquired on	: 20 Jun 95 09:08 PM	Analysis Method	: 8010WAS.MTH
Report Created on	: 20 Jun 95 09:25 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\031F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : blank
 Run Time Bar Code :
 Acquired on : 20 Jun 95 09:08 PM
 Report Created on: 20 Jun 95 09:25 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 31
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

Sig. 1 In C:\HPCHEM\1\DATA\062095-3\031F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
----------	------	------	-------	------	----	------

1.210	*	not found				VINYL CHLORIDE
1.769	*	not found				1,1 DICHLOROETHENE
2.245	*	not found				t-1,2-DICHLOROETHENE
2.569	*	not found				1,1-DICHLOROETHANE
3.115	*	not found				c-1,2-DICHLOROETHENE
3.693	*	not found				1,1,1-TRICHLOROETHANE
3.906	*	not found				CARBON TET.
4.228	*	not found				1,2-DICHLOROETHANE
5.358	*	not found				TRICHLOROETHENE
9.013	*	not found				TETRACHLOROETHENE
12.015	*	not found				1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
11	12.015		* not found *

Could not find time reference peak:
 No peak of Number 11's description at 12.015 + 0.300 - 0.300 min.
 Not all time reference peaks were found
 Not all calibrated peaks were found

Area Percent Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\031F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : blank
 Run Time Bar Code :
 Acquired on : 20 Jun 95 09:08 PM
 Report Created on: 20 Jun 95 09:25 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 31
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

Sig. 1 In C:\HPCHEM\1\DATA\062095-3\031F0101.D

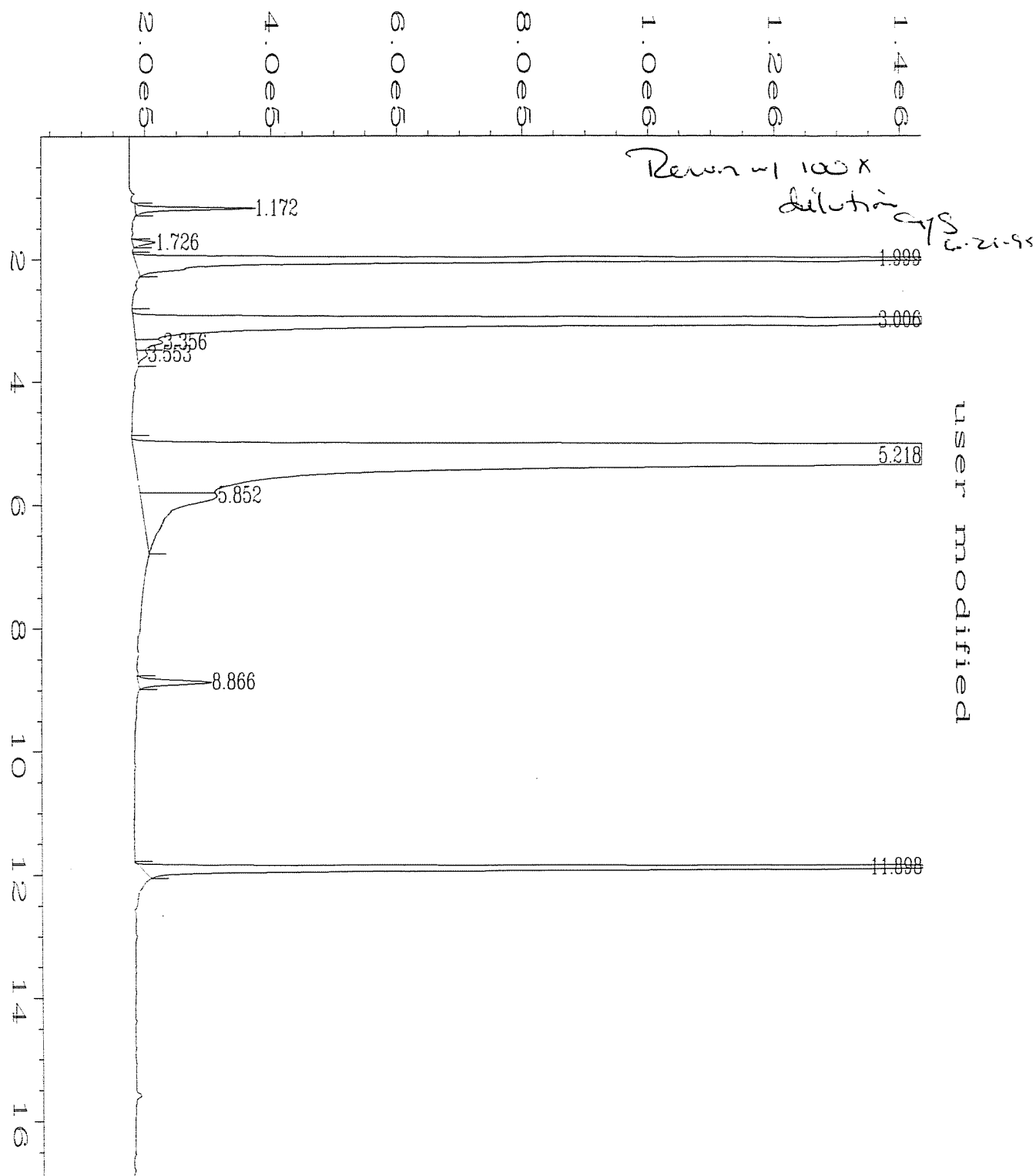
Pk#	Ret Time	Area	Height	Type	Width	Area %
-----	----------	------	--------	------	-------	--------

Total amount = 0

Blank Station

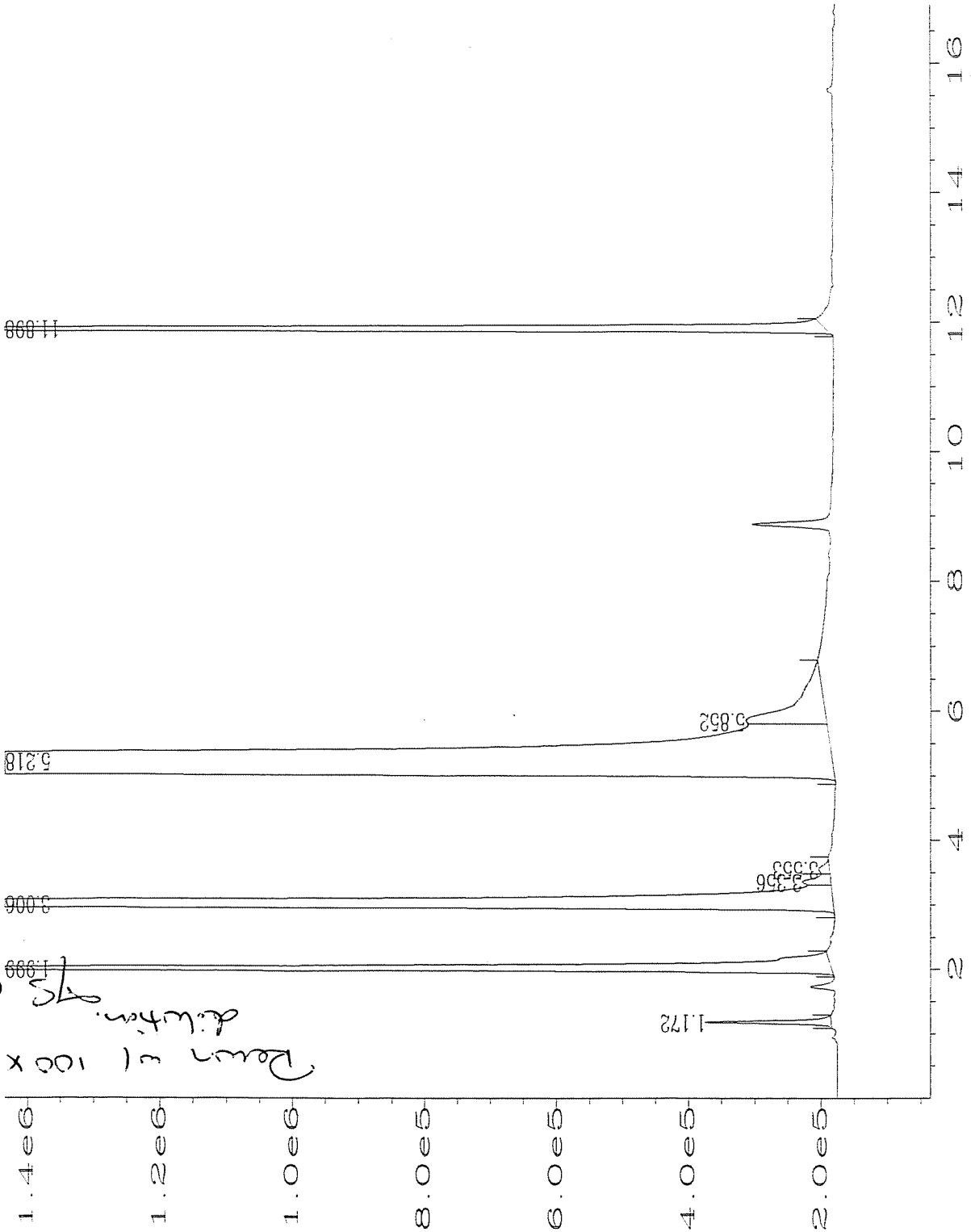
not reported

7/5/95 21:55



Data File Name	: C:\HPCHEM\1\DATA\062095-3\032F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 32
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-11B 1.0 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method	: 8010WAS.MTH
Required on	: 20 Jun 95 09:30 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	: 21 Jun 95 08:14 AM	Sample Amount	: 0
Last Recalib on	: 20 Jun 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

Data File Name : C:\HPCHEM\1\DATA\062095-3\032F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-11B 1.0 g
 Run Time Bar Code :
 Acquired on : 20 Jun 95 09:30 PM
 Report Created on : 20 Jun 95 09:47 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 32
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.1
 Analysis Method : 8010WAS.M.H
 Sample Amount : 0
 ISTD Amount :



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\032F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 32
 Sample Name : PDB-11B 1.0 g Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 20 Jun 95 09:30 PM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 08:14 AM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 Jun 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\032F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.172	606092	BB	0.046	1	3.976	VINYL CHLORIDE
1.726	151399	MM	0.070	1	-1.728	1,1-DICHLOROETHENE
2.145	* not found *			1		t-1,2-DICHLOROETHENE
2.452	* not found *			1		1,1-DICHLOROETHANE
3.006	3.68015E+007	BV	0.079	1	199.507	c-1,2-DICHLOROETHENE
3.553	134760	VB	0.108	1	-1.389	111TRICHLOROETHANE
3.724	* not found *			1		CARBON TET.
4.049	* not found *			1		1,2-DICHLOROETHANE
5.218	2.22913E+008	BV	0.174	1	719.447	TRICHLOROETHENE
8.866	591247	MM	0.085	1	-0.708	TETRACHLOROETHENE
11.898	1.02491E+007	BB	0.054	1-R	52.645	1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.898	0.1%

Not all calibrated peaks were found

User Modified

me 7.20.95

report w/ 100x dilution

TJS 6.21.95

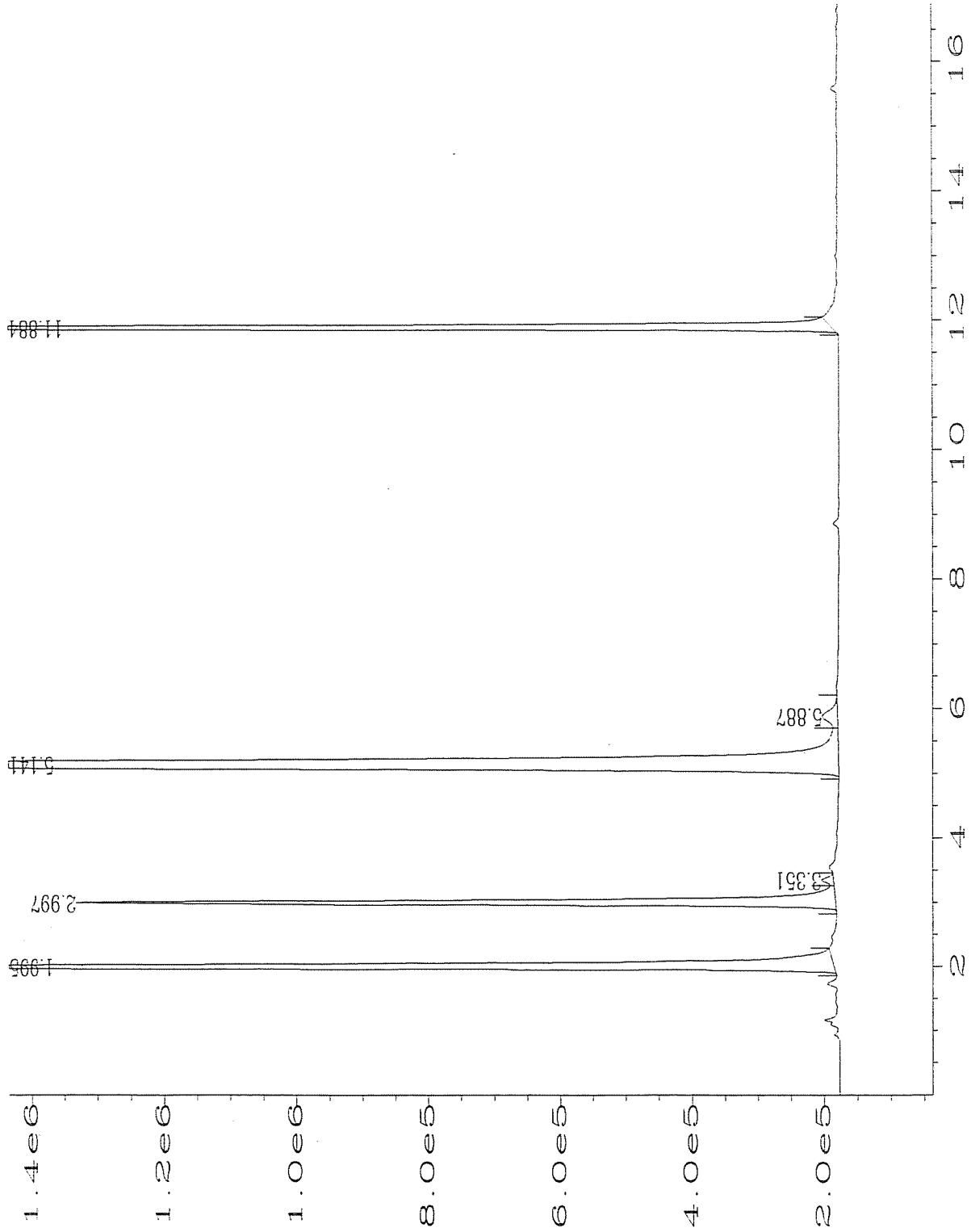
Report: Vinyl chloride . BQL

c-1,2-DCE: 200 ug/kg

from this run.

Report printed for TCE on
6/21/95

TJS 6.21.95



Data File Name : C:\HPCHEM\1\DATA\062095-3\033F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-12A 1.0 g
 Run Time Bar Code :
 Acquired on : 20 Jun 95 09:53 PM
 Report Created on : 21 Jun 95 07:44 AM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 33
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.M
 Analysis Method : 8010WAS.M
 Sample Amount : 0
 ISTD Amount :

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\033F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 33
 Sample Name : PDB-12A 1.0 g Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 20 Jun 95 09:53 PM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 07:44 AM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 Jun 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\033F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.210	* not found *			1		VINYL CHLORIDE
1.769	* not found *			1		1,1 DICHLOROETHENE
2.245	* not found *			1		t-1,2-DICHLOROETHENE
2.569	* not found *			1		1,1-DICHLOROETHANE
2.997	6028714 BV	0.071	1	31.101		c-1,2-DICHLOROETHENE
3.693	* not found *		1			111TRICHLOROETHANE
3.906	* not found *		1			CARBON TET.
4.228	* not found *		1			1,2-DICHLOROETHANE
5.141	2.00911E+007 BV	0.109	1	62.876		TRICHLOROETHENE
9.013	* not found *		1			TETRACHLOROETHENE
11.884	9640346 BB	0.054	1-R	49.317		1,4-DICHLOROBUTANE

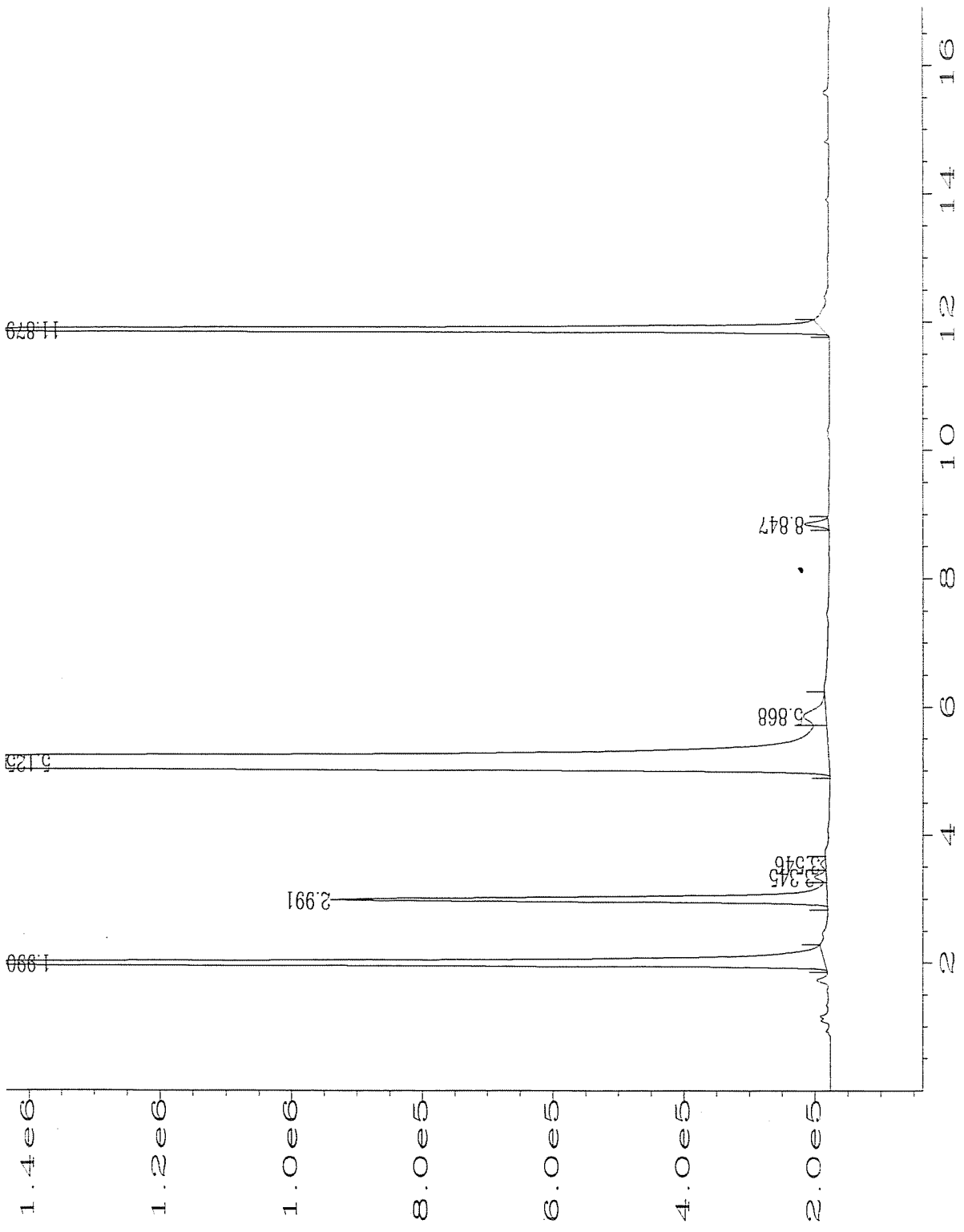
Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.884	0.0%

Not all calibrated peaks were found

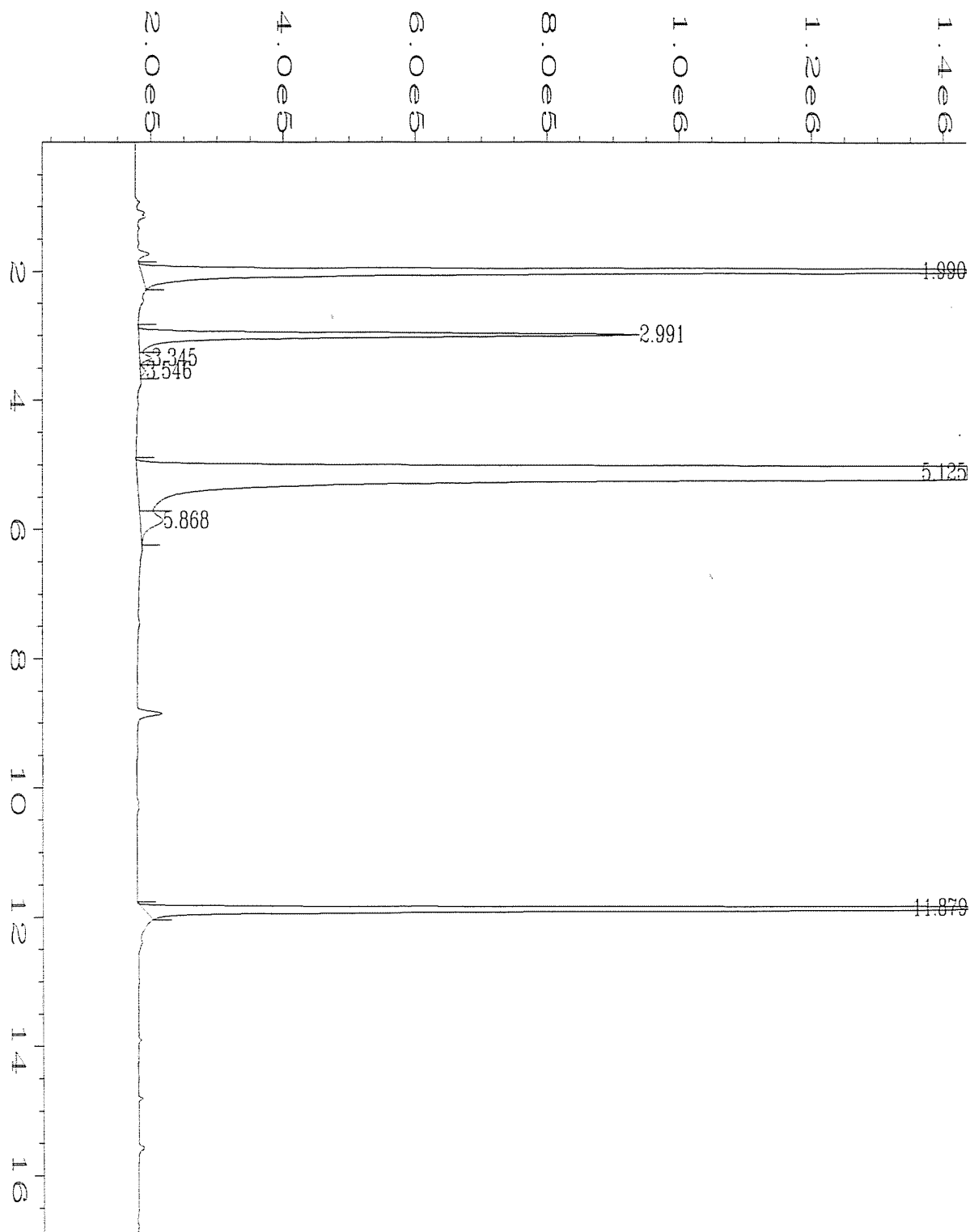
TJS 6-21-95

may 7.26.95

Data File Name : C:\HPCHEM\1\DATA\062095-3\034F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-30A 0.5 g
 Run Time Bar Code :
 Acquired on : 20 Jun 95 10:15 PM
 Report Created on : 21 Jun 95 08:16 AM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 34
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.1
 Analysis Method : 8010WAS.M
 Sample Amount : 0
 ISTD Amount :



user modified



Data File Name	: C:\HPCHEM\1\DATA\062095-3\034F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 34
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-30A 0.5 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 20 Jun 95 10:15 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	21 Jun 95 07:45 AM	Sample Amount	: 0
Last Recalib on	: 20 Jun 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\034F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-30A 0.5 g
 Run Time Bar Code :
 Acquired on : 20 Jun 95 10:15 PM
 Report Created on: 21 Jun 95 08:16 AM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 34
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\034F0101.D

Ret Time Area Type Width Ref# ng Name

1.151	* not found	1			VINYL CHLORIDE
1.692	* not found	1			1,1-DICHLOROETHENE
2.145	* not found	1			1,1,2-DICHLOROETHENE
2.452	* not found	1			1,1-DICHLOROETHANE
2.991		1	0.077	19.885	C-1,2-DICHLOROETHENE
3.546		1	0.087	-1.806	1,1,1-TRICHLOROETHANE
3.724	* not found	1			CARBON TET.
4.049	* not found	1			1,2-DICHLOROETHANE
5.125	6.91987E+007	1	0.103	221.847	TRICHLOROETHENE
8.847	189863	1	0.086	-2.018	TETRACHLOROETHENE
11.879	9269507	1	0.054	47.290	1,4-DICHLOROBUTANE

Time Reference Peak

Expected RT

Actual RT

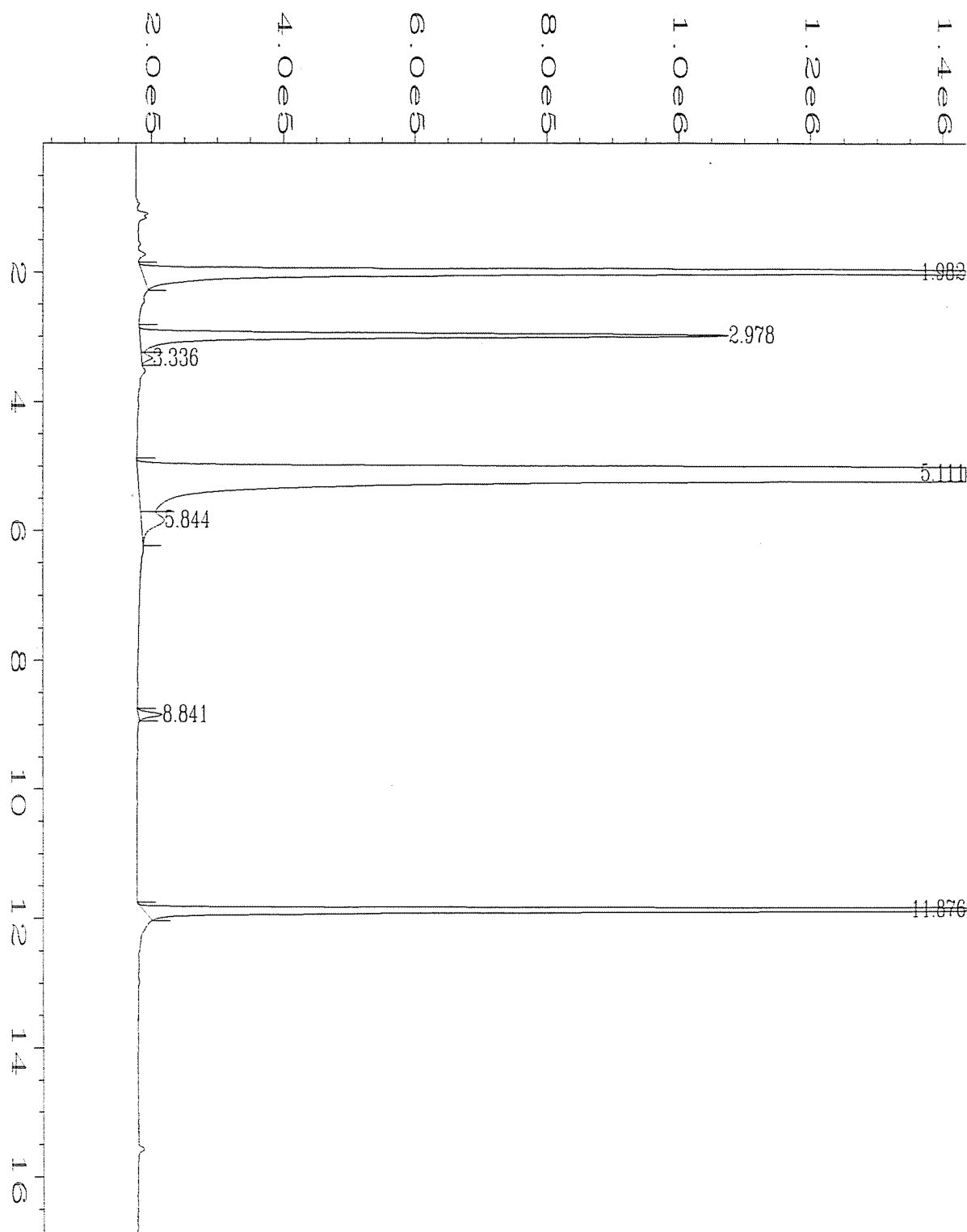
Difference

Not all calibrated peaks were found

User Modified

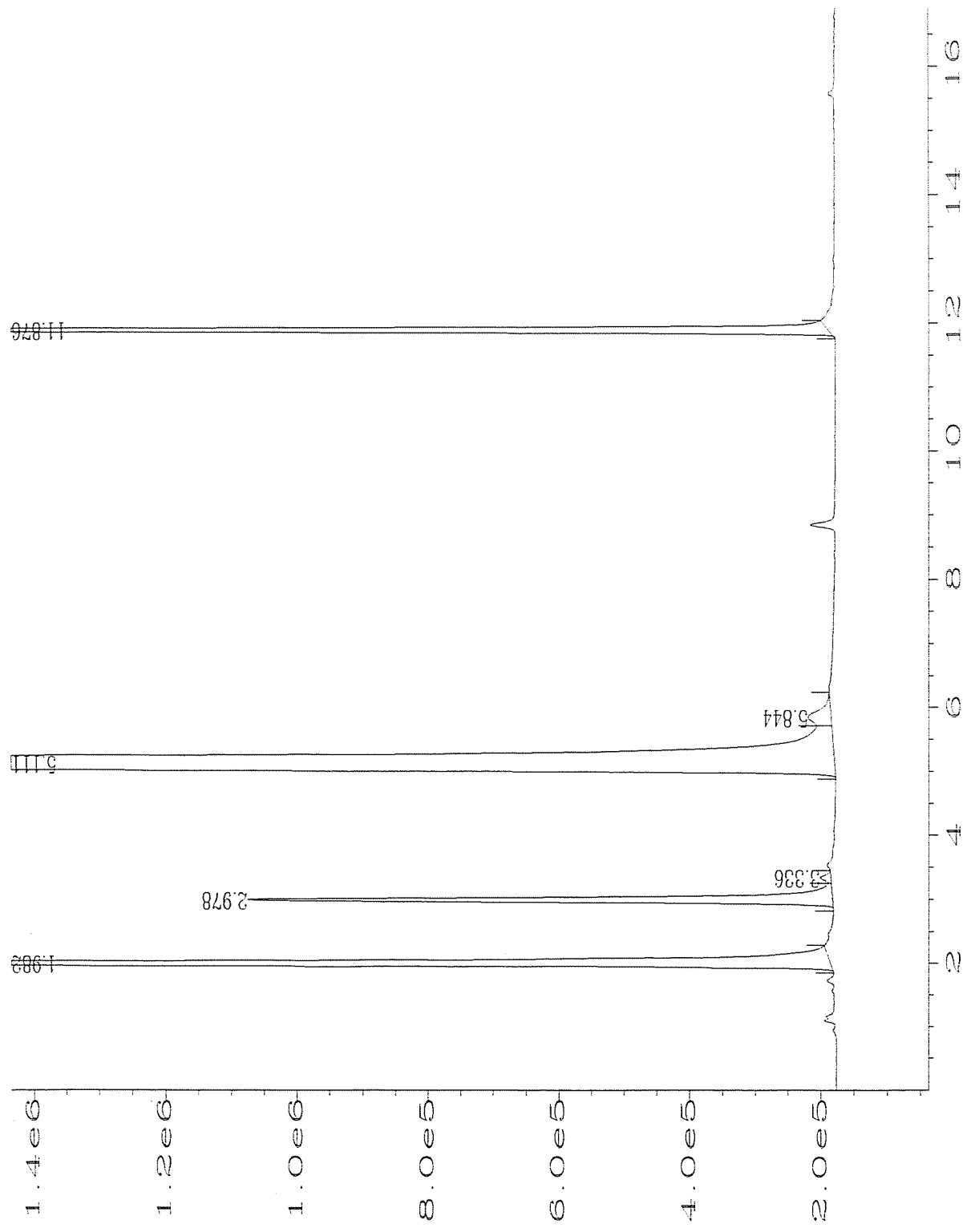
mass 7.2645

6.24.95



Data File Name	: C:\HPCHEM\1\DATA\062095-3\035F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 35
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-11A Dup 1.0	Sequence Line	: 1
Run Time Bar Code:		Instrument Method	: 8010WAS.MTH
quired on	: 20 Jun 95 10:37 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	: 21 Jun 95 08:17 AM	Sample Amount	: 0
Last Recalib on	: 20 Jun 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

Data File Name : C:\HPCHEM\1\DATA\062095-3\035F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-11A Dup 1.0
 Run Time Bar Code :
 Acquired on : 20 Jun 95 10:37 PM
 Report Created on : 20 Jun 95 10:54 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 35
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.M
 Analysis Method : 8010WAS.M
 Sample Amount : 0
 ISTD Amount :



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\035F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 35
 Sample Name : PDB-11A Dup 1.0 Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 20 Jun 95 10:37 PM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 08:17 AM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 Jun 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\035F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.151	*	not found	*	1		VINYL CHLORIDE
1.692	*	not found	*	1		1,1-DICHLOROETHENE
2.145	*	not found	*	1		t-1,2-DICHLOROETHENE
2.452	*	not found	*	1		1,1-DICHLOROETHANE
2.978	4783254	BV	0.077	1	24.286	c-1,2-DICHLOROETHENE
3.529	*	not found	*	1		111TRICHLOROETHANE
3.724	*	not found	*	1		CARBON TET.
4.049	*	not found	*	1		1,2-DICHLOROETHANE
5.111	8.24085E+007	BV	0.106	1	264.609	TRICHLOROETHENE
8.841	184403	MM	0.085	1	-2.035	TETRACHLOROETHENE
11.876	9206319	BB	0.058	1-R	46.945	1,4-DICHLOROBUTANE

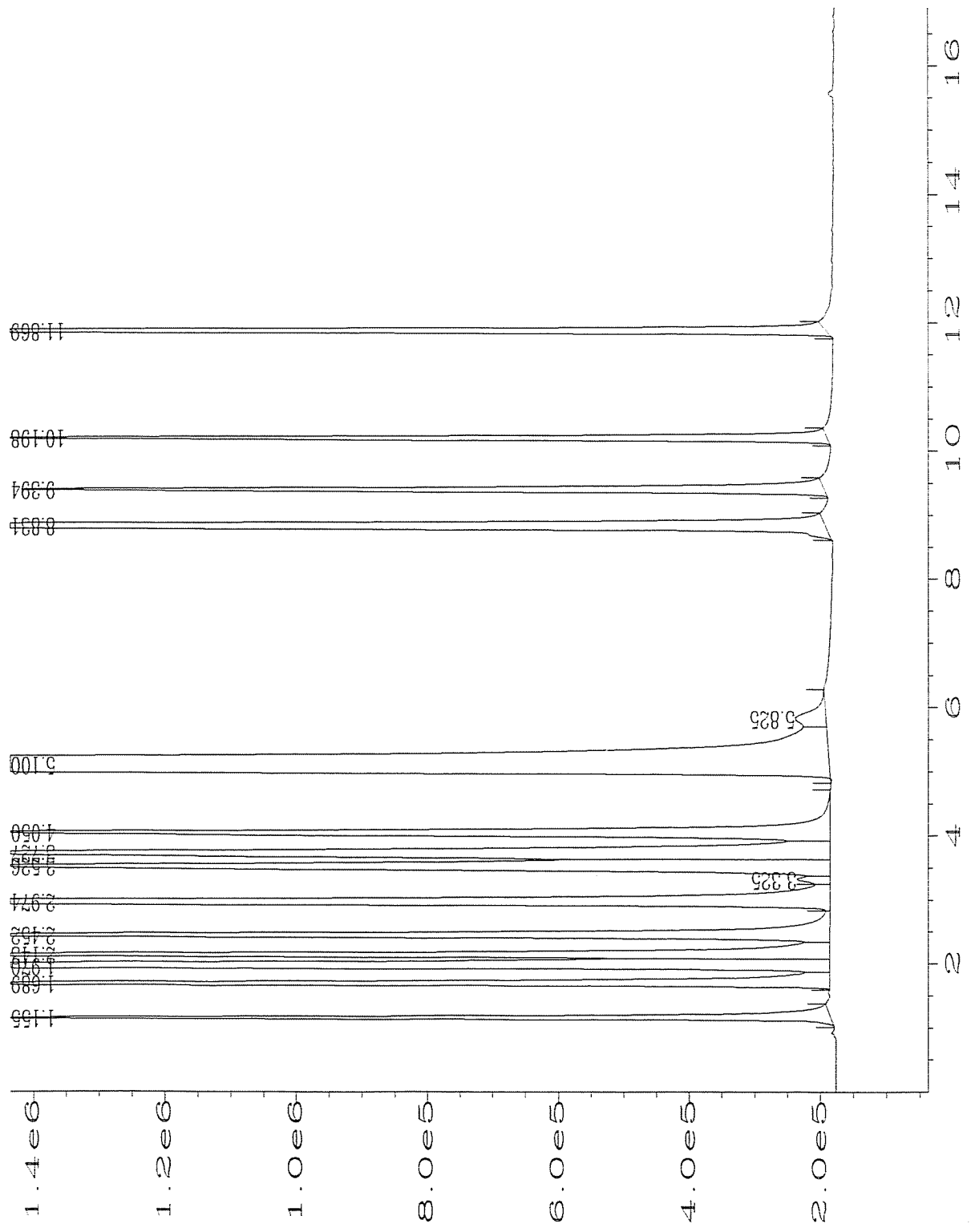
Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.876	-0.1%

Not all calibrated peaks were found

User Modified

TS
6-21-95
may 7 2095

Data File Name : C:\HPCHEM\1\DATA\062095-3\036F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-11A MS 50 ng
 Run Time Bar Code :
 Acquired on : 20 Jun 95 10:59 PM
 Report Created on : 21 Jun 95 08:19 AM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 36
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.M
 Analysis Method : 8010WAS.M
 Sample Amount : 0
 ISTD Amount :



External Standard Report

```

Data File Name      : C:\HPCHEM\1\DATA\062095-3\036F0101.D
  rator            : TJS
Instrument          : GC # 3
Sample Name        : PDB-11A MS 50 ng
Run Time Bar Code  :
Acquired on        : 20 Jun 95  10:59 PM
Report Created on  : 21 Jun 95  08:19 AM
Last Recalib on    : 20 Jun 95  09:55 AM
Multiplier         : 1

Page Number        : 1
Vial Number        : 36
Injection Number    : 1
Sequence Line      : 1
Instrument Method   : 8010WAS.MTH
Analysis Method     : 8010WAS.MTH
Sample Amount       : 0
ISTD Amount         :
  
```

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\036F0101.D

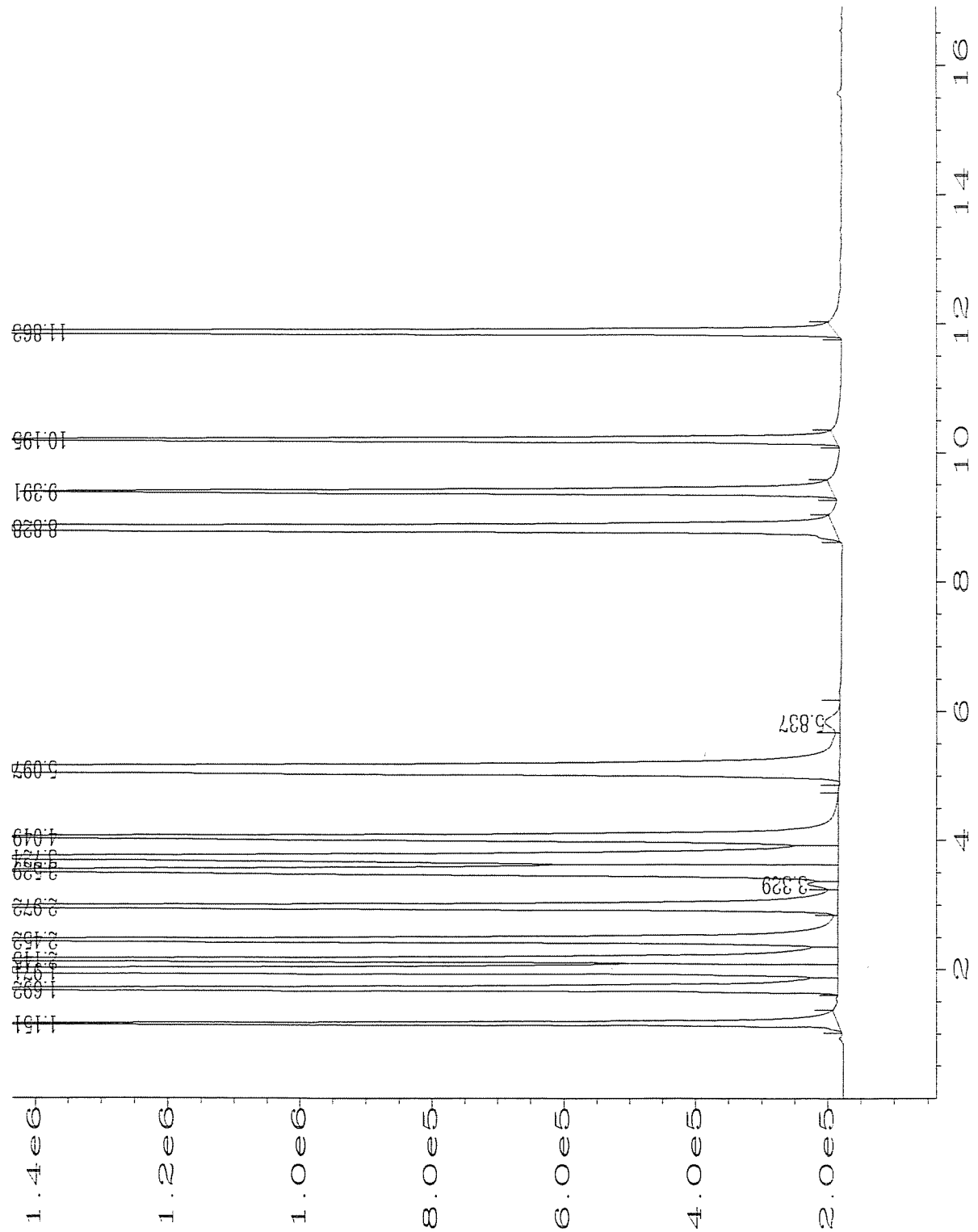
Ret Time	Area	Type	Width	Ref#	ng	Name
1.155	5090174	BB	0.050	1	47.284	VINYL CHLORIDE
1.689	8218687	BV	0.059	1	47.775	1,1-DICHLOROETHENE
2.143	9126726	VV	0.064	1	50.535	t-1,2-DICHLOROETHENE
2.452	8862059	VV	0.074	1	50.015	1,1-DICHLOROETHANE
2.974	1.55028E+007	VV	0.072	1	82.949	c-1,2-DICHLOROETHENE
3.526	1.02503E+007	VV	0.094	1	49.701	111TRICHLOROETHANE
3.727	1.16747E+007	VV	0.103	1	47.967	CARBON TET.
4.050	8951237	VB	0.084	1	48.763	1,2-DICHLOROETHANE
5.100	1.31272E+008	BV	0.104	1	422.789	TRICHLOROETHENE ✓
8.831	1.44573E+007	BB	0.070	1	44.543	TETRACHLOROETHENE
11.869	9057051	BB	0.060	1-R	46.129	1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.869	-0.1%

Handwritten signature
6-21-95

MAY 26 95

Data File Name : C:\HPCHEM\1\DATA\062095-3\037F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : 50 ng std
 Run Time Bar Code :
 Acquired on : 20 Jun 95 11:21 PM
 Report Created on : 21 Jun 95 08:20 AM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 37
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.1
 Analysis Method : 8010WAS.M.M
 Sample Amount : 0
 ISTD Amount :



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\037F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 37
 Sample Name : 50 ng std Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 20 Jun 95 11:21 PM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 08:20 AM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 Jun 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

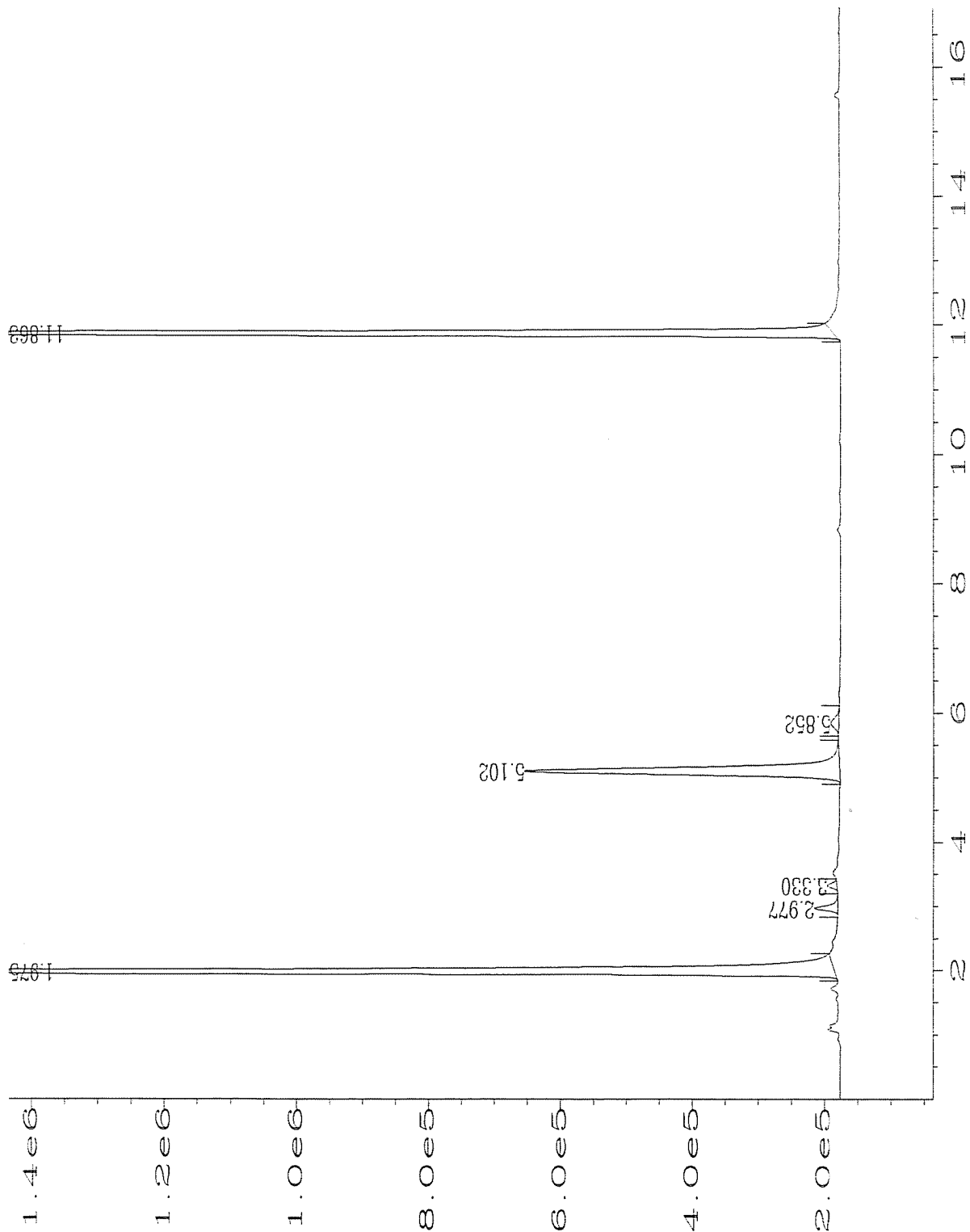
Sig. 1 in C:\HPCHEM\1\DATA\062095-3\037F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.151	5172689	BB	0.048	1	48.081	VINYL CHLORIDE
1.692	8438736	BV	0.063	1	49.126	1,1-DICHLOROETHENE
2.145	9323099	VV	0.066	1	51.672	t-1,2-DICHLOROETHENE
2.452	9151382	VV	0.075	1	51.708	1,1-DICHLOROETHANE
2.972	9723950	VV	0.075	1	51.324	c-1,2-DICHLOROETHENE
3.529	1.03879E+007	VV	0.094	1	50.396	111TRICHLOROETHANE
3.724	1.21817E+007	VV	0.100	1	50.132	CARBON TET.
4.049	9092138	VB	0.087	1	49.560	1,2-DICHLOROETHANE
5.097	1.92254E+007	BV	0.098	1	60.074	TRICHLOROETHENE
8.828	1.57468E+007	BB	0.073	1	48.751	TETRACHLOROETHENE
11.863	9323635	BB	0.054	1-R	47.586	1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.863	-0.2%

JP 6-21-95

Data File Name : C:\HPCHEM\1\DATA\062095-3\038F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : method blank
 Run Time Bar Code :
 Acquired on : 20 Jun 95 11:43 PM
 Report Created on: 21 Jun 95 08:21 AM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 38
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.M
 Analysts Method : 8010WAS.M
 Sample Amount : 0
 ISTD Amount :



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062095-3\038F0101.D
 rator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 38
 Sample Name : method blank Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 20 Jun 95 11:43 PM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 08:21 AM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 Jun 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062095-3\038F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.151	*	not found	*	1		VINYL CHLORIDE
1.692	*	not found	*	1		1,1 DICHLOROETHENE
2.145	*	not found	*	1		t-1,2-DICHLOROETHENE
2.452	*	not found	*	1		1,1-DICHLOROETHANE
2.977	185064	BB	0.075	1	-0.878	c-1,2-DICHLOROETHENE
3.529	*	not found	*	1		111TRICHLOROETHANE
3.724	*	not found	*	1		CARBON TET.
4.049	*	not found	*	1		1,2-DICHLOROETHANE
5.102	3826160	BB	0.101	1	10.224	TRICHLOROETHENE 2.0 ug IL *
8.828	*	not found	*	1		TETRACHLOROETHENE
11.863	9598653	BB	0.053	1-R	49.089	1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.863	-0.2%

Not all calibrated peaks were found

TJS 6-21-95

may 7 2695

Chromatograms

6/21/95

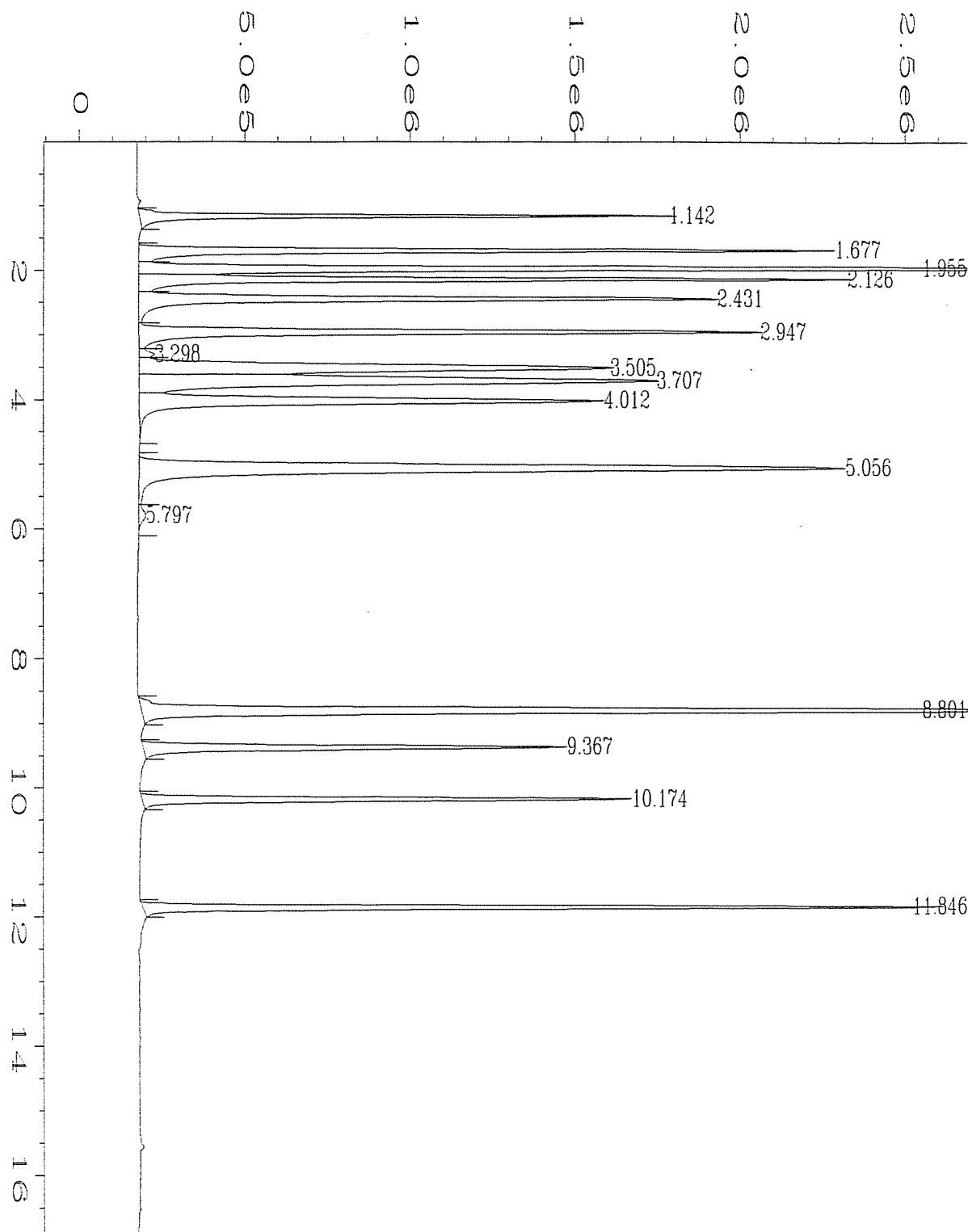
Sample Log Table

Seq. Line	Vial Num.	Sample Name	Sample Amount	Multiplier	ISTD Amount	Cal. Line	Method Name	Inj/Vial
FRONT								
1	1	50 ng std					8010WAS	1
1	2	QCCS Purge.A40ng					8010WAS	1
1	3	method blank -not reported					8010WAS	1
1	4	PDB-11B 50 uL -new from 6/20/95					8010WAS	1
1	5	cleaning blank					8010WAS	1
1	6	method blank > not reported					8010WAS	1
1	7	PDB-11B Dup 50uL					8010WAS	1
1	8	method blank ✓					8010WAS	1
1	9	PDB-13A 5.0 g					8010WAS	1
1	10	PDB-13B 5.0 g -new w/ 0.5g sample					8010WAS	1
1	11	PDB-14A 5.0 g -new w/ 1000x dilution					8010WAS	1
1	12	PDB-14B 1.0 g -new w/ 100x dilution					8010WAS	1
1	13	PDB-14C 0.5 g -new w/ no dilution					8010WAS	1
1	14	PDB-10B 5.0 uL					8010WAS	1
1	15	PDB-10C 50 uL -new w/ 1000x dilution					8010WAS	1
1	16	PDB-13B 0.5 g					8010WAS	1
1	17	PDB-14A 5.0 uL -new w/ 100x dilution					8010WAS	1
1	18	PDB-14B 50 uL					8010WAS	1
1	19	PDB-14C 5.0 g					8010WAS	1
1	20	PDB-10C 5.0 uL					8010WAS	1
1	21	PDB-14A 50 uL					8010WAS	1
1	22	50 ng Std					8010WAS	1
1	23	method blank					8010WAS	1
1	24	PDB-15A 5.0 g					8010WAS	1
1	25	PDB-15B 5.0 g					8010WAS	1
1	26	PDB-16A 0.5 g -new w/ 50g sample					8010WAS	1
1	27	PDB-16B 5.0 g					8010WAS	1
1	28	PDB-13B MS 50ng					8010WAS	1
1	29	PDB-14A Dup 100X					8010WAS	1
1	30	50 ng Std					8010WAS	1
1	31	method blank					8010WAS	1
1	32	PDB-16A 5.0 g					8010WAS	1
REAR								
1	51	50 ng Std					8020WAS	1
1	52	QCCS Purge.A40ng					8020WAS	1
1	53	method blank					8020WAS	1
1	54	PDB-11B 50 uL					8020WAS	1
1	55	cleaning blank					8020WAS	1
1	56	method blank					8020WAS	1
1	57	PDB-11B Dup 50uL					8020WAS	1
1	58	method blank					8020WAS	1
1	59	PDB-13A 5.0 g					8020WAS	1
1	60	PDB-13B 5.0 g					8020WAS	1
1	61	PDB-14A 5.0 g					8020WAS	1
1	62	PDB-14B 1.0 g					8020WAS	1
1	63	PDB-14C 0.5 g					8020WAS	1
1	64	PDB-10B 5.0 uL					8020WAS	1
1	65	PDB-10C 50 uL					8020WAS	1
1	66	PDB-13B 0.5 g					8020WAS	1
1	67	PDB-14A 5.0 uL					8020WAS	1
1	68	PDB-14B 50 uL					8020WAS	1

8020 not
reported

Sample Log Table

Seq. Vial	Sample	Sample Name	Amount	Multiplier	ISTD	Cal.	Method	Inj.	Vial
1	69	PDB-14C	5.0 g				8020WAS	1	1
1	70	PDB-10C	5.0 uL				8020WAS	1	1
1	71	PDB-14A	50 uL				8020WAS	1	1
1	72	50 ng Std					8020WAS	1	1
1	73	method blank					8020WAS	1	1
1	74	PDB-15A	5.0 g				8020WAS	1	1
1	75	PDB-15B	5.0 g				8020WAS	1	1
1	76	PDB-16A	0.5 g				8020WAS	1	1
1	77	PDB-16B	5.0 g				8020WAS	1	1
1	78	PDB-13B MS 50ng					8020WAS	1	1
1	79	PDB-14A Dup 100X					8020WAS	1	1
1	80	50 ng Std					8020WAS	1	1
1	81	method blank					8020WAS	1	1
1	82	PDB-16A	5.0 g				8020WAS	1	1



Data File Name	: C:\HPCHEM\1\DATA\062195-3\001F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 1
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: 50 ng std	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 21 Jun 95 08:06 AM	Analysis Method	: 8010WAS.MTH
Report Created on:	21 Jun 95 08:25 AM	Sample Amount	: 0
Last Recalib on	: 20 Jun 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\001F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : 50 ng std
 Run Time Bar Code :
 Acquired on : 21 Jun 95 08:06 AM
 Report Created on: 21 Jun 95 08:25 AM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 1
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\001F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
----------	------	------	-------	------	----	------

1.142	5302687	BB	0.047	1	49.337	VINYL CHLORIDE
1.677	8710419	BV	0.060	1	50.793	1,1 DICHLOROETHENE
2.126	9351991	VV	0.062	1	51.839	t-1,2-DICHLOROETHENE
2.431	9277449	VV	0.076	1	52.445	1,1-DICHLOROETHANE
2.947	9926324	VV	0.075	1	52.431	c-1,2-DICHLOROETHENE
3.505	1.08088E+007	VV	0.098	1	52.522	1,1,1-TRICHLOROETHANE
3.707	1.26148E+007	VV	0.101	1	51.981	CARBON TET.
4.012	9616732	VB	0.092	1	52.531	1,2-DICHLOROETHANE
5.056	1.74247E+007	BV	0.101	1	54.245	TRICHLOROETHENE
8.801	1.6677E+007	BB	0.077	1	51.787	TETRACHLOROETHENE
11.846	9534641	BB	0.060	1-R	48.739	1,4-DICHLOROBUTANE

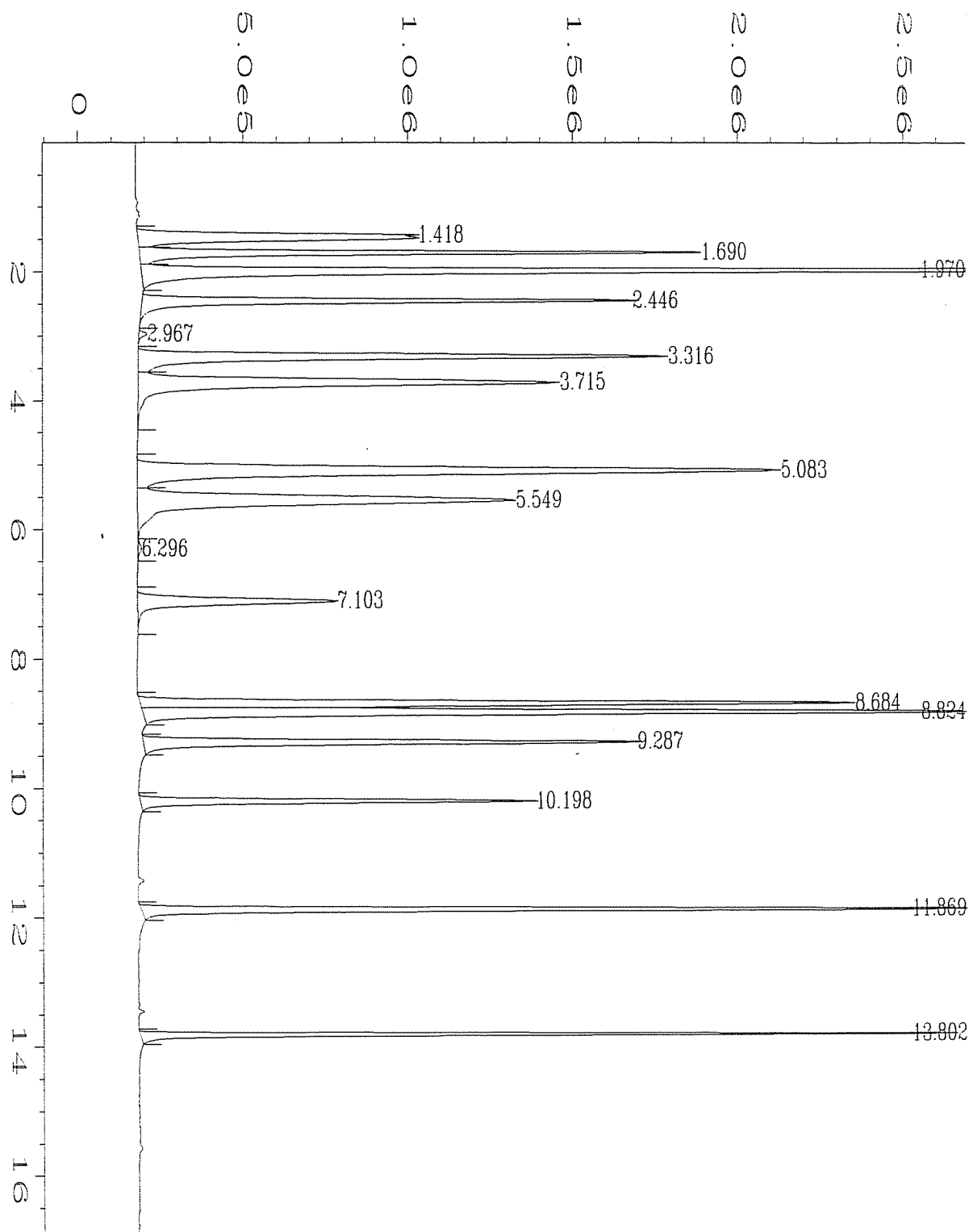
Time Reference Peak
 11

Expected RT
 11.884

Actual RT
 11.846

Difference
 -0.3%

6.21.95
 11.846



Data File Name	: C:\HPCHEM\1\DATA\062195-3\002F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 2
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: QCCS Purge.A40ng	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
quired on	: 21 Jun 95 08:28 AM	Analysis Method	: 8010WAS.MTH
Report Created on:	21 Jun 95 08:45 AM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\002F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : QCCS Purge.A40ng
 Run Time Bar Code :
 Acquired on : 21 Jun 95 08:28 AM
 Report Created on: 21 Jun 95 08:45 AM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 2
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\002F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
----------	------	------	-------	------	----	------

1.151	* not found	V	0.063	1	43.077	VINYL CHLORIDE
1.690	* not found	BV	0.070	1	41.958	1,1-DICHLOROETHANE
2.145	* not found	BV	0.071	1	-1.243	C-1,2-DICHLOROETHANE
2.967	* not found	BV	0.099	1	41.664	CARBON TET.
3.529	* not found	BV	0.097	1	48.687	1,2-DICHLOROETHANE
3.715	* not found	BV	0.086	1	42.530	TRICHLOROETHENE
4.049	* not found	BV	0.061	1-R	51.054	1,4-DICHLOROBUTANE
5.083	1.57078E+007	VB				
8.824	1.38404E+007	VB				
11.869	9958150	BB				

Time Reference Peak
 11

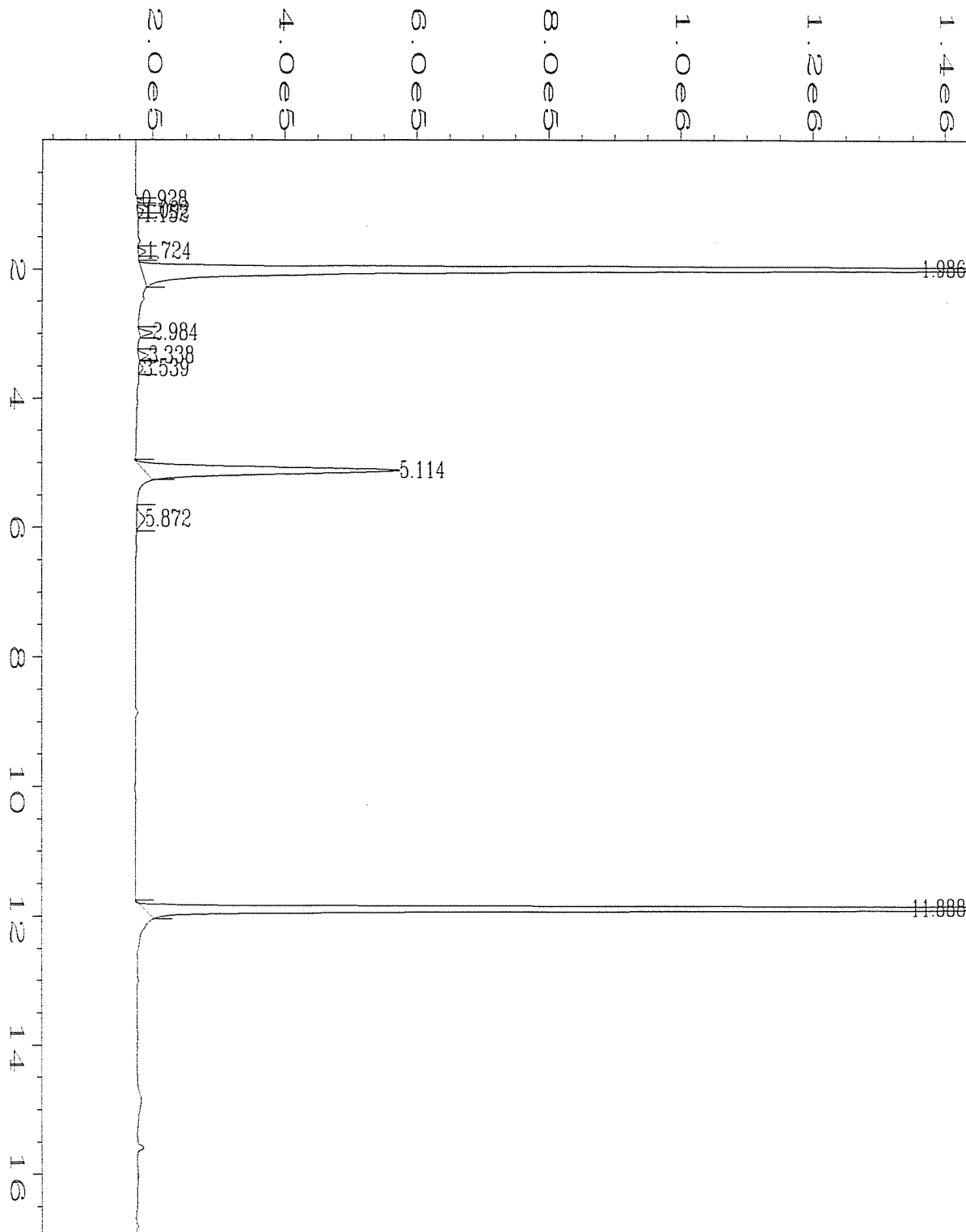
Expected RT
 11.884

Actual RT
 11.869

Difference
 -0.1%

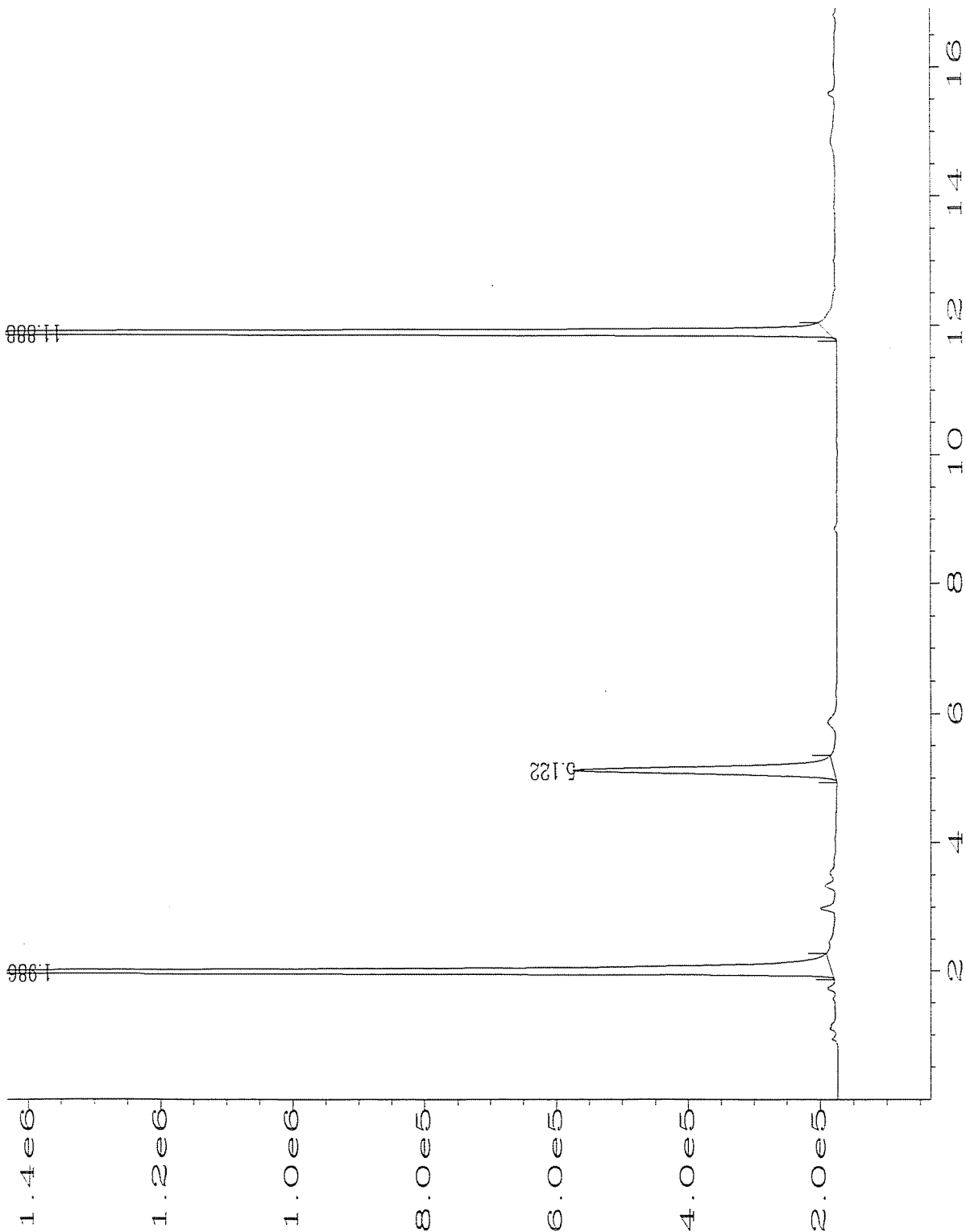
Not all calibrated peaks were found

6.24.95
 mcy 72415



user modified

Data File Name	: C:\HPCHEM\1\DATA\062195-3\003F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 3
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: method blank	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 21 Jun 95 08:51 AM	Analysis Method	: 8010WAS.MTH
Report Created on:	21 Jun 95 09:12 AM	Sample Amount	: 0
Last Recalib on	: 20 Jun 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		



Data File Name : C:\HPCHEM\1\DATA\062195-3\003F0101.D

Page Number : 1
 Vial Number : 3
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.M
 Analysts Method : 8010WAS.M
 Sample Amount : 0
 ISTD Amount : 1

Operator : TJS
 Instrument : GC # 3
 Sample Name : method blank
 Run Time Bar Code :
 Acquired on : 21 Jun 95 08:51 AM
 Report Created on : 21 Jun 95 09:12 AM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1

External Standard Report

```

Data File Name       : C:\HPCHEM\1\DATA\062195-3\003F0101.D
Operator            : TJS
Instrument          : GC # 3
Sample Name         : method blank
Run Time Bar Code   :
Acquired on         : 21 Jun 95 08:51 AM
Report Created on   : 21 Jun 95 09:12 AM
Last Recalib on    : 20 Jun 95 09:55 AM
Multiplier         : 1
Page Number         : 1
Vial Number         : 3
Injection Number    : 1
Sequence Line       : 1
Instrument Method    : 8010WAS.MTH
Analysis Method     : 8010WAS.MTH
Sample Amount       : 0
ISTD Amount         :
  
```

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\003F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.152	20048	FM	0.053	1	-1.684	VINYL CHLORIDE
1.724	54456	MM	0.080	1	-2.323	1,1-DICHLOROETHENE
2.145	* not found *			1		t-1,2-DICHLOROETHENE
2.452	* not found *			1		1,1-DICHLOROETHANE
2.984	89618	MM	0.075	1	-1.401	c-1,2-DICHLOROETHENE
3.539	39721	MM	0.104	1	-1.869	111TRICHLOROETHANE
3.724	* not found *			1		CARBON TET.
4.049	* not found *			1		1,2-DICHLOROETHANE
5.114	2855686	MM	0.123	1	7.082	TRICHLOROETHENE 1.4 ug/L *
8.828	* not found *			1		TETRACHLOROETHENE
11.888	1.07337E+007	BB	0.052	1-R	55.293	1,4-DICHLOROBUTANE 11.20 R

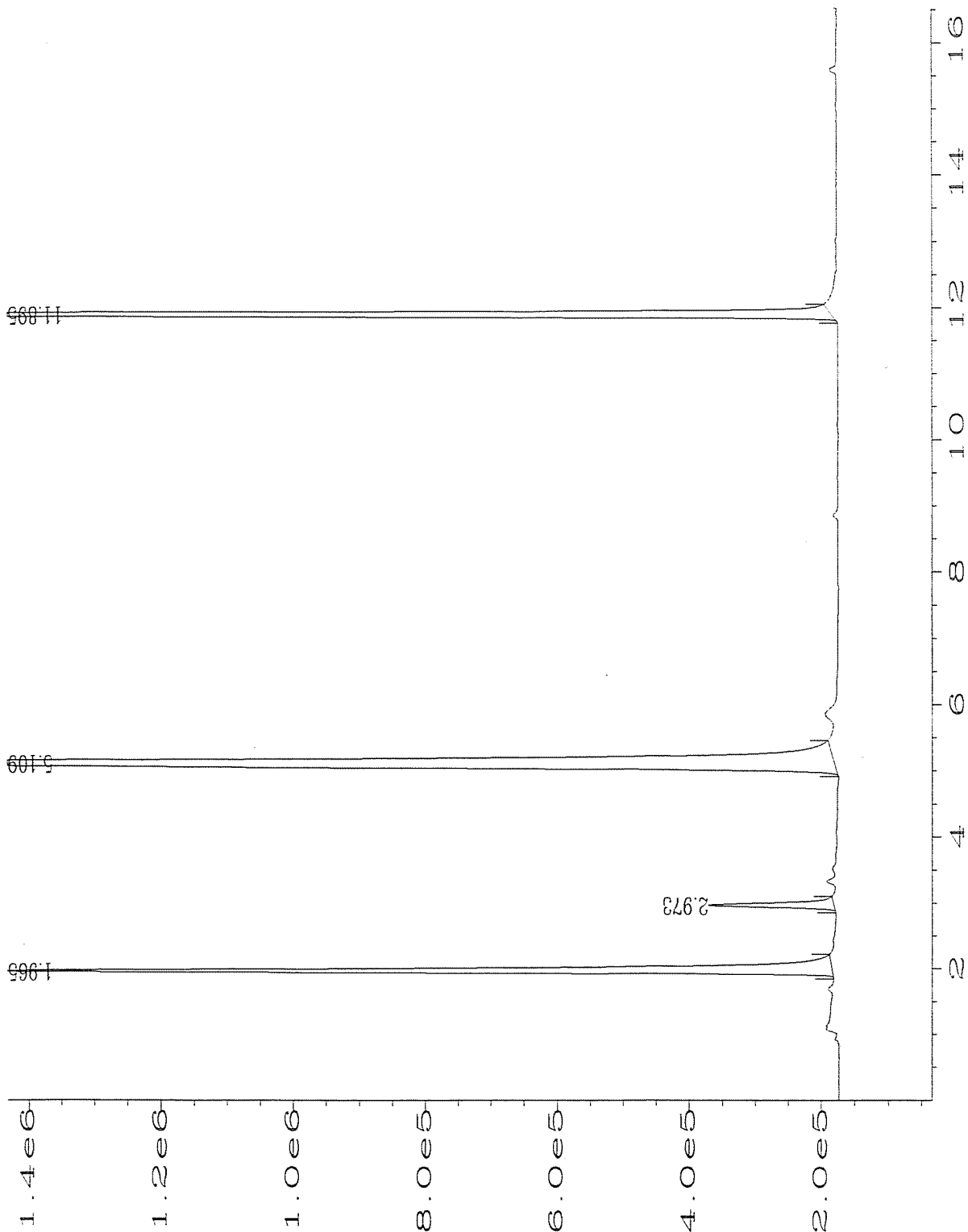
Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.888	0.0%

Not all calibrated peaks were found

User Modified

*Raw method blank after
running a system blank*

JS 6.4.95



Data File Name : C:\HPCHEM\1\DATA\062195-3\004F0101.D

Page Number : 1
 Vial Number : 4
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.M
 Analysis Method : 8010WAS.M.H
 Sample Amount : 0
 ISTD Amount : 1

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-11B 50 uL
 Run Time Bar Code :
 Acquired on : 21 Jun 95 09:12 AM
 Report Created on: 21 Jun 95 09:30 AM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\004F0101.D
 rator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 4
 Sample Name : PDB-11B 50 uL Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 21 Jun 95 09:12 AM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 09:30 AM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 Jun 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\004F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.151	* not found *			1		VINYL CHLORIDE
1.692	* not found *			1		1,1 DICHLOROETHENE
2.145	* not found *			1		t-1,2-DICHLOROETHENE
2.452	* not found *			1		1,1-DICHLOROETHANE
2.973	870985 BB	0.069	1	2.875		c-1,2-DICHLOROETHENE
3.529	* not found *		1			111TRICHLOROETHANE
3.724	* not found *		1			CARBON TET.
4.049	* not found *		1			1,2-DICHLOROETHANE
5.109	1.46853E+007 BB	0.102	1	45.377		TRICHLOROETHENE
8.828	* not found *		1			TETRACHLOROETHENE
11.895	1.0911E+007 BB	0.059	1-R	56.263		1,4-DICHLOROBUTANE

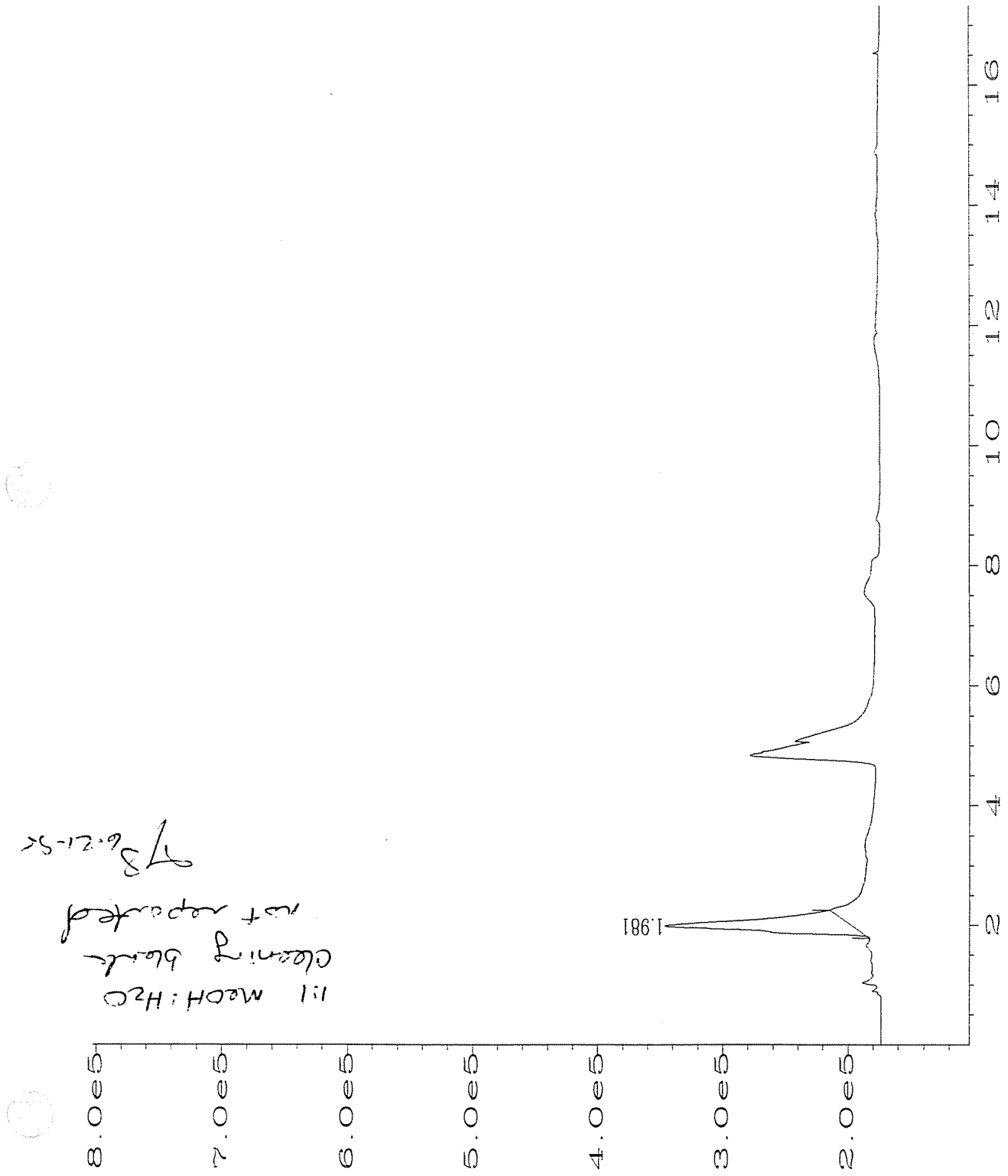
Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.895	0.1%

Not all calibrated peaks were found

TS 6-21-95

mg 7.2645

Data File Name : C:\HPCHEM\1\DATA\062195-3\005F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : cleaning blank
 Run Time Bar Code :
 Acquired on : 21 Jun 95 09:34 AM
 Report Created on : 21 Jun 95 09:52 AM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 5
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.M
 Analysis Method : 8010WAS.M
 Sample Amount : 0
 ISTD Amount :



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\005F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 5
 Sample Name : cleaning blank Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 21 Jun 95 09:34 AM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 09:52 AM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 JUN 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\005F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.151	* not found	*		1		VINYL CHLORIDE
1.692	* not found	*		1		1,1 DICHLOROETHENE
2.145	* not found	*		1		t-1,2-DICHLOROETHENE
2.452	* not found	*		1		1,1-DICHLOROETHANE
2.972	* not found	*		1		c-1,2-DICHLOROETHENE
3.529	* not found	*		1		111TRICHLOROETHANE
3.724	* not found	*		1		CARBON TET.
4.049	* not found	*		1		1,2-DICHLOROETHANE
5.100	* not found	*		1		TRICHLOROETHENE
8.828	* not found	*		1		TETRACHLOROETHENE
11.884	* not found	*		1-R		1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	* not found *	

Could not find time reference peak:

No peak of Number 11's description at 11.884 + 0.297 - 0.297 min.

Not all time reference peaks were found

Not all calibrated peaks were found

Area Percent Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\005F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 5
 Sample Name : cleaning blank Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 21 Jun 95 09:34 AM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 09:52 AM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 JUN 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

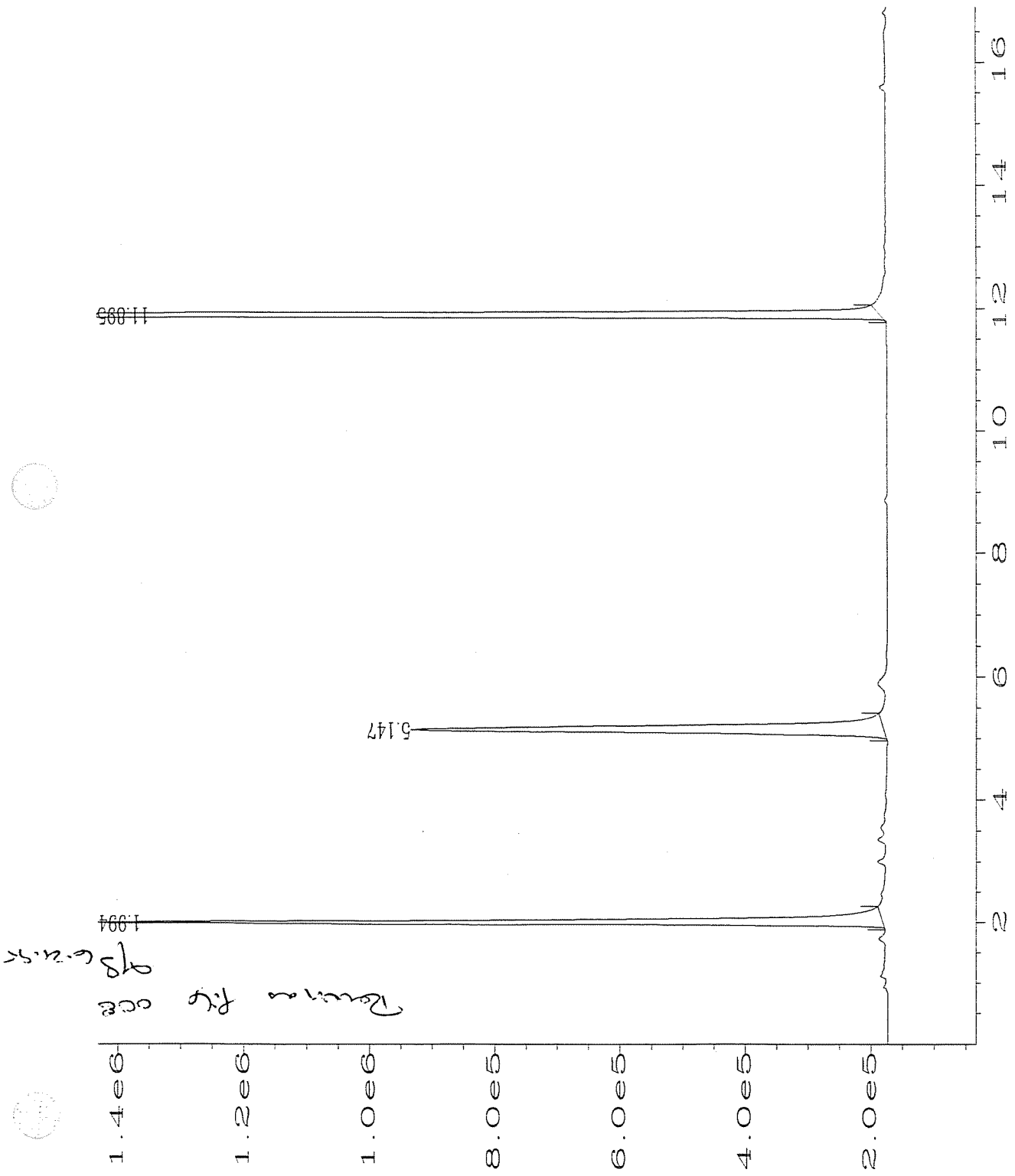
Sig. 1 in C:\HPCHEM\1\DATA\062195-3\005F0101.D

Pk#	Ret Time	Area	Height	Type	Width	Area %
1	1.981	1862215	150325	BB	0.155	100.0000

Cal amount = 1.86221E+006

Cleaning blank 1:1 MeOH:H₂O
 Not Reported
 JS 6-21-95

Data File Name : C:\HPCHEM\1\DATA\062195-3\006F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : method blank
 Run Time Bar Code :
 Acquired on : 21 Jun 95 09:57 AM
 Report Created on: 21 Jun 95 10:14 AM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 6
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\006F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 6
 Sample Name : method blank Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 21 Jun 95 09:57 AM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 10:14 AM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 JUN 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\006F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.151	* not found *			1		VINYL CHLORIDE
1.692	* not found *			1		1,1 DICHLOROETHENE
2.145	* not found *			1		t-1,2-DICHLOROETHENE
2.452	* not found *			1		1,1-DICHLOROETHANE
2.972	* not found *			1		c-1,2-DICHLOROETHENE
3.529	* not found *			1		111TRICHLOROETHANE
3.724	* not found *			1		CARBON TET.
4.049	* not found *			1		1,2-DICHLOROETHANE
5.147	5795608	BB	0.099	1	16.599	TRICHLOROETHENE
8.828	* not found *			1		TETRACHLOROETHENE
11.895	1.26822E+007	BB	0.054	1-R	65.943	1,4-DICHLOROBUTANE

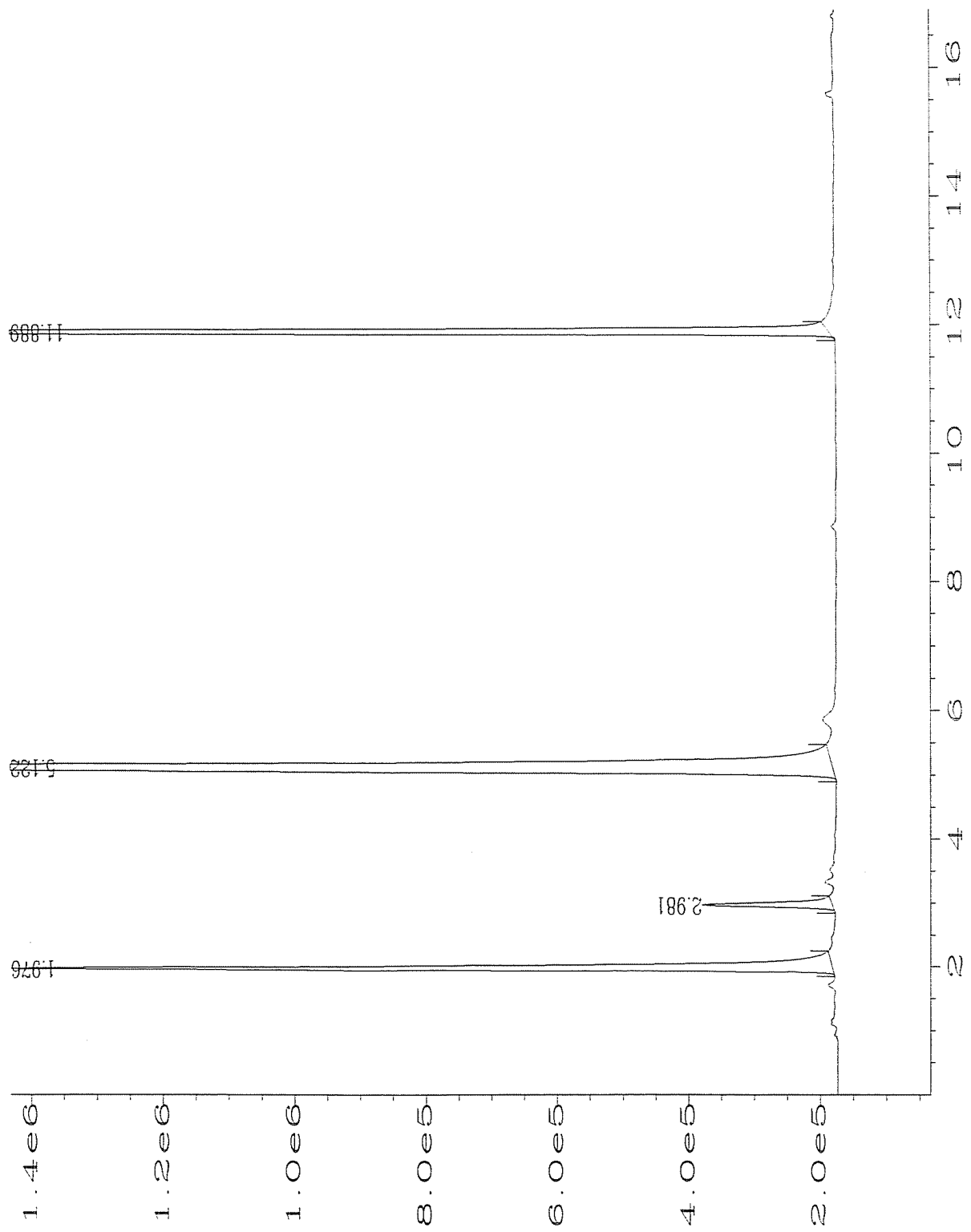
Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.895	0.1%

Not all calibrated peaks were found

Review file 008

JS 6-4-95

Data File Name : C:\HPCHEM\1\DATA\062195-3\007F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-11B Dup 50uL
 Run Time Bar Code :
 Acquired on : 21 Jun 95 10:19 AM
 Report Created on: 21 Jun 95 10:36 AM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 7
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.
 Analysis Method : 8010WAS.M.H
 Sample Amount : 0
 ISTD Amount :



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\007F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 7
 Sample Name : PDB-11B Dup 50uL Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 21 Jun 95 10:19 AM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 10:36 AM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 JUN 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\007F0101.D

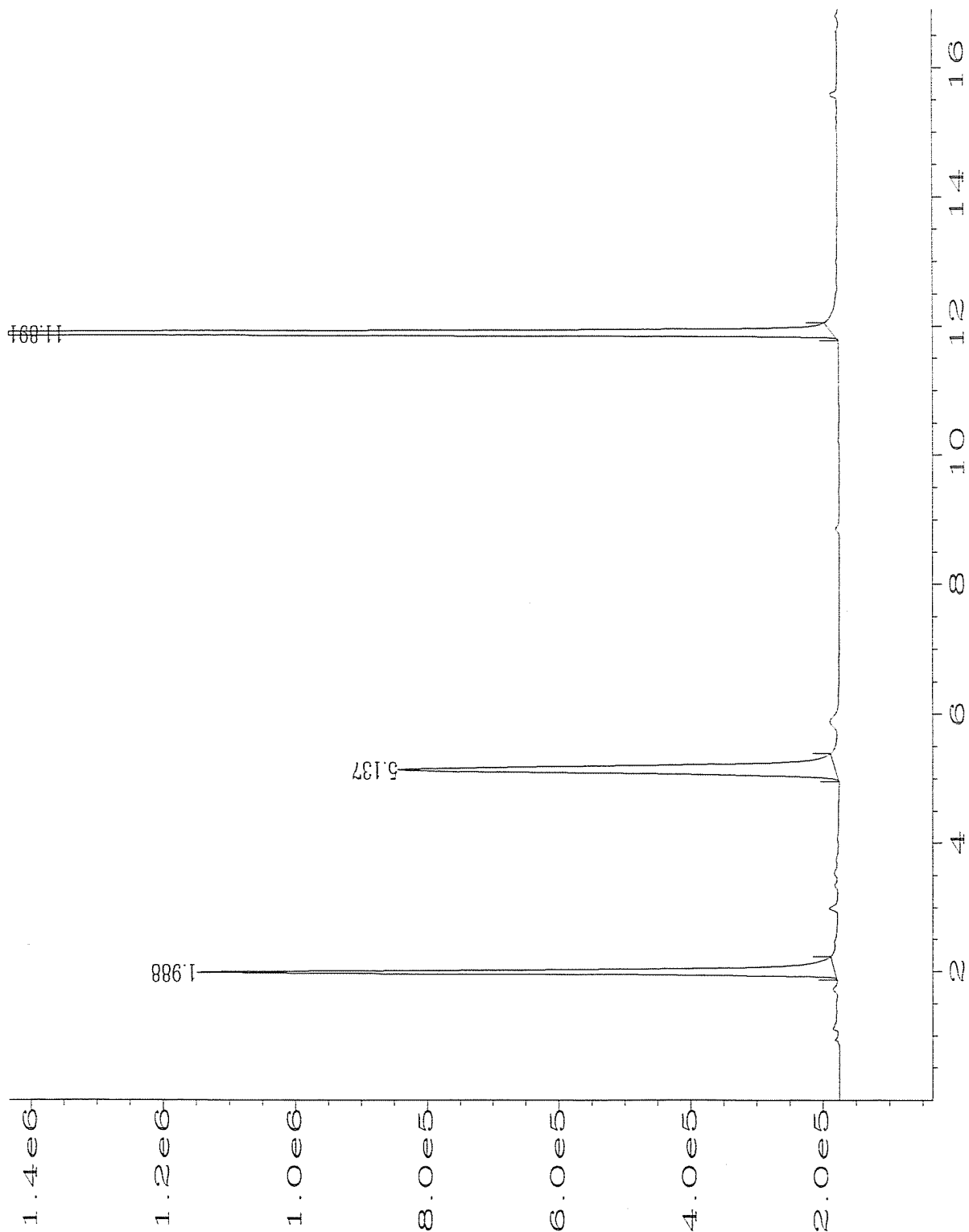
Ret Time	Area	Type	Width	Ref#	ng	Name
1.151	* not found *			1		VINYL CHLORIDE
1.692	* not found *			1		1,1 DICHLOROETHENE
2.145	* not found *			1		t-1,2-DICHLOROETHENE
2.452	* not found *			1		1,1-DICHLOROETHANE
2.981	953483	BB	0.071	1	3.327	c-1,2-DICHLOROETHENE
3.529	* not found *			1		111TRICHLOROETHANE
3.724	* not found *			1		CARBON TET.
4.049	* not found *			1		1,2-DICHLOROETHANE
5.122	1.61653E+007	BB	0.104	1	50.168	TRICHLOROETHENE
8.828	* not found *			1		TETRACHLOROETHENE
11.889	1.09466E+007	BB	0.055	1-R	56.457	1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.889	0.0%

Not all calibrated peaks were found

PS 6-21-95
maj 7/26/95

Data File Name : C:\HPCHEM\1\DATA\062195-3\008F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : method blank
 Run Time Bar Code :
 Acquired on : 21 Jun 95 10:41 AM
 Report Created on : 21 Jun 95 10:58 AM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 8
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.M
 Analysis Method : 8010WAS.M
 Sample Amount : 0
 ISTD Amount :



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\008F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 8
 Sample Name : method blank Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 21 Jun 95 10:41 AM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 10:58 AM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 JUN 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\008F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.151	* not found *			1		VINYL CHLORIDE
1.692	* not found *			1		1,1 DICHLOROETHENE
2.145	* not found *			1		t-1,2-DICHLOROETHENE
2.452	* not found *			1		1,1-DICHLOROETHANE
2.972	* not found *			1		c-1,2-DICHLOROETHENE
3.529	* not found *			1		111TRICHLOROETHANE
3.724	* not found *			1		CARBON TET.
4.049	* not found *			1		1,2-DICHLOROETHANE
5.137	5160335 BB	0.101	1	14.543		TRICHLOROETHENE 2.9 ug 12<50
8.828	* not found *		1			TETRACHLOROETHENE
11.891	1.03169E+007 BB	0.059	1-R	53.015		1,4-DICHLOROBUTANE 10622-Sum

Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.891	0.1%

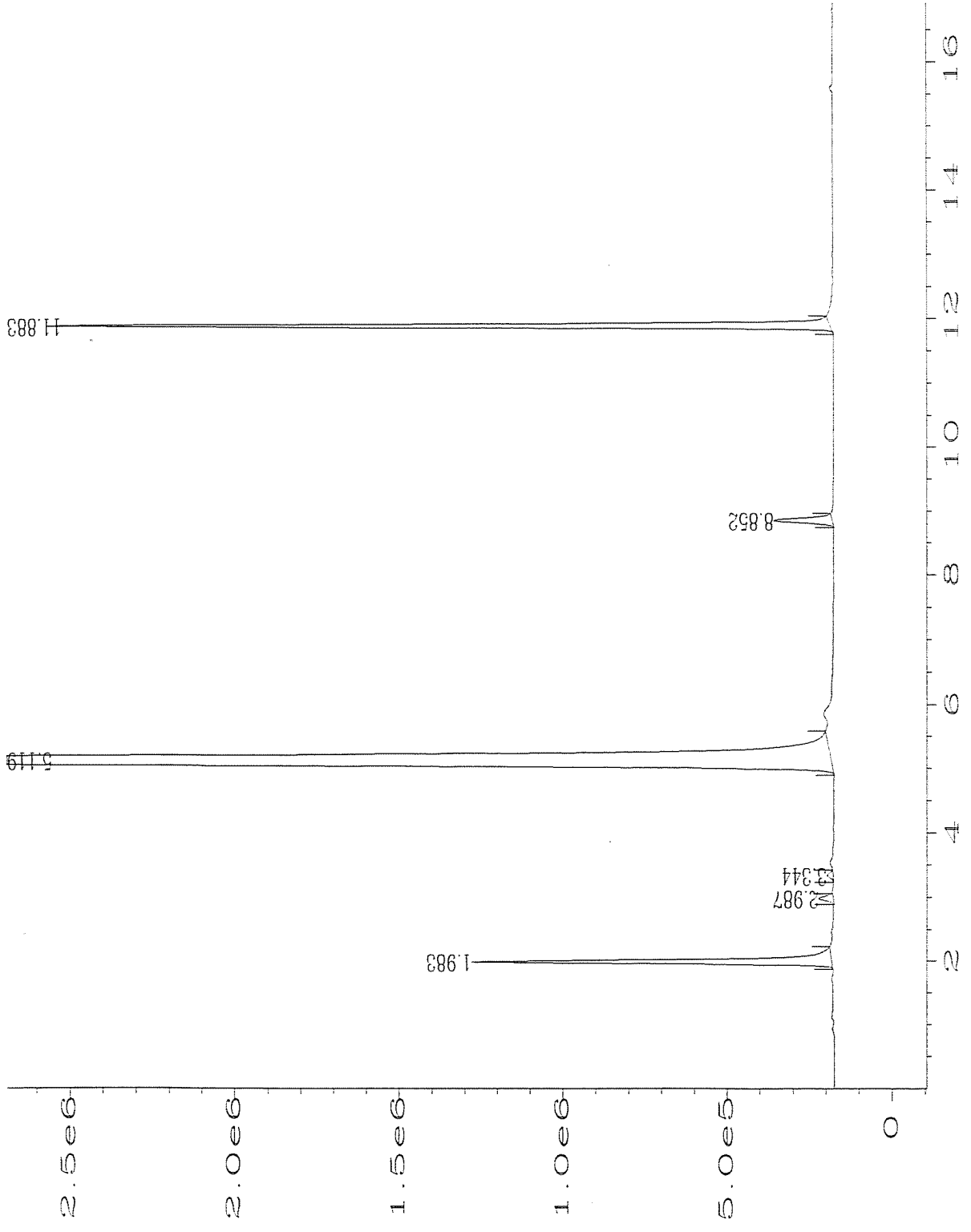
Not all calibrated peaks were found

TJS 6-21-95

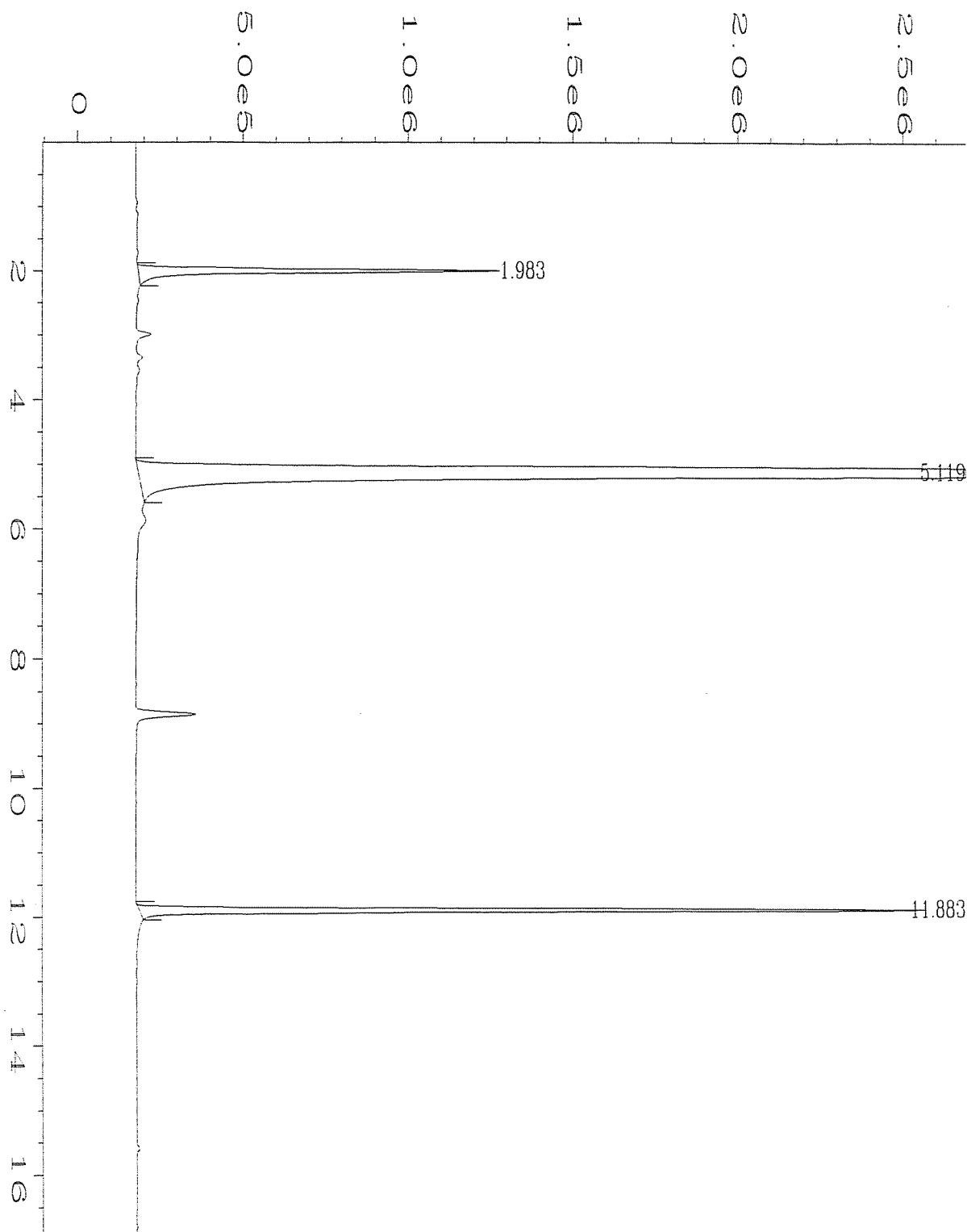
may 7 2095

C:\HPCHEM\1\DATA\062195-3\009F0101.D

Operator : TJS
Instrument : GC # 3
Sample Name : PDB-13A 5.0 g
Run Time Bar Code :
Acquired on : 21 Jun 95 11:07 AM
Report Created on : 21 Jun 95 11:25 AM
Last Recalib on : 20 Jun 95 09:55 AM
Multiplier : 1
Page Number : 1
Vial Number : 9
Injection Number : 1
Sequence Line : 1
Instrument Method : 8010WAS.M
Analysis Method : 8010WAS.M
Sample Amount : 0
ISTD Amount :



user modified



Data File Name	: C:\HPCHEM\1\DATA\062195-3\009F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 9
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-13A 5.0 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 21 Jun 95 11:07 AM	Analysis Method	: 8010WAS.MTH
Report Created on:	21 Jun 95 11:24 AM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\009F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-13A 5.0 g
 Run Time Bar Code :
 Acquired on : 21 Jun 95 11:07 AM
 Report Created on: 21 Jun 95 11:25 AM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 9
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\009F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
----------	------	------	-------	------	----	------

1.151	*	not found	*	1		VINYL CHLORIDE
1.692	*	not found	*	1		1,1 DICHLOROETHENE
2.145	*	not found	*	1		t-1,2-DICHLOROETHENE
2.452	*	not found	*	1		1,1-DICHLOROETHANE
2.987						
224666	MM	0.083	1		-0.662	c-1,2-DICHLOROETHENE
3.529	*	not found	*	1		1,1TRICHLOROETHANE
3.724	*	not found	*	1		CARBON TET.
4.049	*	not found	*	1		1,2-DICHLOROETHANE
5.119						
5.07253E+007	BB	0.111	1		162.045	TRICHLOROETHENE
900490	MM	0.085	1		0.302	TETRACHLOROETHENE
9195324	BB	0.059	1-R		46.885	1,4-DICHLOROBUTANE

Time Reference Peak
 11

Expected RT
 11.884

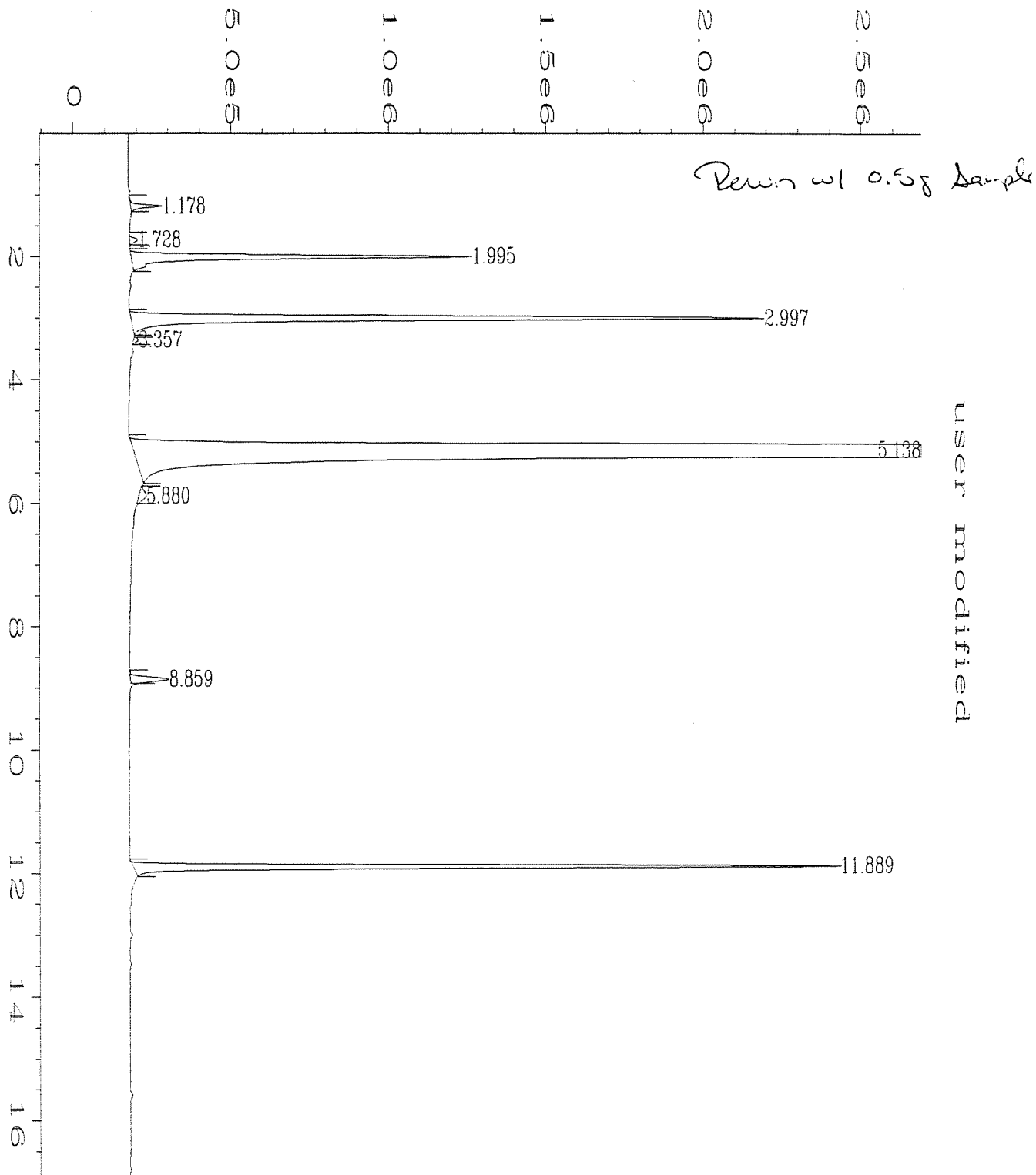
Actual RT
 11.883

Difference
 0.0%

Not all calibrated peaks were found

User Modified

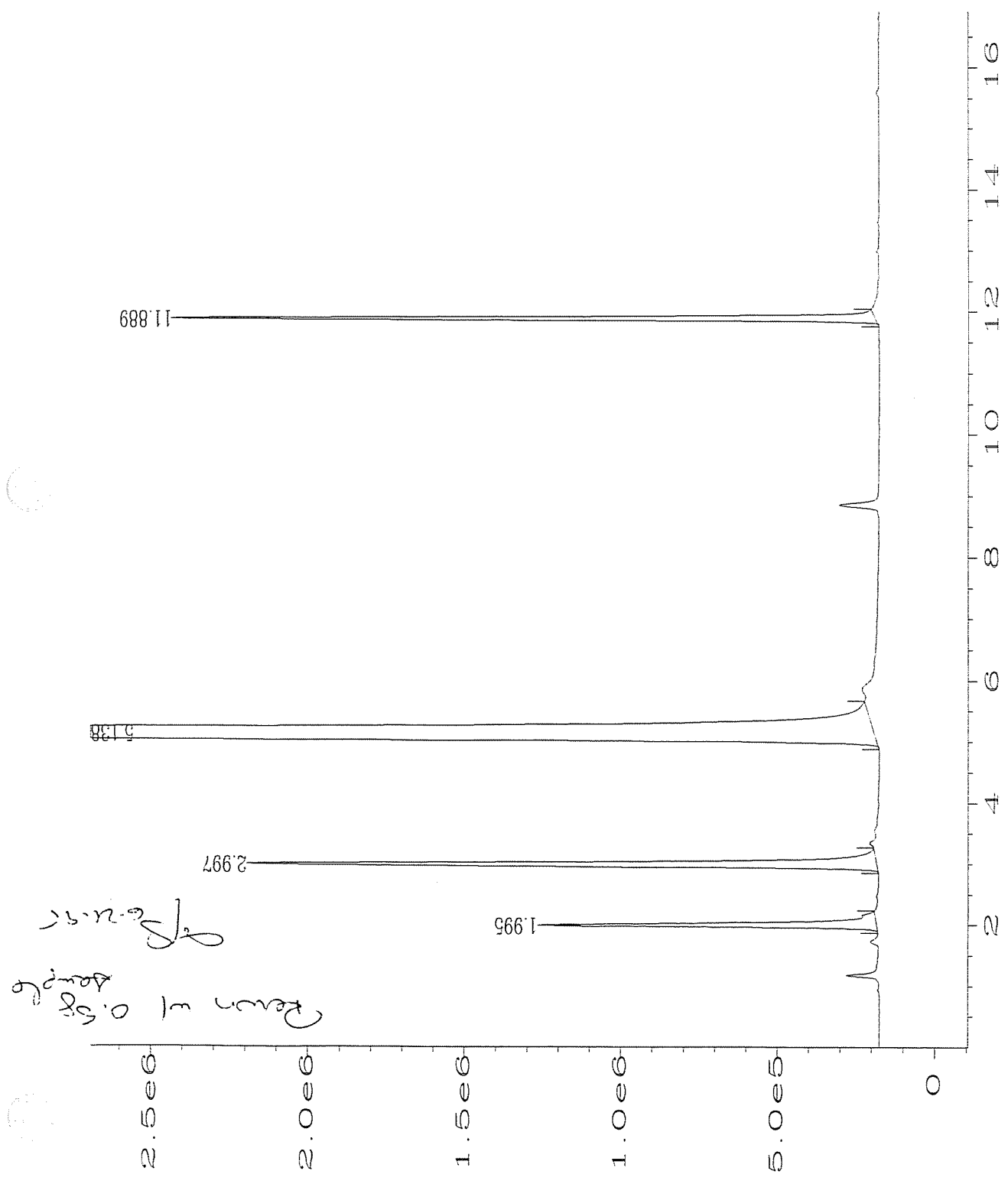
6-21-95
 May 7 2095



user modified

Data File Name	: C:\HPCHEM\1\DATA\062195-3\010F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 10
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-13B 5.0 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 21 Jun 95 11:29 AM	Analysis Method	: 8010WAS.MTH
Report Created on:	21 Jun 95 11:47 AM	Sample Amount	: 0
Last Recalib on	: 20 Jun 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

Data File Name : C:\HPCHEM\1\DATA\062195-3\010F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-13B 5.0 g
 Run Time Bar Code :
 Acquired on : 21 Jun 95 11:29 AM
 Report Created on : 21 Jun 95 11:46 AM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 10
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.M
 Analysis Method : 8010WAS.M
 Sample Amount : 0
 ISTD Amount :



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\010F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 10
 Sample Name : PDB-13B 5.0 g Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 21 Jun 95 11:29 AM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 11:47 AM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 Jun 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\010F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.178	350668	MM	0.059	1	1.509	VINYL CHLORIDE
1.728	123723	MM	0.086	1	-1.898	1,1-DICHLOROETHENE
2.145	* not found *			1		t-1,2-DICHLOROETHENE
2.452	* not found *			1		1,1-DICHLOROETHANE
2.997	1.05448E+007	BB	0.077	1	55.816	c-1,2-DICHLOROETHENE
3.529	* not found *			1		111TRICHLOROETHANE
3.724	* not found *			1		CARBON TET.
4.049	* not found *			1		1,2-DICHLOROETHANE
5.138	1.17456E+008	BB	0.114	1	378.064	TRICHLOROETHENE ✓
8.859	601411	MM	0.083	1	-0.674	TETRACHLOROETHENE
11.889	8725603	BB	0.060	1-R	44.317	1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.889	0.0%

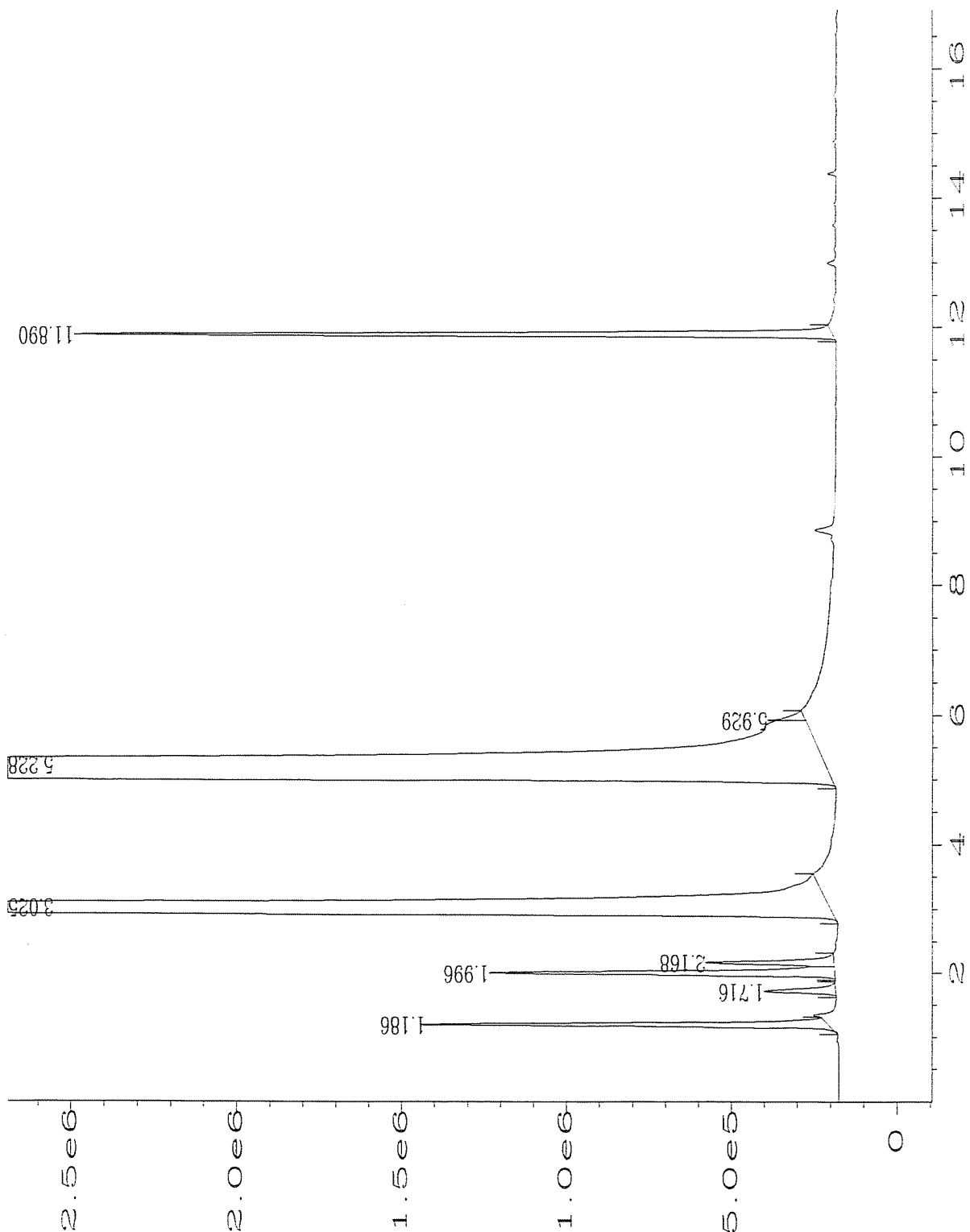
Not all calibrated peaks were found

User Modified

Review 0.5 g sample

TJS 6-21-95

Data File Name : C:\HPCHEM\1\DATA\062195-3\011F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-14A 5.0 g
 Run Time Bar Code :
 Acquired on : 21 Jun 95 11:51 AM
 Report Created on : 21 Jun 95 12:22 PM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 11
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.M
 Analysis Method : 8010WAS.M
 Sample Amount : 0
 ISTD Amount :



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\011F0101.D
 rator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 11
 Sample Name : PDB-14A 5.0 g Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 21 Jun 95 11:51 AM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 12:22 PM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 Jun 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\011F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.186	4551759	BV	0.052	1	42.084	VINYL CHLORIDE
1.716	991575	BB	0.068	1	3.428	1,1 DICHLOROETHENE
2.168	1703849	VB	0.066	1	7.581	t-1,2-DICHLOROETHENE
2.452	* not found *			1		1,1-DICHLOROETHANE
3.025	1.32192E+008	BB	0.127	1	721.540	c-1,2-DICHLOROETHENE
3.529	* not found *			1		111TRICHLOROETHANE
3.724	* not found *			1		CARBON TET.
4.049	* not found *			1		1,2-DICHLOROETHANE
5.228	2.63496E+008	BV	0.202	1	850.824	TRICHLOROETHENE
8.828	* not found *			1		TETRACHLOROETHENE
11.890	8770479	BB	0.059	1-R	44.563	1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.890	0.1%

Not all calibrated peaks were found

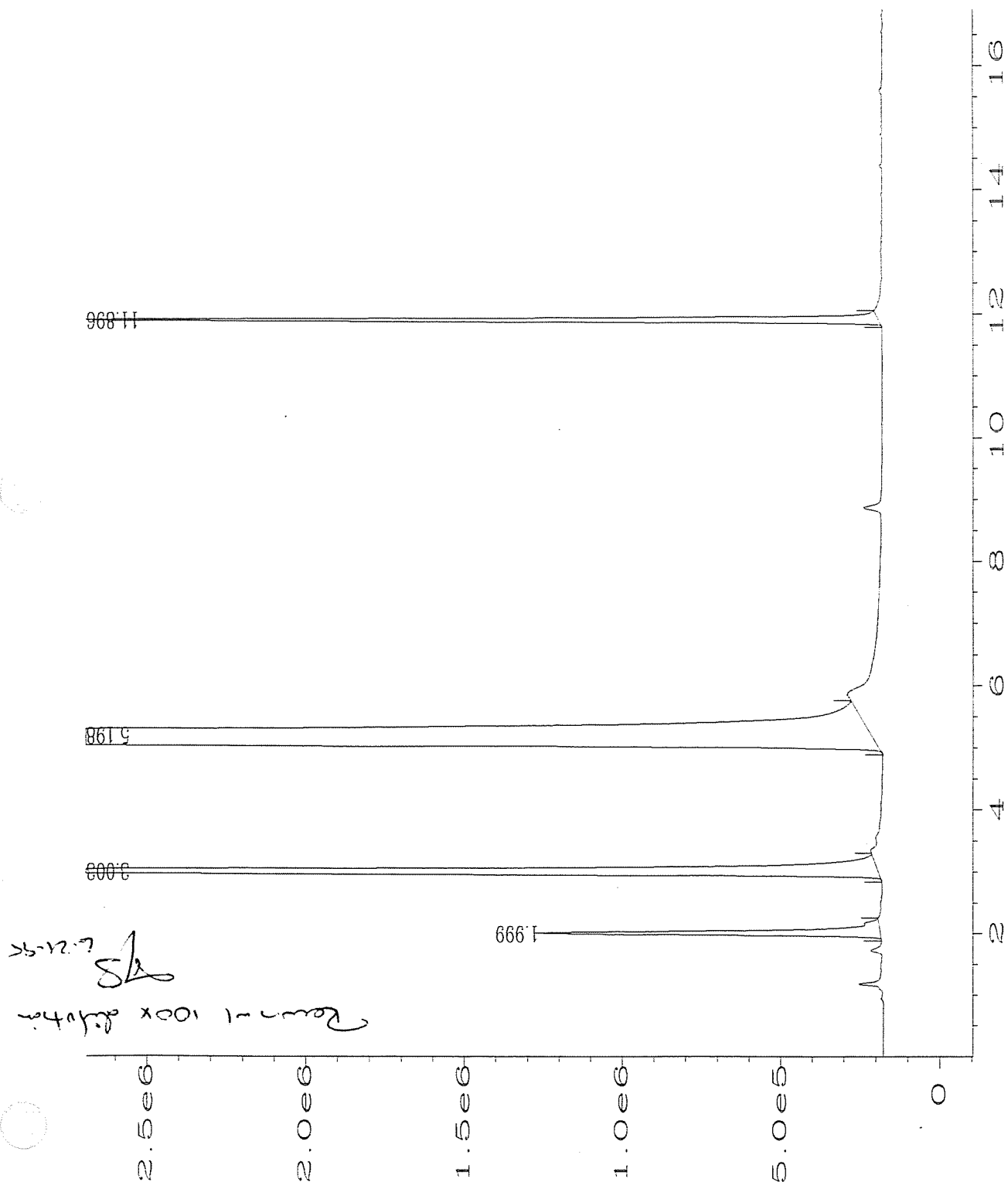
Review w/ 100x dilution

See file 017.

TJS 6-21-95

may 7 2095

Data File Name : C:\HPCHEM\1\DATA\062195-3\012F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-14B 1.0 g
 Run Time Bar Code :
 Acquired on : 21 Jun 95 12:13 PM
 Report Created on : 21 Jun 95 12:30 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 12
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.M
 Analysis Method : 8010WAS.M
 Sample Amount : 0
 ISTD Amount : 1



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\012F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 12
 Sample Name : PDB-14B 1.0 g Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 21 Jun 95 12:13 PM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 12:30 PM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 JUN 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\012F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.151	* not found *			1		VINYL CHLORIDE
1.692	* not found *			1		1,1 DICHLOROETHENE
2.145	* not found *			1		t-1,2-DICHLOROETHENE
2.452	* not found *			1		1,1-DICHLOROETHANE
3.003	2.55863E+007 BB	0.079	1	138.131		c-1,2-DICHLOROETHENE
3.529	* not found *		1			111TRICHLOROETHANE
3.724	* not found *		1			CARBON TET.
4.049	* not found *		1			1,2-DICHLOROETHANE
5.198	1.98914E+008 BB	0.156	1	641.760		TRICHLOROETHENE
8.828	* not found *		1			TETRACHLOROETHENE
11.896	9800214 BB	0.058	1-R	50.191		1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.896	0.1%

Not all calibrated peaks were found

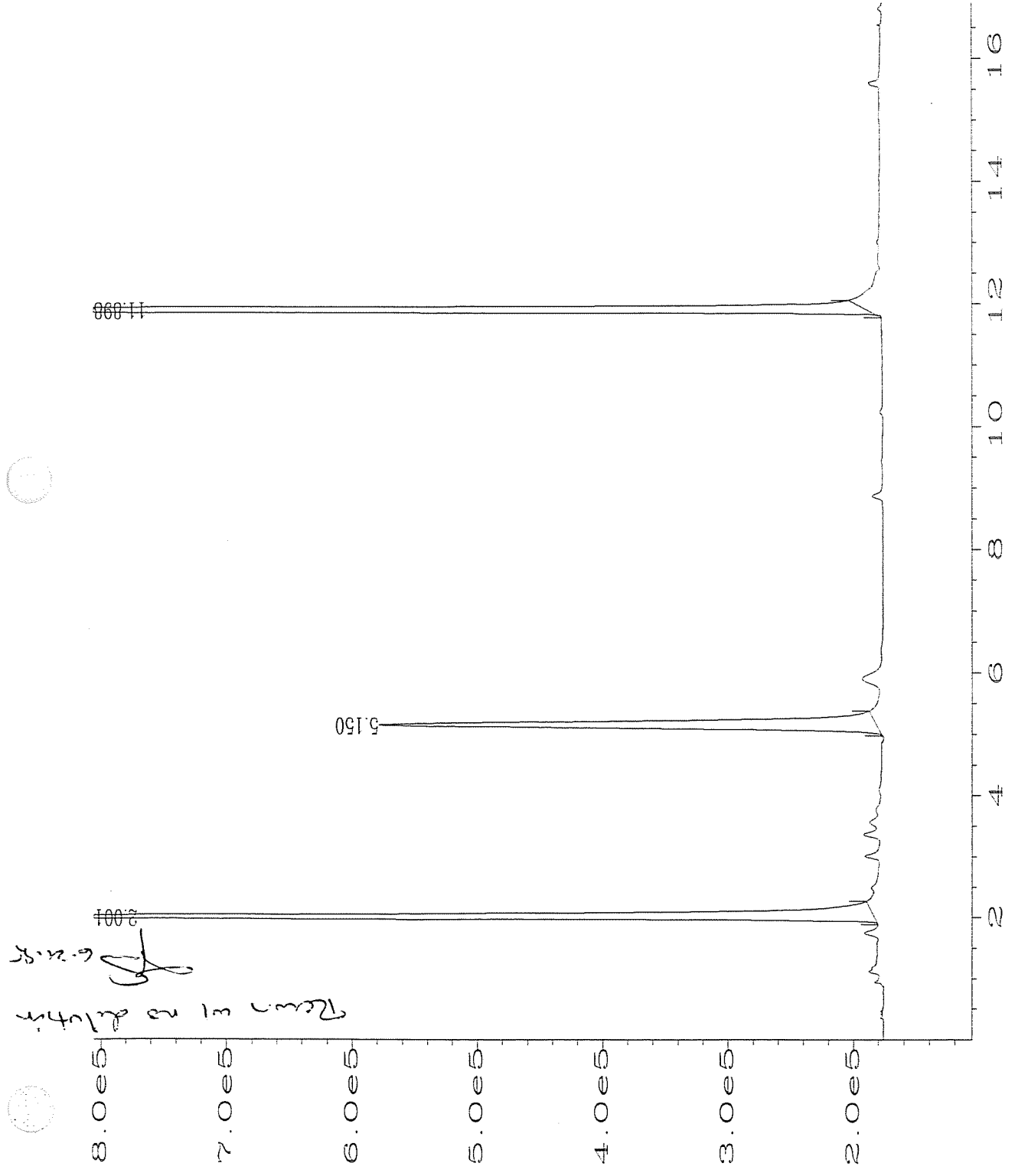
Reun w/ 100 x dilution

See file 018

9/5 621.95

m4572695

Data File Name : C:\HPCHEM\1\DATA\062195-3\013F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-14C 0.5 g
 Run Time Bar Code :
 Acquired on : 21 Jun 95 12:35 PM
 Report Created on : 21 Jun 95 12:52 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 13
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.M
 Analysis Method : 8010WAS.M
 Sample Amount : 0
 STD Amount : 1



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\013F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 13
 Sample Name : PDB-14C 0.5 g Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 21 Jun 95 12:35 PM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 12:52 PM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 JUN 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\013F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.151	* not found *			1		VINYL CHLORIDE
1.692	* not found *			1		1,1 DICHLOROETHENE
2.145	* not found *			1		t-1,2-DICHLOROETHENE
2.452	* not found *			1		1,1-DICHLOROETHANE
2.972	* not found *			1		c-1,2-DICHLOROETHENE
3.529	* not found *			1		111TRICHLOROETHANE
3.724	* not found *			1		CARBON TET.
4.049	* not found *			1		1,2-DICHLOROETHANE
5.150	3055690 BB	0.100	1	7.730		TRICHLOROETHENE
8.828	* not found *		1			TETRACHLOROETHENE
11.898	9887336 BB	0.058	1-R	50.667		1,4-DICHLOROBUTANE

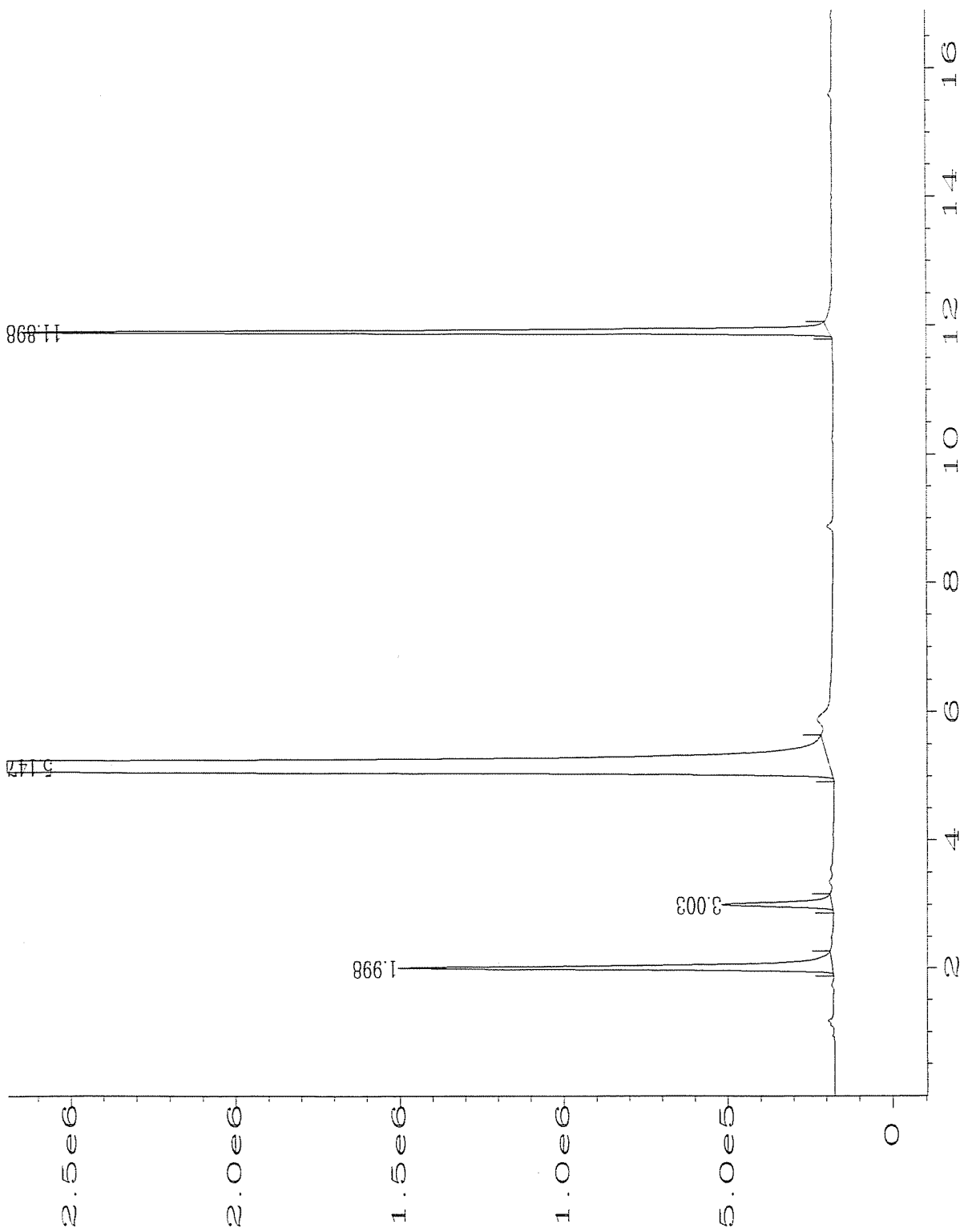
Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.898	0.1%

Not all calibrated peaks were found

Run w/ no dilution

[Signature]
6-21-95

Data File Name : C:\HPCHEM\1\DATA\062195-3\014F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-10B 5.0 uL
 Run Time Bar Code :
 Acquired on : 21 Jun 95 12:57 PM
 Report Created on : 21 Jun 95 01:14 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 14
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.M
 Analysis Method : 8010WAS.M.H
 Sample Amount : 0
 ISTD Amount :



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\014F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 14
 Sample Name : PDB-10B 5.0 uL Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 21 Jun 95 12:57 PM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 01:14 PM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 JUN 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\014F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.151	* not found *			1		VINYL CHLORIDE
1.692	* not found *			1		1,1 DICHLOROETHENE
2.145	* not found *			1		t-1,2-DICHLOROETHENE
2.452	* not found *			1		1,1-DICHLOROETHANE
3.003	1633784 BB	0.075	1	7.050		c-1,2-DICHLOROETHENE
3.529	* not found *		1			111TRICHLOROETHANE
3.724	* not found *		1			CARBON TET.
4.049	* not found *		1			1,2-DICHLOROETHANE
5.147	8.6013E+007 BB	0.106	1	276.278		TRICHLOROETHENE ✓
8.828	* not found *		1			TETRACHLOROETHENE
11.898	9584787 BB	0.059	1-R	49.014		1,4-DICHLOROBUTANE

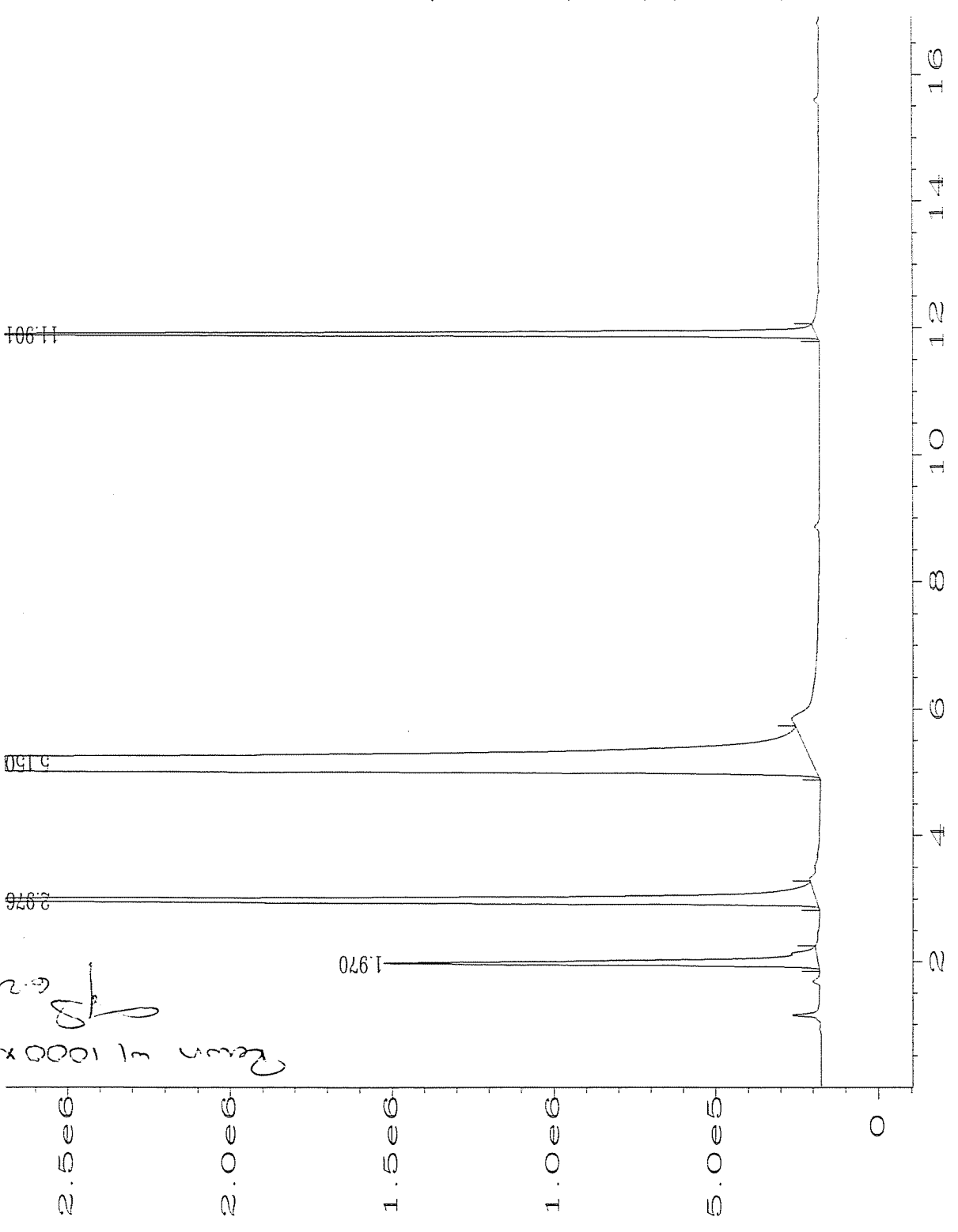
Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.898	0.1%

Not all calibrated peaks were found

1000 x dilution

TS
 6-21-95
 may 7 2695

Run at 1000x dilution
 18 6-21-95



Data File Name : C:\HPCHEM\1\DATA\062195-3\015F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-10C 50 uL
 Run Time Bar Code :
 Acquired on : 21 Jun 95 01:19 PM
 Report Created on : 21 Jun 95 01:36 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 15
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.
 Analysis Method : 8010WAS.M.H
 Sample Amount : 0
 ISTD Amount :

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\015F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 15
 Sample Name : PDB-10C 50 uL Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 21 Jun 95 01:19 PM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 01:36 PM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 JUN 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\015F0101.D

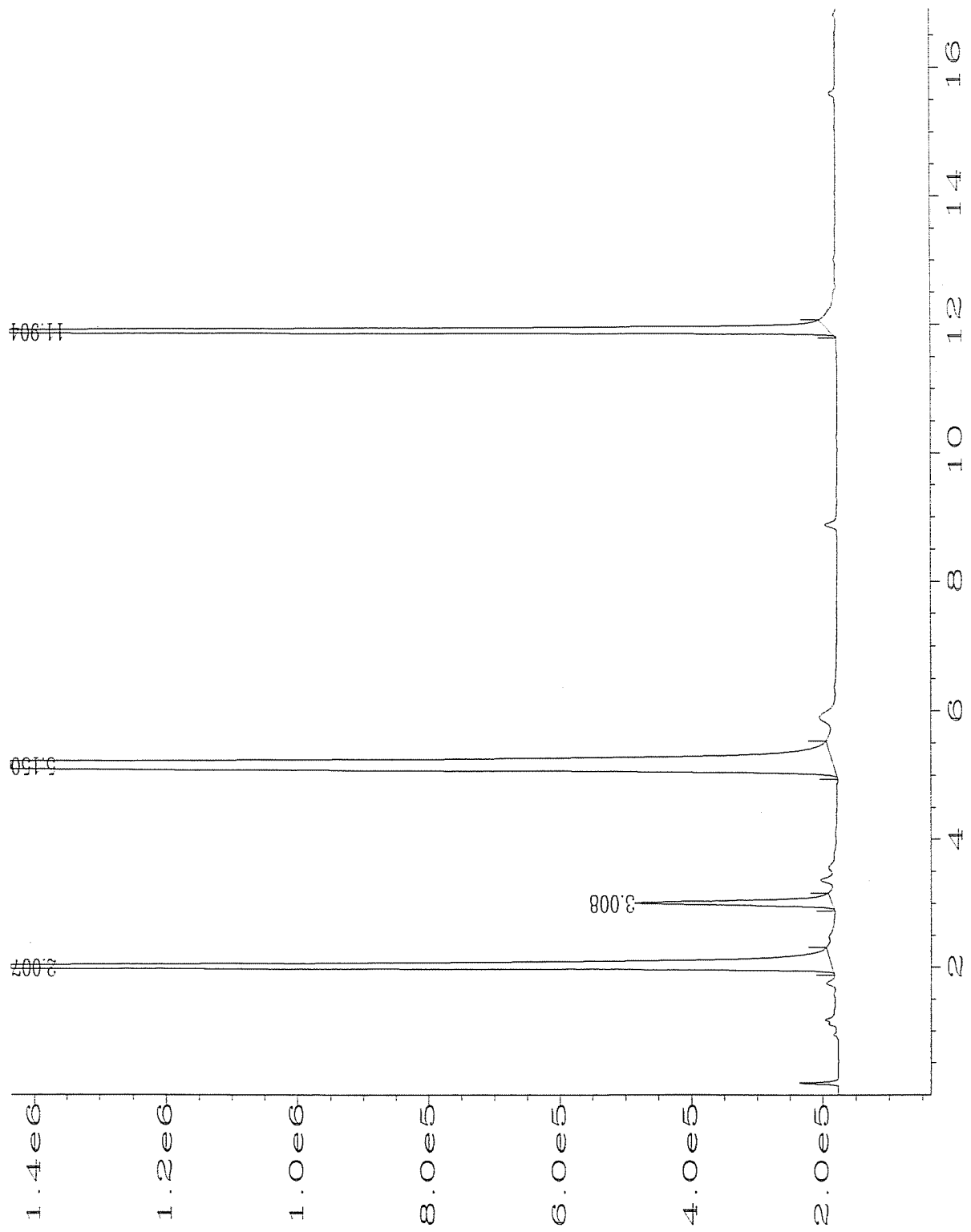
Ret Time	Area	Type	Width	Ref#	ng	Name
1.151	* not found *			1		VINYL CHLORIDE
1.692	* not found *			1		1,1 DICHLOROETHENE
2.145	* not found *			1		t-1,2-DICHLOROETHENE
2.452	* not found *			1		1,1-DICHLOROETHANE
2.976	1.93678E+007 BB	0.073	1	104.101		c-1,2-DICHLOROETHENE
3.529	* not found *		1			111TRICHLOROETHANE
3.724	* not found *		1			CARBON TET.
4.049	* not found *		1			1,2-DICHLOROETHANE
5.150	1.73892E+008 BB	0.138	1	560.758		TRICHLOROETHENE
8.828	* not found *		1			TETRACHLOROETHENE
11.901	1.12353E+007 BB	0.054	1-R	58.035		1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.901	0.1%

Not all calibrated peaks were found

Revised 1000x dilution
 R. 21-95

Data File Name : C:\HPCHEM\1\DATA\062195-3\016F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-13B 0.5 g
 Run Time Bar Code :
 Acquired on : 21 Jun 95 01:41 PM
 Report Created on : 21 Jun 95 01:58 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 16
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.M
 Analysis Method : 8010WAS.M
 Sample Amount : 0
 ISTD Amount :



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\016F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 16
 Sample Name : PDB-13B 0.5 g Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 21 Jun 95 01:41 PM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 01:58 PM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 JUN 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

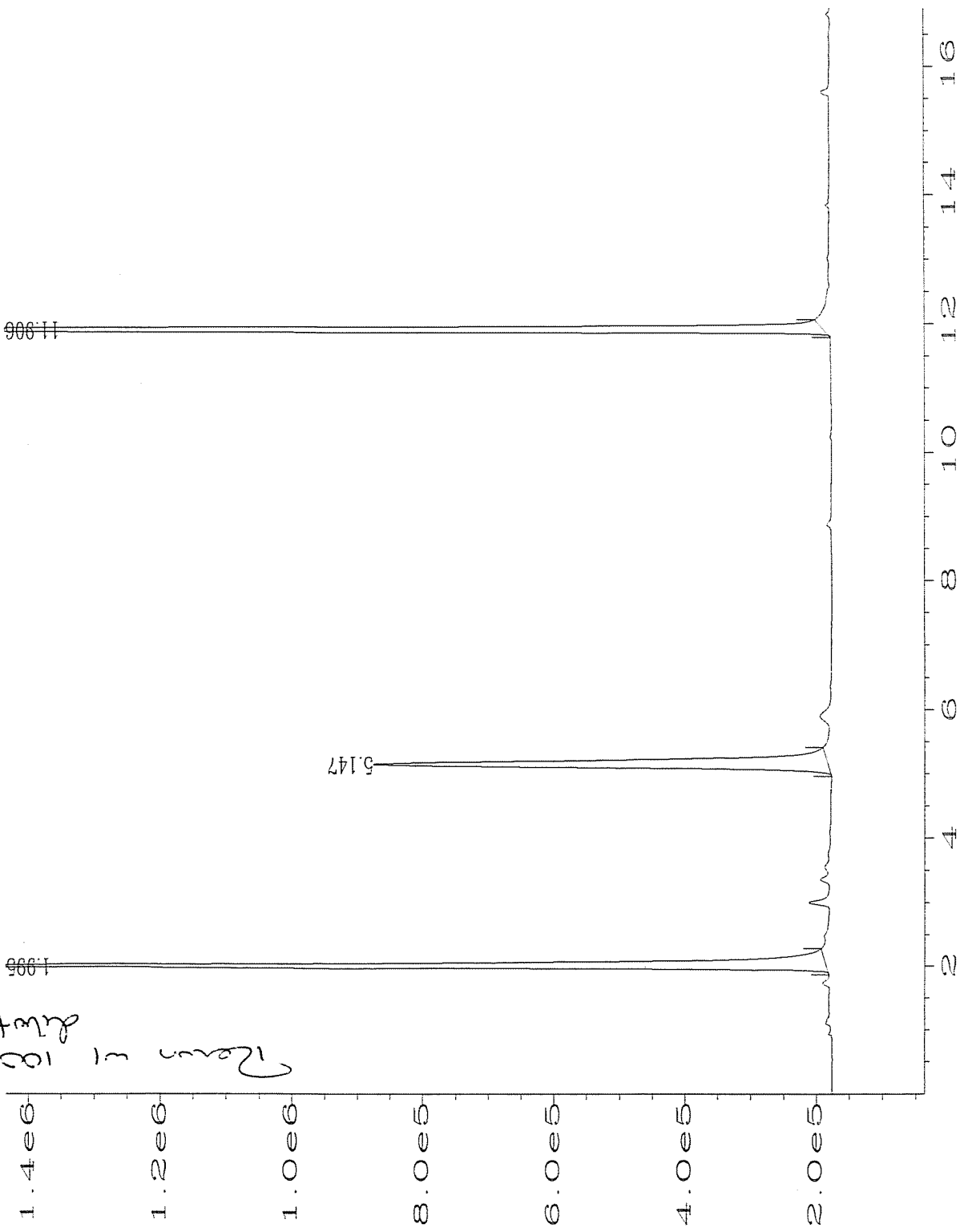
Sig. 1 in C:\HPCHEM\1\DATA\062195-3\016F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.151	* not found *			1		VINYL CHLORIDE
1.692	* not found *			1		1,1 DICHLOROETHENE
2.145	* not found *			1		t-1,2-DICHLOROETHENE
2.452	* not found *			1		1,1-DICHLOROETHANE
3.008	1479440 BB	0.071	1	6.205		c-1,2-DICHLOROETHENE
3.529	* not found *		1			111TRICHLOROETHANE
3.724	* not found *		1			CARBON TET.
4.049	* not found *		1			1,2-DICHLOROETHANE
5.150	2.15136E+007 BB	0.103	1	67.481		TRICHLOROETHENE
8.828	* not found *		1			TETRACHLOROETHENE
11.904	9719504 BB	0.060	1-R	49.750		1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.904	0.2%

Not all calibrated peaks were found

TS 6.21.95
 May 7.26.95



Data File Name : C:\HPCHEM\1\DATA\062195-3\017F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-14A 5.0 uL
 Run Time Bar Code :
 Acquired on : 21 Jun 95 02:03 PM
 Report Created on : 21 Jun 95 02:20 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 17
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.
 Analysis Method : 8010WAS.M.H
 Sample Amount : 0
 ISTD Amount :

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\017F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 17
 Sample Name : PDB-14A 5.0 uL Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 21 Jun 95 02:03 PM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 02:20 PM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 JUN 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\017F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.151	* not found *			1		VINYL CHLORIDE
1.692	* not found *			1		1,1 DICHLOROETHENE
2.145	* not found *			1		t-1,2-DICHLOROETHENE
2.452	* not found *			1		1,1-DICHLOROETHANE
2.972	* not found *			1		c-1,2-DICHLOROETHENE
3.529	* not found *			1		111TRICHLOROETHANE
3.724	* not found *			1		CARBON TET.
4.049	* not found *			1		1,2-DICHLOROETHANE
5.147	5381160 BB	0.097	1	15.258		TRICHLOROETHENE
8.828	* not found *		1			TETRACHLOROETHENE
11.906	1.07281E+007 BB	0.059	1-R	55.263		1,4-DICHLOROBUTANE

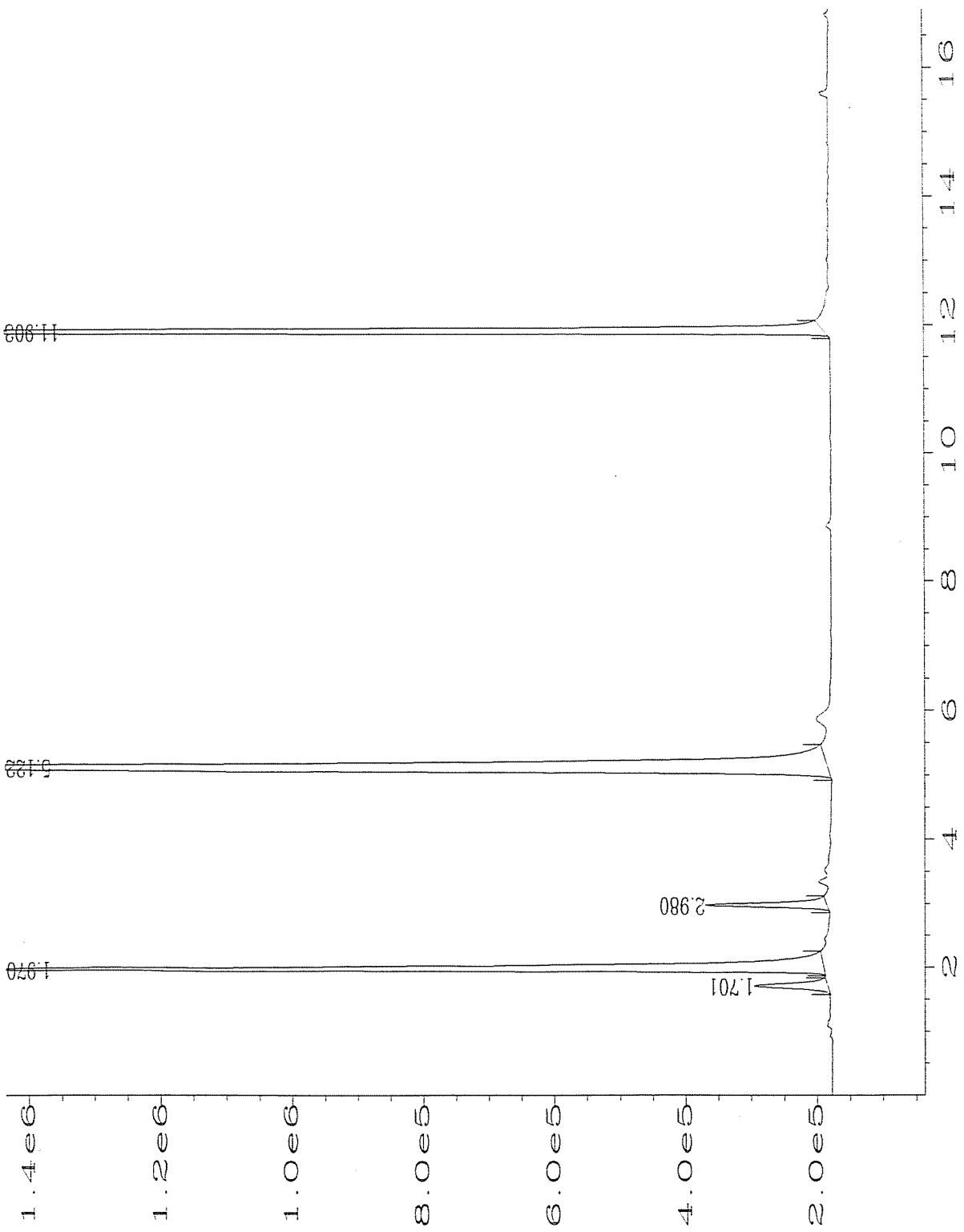
Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.906	0.2%

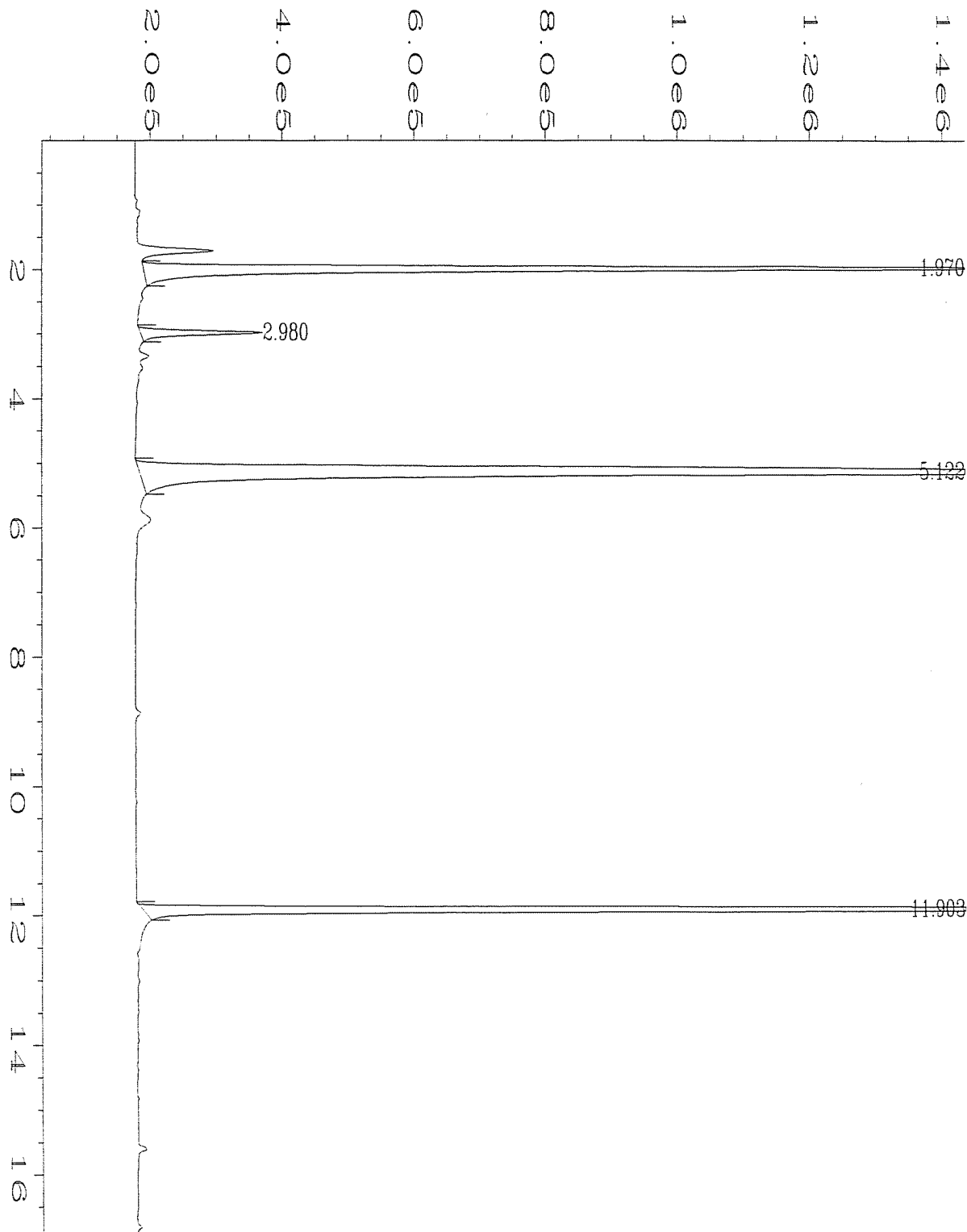
Not all calibrated peaks were found

Revised 100 X dilution
 7/3 6-21-95

Data File Name : C:\HPCHEM\1\DATA\062195-3\018F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-14B 50 uL
 Run Time Bar Code :
 Acquired on : 21 Jun 95 02:25 PM
 Report Created on : 21 Jun 95 02:44 PM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 18
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.M
 Analysis Method : 8010WAS.M.H
 Sample Amount : 0
 ISTD Amount :

user modified





Data File Name	: C:\HPCHEM\1\DATA\062195-3\018F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 18
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-14B 50 uL	Sequence Line	: 1
Run Time Bar Code:		Instrument Method	: 8010WAS.MTH
Acquired on	: 21 Jun 95 02:25 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	: 21 Jun 95 02:42 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\018F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-14B 50 uL
 Run Time Bar Code :
 Acquired on : 21 Jun 95 02:25 PM
 Report Created on: 21 Jun 95 02:44 PM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 18
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\018F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
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1.186	*	not found				VINYL CHLORIDE
1.701	641274	MM	0.095	1	1.278	1,1-DICHLOROETHENE
2.145	*	not found				c-1,2-DICHLOROETHENE
2.452	*	not found				1,1-DICHLOROETHANE
2.980	884780	BB	0.071	1	2.951	c-1,2-DICHLOROETHENE
3.529	*	not found				1,1-TRICHLOROETHANE
3.724	*	not found				CARBON TET.
4.049	*	not found				1,2-DICHLOROETHANE
5.122	1.41783E+007	BB	0.100	1	43.736	TRICHLOROETHENE
8.828	*	not found				TETRACHLOROETHENE
11.903	1.19881E+007	BB	0.055	1-R	62.149	1,4-DICHLOROBUTANE * 124% c-sum

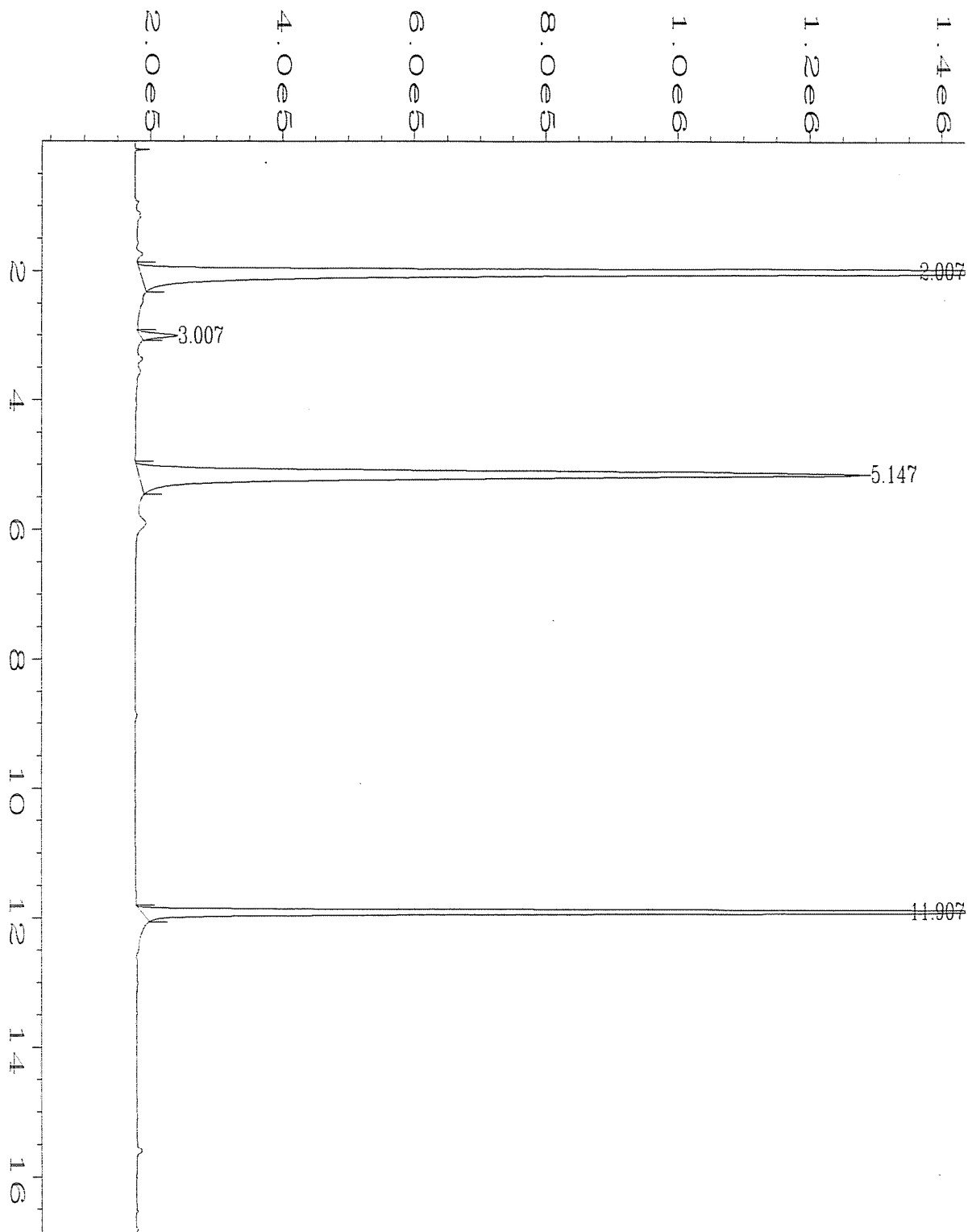
Not all calibrated peaks were found

User Modified

Time Reference Peak	Expected RT	Actual RT	Difference
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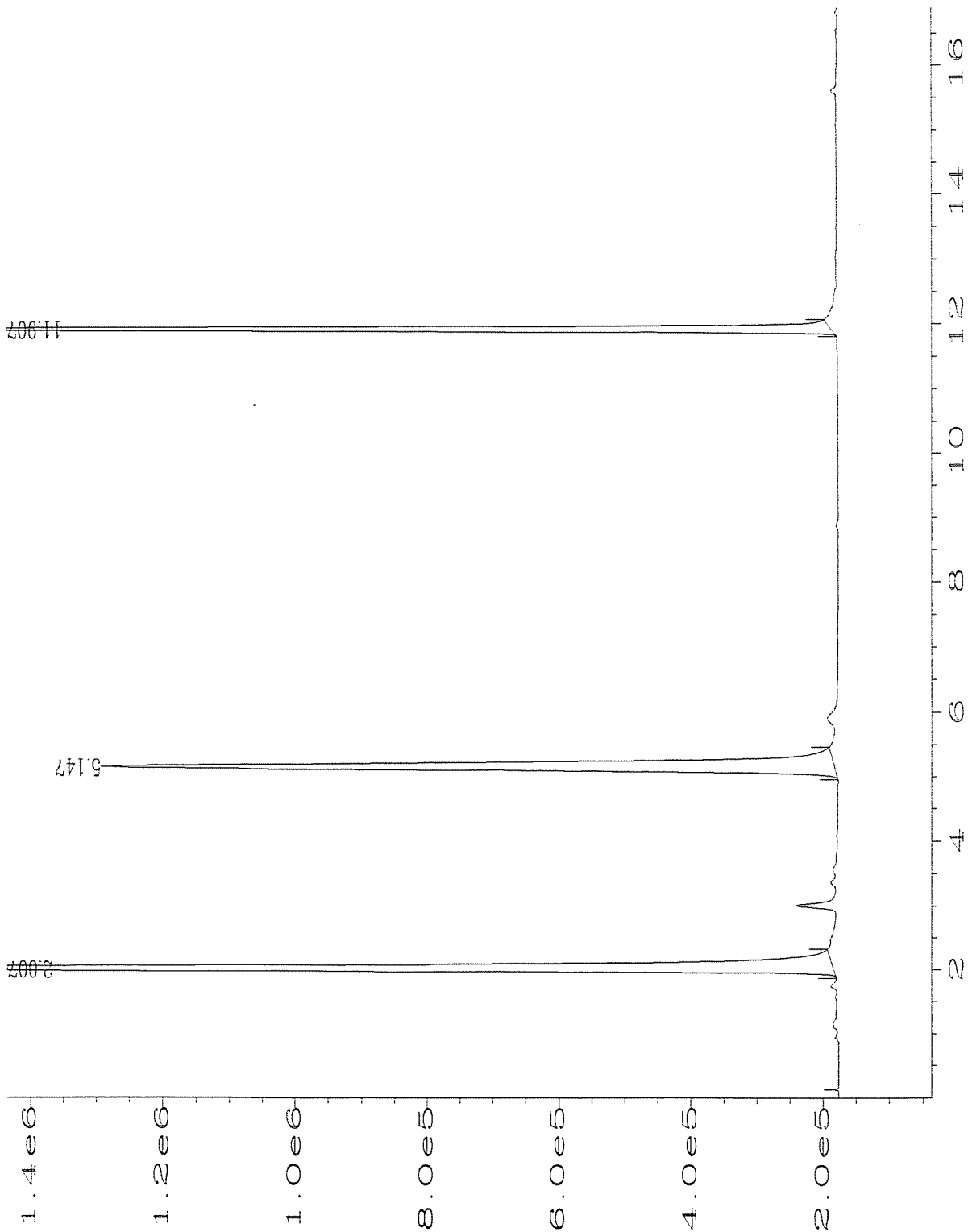
11	11.884	11.903	0.2%
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SL
 6-24-95
 mjs 7/26/95



user modified

Data File Name	: C:\HPCHEM\1\DATA\062195-3\019F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 19
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-14C 5.0 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method	: 8010WAS.MTH
Acquired on	: 21 Jun 95 02:48 PM	Analysis Method	: 8010WAS.MTH
Report Created on	: 21 Jun 95 03:06 PM	Sample Amount	: 0
Last Recalib on	: 20 Jun 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		



Data File Name : C:\HPCHEM\1\DATA\062195-3\019F0101.D

Page Number : 1
 Vial Number : 19
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.M
 Analysis Method : 8010WAS.M
 Sample Amount : 0
 ISTD Amount : 1

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-14C 5.0 g
 Run Time Bar Code :
 Acquired on : 21 Jun 95 02:48 PM
 Report Created on: 21 Jun 95 03:05 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\019F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 19
 Sample Name : PDB-14C 5.0 g Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 21 Jun 95 02:48 PM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 03:06 PM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 Jun 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\019F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.186	* not found *			1		VINYL CHLORIDE
1.692	* not found *			1		1,1 DICHLOROETHENE
2.145	* not found *			1		t-1,2-DICHLOROETHENE
2.452	* not found *			1		1,1-DICHLOROETHANE
3.007	254943	MM	0.075	1	-0.496	c-1,2-DICHLOROETHENE
3.529	* not found *			1		111TRICHLOROETHANE
3.724	* not found *			1		CARBON TET.
4.049	* not found *			1		1,2-DICHLOROETHANE
5.147	8929558	BB	0.103	1	26.744	TRICHLOROETHENE
8.828	* not found *			1		TETRACHLOROETHENE
11.907	7713346	BB	0.058	1-R	38.785	1,4-DICHLOROBUTANE

*Sun - 78%
 CL = 80-120

Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.907	0.2%

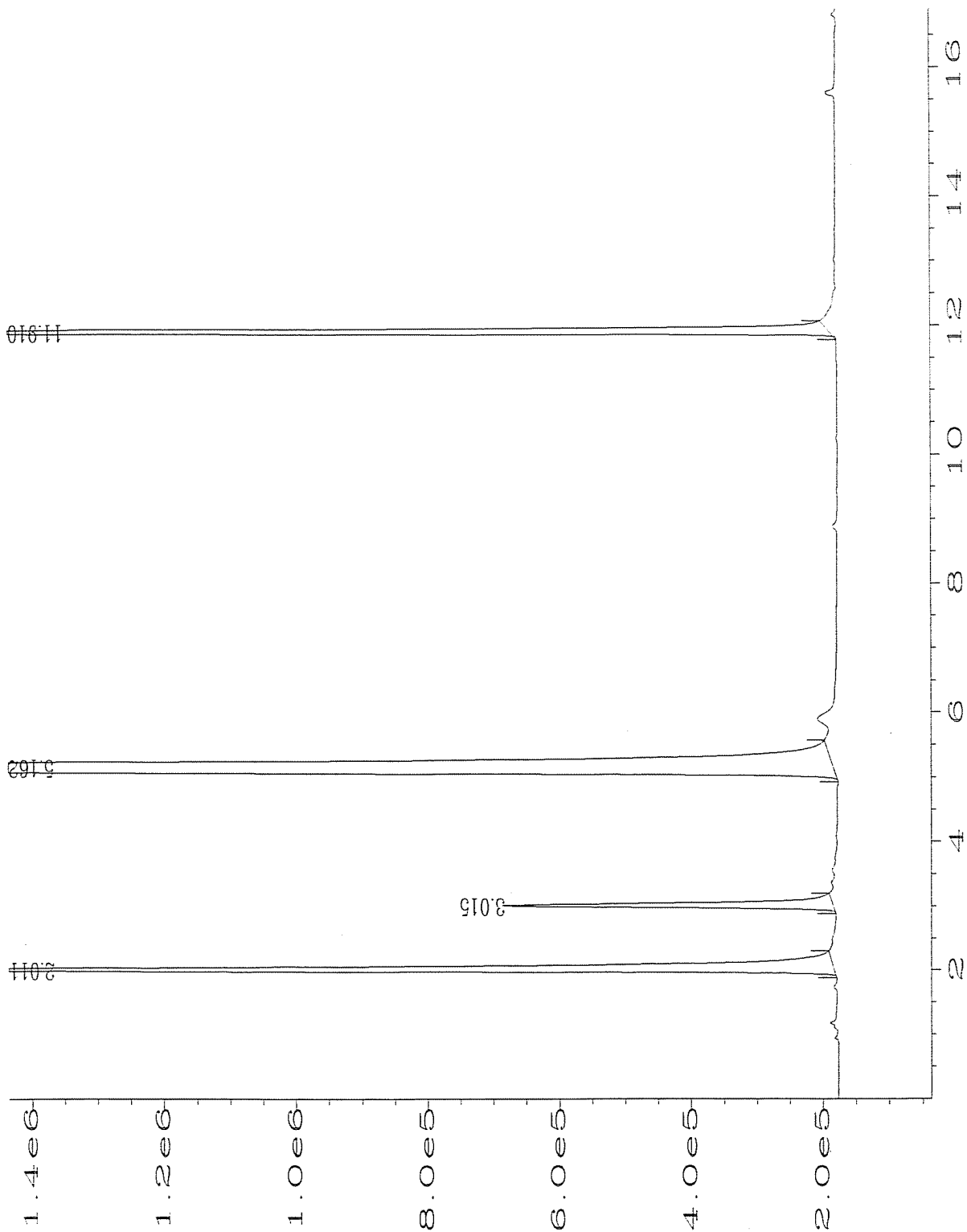
95
 6-21-95

Not all calibrated peaks were found

User Modified

95
 6-21-95

Data File Name : C:\HPCHEM\1\DATA\062195-3\020F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-10C 5.0 uL
 Run Time Bar Code :
 Acquired on : 21 Jun 95 03:10 PM
 Report Created on : 21 Jun 95 03:27 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 20
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.M
 Analysis Method : 8010WAS.M.H
 Sample Amount : 0
 ISTD Amount :



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\020F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 20
 Sample Name : PDB-10C 5.0 uL Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 21 Jun 95 03:10 PM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 03:27 PM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 JUN 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\020F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.151	* not found *			1		VINYL CHLORIDE
1.692	* not found *			1		1,1 DICHLOROETHENE
2.145	* not found *			1		t-1,2-DICHLOROETHENE
2.452	* not found *			1		1,1-DICHLOROETHANE
3.015	2481090	BB	0.073	1	11.687	c-1,2-DICHLOROETHENE
3.529	* not found *			1		111TRICHLOROETHANE
3.724	* not found *			1		CARBON TET.
4.049	* not found *			1		1,2-DICHLOROETHANE
5.162	3.34805E+007	BB	0.105	1	106.220	TRICHLOROETHENE
8.828	* not found *			1		TETRACHLOROETHENE
11.910	1.0404E+007	BB	0.059	1-R	53.491	1,4-DICHLOROBUTANE

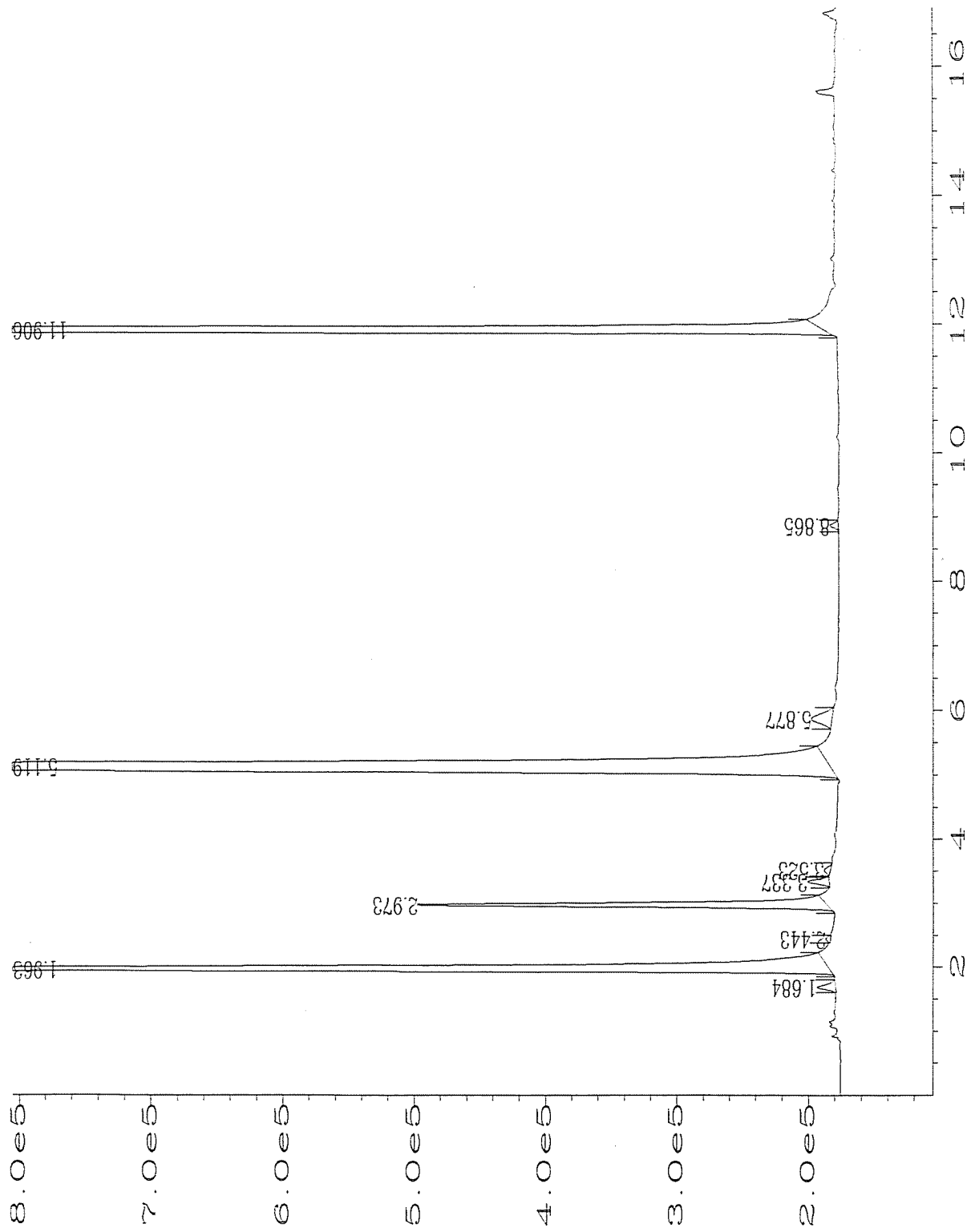
Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.910	0.2%

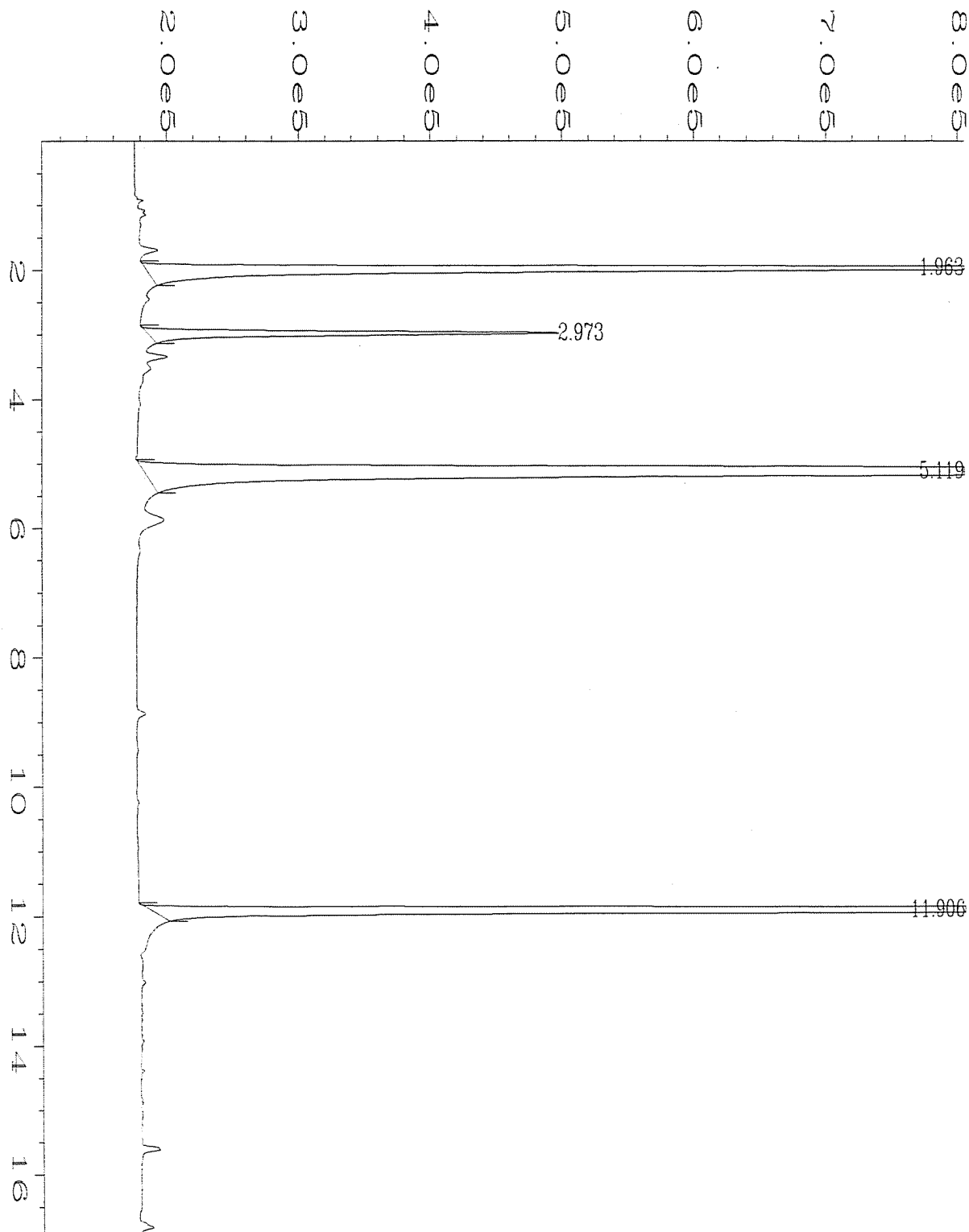
Not all calibrated peaks were found

Handwritten signature
 6-21-95
 May 7 26'95

Data File Name : C:\HPCHEM\1\DATA\062195-3\021F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-14A 50 uL
 Run Time Bar Code :
 Acquired on : 21 Jun 95 03:32 PM
 Report Created on : 21 Jun 95 03:54 PM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 21
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS..
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

user modified





Data File Name	: C:\HPCHEM\1\DATA\062195-3\021F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 21
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-14A 50 uL	Sequence Line	: 1
Run Time Bar Code:		Instrument Method	: 8010WAS.MTH
Acquired on	: 21 Jun 95 03:32 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	: 21 Jun 95 03:49 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\021F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-14A 50 uL
 Run Time Bar Code :
 Acquired on : 21 Jun 95 03:32 PM
 Report Created on: 21 Jun 95 03:54 PM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 21
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\021F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
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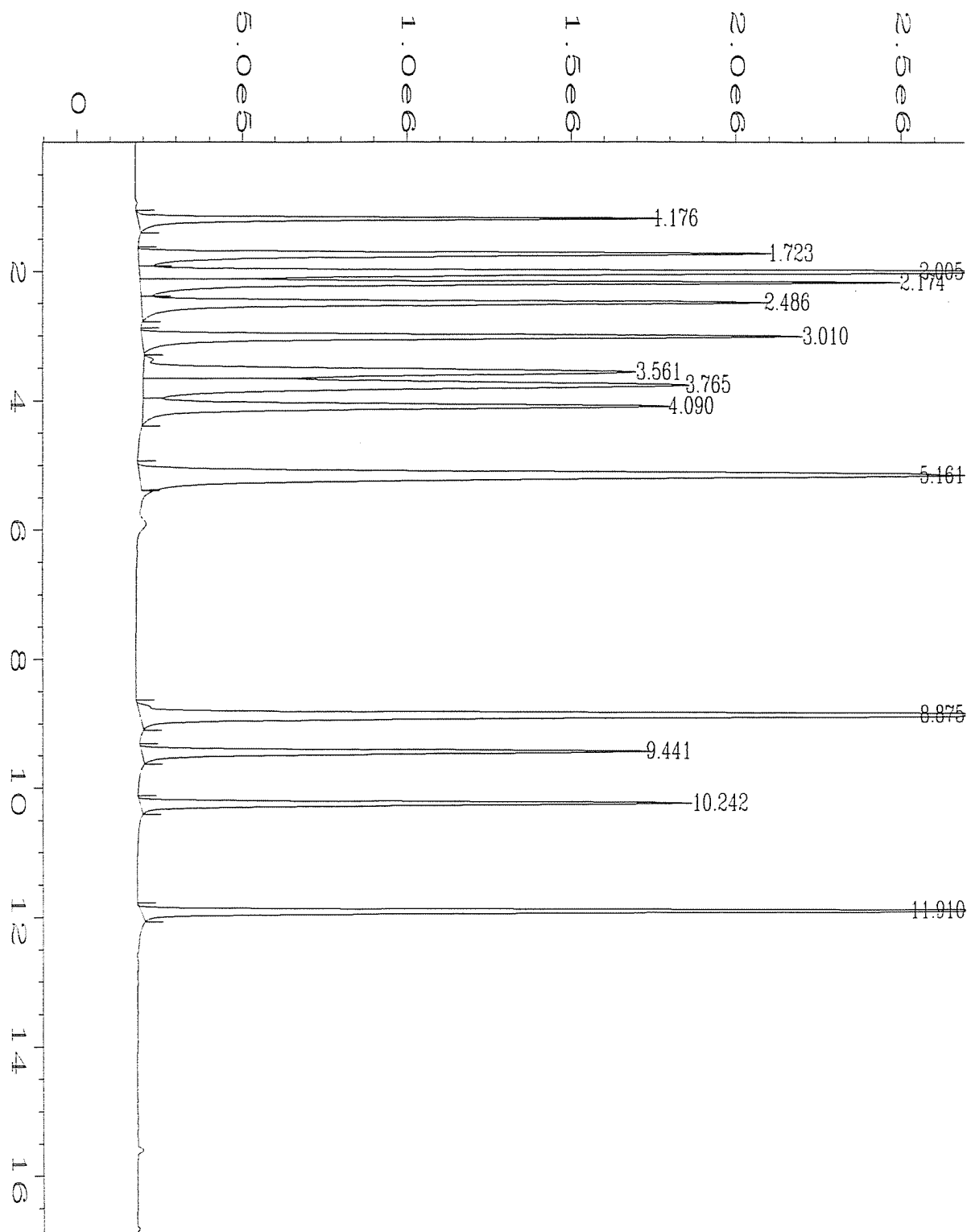
1.186	* not found	*		1		VINYL CHLORIDE
1.684	76204 MM		0.091	1	-2.189	1,1 DICHLOOROETHENE
2.145	* not found	*		1		t-1,2-DICHLOOROETHENE
2.443	17130 MM		0.080	1	-1.730	1,1-DICHLOOROETHANE
2.973	1486696 BB		0.071	1	6.245	c-1,2-DICHLOOROETHENE
3.523	27310 MM		0.100	1	-1.932	1,1,1,1,2,2,2-TRICHLOROETHANE
3.724	* not found	*		1		CARBON TET.
4.049	* not found	*		1		1,2-DICHLOOROETHANE
5.119	1.14605E+007 BB		0.097	1	34.938	TRICHLOROETHENE
8.865	30880 MM		0.083	1	-2.536	TETRACHLOROETHENE
11.906	1.24184E+007 BB		0.061	1-R	64.501	1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
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Not all calibrated peaks were found

User Modified

18
 6.21.95
 m957 2655



Data File Name	: C:\HPCHEM\1\DATA\062195-3\022F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 22
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: 50 ng Std	Sequence Line	: 1
Print Time Bar Code:		Instrument Method	: 8010WAS.MTH
Acquired on	: 21 Jun 95 03:54 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	: 21 Jun 95 04:11 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\022F0101.D

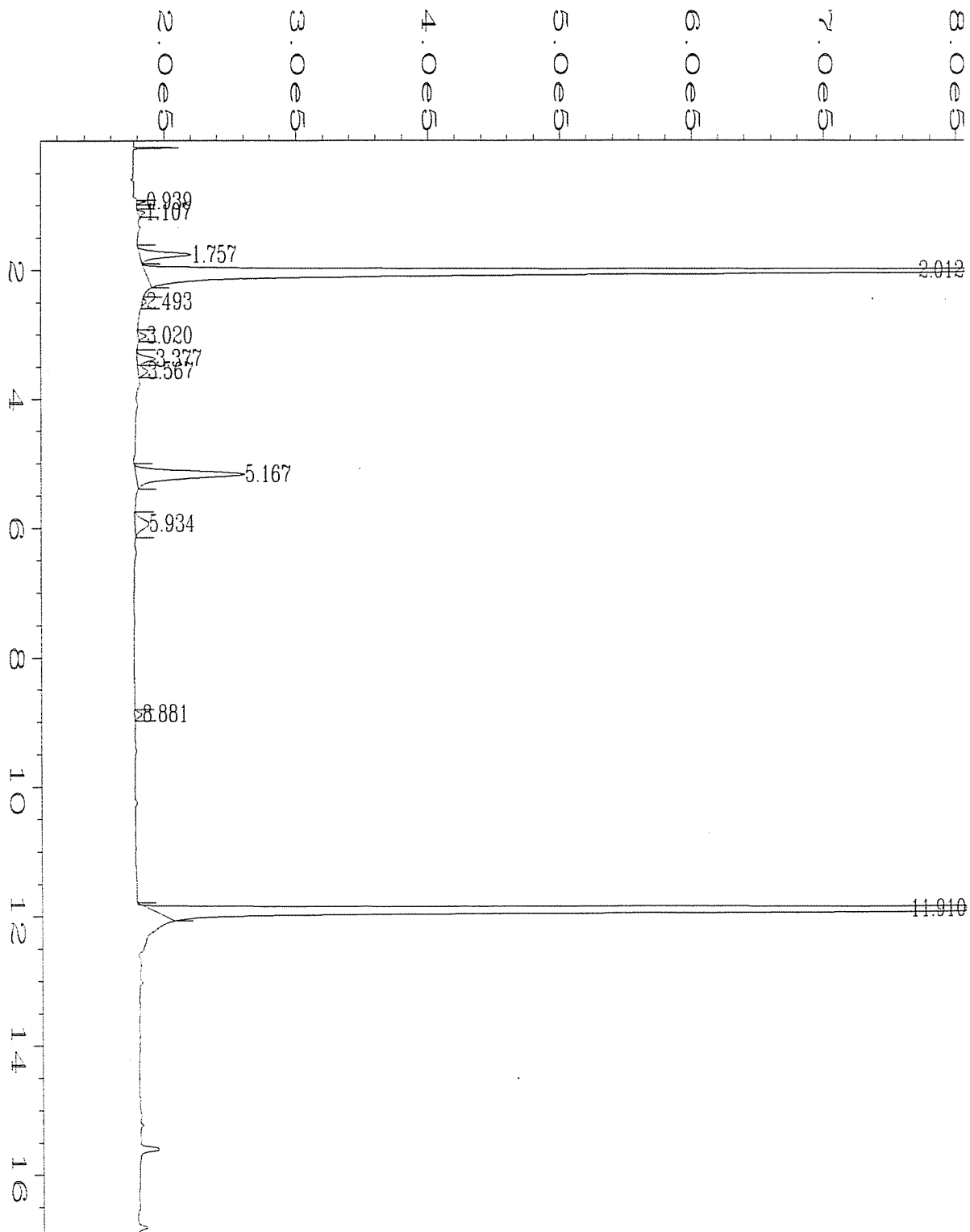
Operator : TJS
 Instrument : GC # 3
 Sample Name : 50 ng Std
 Run Time Bar Code :
 Acquired on : 21 Jun 95 03:54 PM
 Report Created on: 21 Jun 95 04:11 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 22
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\022F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.176	5614757	BB	0.051	1	52.351	VINYL CHLORIDE
1.723	9372733	BV	0.072	1	54.857	1,1 DICHLOROETHENE
2.174	1.02023E+007	VV	0.065	1	56.759	1,1,2-DICHLOROETHENE
2.486	9786746	VB	0.074	1	55.425	1,1-DICHLOROETHANE
3.010	1.03555E+007	BB	0.078	1	54.780	C-1,2-DICHLOROETHENE
3.561	1.10817E+007	BV	0.095	1	53.900	1,1,1,1-TETRACHLOROETHANE
3.765	1.3453E+007	VV	0.107	1	55.560	CARBON TET.
4.090	9569964	VB	0.090	1	52.266	1,2-DICHLOROETHANE
5.161	2.03355E+007	BV	0.107	1	63.668	TRICHLOROETHENE ★ 127% R
8.875	1.85938E+007	BB	0.086	1	58.042	TETRACHLOROETHENE
11.910	1.14009E+007	BB	0.060	1-R	58.940	1,4-DICHLOROBUTANE

Time Reference Peak
 11
 Expected RT 11.884
 Actual RT 11.910
 Difference 0.2%

6-21-95
 mkg 7-26-95

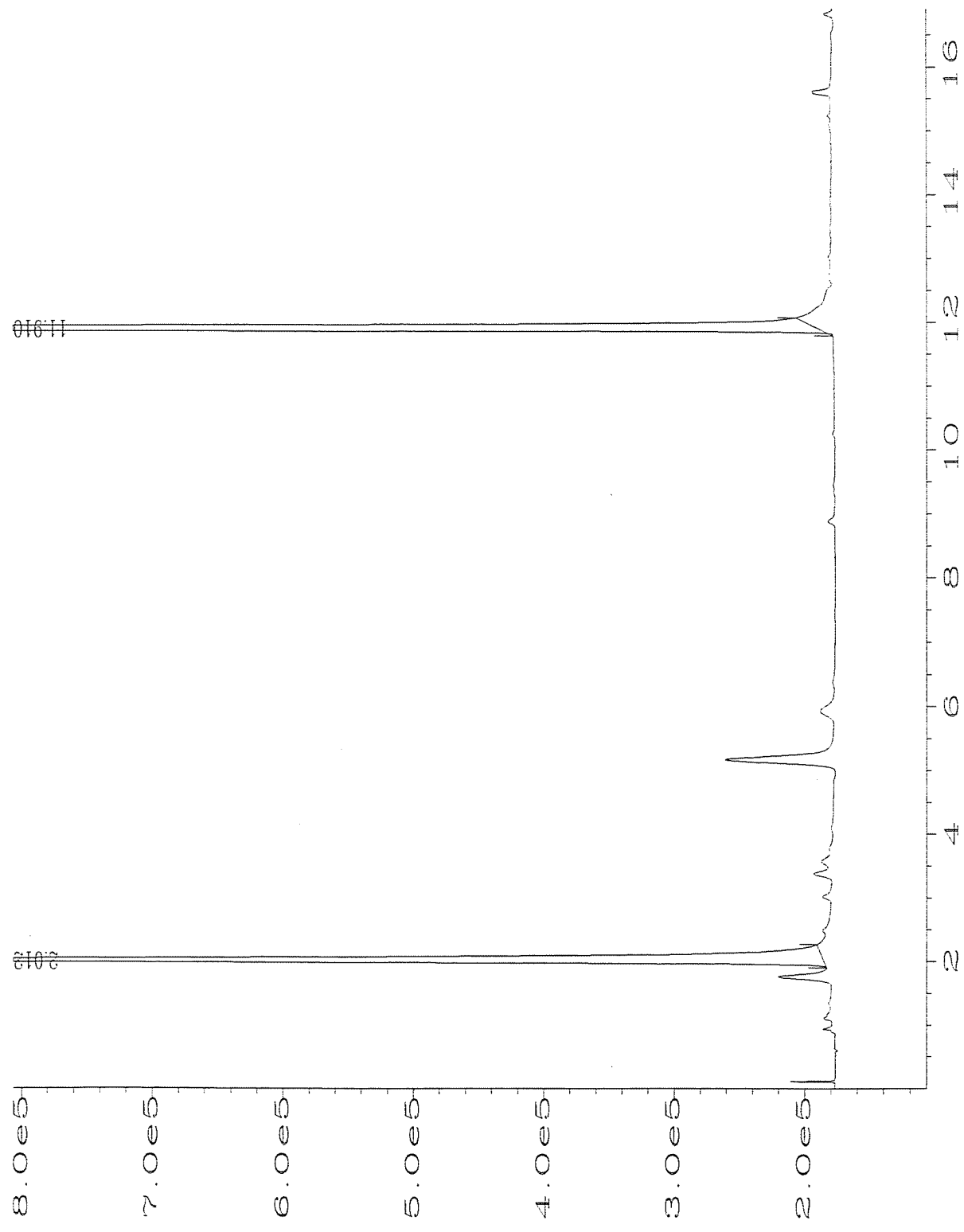


user modified

Data File Name	: C:\HPCHEM\1\DATA\062195-3\023F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 23
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: method blank	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 21 Jun 95 04:16 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	21 Jun 95 04:35 PM	Sample Amount	: 0
Last Recalib on	: 20 Jun 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

Data File Name : C:\HPCHEM\1\DATA\062195-3\023F0101.D

Operator : TJS
Instrument : GC # 3
Sample Name : method blank
Run Time Bar Code :
Acquired on : 21 Jun 95 04:16 PM
Report Created on : 21 Jun 95 04:33 PM
Last Recalib on : 20 JUN 95 09:55 AM
Multiplier : 1
Page Number : 1
Vial Number : 23
Injection Number : 1
Sequence Line : 1
Instrument Method: 8010WAS.M
Analysis Method : 8010WAS.MTH
Sample Amount : 0
ISTD Amount :



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\023F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 23
 Sample Name : method blank Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 21 Jun 95 04:16 PM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 04:35 PM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 Jun 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\023F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.186	* not found *			1		VINYL CHLORIDE
1.692	* not found *			1		1,1 DICHLOROETHENE
2.145	* not found *			1		t-1,2-DICHLOROETHENE
2.493	13411	MM	0.076	1	-1.752	1,1-DICHLOROETHANE
3.020	29273	MM	0.079	1	-1.731	c-1,2-DICHLOROETHENE
3.567	49478	FM	0.118	1	-1.820	111TRICHLOROETHANE
3.724	* not found *			1		CARBON TET.
4.049	* not found *			1		1,2-DICHLOROETHANE
5.167	638182	BB	0.103	1	-0.0963	TRICHLOROETHENE
8.881	30017	MM	0.092	1	-2.539	TETRACHLOROETHENE
11.910	1.12352E+007	BB	0.060	1-R	58.035	1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.910	0.2%

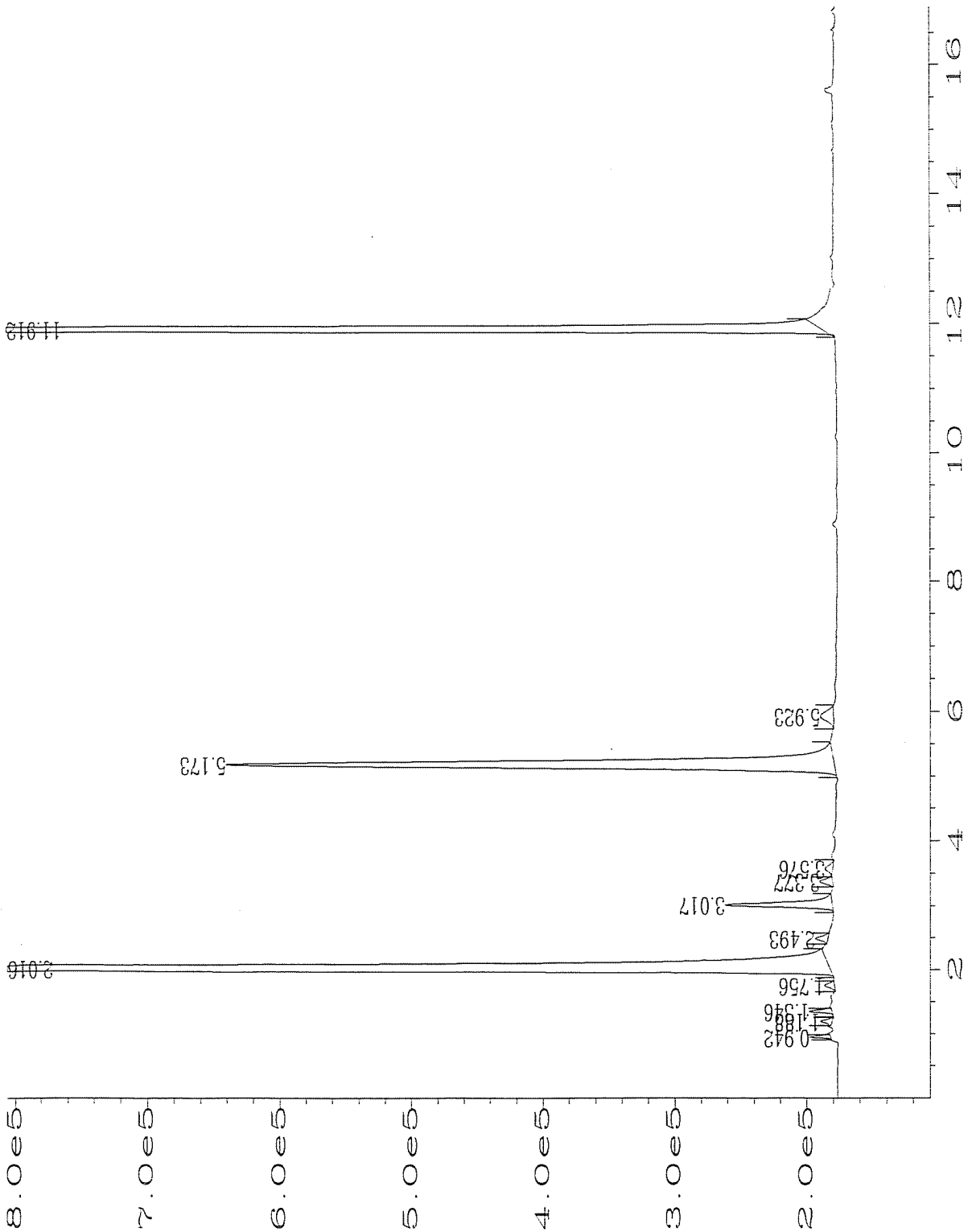
Not all calibrated peaks were found

User Modified

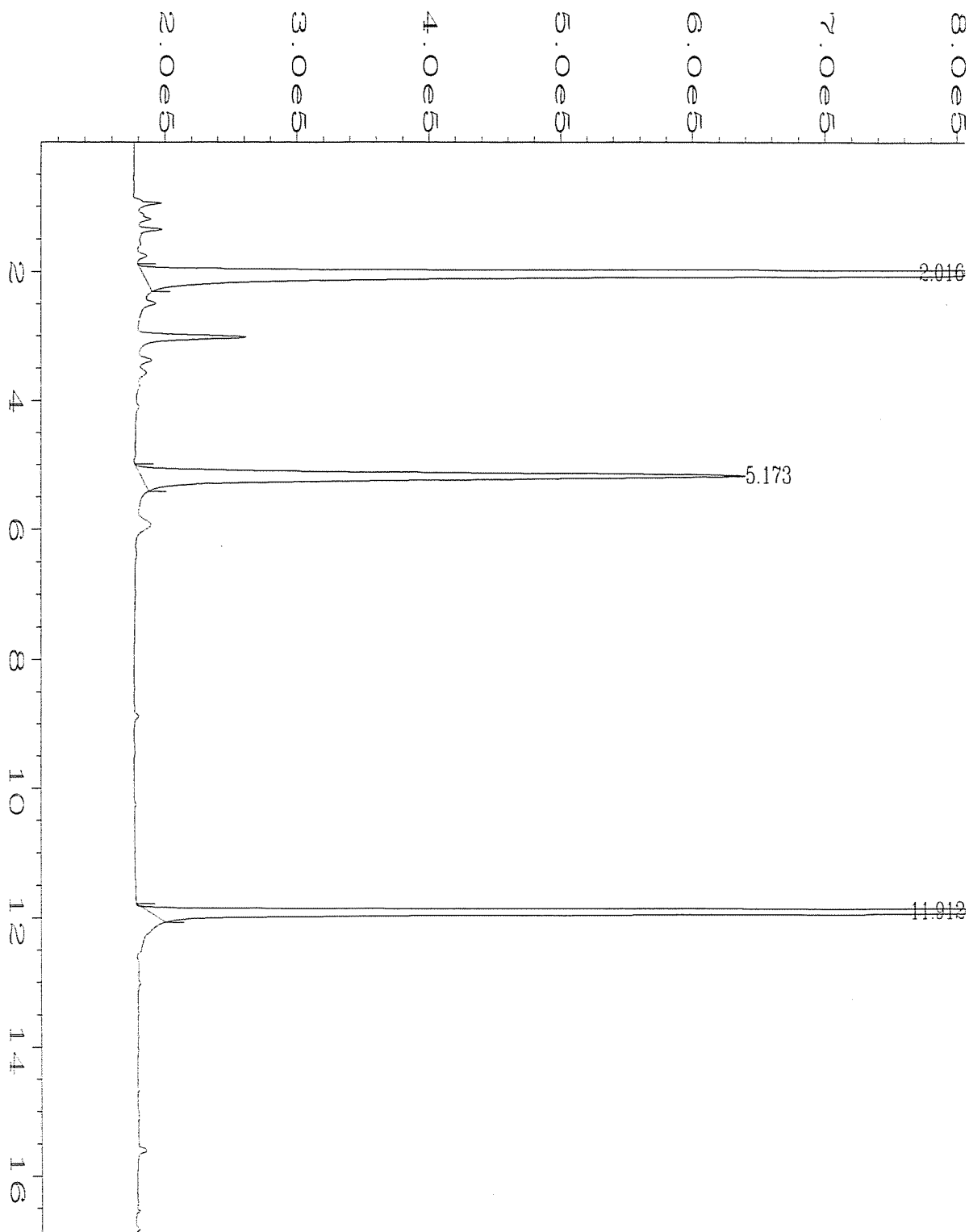
TS
6-21-95
may 7.7695

Data File Name : C:\HPCHEM\1\DATA\062195-3\024F0101.D

Operator : TJS
Instrument : GC # 3
Sample Name : PDB-15A 5.0 g
Run Time Bar Code :
Acquired on : 21 Jun 95 04:38 PM
Report Created on : 21 Jun 95 04:56 PM
Last Recalib on : 20 Jun 95 09:55 AM
Multiplier : 1
Page Number : 1
Vial Number : 24
Injection Number : 1
Sequence Line : 1
Instrument Method: 8010WAS.1
Analysis Method : 8010WAS.MTH
Sample Amount : 0
ISTD Amount :



user modified



Data File Name	: C:\HPCHEM\1\DATA\062195-3\024F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 24
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-15A 5.0 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 21 Jun 95 04:38 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	21 Jun 95 04:55 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\024F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-15A 5.0 g
 Run Time Bar Code :
 Acquired on : 21 Jun 95 04:38 PM
 Report Created on: 21 Jun 95 04:56 PM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 24
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\024F0101.D

Ret Time Area Type Width Ref# Name

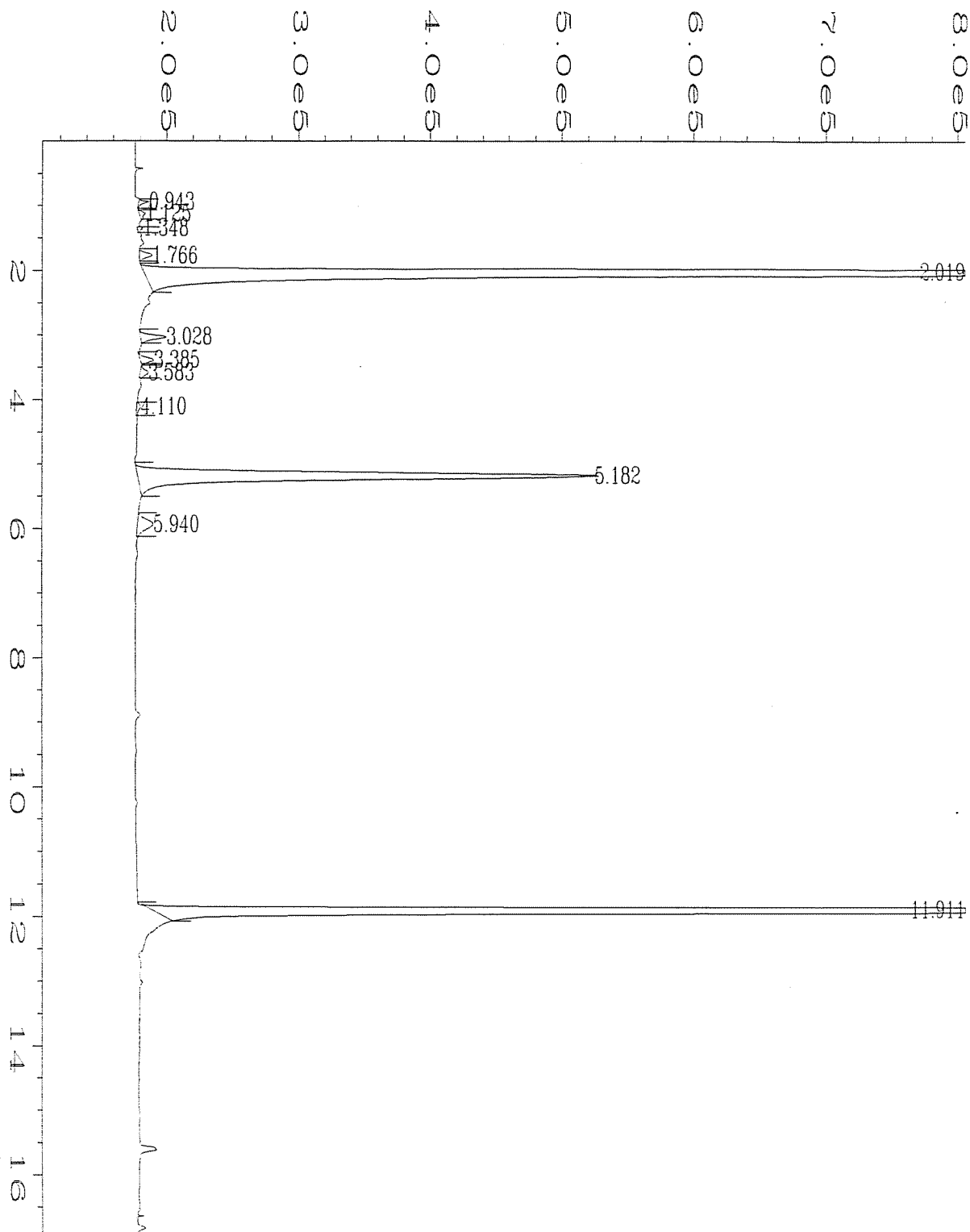
1.188	34054	MM	0.066	1	-1.549	VINYL CHLORIDE
1.692	*	not found	*	1		1,1 DICHLOROETHENE
2.145	*	not found	*	1		t-1,2-DICHLOROETHENE
2.493	47129	MM	0.083	1	-1.554	1,1-DICHLOROETHANE
3.017	412242	BB	0.069	1	0.365	c-1,2-DICHLOROETHENE
3.576	43735	MM	0.125	1	-1.849	1,1,1-TRICHLOROETHANE
3.724	*	not found	*	1		CARBON TET.
4.049	*	not found	*	1		1,2-DICHLOROETHANE
5.173	3629122	BB	0.098	1	9.586	TRICHLOROETHENE
8.828	*	not found	*	1		TETRACHLOROETHENE
11.912	8314667	BB	0.059	1-R	42.071	1,4-DICHLOROBUTANE

Time Reference Peak
 11
 Expected RT 11.884
 Actual RT 11.912
 Difference 0.2%

Not all calibrated peaks were found

User Modified

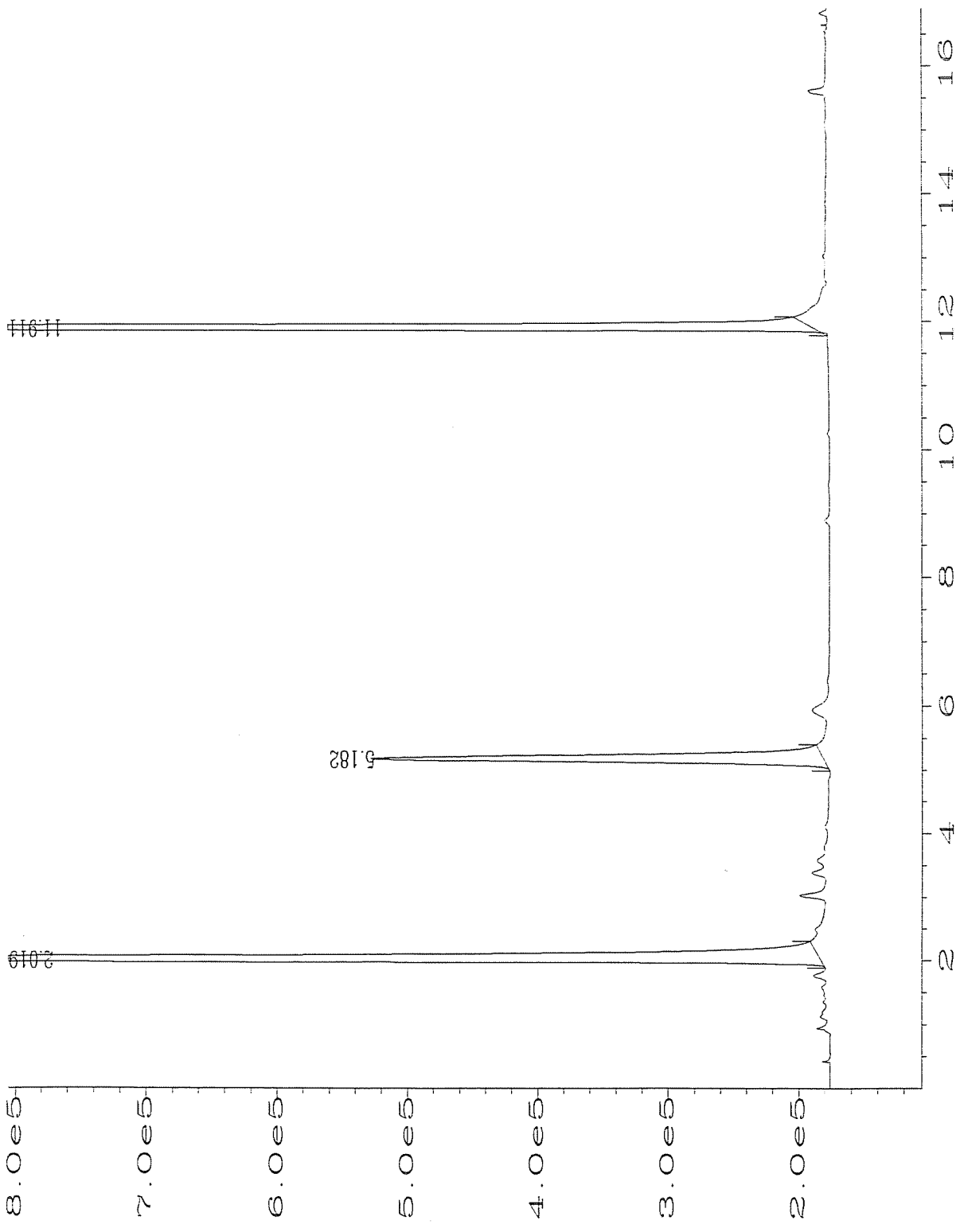
6.21.95
 m 45 7 26 95



Data File Name	: C:\HPCHEM\1\DATA\062195-3\025F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 25
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-15B 5.0 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 21 Jun 95 05:00 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	21 Jun 95 05:18 PM	Sample Amount	: 0
Last Recalib on	: 20 Jun 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

Data File Name : C:\HPCHEM\1\DATA\062195-3\025F0101.D

Operator : TJS
Instrument : GC # 3
Sample Name : PDB-15B 5.0 g
Run Time Bar Code :
Acquired on : 21 Jun 95 05:00 PM
Report Created on : 21 Jun 95 05:17 PM
Last Recalib on : 20 JUN 95 09:55 AM
Multiplier : 1
Page Number : 1
Vial Number : 25
Injection Number : 1
Sequence Line : 1
Instrument Method: 8010WAS.1
Analysis Method : 8010WAS.MIH
Sample Amount : 0
ISTD Amount :



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\025F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 25
 Sample Name : PDB-15B 5.0 g Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 21 Jun 95 05:00 PM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 05:18 PM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 Jun 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\025F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.186	* not found *			1		VINYL CHLORIDE
1.692	* not found *			1		1,1 DICHLOROETHENE
2.145	* not found *			1		t-1,2-DICHLOROETHENE
2.452	* not found *			1		1,1-DICHLOROETHANE
3.028	95675 MM	0.082	1	-1.367		c-1,2-DICHLOROETHENE
3.583	40846 MM	0.112	1	-1.863		111TRICHLOROETHANE
3.724	* not found *		1			CARBON TET.
4.110	21264 MM	0.123	1	-1.802		1,2-DICHLOROETHANE
5.182	2739965 BB	0.097	1	6.708		TRICHLOROETHENE
8.828	* not found *		1			TETRACHLOROETHENE
11.911	1.03005E+007 BB	0.059	1-R	52.926		1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.911	0.2%

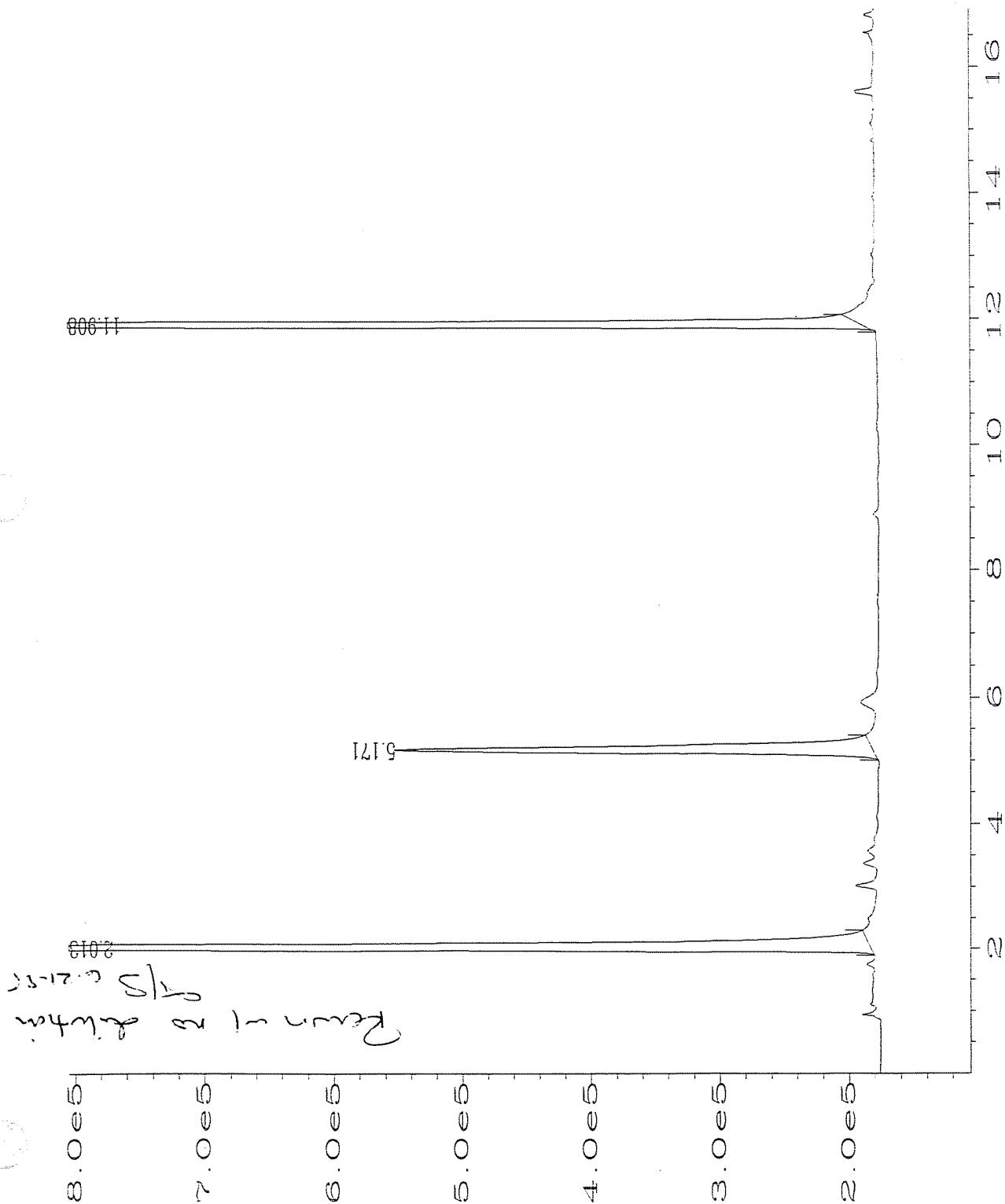
Not all calibrated peaks were found

User Modified

TJS 6-21-95

may 7-26-95

Data File Name : C:\HPCHEM\1\DATA\062195-3\026F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-16A 0.5 g
 Run Time Bar Code :
 Acquired on : 21 Jun 95 05:22 PM
 Report Created on : 21 Jun 95 05:39 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 26
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.M
 Analysis Method : 8010WAS.M.H
 Sample Amount : 0
 ISTD Amount :



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\026F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 26
 Sample Name : PDB-16A 0.5 g Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 21 Jun 95 05:22 PM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 05:39 PM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 JUN 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\026F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.151	* not found *			1		VINYL CHLORIDE
1.692	* not found *			1		1,1 DICHLOROETHENE
2.145	* not found *			1		t-1,2-DICHLOROETHENE
2.452	* not found *			1		1,1-DICHLOROETHANE
2.972	* not found *			1		c-1,2-DICHLOROETHENE
3.529	* not found *			1		111TRICHLOROETHANE
3.724	* not found *			1		CARBON TET.
4.049	* not found *			1		1,2-DICHLOROETHANE
5.171	2842278 BB	0.099	1	7.039		TRICHLOROETHENE
8.828	* not found *		1			TETRACHLOROETHENE
11.908	1.09594E+007 BB	0.059	1-R	56.527		1,4-DICHLOROBUTANE

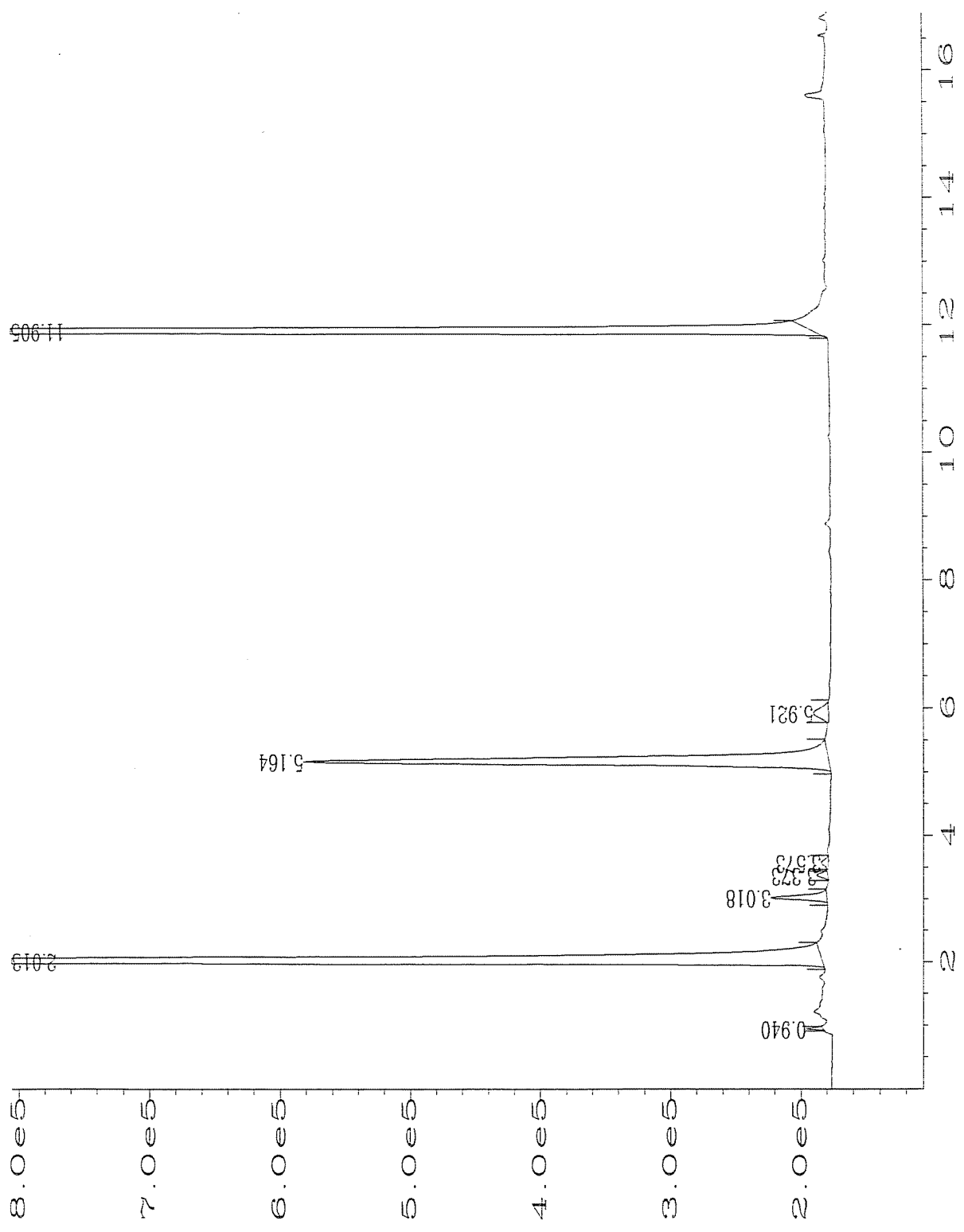
Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.908	0.2%

Not all calibrated peaks were found

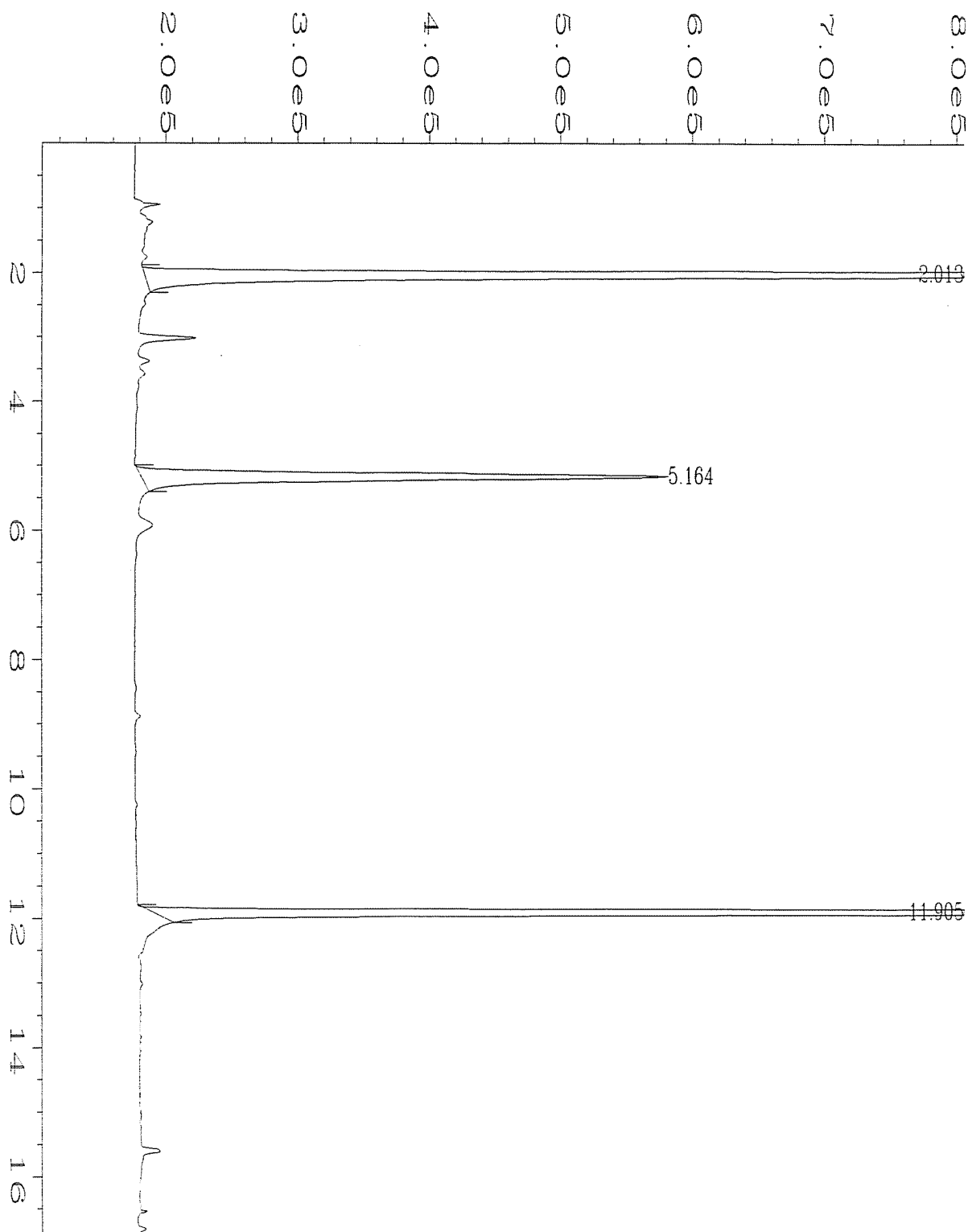
Review w/ no dilution

9/5/95

Data File Name : C:\HPCHEM\1\DATA\062195-3\027F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-16B 5.0 g
 Run Time Bar Code :
 Acquired on : 21 Jun 95 05:44 PM
 Report Created on : 22 Jun 95 07:50 AM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 27
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.M
 Analysis Method : 8010WAS.M
 Sample Amount : 0
 ISTD Amount :



user modified



Data File Name	: C:\HPCHEM\1\DATA\062195-3\027F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 27
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-16B 5.0 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method	: 8010WAS.MTH
Acquired on	: 21 Jun 95 05:44 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	21 Jun 95 06:01 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\027F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-16B 5.0 g
 Run Time Bar Code :
 Acquired on : 21 Jun 95 05:44 PM
 Report Created on: 22 Jun 95 07:50 AM
 Last Recalib on : 20 Jun 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 27
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\027F0101.D

Ret Time Area Type Width Ref# Name

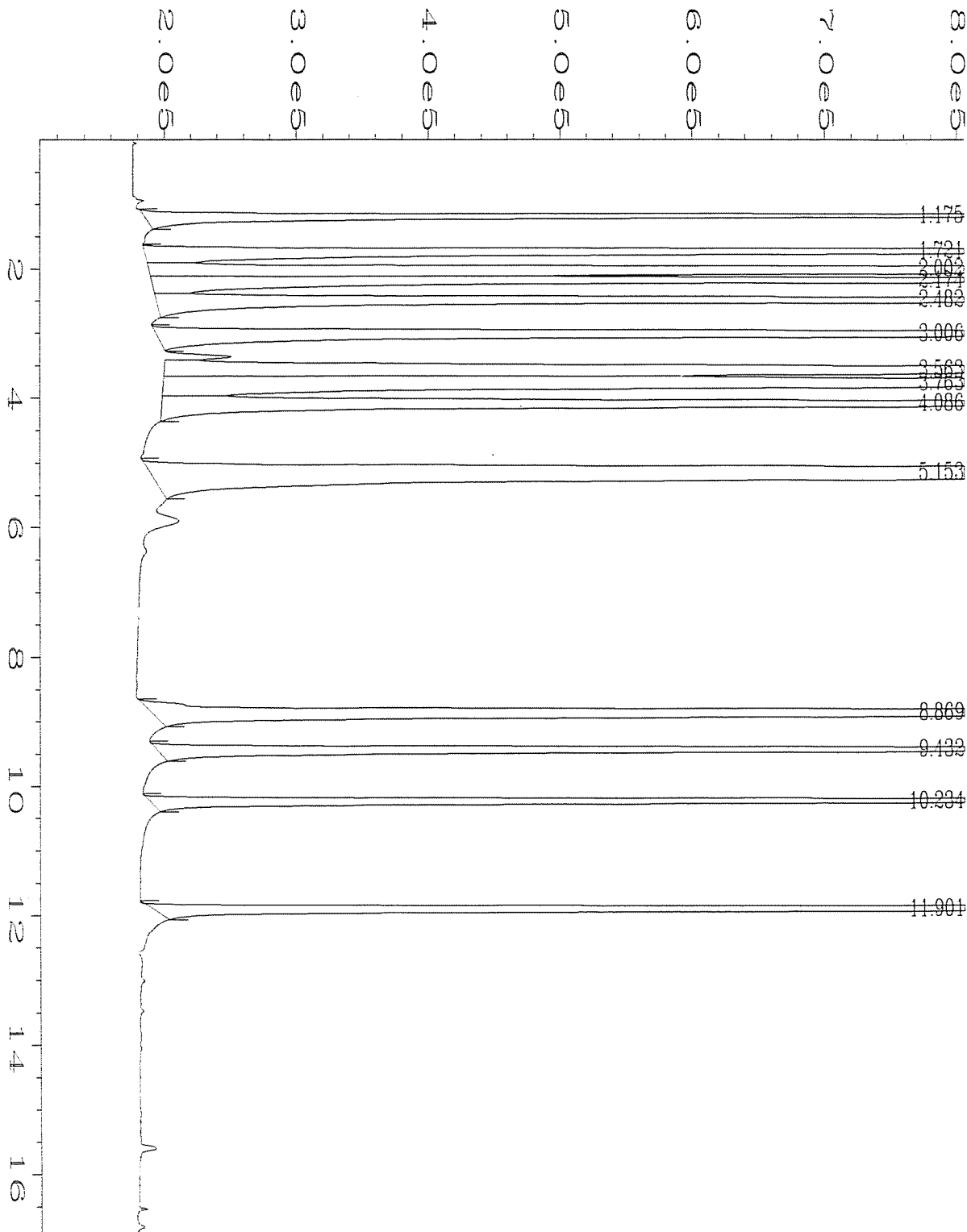
1.186	* not found	1	VINYL CHLORIDE
1.692	* not found	1	1,1 DICHLOROETHENE
2.145	* not found	1	t-1,2-DICHLOROETHENE
2.452	* not found	1	1,1-DICHLOROETHANE
3.018	206195 BB	0.074	-0.763
3.573	34855 MM	0.114	-1.893
3.724	* not found	1	CARBON TET.
4.049	* not found	1	1,2-DICHLOROETHANE
5.164	3191586 BB	0.099	8.170
8.828	* not found	1	TETRACHLOROETHENE
11.905	1.00452E+007 BB	0.059	51.530
		1-R	1,4-DICHLOROBUTANE

Time Reference Peak
 11
 Expected RT 11.884
 Actual RT 11.905
 Difference 0.2%

Not all calibrated peaks were found

User Modified

Handwritten:
 C-22-55
 May 17 1995



Data File Name	: C:\HPCHEM\1\DATA\062195-3\028F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 28
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-13B MS 50ng	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 21 Jun 95 06:06 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	21 Jun 95 06:23 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\028F0101.D

Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-13B MS 50ng
 Run Time Bar Code :
 Acquired on : 21 Jun 95 06:06 PM
 Report Created on: 21 Jun 95 06:23 PM
 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
 Page Number : 1
 Vial Number : 28
 Injection Number : 1
 Sequence Line : 1
 Instrument Method: 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :

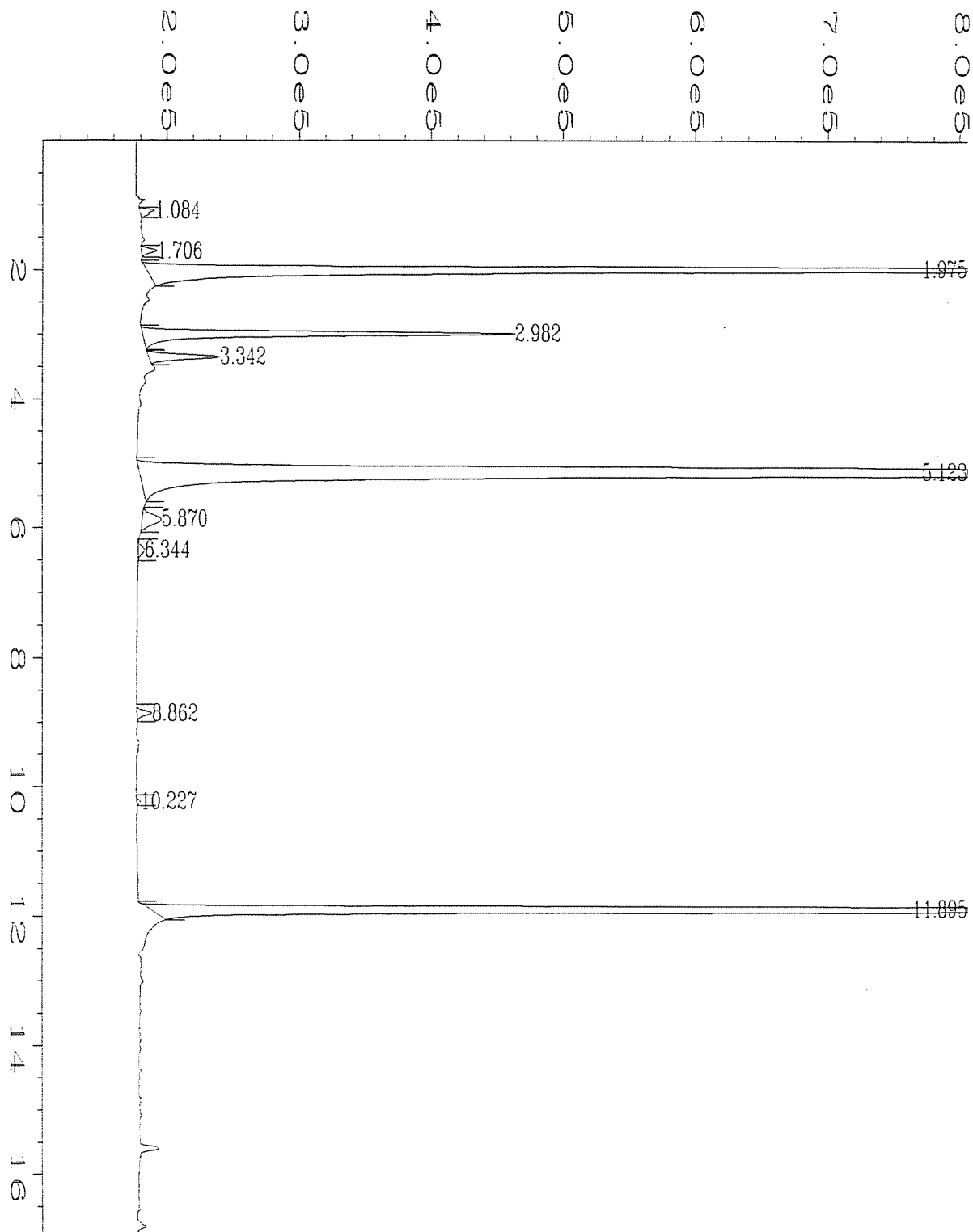
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Ret Time Area Type Width Ref# Name

1.175	4933825	BB	0.050	1	45.774	VINYL CHLORIDE
1.721	8227322	BV	0.067	1	47.828	1,1-DICHLOROETHENE
2.174	8934075	VV	0.063	1	49.420	t-1,2-DICHLOROETHENE
2.482	8506978	VB	0.075	1	47.938	1,1-DICHLOROETHANE
3.006	9855914	BB	0.075	1	52.046	c-1,2-DICHLOROETHENE
3.563	9758396	VV	0.101	1	47.217	1,1,1-TRICHLOROETHANE
3.763	1.15875E+007	VV	0.102	1	47.595	CARBON TET.
4.086	8361908	VB	0.084	1	45.426	1,2-DICHLOROETHANE
5.153	3.09897E+007	BB	0.110	1	98.157	TRICHLOROETHENE
8.869	1.55443E+007	BB	0.072	1	48.090	TETRACHLOROETHENE
11.901	9563057	BB	0.059	1-R	48.895	1,4-DICHLOROBUTANE

Time Reference Peak
 11
 Expected RT 11.884
 Actual RT 11.901
 Difference 0.1%

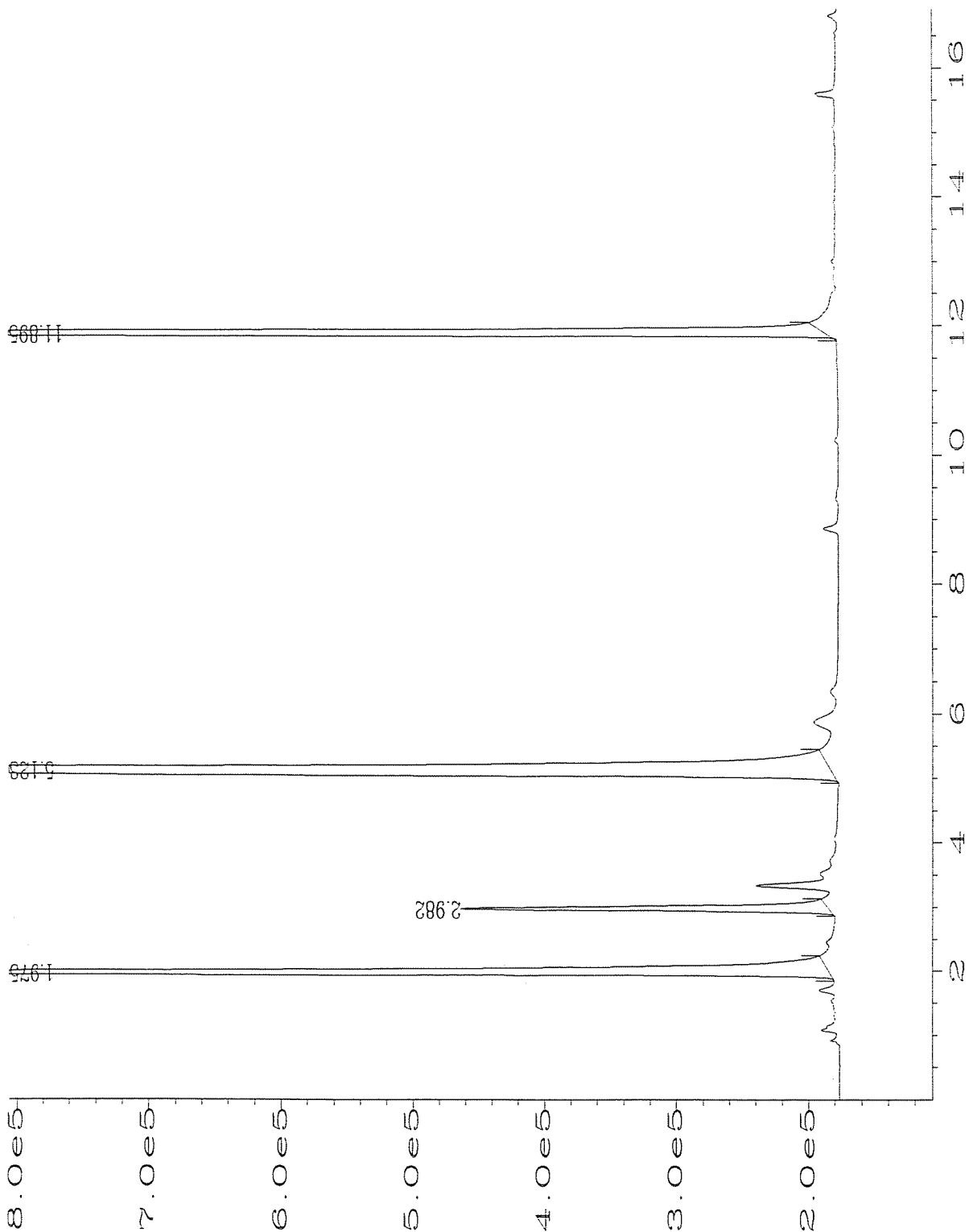
6.225
 7.765



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Operator	: TJS	Vial Number	: 29
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-14A Dup 100X	Sequence Line	: 1
Run Time Bar Code:		Instrument Method:	8010WAS.MTH
Acquired on	: 21 Jun 95 06:29 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	22 Jun 95 07:54 AM	Sample Amount	: 0
Last Recalib on	: 20 Jun 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

Data File Name : C:\HPCHEM\1\DATA\062195-3\029F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-14A Dup 100X
 Run Time Bar Code :
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 Last Recalib on : 20 JUN 95 09:55 AM
 Multiplier : 1
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 Vial Number : 29
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS.MTH
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\029F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 29
 Sample Name : PDB-14A Dup 100X Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 21 Jun 95 06:29 PM Instrument Method: 8010WAS.MTH
 Report Created on: 22 Jun 95 07:54 AM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 Jun 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

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1.706	56741	MM	0.081	1	-2.309	1,1 DICHLOROETHENE
2.145	* not found *			1		t-1,2-DICHLOROETHENE
2.452	* not found *			1		1,1-DICHLOROETHANE
2.982	1439685	BB	0.077	1	5.988	c-1,2-DICHLOROETHENE
3.529	* not found *			1		111TRICHLOROETHANE
3.724	* not found *			1		CARBON TET.
4.049	* not found *			1		1,2-DICHLOROETHANE
5.123	1.04029E+007	BB	0.101	1	31.514	TRICHLOROETHENE
8.862	61099	MM	0.092	1	-2.438	TETRACHLOROETHENE
11.895	1.05293E+007	BB	0.055	1-R	54.176	1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.895	0.1%

Not all calibrated peaks were found

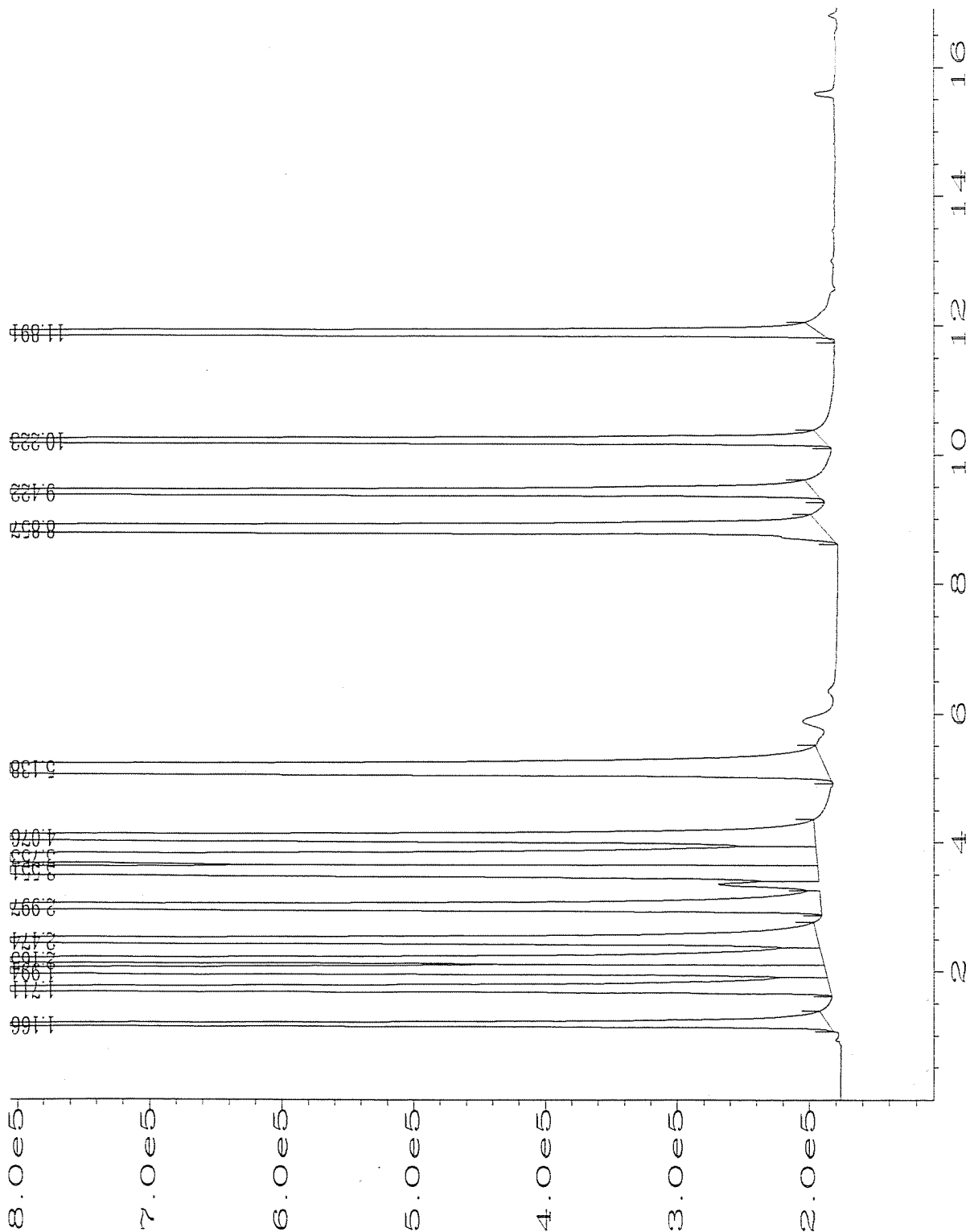
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may 7 2015

Data File Name : C:\HPCHEM\1\DATA\062195-3\030F0101.D

Operator : TJS
Instrument : GC # 3
Sample Name : 50 ng Std
Run Time Bar Code :
Acquired on : 21 Jun 95 06:51 PM
Report Created on : 21 Jun 95 07:08 PM
Last Recalib on : 20 JUN 95 09:55 AM
Multiplier : 1
Page Number : 1
Vial Number : 30
Injection Number : 1
Sequence Line : 1
Instrument Method: 8010WAS.1
Analysis Method : 8010WAS.MTH
Sample Amount : 0
ISTD Amount :



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\030F0101.D
 rator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 30
 Sample Name : 50 ng Std Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 21 Jun 95 06:51 PM Instrument Method: 8010WAS.MTH
 Report Created on: 21 Jun 95 07:08 PM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 JUN 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

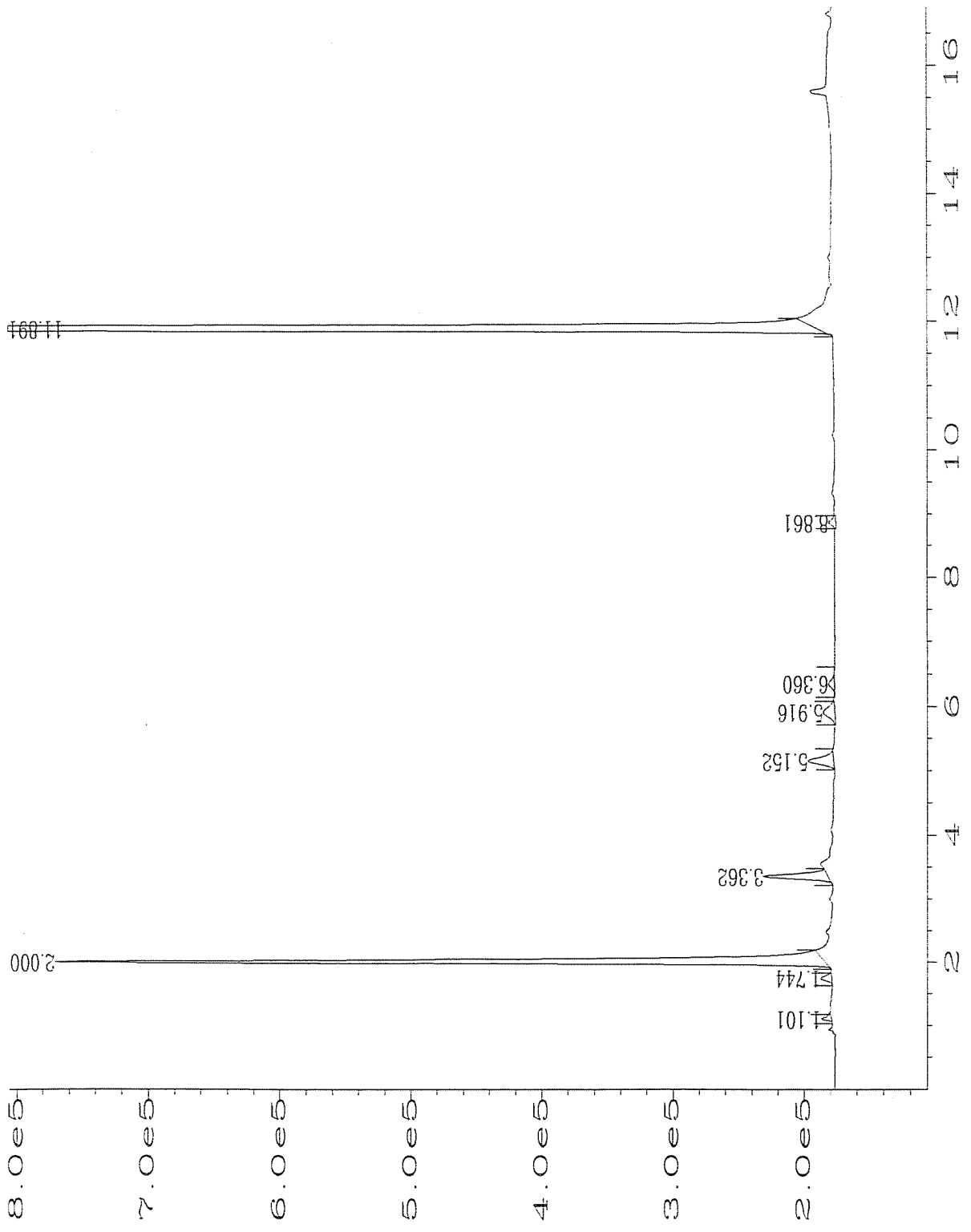
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Ret Time	Area	Type	Width	Ref#	ng	Name
1.166	5245301	BB	0.048	1	48.782	VINYL CHLORIDE
1.711	8879968	BV	0.067	1	51.833	1,1-DICHLOROETHENE
2.165	9398927	VV	0.063	1	52.110	t-1,2-DICHLOROETHENE
2.474	9243343	VB	0.075	1	52.246	1,1-DICHLOROETHANE
2.997	9954083	BV	0.076	1	52.583	c-1,2-DICHLOROETHENE
3.551	1.06613E+007	VV	0.101	1	51.777	111TRICHLOROETHANE
3.753	1.26556E+007	VV	0.120	1	52.155	CARBON TET.
4.076	9454630	VB	0.089	1	51.613	1,2-DICHLOROETHANE
5.138	1.73944E+007	BB	0.126	1	54.147	TRICHLOROETHENE
8.857	1.70569E+007	BB	0.085	1	53.027	TETRACHLOROETHENE
11.891	1.09483E+007	BB	0.060	1-R	56.466	1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.891	0.1%

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 mag 7.2695

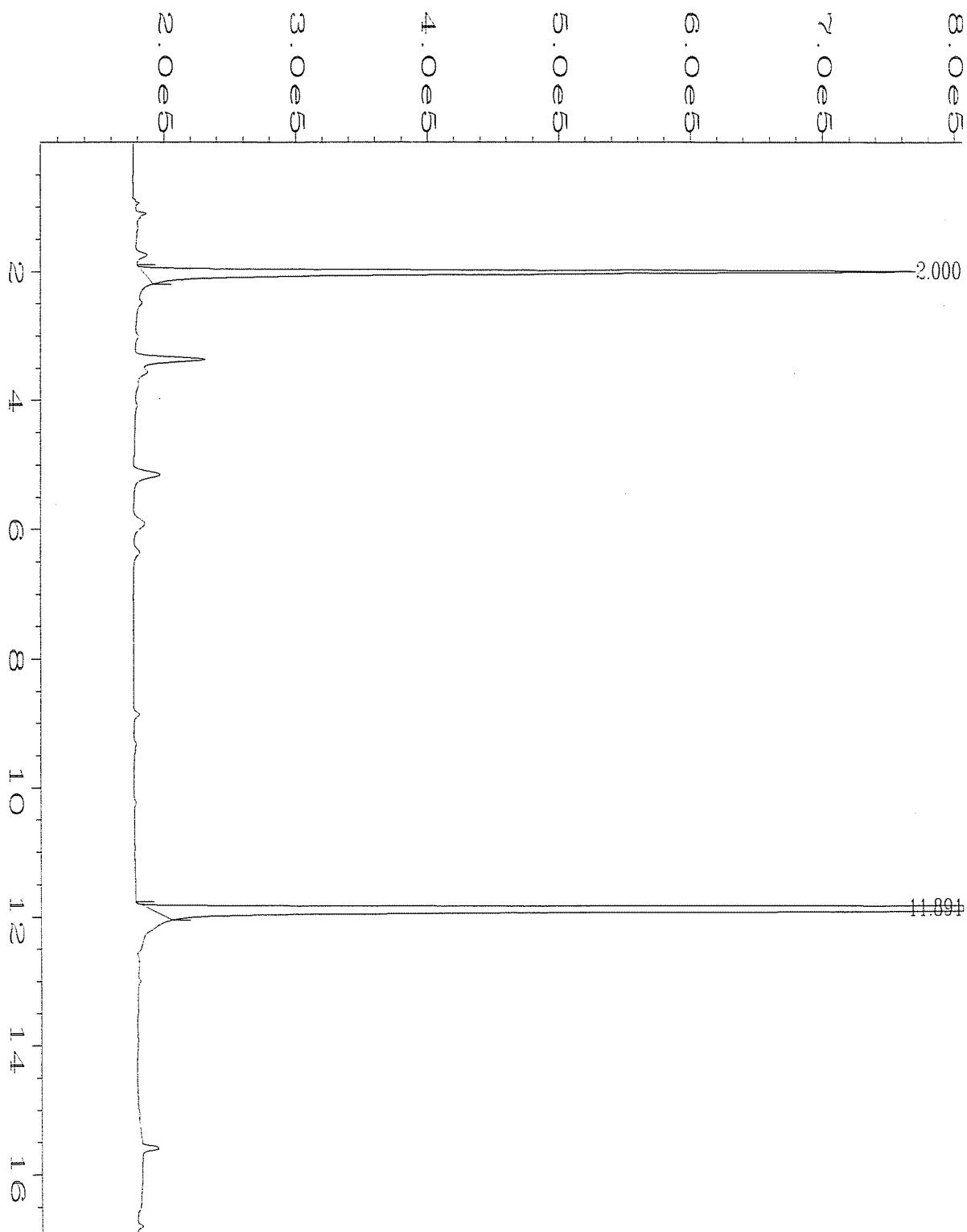
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Operator : TJS
Instrument : GC # 3
Sample Name : method blank
Run Time Bar Code :
Acquired on : 21 Jun 95 07:13 PM
Report Created on : 22 Jun 95 07:55 AM
Last Recalib on : 20 Jun 95 09:55 AM
Multiplier : 1

Page Number : 1
Vial Number : 31
Injection Number : 1
Sequence Line : 1
Instrument Method : 8010WAS.1
Analysis Method : 8010WAS.M
Sample Amount : 0
ISTD Amount :



Data File Name	: C:\HPCHEM\1\DATA\062195-3\031F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 31
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: method blank	Sequence Line	: 1
Run Time Bar Code:		Instrument Method	: 8010WAS.MTH
Acquired on	: 21 Jun 95 07:13 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	: 21 Jun 95 07:30 PM	Sample Amount	: 0
Last Recalib on	: 20 JUN 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

External Standard Report

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Operator : TJS
Instrument : GC # 3
Sample Name : method blank
Run Time Bar Code :
Acquired on : 21 Jun 95 07:13 PM
Report Created on: 22 Jun 95 07:55 AM
Last Recalib on : 20 Jun 95 09:55 AM
Multiplier : 1
Page Number : 1
Vial Number : 31
Injection Number : 1
Sequence Line : 1
Instrument Method: 8010WAS.MTH
Analysis Method : 8010WAS.MTH
Sample Amount : 0
ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\031F0101.D

Ret Time Area Type Width Ref# ng Name

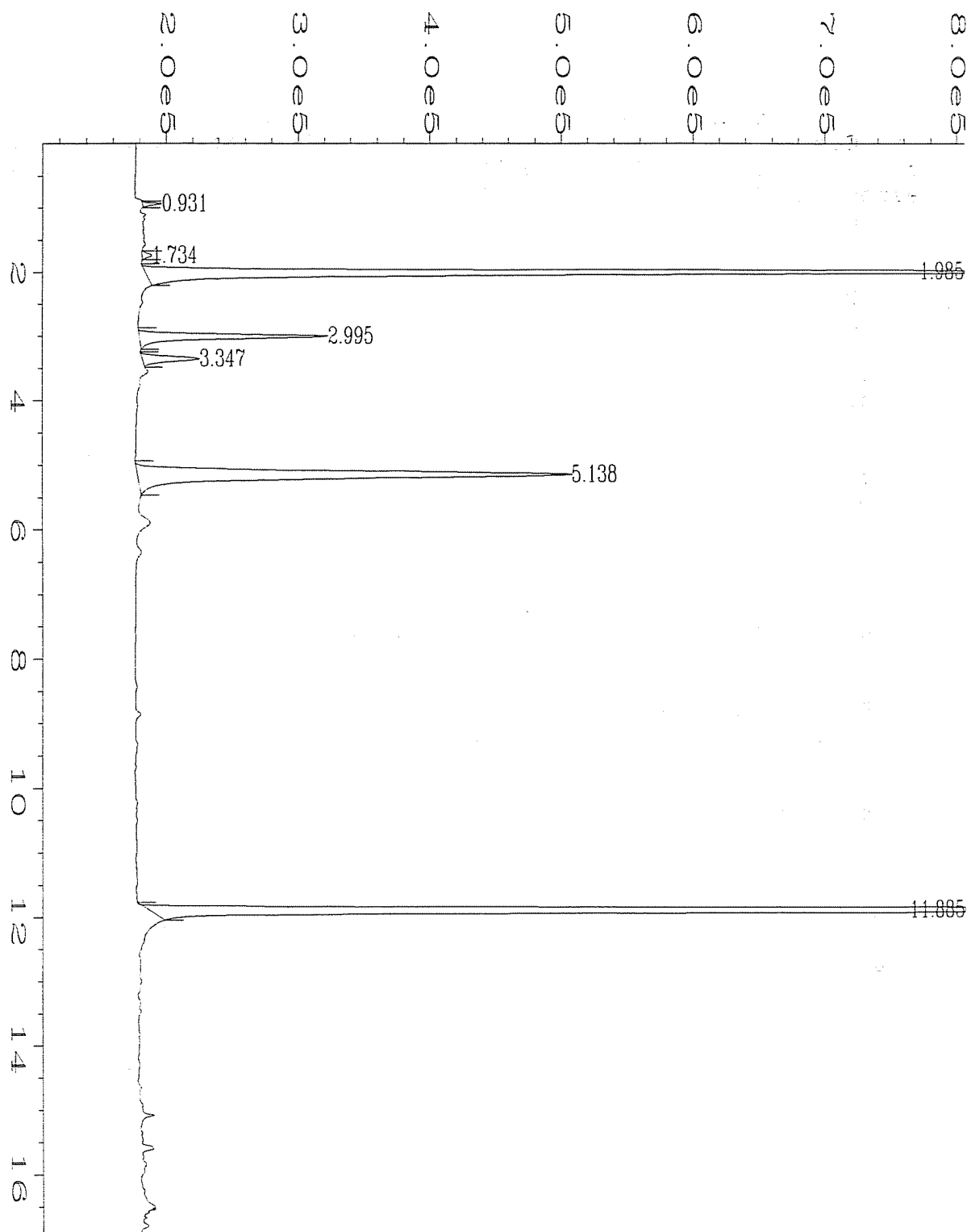
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1.692	*	not found	*	1	1,1 DICHLOROETHENE
2.145	*	not found	*	1	t-1,2-DICHLOROETHENE
2.452	*	not found	*	1	1,1-DICHLOROETHANE
2.972	*	not found	*	1	c-1,2-DICHLOROETHENE
3.529	*	not found	*	1	1,1,1TRICHLOROETHANE
3.724	*	not found	*	1	CARBON TET.
4.049	*	not found	*	1	1,2-DICHLOROETHANE
5.152				1	1,2-DICHLOROETHANE
8.861				1	TETRACHLOROETHENE
11.891	1.00019E+007	BB	0.058	1-R	51.293 1,4-DICHLOROBUTANE

Time Reference Peak Expected RT Actual RT Difference

Not all calibrated peaks were found

User Modified

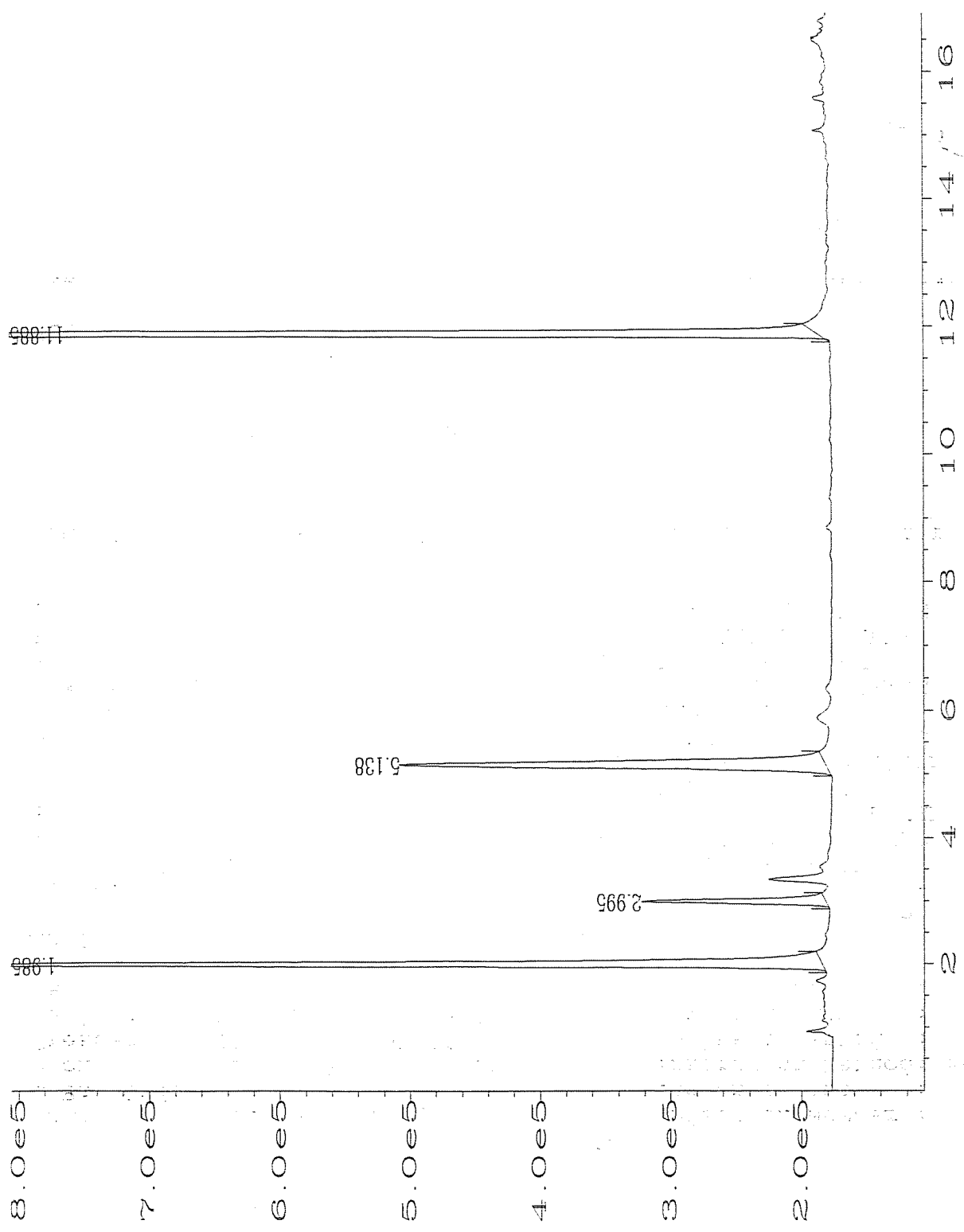
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mas 72695



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Data File Name	: C:\HPCHEM\1\DATA\062195-3\032F0101.D	Page Number	: 1
Operator	: TJS	Vial Number	: 32
Instrument	: GC # 3	Injection Number	: 1
Sample Name	: PDB-16A 5.0 g	Sequence Line	: 1
Run Time Bar Code:		Instrument Method	: 8010WAS.MTH
Acquired on	: 21 Jun 95 07:35 PM	Analysis Method	: 8010WAS.MTH
Report Created on:	22 Jun 95 07:56 AM	Sample Amount	: 0
Last Recalib on	: 20 Jun 95 09:55 AM	ISTD Amount	:
Multiplier	: 1		

Data File Name : C:\HPCHEM\1\DATA\062195-3\032F0101.D
 Operator : TJS
 Instrument : GC # 3
 Sample Name : PDB-16A 5.0 g
 Run Time Bar Code :
 Acquired on : 21 Jun 95 07:35 PM
 Report Created on : 21 Jun 95 07:52 PM
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 Multiplier : 1
 Page Number : 1
 Vial Number : 32
 Injection Number : 1
 Sequence Line : 1
 Instrument Method : 8010WAS
 Analysis Method : 8010WAS.MTH
 Sample Amount : 0
 ISTD Amount :



External Standard Report

Data File Name : C:\HPCHEM\1\DATA\062195-3\032F0101.D
 Operator : TJS Page Number : 1
 Instrument : GC # 3 Vial Number : 32
 Sample Name : PDB-16A 5.0 g Injection Number : 1
 Run Time Bar Code: Sequence Line : 1
 Acquired on : 21 Jun 95 07:35 PM Instrument Method: 8010WAS.MTH
 Report Created on: 22 Jun 95 07:56 AM Analysis Method : 8010WAS.MTH
 Last Recalib on : 20 Jun 95 09:55 AM Sample Amount : 0
 Multiplier : 1 ISTD Amount :

Sig. 1 in C:\HPCHEM\1\DATA\062195-3\032F0101.D

Ret Time	Area	Type	Width	Ref#	ng	Name
1.186	* not found *			1		VINYL CHLORIDE
1.734	34275	MM	0.076	1	-2.447	1,1-DICHLOROETHENE
2.145	* not found *			1		t-1,2-DICHLOROETHENE
2.452	* not found *			1		1,1-DICHLOROETHANE
2.995	728865	BB	0.074	1	2.098	c-1,2-DICHLOROETHENE
3.529	* not found *			1		1,1,2-TRICHLOROETHANE
3.724	* not found *			1		CARBON TET.
4.049	* not found *			1		1,2-DICHLOROETHANE
5.138	2612623	BB	0.102	1	6.295	TRICHLOROETHENE
8.828	* not found *			1		TETRACHLOROETHENE
11.885	8350188	BB	0.057	1-R	42.266	1,4-DICHLOROBUTANE

Time Reference Peak	Expected RT	Actual RT	Difference
11	11.884	11.885	0.0%

Not all calibrated peaks were found

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 6-22-95
 11:57 2695

laboratory results were acceptable. One of the matrix spikes performed by the on-site laboratory could not be assessed due to the elevated trichloroethene content in the sample. Of the two remaining spikes, one was acceptable and the other was marginally low. Any affect on the associated sample data due to the low spike recovery would be minimal.

A comparison of the mobile laboratory results to the confirmatory results provided by the base laboratory shows relatively poor agreement between the two sets of data. In all cases, the results from the on-site analyses were far higher than the confirmatory results. A review of the data from both laboratories did not reveal any laboratory errors or quality control trends which would explain the differences.

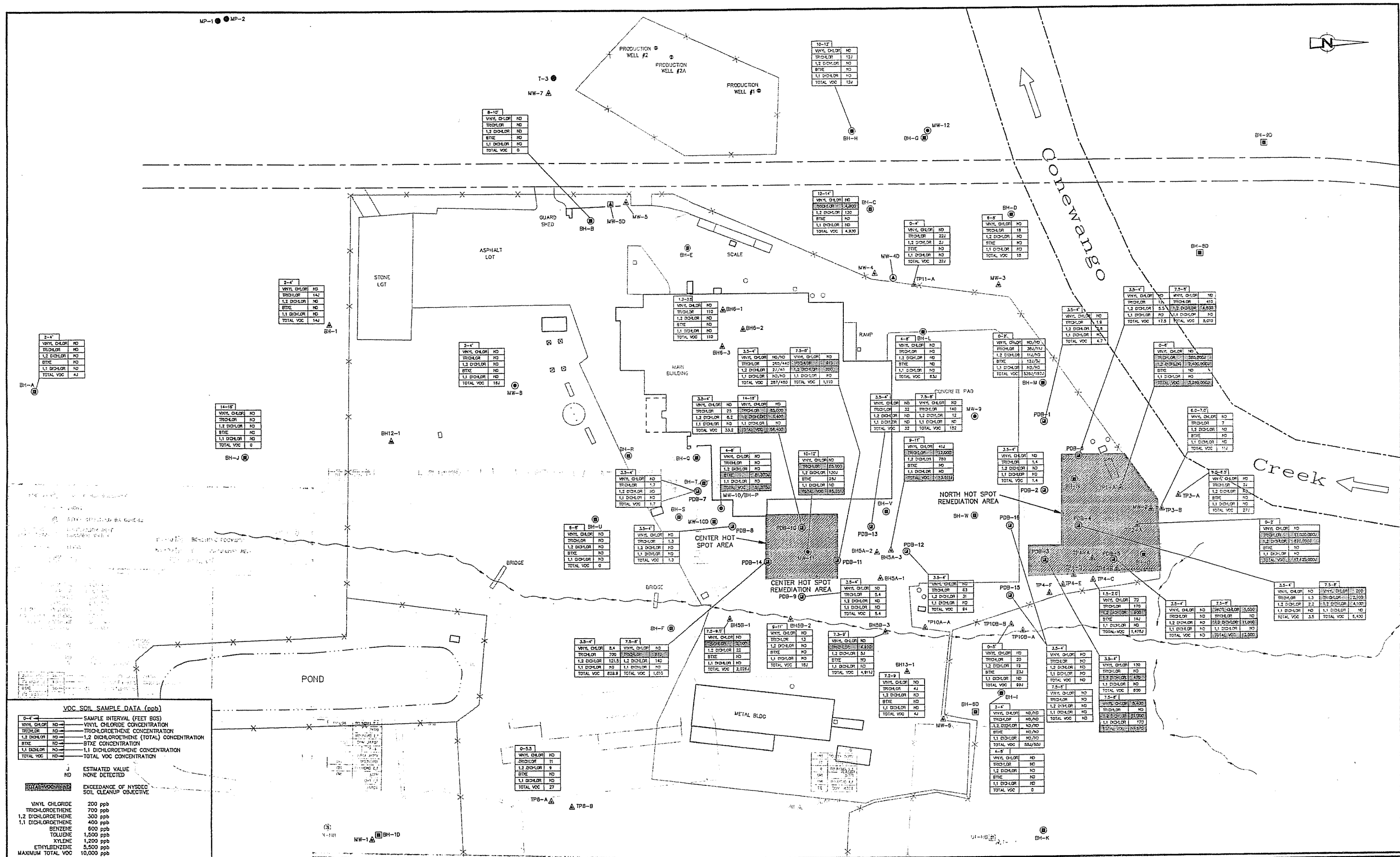
One obvious reason for the discrepancy is the extended holding time prior to analysis by the base laboratory. SW-846 Method 8010 analysis of soils for trichloroethene allows for a 14 day holding time prior to analysis. The on-site laboratory analyzed the samples within hours after collection. The base laboratory performed the analyses eight days after sample collection. While this is within the referenced holding time, there was still sufficient time for losses to occur due to volatilization and/or biodegradation. Soil collection for volatiles involves packing the soil into glass jars, which are then sub-sampled in the laboratory to obtain a five gram sample. Both the extended storage time and the laboratory handling of the sample can lead to a loss of volatile compounds.

A second factor which may have contributed to the variable results is the lack of homogeneity naturally found in soil samples. Since a sub-sample must be weighed out prior to analysis, it is possible that good "splits" from the samples were not obtained.

Based on the lower results reported by the base laboratory, the volatilization of trichloroethene appears to have occurred prior to the confirmatory analyses. The length of storage time after sample collection has been identified by a number of investigators as the major cause of variation in analytical results for volatile organic compounds in soils (1). Since the analyses were performed by the mobile laboratory within hours of sample collection, these results are more representative of the trichloroethene levels present at the site.

Notes:

- (1) EPA Symposium: National Symposium on Measuring and Interpreting VOCs in Soils: State of the Art and Research Needs, Las Vegas, Nevada, January 1993.



LEGEND - - - FENCE ● PRODUCTION WELL #1 ● PRODUCTION WELL #2 ● WELLS INSTALLED BY OTHERS - SWALE PDB-14 ● PRE-DESIGN BOREHOLE		IRA PROGRAM MW-50 ● DEEP MONITORING WELL BH-10 ● BOREHOLE LOCATION		R/S PROGRAM MW-50 ● DEEP MONITORING WELL BH-10 ● BOREHOLE LOCATION		SI PROGRAM TP-1 ● TEST PIT LOCATION BH-10 ● BOREHOLE LOCATION MW-1 ● SHALLOW MONITORING WELL	
VOC SOIL SAMPLE DATA (ppb) 0-4" SAMPLE INTERVAL (FEET BOS) VINYL CHLORIDE CONCENTRATION TRICHLOROETHYLENE CONCENTRATION 1,2-DICHLOROETHYLENE (TOTAL) CONCENTRATION 1,1-DICHLOROETHYLENE (TOTAL) CONCENTRATION BENZENE CONCENTRATION TOLUENE CONCENTRATION XYLENE CONCENTRATION ETHYLBENZENE CONCENTRATION TOTAL VOC CONCENTRATION J NO ESTIMATED VALUE NONE DETECTED EXCEEDANCE OF NYSDOC SOIL CLEANUP OBJECTIVE VINYL CHLORIDE 200 ppb TRICHLOROETHYLENE 700 ppb 1,2-DICHLOROETHYLENE 300 ppb 1,1-DICHLOROETHYLENE 400 ppb BENZENE 600 ppb TOLUENE 1,500 ppb XYLENE 1,200 ppb ETHYLBENZENE 5,500 ppb MAXIMUM TOTAL VOC 10,000 ppb		VACAIR ALLOYS DIVISION FREWSBURG, NEW YORK JULY 20, 1995 PREDESIGN SOIL SAMPLING WORK PLAN SHALLOW SAND AND GRAVEL UNIT TOTAL VOC CONCENTRATIONS		CRA CONESTOGA-ROVERS & ASSOCIATES Drawn by: JTM Scale: 1"=60' Date: MARCH 1995 File No: P-75 Rev: 1 Designed by: WCL Field book: 2326 Project No: 2326 Drawing No: PLAN 1 Checked by: WCL			

C

PART C

SOIL VAPOR EXTRACTION/AIR SPARGING PILOT
STUDY REPORT

LIST OF FIGURES
(Following Report)

FIGURE 1.1	SITE LOCATION
FIGURE 2.1	SVE/AS PILOT TESTING AREA
FIGURE 2.2	SVE/AS PILOT TEST CROSS SECTION
FIGURE 2.3	SVE/AS PROCESS SCHEMATIC
FIGURE 4.1	GROUNDWATER DISSOLVED OXYGEN

LIST OF PLANS
(Following Report)

PLAN 1	SOIL REMEDIATION AREAS AND VOC CONCENTRATIONS
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LIST OF TABLES
(Following Report)

TABLE 1.1	REMEDIAL INVESTIGATION SAMPLE DATA - SVE/AS PILOT TEST AREA
TABLE 1.2	PRINCIPAL DETECTED COMPOUNDS - PHYSICAL PROPERTIES
TABLE 1.3	SUMMARY OF DETECTED COMPOUNDS - SOIL
TABLE 4.1	SUMMARY OF DETECTED VOC COMPOUNDS - GROUNDWATER
TABLE 4.2	SOIL VAPOR VOC ANALYTICAL RESULTS - WELL SVE-1

LIST OF APPENDICES

- APPENDIX A STATIGRAPHIC AND INSTRUMENTATION LOGS
- APPENDIX B GROUNDWATER EXTRACTION, DISPOSAL AND
BACKGROUND LETTERS
- APPENDIX C PILOT TEST OPERATING LOG
- APPENDIX D AIR PERMEABILITY CALCULATIONS
- APPENDIX E SVE PERFORMANCE AND DESIGN CALCULATIONS
- APPENDIX F LABORATORY REPORTS - GROUNDWATER ANALYSES
- APPENDIX G LABORATORY REPORTS - SOIL VAPOUR ANALYSES
- APPENDIX H PRELIMINARY SVE COSTS ESTIMATES

1.0 INTRODUCTION

The soil vapor extraction and air sparging (SVE/AS) Pilot Study Report has been prepared for the VacAir plant site (Site) located in Frewsburg, New York. Field activities for the Pilot Study were conducted in accordance with the March 1995 Soil Vapor Extraction/Air Sparging Pilot Study Work Plan (Work Plan) for the Site. The Work Plan was approved by the New York State Department of Environmental Conservation (NYSDEC) by letter dated April 21, 1995, as modified by letters dated June 19, 1995, July 27, 1995, and August 15, 1995.

The purpose of this Pilot Study was to obtain pre-design data and information to evaluate the technical and economic feasibility of soil vapor extraction (SVE) and/or air sparging (AS) technologies in reducing the overall remediation time at the Site. Contained in this Report are descriptions of the methods, equipment and procedures utilized in the SVE/AS pilot testing. Based on the data and pilot testing results, the SVE/AS technologies have been assessed with respect to their respective potential in reducing the overall duration of the remediation program for the Site.

1.1 BACKGROUND

1.1.1 Site Description

VacAir owns approximately 93 acres on the outskirts of Frewsburg, New York (see Figure 1.1); of the 93 acres, approximately 15 acres were developed into the present VacAir plant (Site). The remaining 78 acres consist of undeveloped low-lying and wooded areas. The present VacAir Plant is bounded by a 10 foot high chain linked fence with one guarded entry point from the Frewsburg-Falconer Road. The Plant layout is shown on Plan 1.

The Site is bounded to the north by the Conewango Creek, to the east by low-lying and wooded areas, to the south by residential and industrial development, and to the west by Frewsburg-Falconer Road. The

Frewsburg Water District (District) municipal supply wells (Production Wells #1 and #2A) are located approximately 300 feet west of the Site. Also located on this well field is a standpipe/well (T-3) installed into the Frewsburg Aquifer. Production Well #3 is located approximately one-half mile north of the Site and Production Well #4 is located approximately one and one-half miles southwest of the Site.

Buildings on the Plant Site include a guard house at the plant entrance, a 112,000 square foot building complex (Main Building) that houses the main process operation and administration offices, and an 8,000 square foot metal clad building (Metal Building) that houses additional process operations. An active septic tank and sandbed are located south of the Main Building. A partially covered drainage culvert/swale runs through the center of the Site. The ditch collects runoff from lands south of the Site and drains into a low swampy area which discharges to the Conewango Creek. A manmade fresh water pond is located in the southwest corner of the Site.

Operations at the Plant Site consist of grading, sorting, cleaning, blending, and packaging high grade scrap metal. Scrap metal handled consists of stainless steel alloys, titanium alloys, and nickel-bearing metal. Some scrap metal is cleaned after sorting by either shot blasting or degreasing with trichloroethylene (TCE). Waste produced from the process operations includes iron dust, TCE sludge, spent TCE, waste lubricating oil, and hydraulic oil.

High concentrations of volatile organic compounds (VOCs) were found in the soil and groundwater during the Remedial Investigation (RI). The areas of soil exceeding remedial action objectives were subsequently delineated in the Pre-Design Soil Sampling Program (CRA, 1995a). Two areas of the Site which were identified as potentially suitable for application of SVE/AS are referred to as the northern and central soil remediation areas on Plan 1. The SE/AS Pilot Study was performed in the northern portion of the Site, as illustrated in Plan 1 and Figure 1.2.

1.1.2 Geology

The uppermost geologic unit beneath the Site is the surficial overburden unit which is generally continuous across the Site. The thickness of the surficial overburden unit throughout the Site ranges from 0 to 6 feet. It is thickest in the central portion of the Site and thins to one foot or less south and east of the Site. It continues to the west with a thickness of four feet at Production Well #2. The surficial overburden unit consists of a variety of material including fill, topsoil, and a mixture of sand, silt, and gravel. The sand, silt, and gravel mixture generally occurs throughout the southern portion of the Site. The surface overburden layer throughout the northern portion of the Site, where this Pilot Test was conducted, generally consists of fill material. The fill material is comprised of a wide range of natural and manmade materials including wood, slag, metal turnings, and debris within a loamy topsoil containing silt, gravel, and clay.

Underlying the surficial overburden unit is the Upper Sand and Gravel Unit. This unit is laterally continuous beneath the Site and throughout the surrounding area. The material within the Upper Sand and Gravel Unit varies in composition and grain-size across the study area. Throughout the south central Site area and the region south and west of the Site, the material generally consists of a coarse sand and gravel with a discrete silt layer near the base of the unit. Traveling northward from the center of the Site, the unit contains progressively higher percentages of silt and clay. The Upper Sand and Gravel Unit is predominately silt and fine to medium grained sand, with a higher percentage of clay throughout the northern portion of the Site and the areas to the north and east of the Site.

The sand and gravel portion of the Upper Sand and Gravel Unit is typically brown with occasional orange staining and becomes progressively gray as the silt and clay content increases. This color contrast is indicative of the higher degree of oxidation which has occurred in the sand and gravel intervals and presumably correlates with the higher flow rate of aerated surface water percolating downward and laterally through the more permeable material.

Underlying the Upper Sand and Gravel Unit is the Confining Unit. The unit is composed of silt and clay throughout the south and central areas of the Site, and contains clay with gravel in the area north of the Site. This Confining Unit separates the overlying Upper Sand and Gravel Unit from the underlying Lower Sand and Gravel Unit. The unit is laterally continuous beneath the Site and throughout the adjacent areas. This Confining Unit has a very low vertical hydraulic conductivity in the order of 10-8 cm/sec.

1.1.3 Hydrogeology

The water table in the northern portion of the Plant Site is typically 10 to 12 feet below ground surface (BGS) in the shallow sand and gravel unit. The direction is approximately north-northwest, toward the Conewango Creek. The confining unit is found at a depth of approximately 23 feet BGS in the pilot test area. The calculated hydraulic conductivity of the water table aquifer in the pilot test area, based on rising head testing in monitoring well MW-2, is 3.5×10^{-3} cm/sec. However, given the heterogeneous nature of the aquifer materials, the hydraulic conductivity is expected to be highly variable.

1.1.4 Contamination Profile

Table 1.1 presents concentrations in soil and groundwater measured during the RI for samples near the pilot test area. Detected soil vapor and groundwater VOCs during the pilot test consisted primarily of TCE, cis 1,2-dichloroethene, and vinyl chloride. Table 1.2 lists these principal compounds and some of their respective physical properties. Additional soil data was collected in June 1995 and presented in the Pre-design Soil Sampling Report (CRA, 1995a). The results of this sampling are presented in Table 1.3.

There were extremely high concentrations of the primary contaminants noted in the RI at TP1-A and TP2-A (Table 1.1) which were not found in the subsequent soils investigation or in the groundwater (Tables 1.3

and 4.1) in the same general area of the Site. However, free product was encountered at PZ-1 within the pilot study area.

1.2 SVE AND AS DESCRIPTION

SVE is a process designed to remove VOCs from unsaturated zone soils by applying a vacuum which creates a differential pressure and resultant air flow. The resulting air flow enhances volatilization of VOCs in the soil and acts as the transport mechanism. Air and soil vapors are drawn out of subsurface soils through an extraction well for subsequent removal and treatment (if required) of VOCs prior to discharge to the atmosphere. Several factors control SVE performance including gas extraction flow rate, applied vacuum, geologic conditions, soil moisture, organic carbon content, and specific physical and chemical properties of the contaminants.

As is a process of injecting clean air into the groundwater to strip VOCs from the groundwater and porous media. The VOCs are carried upward into the vadose zone for collection by the SVE system.

1.3 PILOT STUDY OBJECTIVES

The objectives of this SVE/AS Pilot Study were to further evaluate the effectiveness of SVE and AS technologies in treatment of the Site soils and in reducing the overall remediation time at the Site. In addition, information was collected during the pilot test for use in potential full-scale design. Key parameters evaluated include:

- i) applied vacuum and corresponding gas extraction rates;
- ii) soil air permeability;
- iii) SVE and AS well radii of influence;
- iv) VOC vapor concentrations in the unsaturated soil;
- v) estimated contaminant removal rates from soil;
- vi) specific off-gas VOC loadings; and

vii) requirements for off-gas treatment.

2.0 PILOT TEST SET-UP

The SVE/AS pilot testing was conducted in the northern portion of the Plant Site in the vicinity of monitoring well MW-2. The northern hot spot area was selected for the pilot treatment program because:

- i) it represented the larger impacted area on the site identified in the previous studies;
- ii) the subsurface conditions in the northern area are more variable and would be more representative of full scale conditions. Pilot testing in this area would ensure that conservative parameters for application to full-scale design would be developed; and
- iii) pilot testing could be undertaken in this area with minimal contact and disruption to ongoing site operations activities.

The remedial efficiency of an SVE system is significantly improved by the presence of a low permeability cover at the ground surface (such as asphalt or concrete). Because a full-scale SVE system design at the Site would likely include an asphalt cover above the area(s) of concern, a polyethylene sheet was applied to the surface to cover the entire SVE test area so that the design information collected during the pilot tests would be representative of the conditions that may exist for a full-scale SVE system.

Figure 2.1 shows the layout of the piezometer, two (2) SVE wells, three (3) air sparging points and three (3) vapor probes installed for the pilot test. The depths and screened intervals are shown along with geological cross sections in Figure 2.2. The designation and purpose of each well or instrument is described in the following sections.

2.1 SVE WELL AND PIEZOMETER CONSTRUCTION

Non-Aqueous Phase Liquid (NAPL) was found in the soil at the location originally drilled as an extraction well. The well was installed

and utilized as piezometer PZ-1 as shown on Figure 2.1. The SVE extraction wells were relocated approximately 15 feet upgradient of PZ-1 with concurrence from the NYSDEC field representative.

The two SVE wells (SVE-1 and SVE-2) and piezometer PZ-1 were installed in 8-inch diameter boreholes advanced using hollow-stem auger drilling techniques. These wells were completed with 10-feet of 2-inch diameter Schedule 40 PVC 20 slot well screen, flush threaded to a suitable length of 2-inch diameter Schedule 40 PVC riser pipe. The screen was placed at approximately 5 to 15 feet below ground surface. A silica sand pack was placed in the annulus to a height of 1 foot above the screen. A 1 foot thick bentonite pellet seal was placed above the sand pack, while the remaining depth was backfilled with concrete. Stratigraphic and Instrumentation logs are included in Appendix A.

2.2 SOIL VAPOR PROBE CONSTRUCTION

Soil vapor probes (VP15, VP25 and VP40) were installed to monitor vacuum response during the SVE pilot testing. The probes were installed at distances of approximately 15, 25 and 40 feet, respectively from SVE-1. Additional readings and information were obtained from PZ-1, SVE-2, and the existing monitoring well, MW-2.

The soil vapor probes were constructed of a stainless steel screened implant, approximately 1/4-inch diameter by 6 inches long, connected to the surface with 1/4-inch diameter polyethylene tubing. The soil vapor probes were installed using the hydraulic drive point method. Due to high groundwater levels, all probes were set at a depth of 7 feet BGS (within the unsaturated fill zone) rather than deeper depths proposed in the Work Plan. Cross Section A-A' (Figure 2.2) shows the depth and general orientation of the wells and probes.

2.3 AIR SPARGE POINT CONSTRUCTION

The AS points (AS1, AS2, and AS3) were constructed of screened implants, approximately 1/4-inch diameter by 21 inches long, installed to depths of 25 feet BGS (approximately to the top of the clay confining unit) and connected to the surface with 3/8-inch diameter polyethylene tubing. The AS points were installed using the same methods as used for the vapor probes at the approximate locations shown on Figure 2.1.

2.4 SVE/AS PILOT TESTING EQUIPMENT

The pilot testing was performed using portable SVE/AS equipment configured as shown in Figure 2.3. The testing system utilized the following equipment:

- moisture separator tank (30 gallon capacity with high level switch);
- air-stripping tank (55 gallon capacity) with 30 cfm blower and discharge pump;
- temporary storage tank, 13,000 gallon capacity;
- air flow indicator;
- mist and particulate filter;
- temperature gauges;
- vacuum and pressure relief valves;
- vacuum and pressure gauges;
- variable speed oil-less rotary vane vacuum pump (Gast Model 4080) capable of up to 45 cubic feet per minute (cfm) at 0 inches H₂O, 18 cfm at 200 inches H₂O, with hour meter;
- air injection blower capable of approximately 5 to 6 cfm at 20 pounds per square inch gauge (psig), with hour meter;
- flexible piping with leak-free connection to test well;
- process control panel;
- one 1,800 pound and one 175 pound vapor phase carbon canisters;
- flame ionization detector (FID);
- oxygen and carbon monoxide meter (Passport Model 1312L);

- air sampling containers;
- dissolved oxygen meter;
- barometer; and
- all necessary piping, valving and appurtenances.

3.0 PILOT TEST DATA COLLECTION AND INTERPRETATION METHODS

Physical and chemical parameters were monitored throughout the pilot study. Physical parameters monitored included: gas flow rate, applied vacuum, and temperature of extracted vapor at the SVE wellhead; air sparge flow rates and applied pressure; vacuum/pressure measurements at vapor probes and wells; and ambient temperature and barometric pressure. Water levels at SVE-1, SVE-2, PZ-1, and MW-2 were also measured. Chemical parameters monitored included: percent oxygen, relative hydrocarbon concentration measured by FID; and sampling and analysis for VOCs from SVE-1 at the blower discharge. Periodic sampling and analysis of groundwater for VOCs at SVE-1, SVE-2, and MW-2 were also conducted.

3.1 PRETEST ACTIVITIES

The pilot testing apparatus was assembled on Site on June 29, 1995. An area approximately 50 feet by 80 feet was covered with a 6-mil polyethylene sheet to seal the surface, as shown in Figure 2.1.

Because of the high levels of organic vapors detected during the well installations and the NAPL presence in PZ-1, an 1,800 pound vapor phase carbon bed was procured and placed in the lead position for treatment of extracted vapors during the test. The pilot apparatus was operated briefly on each SVE well (SVE-1 and SVE-2). Both wells showed similar response to vacuum, therefore it was decided to perform all testing on SVE-1 as originally planned.

The following activities were performed prior to the SVE/AS test:

- i) all wells and vapor probes were allowed to equilibrate with atmospheric pressure for measuring response to applied vacuum;
- ii) dissolved oxygen (DO) levels were measured in the groundwater in

wells SVE-1, SVE-2, and PZ-1;

- iii) groundwater samples were collected for analysis of the VOCs of concern at the Site (see Table 1.1) from wells SVE-1, SVE-2 and MW-2 (results in Table 4.1);
- iv) organic vapor (as measured by an FID) and oxygen levels were measured in the headspace of well SVE-1 and SVE-2, Table C-2, Appendix C (carbon monoxide levels could not be accurately measured, possibly due to VOC interference on the Passport measuring instrument); and
- v) vapor samples were collected from wells SVE-1 and SVE-2 for off-Site analysis of VOCs of concern at the Site.

The regenerative blower originally specified in the Work Plan was initially installed; but it could only produce approximately 5 to 6 scfm at 90 inches H₂O vacuum. This indicated that the Site soils were less permeable than had been estimated, and a vacuum pump capable of greater vacuum was required to produce reasonable flows. A variable-speed, rotary-vane vacuum pump (Gast Model 4080), which is capable of vacuums exceeding 200 inches H₂O, was obtained to replace the originally proposed blower for the balance of the pilot testing program.

The higher applied vacuum requirements and the high groundwater levels in the Site resulted in significant mounding of the watertable at the SVE wells. During preliminary trial runs, the SVE wells became ineffective within minutes due to the water level rising in the well and submerging the screened interval. In order to continue the test, dual-phase (vapor and groundwater) extraction was required. This modification to the pilot treatment program was proposed to the NYSDEC. Estimated groundwater extraction, rates, contaminant levels and treatment methods were provided to the NYSDEC for its review. The NYSDEC approved the extraction treatment and discharge of groundwater to the Conewango Creek. The associated correspondence is presented in Appendix B along with the final treated water analysis. An air stripper was

added to treat extracted groundwater prior to collection in a 13,000 gallon temporary storage tank. The analytical results indicated that the treated groundwater met the discharge criteria specified in the NYSDEC's August 15, 1995 letter (see Appendix B). Accordingly, 5,000 gallon of treated groundwater was discharged directly into the Conewango Creek in early December 1995.

Pilot testing resumed on August 28, 1995 and proceeded in general accordance with the Pilot Study Work Plan.

3.2 SVE/AS PILOT TESTS

Three separate pilot tests were conducted:

- constant-rate SVE testing;
- constant-rate SVE/AS testing; and
- step-rate testing.

A chronology of the pilot testing events is presented in Table C-1 of Appendix C. Pretest vapor data for the headspace in SVE-1, SVE-2 and PZ-1 is provided in Table C-2 of Appendix C. A description of each of the pilot tests follows.

3.2.1 Constant-Rate SVE Testing

Constant-rate testing began on August 28, 1995. The test was performed on well SVE-1 at a flow rate of 12 to 15 scfm at 10-12 inches Hg (approximately 130-160 inches H₂O) vacuum. This flow rate and vacuum corresponded to about 75 percent of the available blower capacity, allowing for adjustments during the course of the test. Groundwater and soil vapor were extracted through a one-half inch diameter dip-pipe in the well which was maintained with the water elevation lowered to expose seven feet of well screen.

The constant-rate test was originally scheduled to run for two weeks. Due to electrical problems which shut the system down for several days, the constant-rate test took three weeks to complete, ending on September 18, 1995 with a total run time of 293 hours. Periodic readings were collected throughout the duration of the constant-rate test and recorded on the data collection log provided in Appendix C.

Soil gas samples were collected from extraction well (SVE-1) at 8-hours, 33-hours, 85-hours, and 293 hours and submitted to Tracer Research Corporation (Tracer) for analyses of the VOCs of concern. A data summary of the soil vapour analytical results is presented in Table 4.2 and the Laboratory Reports are provided in Appendix G. Groundwater samples were collected from wells SVE-1, SVE-2 and MW-2 at the conclusion of the constant-rate test. Organic vapor monitoring with an FID during the constant-rate test was inconclusive due to low oxygen which extinguished the flame, and/or high readings due to the amount of methane present which can result in anomalous readings.

3.2.2 Constant-Rate SVE/AS Testing

Constant-rate SVE/AS testing immediately followed the conclusion of the constant-rate SVE test on September 18, 1995. The SVE/AS test was performed on well SVE-1, maintaining the flow at 14 to 15 scfm. Air was sparged into the three AS wells at a total continuous flow of 6 scfm. The initial injection pressure was 22 psi, dropping during the course of the test to 12 psi. The test was originally scheduled to run for two weeks, but was extended to three weeks when dissolved oxygen was not detected at SVE-2 (7 feet from the AS points) in two weeks. The constant-rate SVE / AS test was concluded on October 10, 1995.

Soil gas samples were collected from the extraction well at 8-hours, 20-hours, 331 hours and 522 hours and submitted to Tracer for analyses of the VOCs of concern (see Table 4.2 and Appendix G for results). Groundwater samples were collected after one-week and after three-weeks of constant-rate SVE/AS testing from wells SVE-1, SVE-2 and MW-2. A

summary of VOC compounds detected in the groundwater is provided in Table 4.1 and the Laboratory Reports are provided in Appendix F. Since the three-week set of groundwater samples, collected October 10, 1995, arrived at the laboratory above acceptable high temperatures, the wells were resampled on October 16, 1995 for analyses of the VOCs of concern.

3.2.3 Transient and Step-Rate Testing

Transient and step-rate testing was performed to collect data for estimation of soil permeability. Transient response data was collected during the pretest activities at the maximum flow rate of 5 to 6 cfm that could be achieved with the regenerative blower. With 90 inches H₂O vacuum at well SVE-1, vacuum responses at the distant wells were recorded at intervals as short as 15 seconds. The results of the transient testing are provided in Figures D-1, D-2, D-3 and Table D-1 in Appendix D. Due to water level rise in the wells, the test was repeated at both SVE-1 and SVE-2 by injecting air rather than extracting air.

The results of the step-rate testing performed at the conclusion of the constant-rate tests on extraction well SVE-1 at four well head vacuums are presented in Table D-2 in Appendix D. Flows and vacuums were varied by changing the speed of the vacuum pump.

4.0 DISCUSSION OF PILOT TEST RESULTS

The data collected during the SVE/AS pilot test were analyzed and evaluated to determine the design parameters necessary to develop a full-scale conceptual design of an SVE and/or AS system. The development of critical design parameters, and their application to full-scale design, is discussed in the following sections.

4.1 SOIL PERMEABILITY TO AIR FLOW

A critical design parameter in establishing the technical feasibility of the use of SVE is the soil permeability to airflow (k). Once the soil permeability to air flow is known for the Site, the relationship between air flow and pressure is established and the required vacuum calculated.

Two mathematical models were used to calculate soil permeability to air flow. One model uses steady-state conditions at the SVE well head; the other model uses transient pressure response at the vapor probes. The simplistic steady-state radial flow solution for compressible flow can be used to determine soil permeability to air flow using the extracted flow rate and the following equation (Johnson, et al 1988)¹:

$$\frac{Q}{H} = P_w \pi \left(\frac{k}{\mu} \right) \left[\frac{1 - (P_{atm}/P_w)^2}{\ln (R_w/R_I)} \right]$$

where:

Q/H	=	flowrate per unit length of well screen [cm ³ /cm-sec]
k	=	soil permeability to air flow [cm ²]
μ	=	viscosity of air = 1.8x10 ⁻⁴ g/cm-s
P _w	=	absolute pressure at extraction well [g/cm-s ²]
P _{Atm}	=	absolute ambient pressure = 1 x 10 ⁻⁶ g/cm-s ²
R _w	=	radius of vapor extraction well [cm]
R _I	=	radius of influence of vapor extraction well [cm]

¹ Johnson, P.C., M.W. Kemblowski, J.D. Colthart, D.L. Byers and C.C. Stanley. *A Practical Approach to the Design, Operation and Monitoring of In-Situ Soil Venting Systems*, 1988.

This equation is also used to determine the relationship between flow and pressure for design of full-scale systems.

In addition to the steady-state method described above, the transient pressure distribution data in the soil media at a constant extraction flowrate can also be used to estimate soil permeability to air flow. The change in subsurface pressure distribution with time $P'(r,t)$ can be approximated (Johnson, et al 1988) by:

$$P' = \frac{Q}{4\pi m \left(\frac{k}{u}\right)} \left[-0.5772 - \ln \left(\frac{r^2 e \mu}{4k P_{atm}} \right) + \ln(t) \right]$$

where:

- P' = "gauge" pressure measured at distance r [cm] and time t [sec]
- m = stratum thickness [cm]
- r = radial distance from vapor extraction well [cm]
- k = soil permeability to air flow [cm^2]
- μ = viscosity of air = 1.8×10^{-4} g/cm-s
- e = air-filled soil void fraction = 0.25
- t = time [sec]
- Q = volumetric vapor flow rate from extraction well [cm^3/sec]

Use of the transient equation requires that a number of vacuum readings be taken within the first several minutes of the constant-rate SVE test. The results, plotted as P' vs/ $\ln(t)$, should produce a straight line with the slope A as a function of soil permeability. The slope of the line can be used to estimate soil permeability using the following equation:

$$k = \frac{Q\mu}{4A\pi m}$$

The soil permeability to air flow was calculated for the Site by both the steady-state and transient methods, as shown in Appendix D. To

calculate the transient response method, three wells were used: SVE-1, SVE-2, and PZ-1. With either vacuum or pressure applied to one well, the response at the other two was recorded and plotted against time (log scale). These graphs appear as Figures D-1, D-2, and D-3 in Appendix D for vacuum at well SVE-1, pressure at well SVE-1, and pressure at well SVE-2, respectively. The slope of the plots used to calculate permeabilities presented in Table D-1 (Appendix D), ranged from 1.2×10^{-7} to 8.2×10^{-7} cm².

Soil permeability to air flow was also calculated based on the steady-state flows and pressures measured during the step-tests performed at the end of the constant-rate tests, as shown on Table D-2. Calculated with this method, the permeabilities ranged from 9.5×10^{-9} to 1.9×10^{-8} cm². The geometric average steady-state permeability was 1.2×10^{-8} cm². This range of permeabilities is one order-of-magnitude lower than the transient data would suggest, but is generally considered to be more reliable as well as more conservative for design.

The hydraulic conductivities in the soil, based on single-well response tests performed during the RI, have been estimated at 10^{-3} to 10^{-5} cm/sec. This would typically correspond to a soil permeability to air flow of 10^{-8} to 10^{-10} cm², which is in good agreement with the permeabilities calculated above.

Calculated permeability values at or below 10^{-9} cm² are generally considered too low for SVE to be successful, while soils with permeabilities in the range of 10^{-8} cm² and above are usually amenable to this technology. The steady-state data indicate the pilot test area soils are at the low end of the range considered suitable for application of SVE/AS technologies. Vacuum requirements will be higher than for more permeable soil (thereby increasing the equipment and operating costs); and, the effectiveness and duration of treatment for less permeable soils would be limited.

4.2 RADIUS OF INFLUENCE

The radius of influence of an SVE well is used to estimate the number of SVE wells required for a full-scale design. The SVE wells are generally situated so that this radii of influence overlap.

The radius of influence for the SVE-1 pilot test well was estimated based on the response measured at the various monitoring probes and past experience from SVE systems in similar soils. A consistent measured probe response of approximately one percent or more of the SVE wellhead vacuum is the principal basis for radius of influence estimation. Other factors, such as site cover permeability and depth of formation, must also be considered.

The applied vacuum at the SVE well during the constant-rate testing was approximately 10 inches Hg, or 140 inches H₂O. Review of the Data Collection Log, Appendix C, shows a response of greater than 1 inch H₂O at wells located within 15 feet of the SVE well. Vacuum was measured as far away as 40 feet, with consistent low response at 25 feet. Therefore, the practical radius of influence for the pilot test area is between 15 and 20 feet.

4.3 CONTAMINANT MASS REMOVAL

The evaluation of the contaminant mass removed during the pilot test is performed to determine the initial contaminant removal rate. The initial contaminant removal rate is used to estimate the time required to achieve desired cleanup levels under full-scale operations. A summary of the soil vapor analytical results is presented in Table 4.2. The three VOCs detected most frequently and consistently at elevated levels in the soil, groundwater, and soil vapor during the pilot test were:

- 1,2-Dichloroethene (total);
- Trichloroethene; and
- Vinyl Chloride.

While other VOCs were detected, they were at concentrations several orders-of-magnitude below these three principal compounds. Therefore, mass removal calculations and design parameters have been developed based on these three compounds.

4.3.1 Total Mass Removal

The total mass of VOCs removed during the pilot test period was calculated from the soil gas data (Table 4.2). The mass removal calculation assumes a constant flow and concentration during the period between soil vapour analyses events. The concentration at the end of the period when the sample was taken was used to calculate the mass removal for each discrete interval and then summed to determine the quantities noted above.

The estimated mass removal of each of the three principal VOCs during the test is:

<i>Contaminant</i>	<i>Mass Removal During Pilot Test</i>
1,2-Dichloroethene	108 pounds
Trichloroethene	89 pounds
Vinyl Chloride	20 pounds

The results of the pilot test indicate that a significant mass of VOCs were removed from the soil during the 293 hours of operation. This was due to the very high initial soil concentrations in the pilot test area (see Table E.1 in Appendix E) and the demonstrated presence of DNAPL in the soil.

4.3.2 Mass Removal Rate

The initial mass removal rates achieved during the pilot test were estimated using the soil vapor concentrations for samples collected on September 18, 1995, during the constant-rate SVE pilot test (see Table 4.2)

and a volumetric flow rate equivalent to 5 pore volumes per day (PV/day). The flow rate of 5 PV/day is a typical design parameter for full-scale implementation. The PV was calculated using a 20-foot radius of influence, an unsaturated zone thickness of 12 feet and a porosity of 0.25. The resulting PV was approximately 3800 cubic feet. Therefore the volumetric flow rate was determined to be approximately 19,000 cubic feet per day. The vapor concentrations were multiplied by this volumetric flow rate to determine the mass removal rate.

The vapor concentrations and estimated initial mass removal rates for the three principal contaminants were:

<i>Contaminant</i>	<i>Vapor Concentration (1)</i>	<i>Initial Mass Removal Rate</i>
1,2-Dichloroethene (total)	5,050 µg/L	5.9 lb/day
Trichloroethene	2,150 µg/L	2.5 lb/day
Vinyl Chloride	840 µg/L	1.0 lb/day
Totals	8.040 µg/L	9.41 lb/day

Notes:

- (1) Based on the average of September 18, 1995 samples as presented in Table 4.2.

These VOC mass removal rates presented above are specific to the pilot test area, as they are a function of the volumetric flow rate which is turn directly proportional to soil volume used in the calculation. These mass removal rates indicate that a significant mass of VOCs can be removed with an SVE system. Specific initial mass removal rates were developed for the North and Center Soil Areas in Sections 5.1 and 5.2 for use in the estimation of cleanup times.

4.5 AIR SPARGING EFFECTS

With the exception of the vinyl chloride response after eight hours, no measurable increase in vapor VOC concentrations was

detected during the constant-rate AS testing, rather they continued a general decline. Additionally, no rise in groundwater dissolved oxygen was observed in the nearby wells. Dissolved oxygen readings in the wells are depicted in tabular and graphic form in Figure 4.1. Typically DO response is used as an indicator of the radius of influence of the AS wells. With the sparge points set about 13 feet below the water table during the testing, the radius of influence, based on DO response, is less than 7 feet.

Concentrations of VOCs in groundwater, Table 4.1, at the closest well, SVE-2 located 7 feet downgradient, declined by 40 percent, dropping from an average of 550 mg/L of total VOCs before air-sparging to an average of 320 mg/L during the air-sparging. No change was seen at well SVE-1, located 15 feet downgradient.

Based on the pilot test results, air-sparging had a limited and very localized impact in the groundwater quality. The radius of influence of the air-sparging wells was limited by the impermeable soils. For full scale application, a well spacing on the order of ten feet is required. As a result, AS is not considered to be technically feasible or cost effective technology for the this Site.

4.6 GROUNDWATER REMOVAL RATES

During the six-week pilot test, approximately 5,000 gallons of groundwater were extracted from well SVE-1, averaging approximately 120 gallons per day. Groundwater elevations at the neighboring wells, SVE-2 and PZ-1, remained about 2-feet below static levels during the test. The depth to water data is presented in Table B-1 of Appendix B.

The results of the pilot study confirm that implementation of the groundwater extraction system in advance of any SVE operation is required to dewater the water table aquifer. In addition, due to the relatively high vacuums that must be applied to the SVE wells as a result of the low soil permeability to air, the full-scale design must incorporate dual phase groundwater and vapor extraction to counter the mounding effects.

5.0 CONCEPTUAL FULL-SCALE SVE DESIGN

Using the design parameters from the pilot test developed in Section 4.0 of this report, conceptual full-scale SVE designs were developed for both the North and Center Soil Areas. The purpose of this exercise was to evaluate the technical feasibility and cost effectiveness of remediating the impacted soil in these areas to RAO's using SVE. The activities involved included in this evaluation were:

- definition of the soil area and determination of the number of SVE wells and vacuum requirements to extract 5 PV/day;
- calculation of the mass of primary VOCs in the soil areas using all available soil analytical data;
- calculation of the initial mass removal rates for each soil area using soil vapor concentrations and a volumetric removal rate of 5 PV/day;
- estimation of the time to achieve cleanup objectives based on the initial mass removal rates and total estimated mass of VOCs in the soil; and
- an estimation of the capital and operation and maintenance cost of the conceptual full-scale SVE system for each soil area.

5.1 NORTH SOIL AREA

Based on the results of the Pre-Design Soil Sampling Program, the North Soil Area was determined to be approximately 140 feet by 170 feet (23,800 square feet). Based on a 20 foot radius of influence, measured in the pilot test, it was determined that approximately 20 SVE wells would be required in a full-scale design. Using the average steady-state permeability to air of $1.22 \times 10^{-8} \text{ cm}^2$ and a design pore volume exchange rate of 5 PV/day, the other design parameters to treat the area are estimated as:

Length of well screen required: 300 feet (minimum);

Wellhead vacuum requirement: 70 inches H₂O, or 5 inches Hg; and
 Minimum Extraction rate: 310 acfm, or 240 scfm.

The average concentrations of the primary VOCs in soils of the North Soil Area were estimated using an arithmetic average of all available data (Table E.1, Appendix E). The soil concentrations were used to estimate the total mass of VOCs in the soil area. The mass calculations are also based on an soil volume of 357,000 cubic feet (an area 23,800 square feet times an unsaturated depth of about 12 feet) and an assumed dry soil density of 110 lb/ft³. The estimated concentrations and total mass of the three compounds in North Soil Area soils are as follows:

<i>Contaminant</i>	<i>Average Concentration</i>	<i>North Soil Area Mass</i>
1,2-Dichloroethene (total)	310 mg/kg	12,200 lbs
Trichloroethene	1,700 mg/kg	66,800 lbs
Vinyl Chloride ⁽¹⁾	0.7 mg/kg	28 lbs
Totals	2,010 mg/kg	79,028 lbs

It is noted that the calculation of average concentration and therefore total soil mass is difficult to define precisely. The soil VOC concentrations are highly variable (ranging from ND to 2100 mg/kg). The presence of DNAPL in the North Soil Area was not considered in the mass calculations. However, it is obvious that the VOC mass in the soil could be much greater.

The initial mass removal rate (K) for the North Soil Area was estimated using the soil vapor concentrations shown on Table E.3 in Appendix E and assuming a volumetric flow rate of 5 PV/day. The initial vapor concentrations and initial mass removal rates are summarized below:

<i>Contaminant</i>	<i>Vapor Concentration</i>	<i>Initial Mass Removal Rate (K)</i>
1,2-Dichloroethene (total)	5,050 µg/L	140 lb/day
Trichloroethene	2,150 µg/L	60 lb/day
Vinyl Chloride	29 µg/L	0.8 lb/day
Totals	7,230 µg/L	201 lb/day

To estimate the minimum time to achieve RAO's on this area was estimated using the following equation:

$$t = [\ln x_o - \ln x_f] x_o / K$$

where:

- x_f = final mass in the soil (based on NYSDEC cleanup objectives, Table 1.3),
- x_o = initial mass in the soil,
- t = time to achieve final mass,
- K = initial mass removal rate.

This equation is based on the assumption that the relationship between the VOC concentration in the soil and the soil vapor is linear. However as cleanup progresses, mass removal becomes diffusion limited and the assumption of a linear relationship between the soil and vapor concentration is not valid. Therefore, the resultant cleanup time is underestimated.

The estimated minimum cleanup time for the North Soil Area is approximately eight years (see Table E.3). It must be noted that this time estimate has extreme uncertainty due to the limitations of the analytical technique, the known presence of areas with extremely high VOC concentrations and DNAPL. In areas with extremely high soil VOC concentrations, or where NAPL is present, it is unlikely that cleanup objectives will be achieved in a reasonable time frame. The cleanup duration for these areas may exceed 30 years. SVE is typically not the selected remedy when treatment is projected past ten years.

Based on the assumptions made, granular activated carbon requirements for treatment of the SVE offgas in the North Soil Area have also been estimated in Table E-3 (Appendix E). Compound-specific correlation factors² have been used to calculate initial carbon efficiency. For the duration of the treatment, it is assumed that the carbon efficiency will be about one half of the initial efficiency. Using this assumption, for the estimated volume of soil and initial concentrations, a total of about 400,000 pounds of carbon would be consumed over the course of treatment. At this level of carbon consumption, alternative treatments such as catalytic oxidation and scrubbing should be evaluated.

The preliminary cost estimate to construct, operate and maintain an SVE system for this area ranges from approximately \$900,000 to \$1,100,000 depending on the form of off-gas treatment. The cost estimates are presented in Appendix H. These cost estimates are based on an operation period of eight years. However, as noted above the time frame to achieve soil RAO's will greatly exceed eight years.

5.1.2 SVE Design Parameters - Center Soil Area

Based on the results of the Pre-Design Soil Sampling Program, the Center Soil Area was determined to be approximately 80 feet by 85 feet (6,800 square feet). Based on a 20 foot radius of influence, measured in the pilot test, it was determined that approximately 6 SVE wells would be required in a full-scale design. Using the average steady-state permeability to air of $1.22 \times 10^{-8} \text{ cm}^2$ and a design pore volume exchange rate of 5 PV/day, the other design parameters to treat the area are estimated as:

Length of well screen required:	100 feet (minimum);
Wellhead vacuum requirement:	70 inches H ₂ O, or 5 inches Hg; and
Minimum Extraction rate:	110 acfm, or 80 scfm.

² Yaws, Carl L., Li Bu and Sachin Nijhawan, *Determining VOC Adsorption Capacity, Pollution Engineering*, February 1995.

The average concentrations of the primary VOCs in soils of the Center Soil Area were estimated using an arithmetic average of all available data (Table E.1, Appendix E). The soil concentrations were used to estimate the total mass of VOCs in the soil area. The mass calculations are also based on an soil volume of 122,400 cubic feet (an area 6,800 square feet times an unsaturated depth of about 18 feet) and an assumed dry soil density of 110 lb/ft³. The estimated concentrations and total mass of the three compounds in North Soil Area soils are as follows:

<i>Contaminant</i>	<i>Average Concentration</i>	<i>North Soil Area Mass</i>
1,2-Dichloroethene (total)	0.3 mg/kg	4 lbs
Trichloroethene	20 mg/kg	269 lbs
Vinyl Chloride ⁽¹⁾	0.2 mg/kg	2.7 lbs
Totals	21 mg/kg	276 lbs

In order to estimate the initial mass removal rate for the Center Soil Area, it was first necessary to estimate the soil vapor concentrations. In order to do this, the soil vapor concentrations obtained from the pilot study were adjusted to reflect the lower concentrations of VOCs in the soil in the Center Soil Area. This was accomplished by simply taking the ratio of the Center Soil Area and North Soil Area soil concentrations and multiplying by the measured soil vapor concentration. The resultant soil vapor concentrations are presented on Table E.4 in Appendix E. The initial mass removal rates were calculated using these soil vapor concentrations, an soil volume of 122,400 cubic feet and a volumetric flow rate of 5 PV/day. The initial vapor concentrations and initial mass removal rates are summarized below:

<i>Contaminant</i>	<i>Vapor Concentration</i>	<i>Initial Mass Removal Rate (K)</i>
1,2-Dichloroethene (total)	4.9 µg/L	0.05 lb/day
Trichloroethene	25.3 µg/L	0.24 lb/day
Vinyl Chloride	8.4 µg/L	0.08 lb/day
Totals	38.6 µg/L	0.37 lb/day

The estimated minimum cleanup time was calculated in the same manner as the North Soil Area and was determined to be about six years. Since no NAPL presence has been identified in this area, a total treatment duration estimate of six years may be adequate to clean the majority of the soils in this area. Although the concerns expressed for the North Soil Area noted in Section 5.1 still apply, there is less evidence of variability in the soil conditions in this area and there has been no evidence of NAPL in the investigations to date.

Granular activated carbon requirements for treatment of the SVE offgas in the center hot spot remediation area have also been estimated in Table E-4 (Appendix E) using the same methods as used for the north soil remediation area. Using similar assumptions, for the estimated volume of soil and initial concentrations, a total of approximately 3,000 pounds of carbon would be consumed over the course of treatment.

The preliminary cost estimate to construct, operate and maintain an SVE system for this area based on the assumptions noted previously is approximately \$250,000 (see Appendix H).

6.0 SUMMARY AND CONCLUSIONS

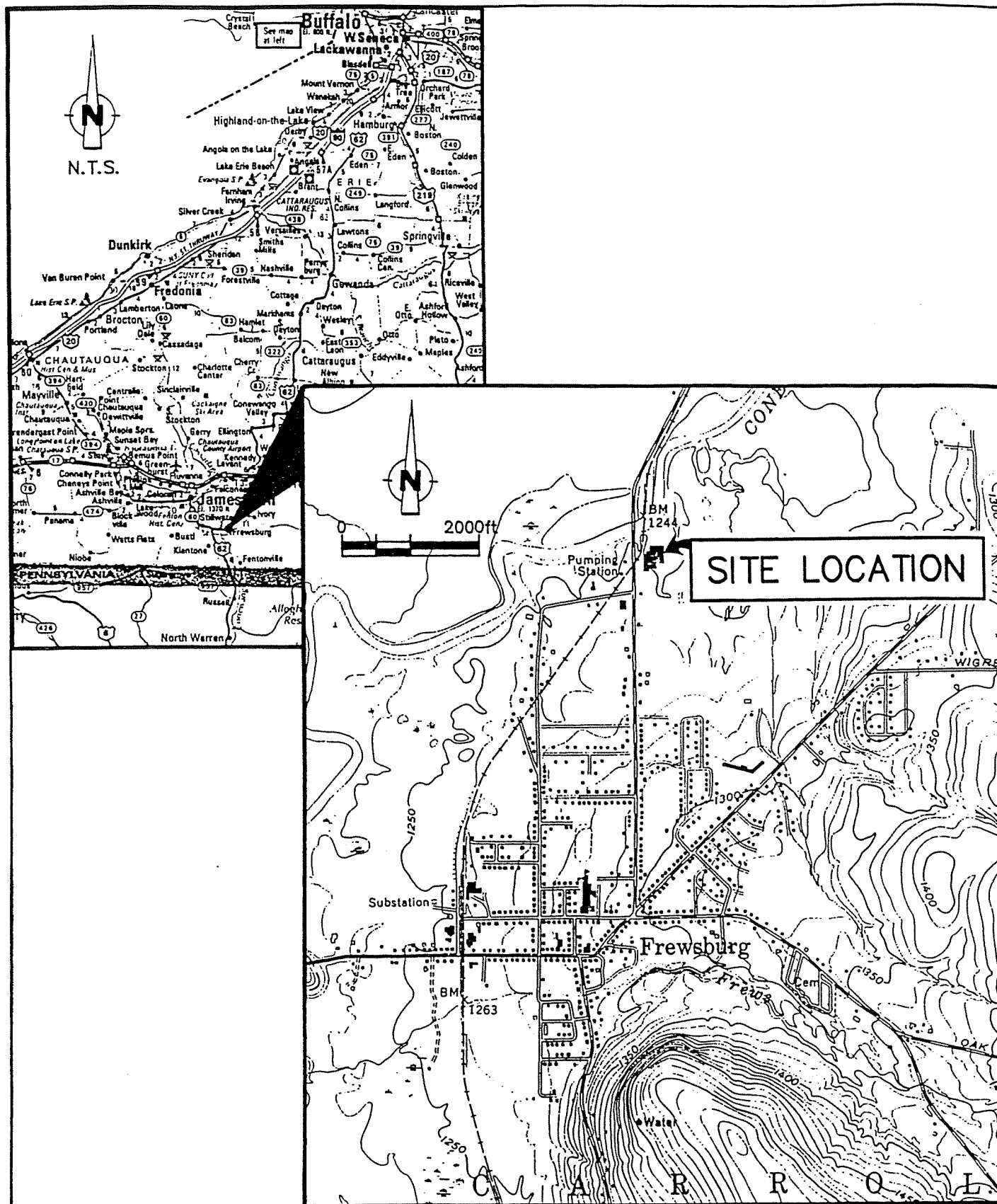
The primary objective in undertaking the pilot study for SVE/AS was to determine their respective suitability to cost effectively reduce the time of the overall remediation of the Site. Based on the results of the SVE/AS pilot study the following conclusions were made:

- i) Air sparging resulted in some reduction of VOC concentrations in the groundwater. However, the radius of influence was less than seven feet and no measurable increases in groundwater dissolved oxygen were observed. Therefore, it was concluded that AS would not cost effectively reduce the overall remediation time for the soil and groundwater within the North and center Soil Areas.
- ii) Soils at the Site demonstrated a low permeability to air flow, in the range between 10^{-8} and 10^{-9} cm², which is the lowest range for which SVE is typically considered applicable. Due to relatively high vacuum requirements, groundwater extraction (e.g., dual-phase groundwater and vapor extraction) is necessary to counter mounding effects.
- iii) The pilot study does indicate that localized NAPL areas exist in the North Soil Area. Removal of NAPL with NAPL recovery wells could have a benefit in reducing the time of the overall remediation program.
- iv) The use of SVE has some limited potential for application and treatment at the Site; however, it appears very unlikely that the use of SVE will alter the overall time required to remediate the Site. The extreme variability in soil quality and the influence of NAPL in the weighted averages of soil contamination make it difficult and costly to assign appropriate design parameters to a full-scale SVE system, particularly in the large North Soil Area.
- v) In the Center Soil Area, SVE, in conjunction with groundwater extraction to depress the water table, could potentially cleanup the contaminated soils is approximately six years. The total cost for a

system in this area is \$250,000.

- vi) The time required for removal of VOCs from all North Soil Area at the Site to meet cleanup objectives cannot be accurately estimated due to the presence of NAPL. Some of the VOCs in this area could be removed by application of SVE technology. It is likely that some of the North Soil Area could be treated within a ten year time frame using a design pore volume exchange rate of five pore volumes per day. However, in areas with extremely high soil VOC concentrations, or where NAPL is present, it is unlikely that cleanup objectives will be achieved in a reasonable time frame. The cleanup duration for these areas may exceed 30 years. SVE is typically not the selected remedy when treatment is projected past ten years.
- vii) The estimated capital and operation and maintenance cost for a full-scale SVE system in the North Soil Area ranges from approximately \$900,000 to \$1,100,000, depending on the form of off-gas treatment. These costs are based on 10 years of operation. However, as noted above, cleanup at this time is unlikely.

FIGURES



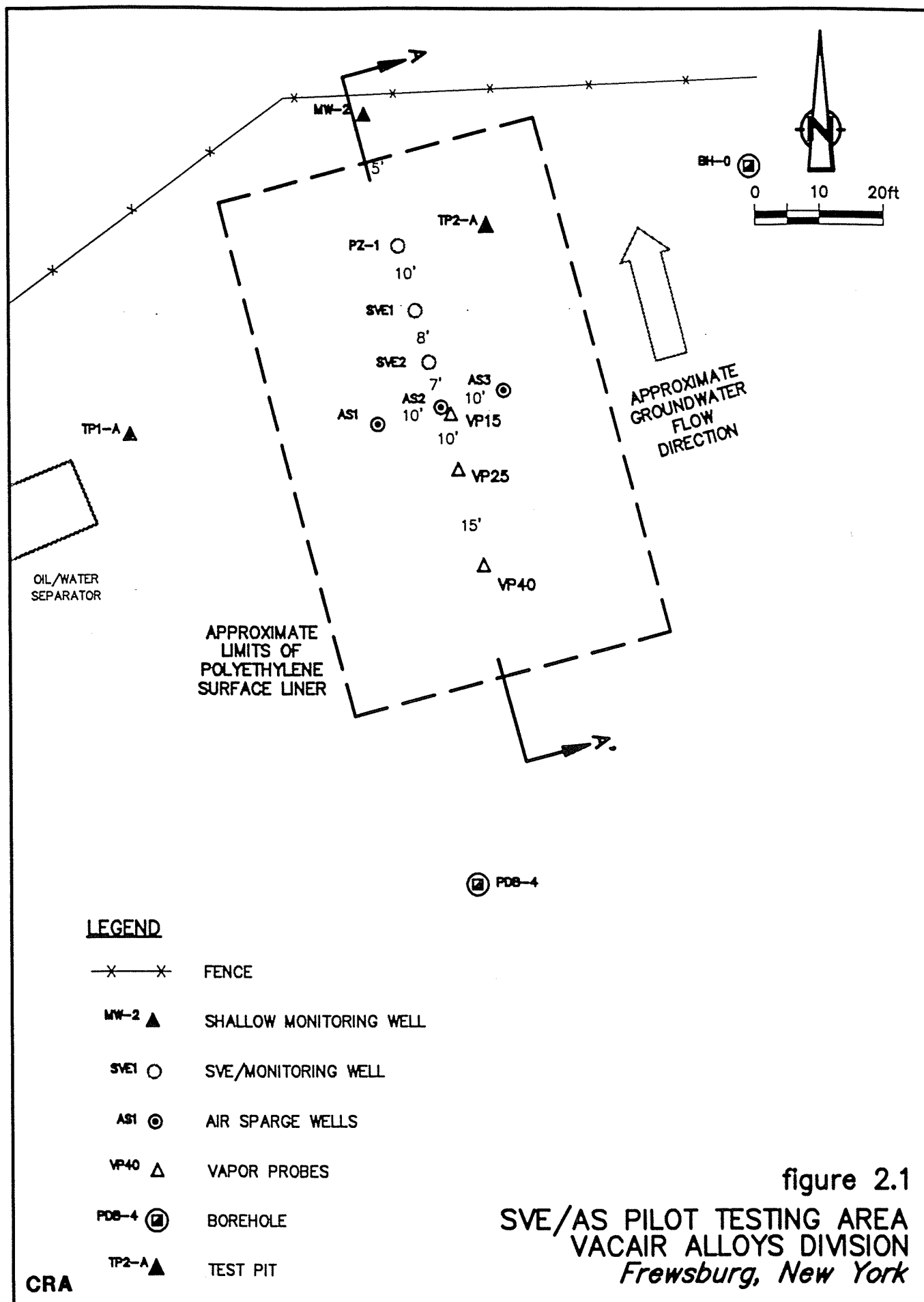
SOURCE: JAMESTOWN, N.Y.
N4200-W7907.5/7.5

figure 1.1

SITE LOCATION

VACAIR ALLOYS DIVISION
Frewsburg, New York

CRA



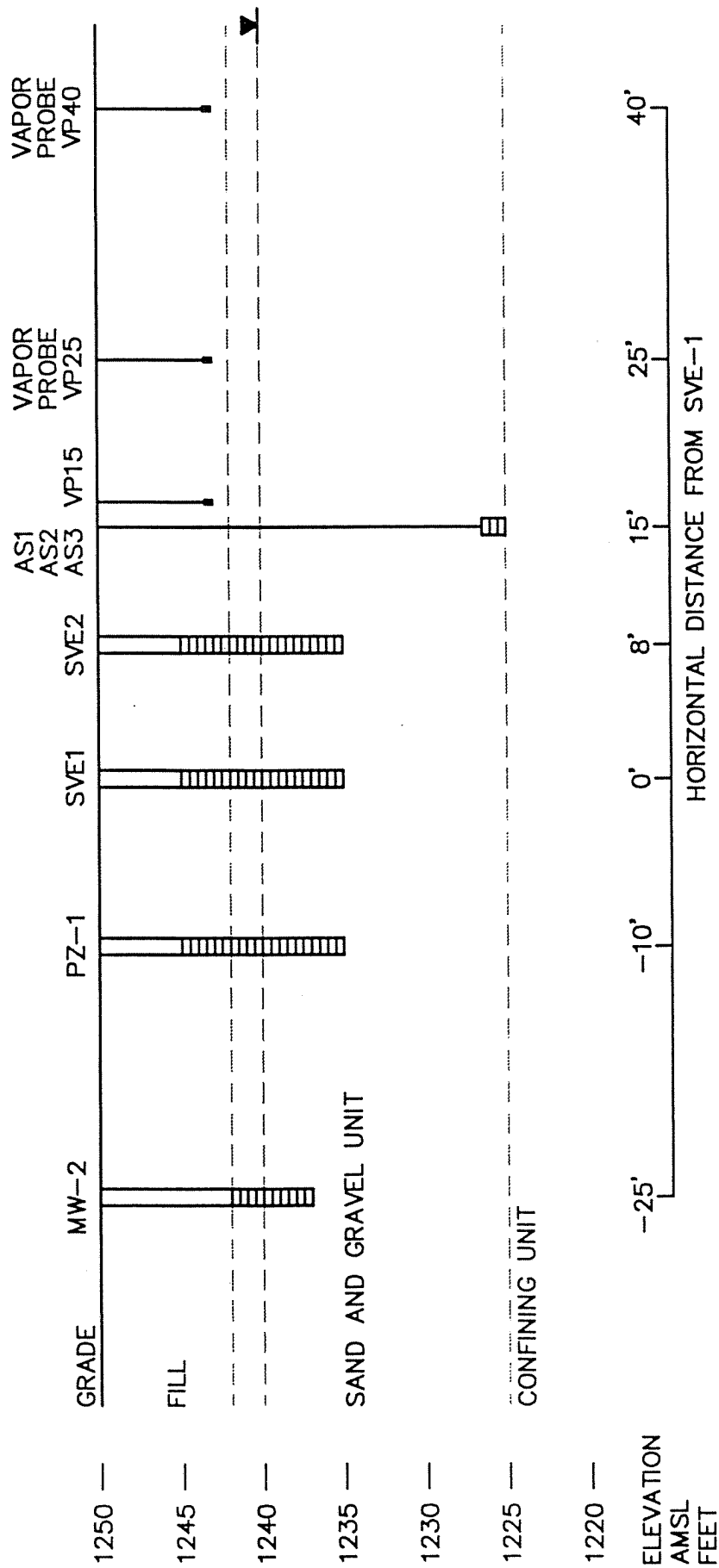
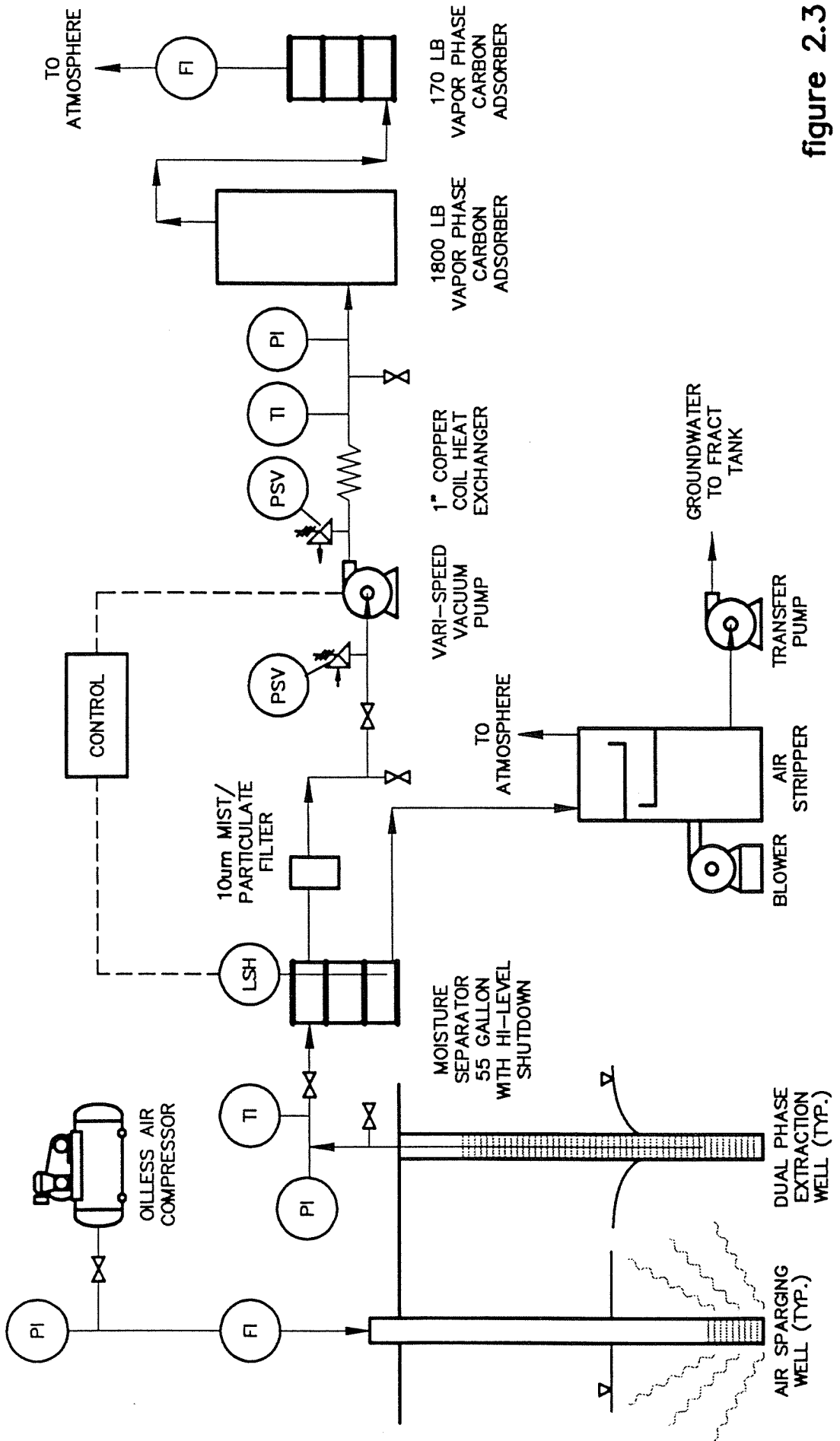


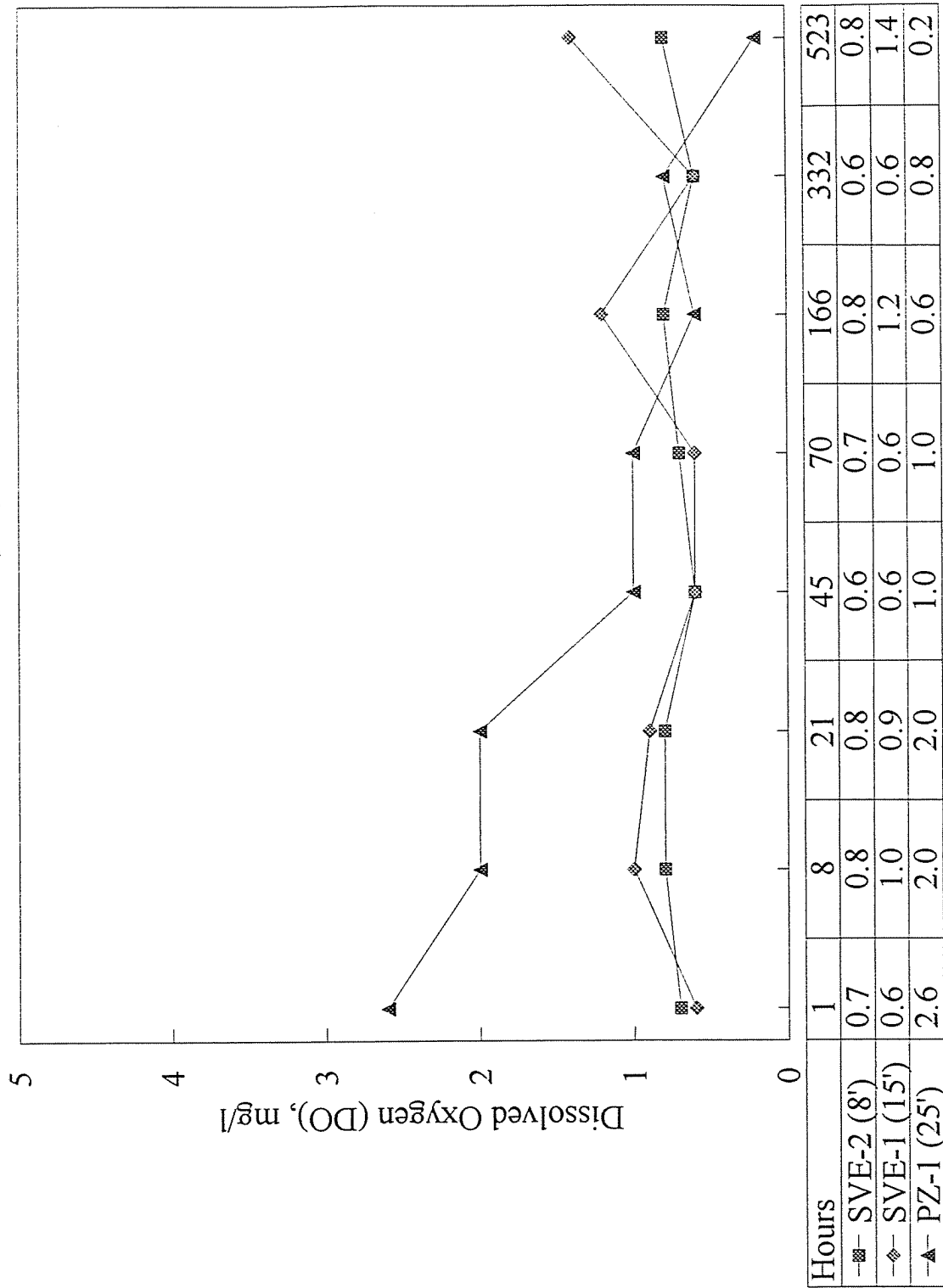
figure 2.2
SVE/AS
PILOT TEST CROSS SECTION A-A
VACAIR ALLOYS DIVISION
Frewsburg, New York



FI FLOW INDICATOR
 LSH LEVEL SWITCH HIGH
 PI PRESSURE INDICATOR
 PSV PRESSURE SAFETY VALVE
 TI TEMPERATURE INDICATOR

figure 2.3
 SVE/AS
 PROCESS SCHEMATIC
 VACAIR ALLOYS DIVISION
 Frewsburg, New York

Figure 4.1 Groundwater Dissolved Oxygen Response at Distant Wells
VacAir Air Sparging Pilot Test



TABLES

TABLE 1.1
 REMEDIAL INVESTIGATION SAMPLE DATA-SVE/AS PILOT TEST AREA
 VACAIR ALLOYS
 FREWSBURG, NEW YORK

Chemical Parameters		MW-2	MW-2	BH-O	TP1-A	TP2-A	TP2-A (D)	TP2-A
Location:		-	-	(22-24)	(6.0)	(2.0)	(2.0)	(6.0)
Interval (Ft. BGS):				11/24/92	12/11/90	12/12/90	12/12/90	12/12/90
Date Sampled:		04/30/91	12/18/92	Soil	Soil	Soil	Soil	Soil
Matrix:		Water	Water	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)	(µg/kg)
Units:		(µg/L)	(µg/L)					
<u>Volatile Organic Compounds</u>								
Vinyl chloride		17000	1200	-	-	-	5000J	-
Acetone		-	-	66J	-	-	-	-
1,1-Dichloroethene		450	170	NA	NA	NA	NA	NA
1,1-Dichloroethane		-	-	NA	NA	NA	NA	NA
1,2-Dichloroethene (Total)		170000	62000	-	2400000J	620000J	400000J	21000
1,2-Dichloroethane		19J	-	NA	NA	NA	NA	NA
1,1,1-Trichloroethane		-	-	-	NA	NA	NA	NA
Trichloroethene		2600J	-	NA	380000J	17000000J	16000000J	460000
1,1,2-Trichloroethane		13J	-	-	NA	NA	NA	NA
Benzene		-	11	-	NA	NA	NA	-
Tetrachloroethene		-	-	-	-	-	-	-
Toluene		12J	-	-	-	-	-	-
Ethylbenzene		14J	6J	-	-	-	-	-
Xylene (Total)		-	17	-	-	-	-	-

Notes:

- D Duplicate.
- J Associated value is estimated.
- NA Not Analyzed.
- TP Test Pit.
- BH Borehole.
- MW Monitoring Well.
- Ft. BGS Feet Below Ground Surface.

TABLE 1.2
 PHYSICAL PROPERTIES OF PRINCIPAL DETECTED COMPOUNDS
 VACAIR ALLOYS SITE
 FREWSBURG, NEW YORK

<i>Compound</i>	<i>Chemical Formula</i>	<i>M.W.</i>	<i>BP °C</i>	<i>Vapor Pressure at 20-30 °C (mm Hg)</i>	<i>Henry's Law Constant (ATM m³/Mole)</i>
cis 1,2-Dichloroethylene	C ₂ H ₂ Cl ₂	96.95	59	208	7.58 × 10 ⁻³
Trichloroethylene	C ₂ HCl ₃	131.40	74-76	123	1.44 × 10 ⁻²
Vinyl chloride	C ₂ H ₃ Cl	62.50	-14	2,660	8.19 × 10 ⁻²

TABLE 1.3

SUMMARY DETECTED COMPOUNDS - SOIL
PRE-DESIGN SOIL SAMPLING PROGRAM
VACAIR ALLOYS DIVISION
FREWSBURG, NEW YORK

Sample ID	Depth (feet BGS)	Total Organic Depth (ppm)	Vinyl Chloride (µg/kg)	TCE (µg/kg)	1,2-DCE (cis) (µg/kg)	1,2-DCE (trans) (µg/kg)	1,1-DCE (µg/kg)	Total VOCs (µg/kg)
NYSDEC Soil Cleanup Objective (2)	--	--	200	700	NA	300	400	10,000
<u>Northern Soil Remediation Area</u>								
PDB-1A	3.5 - 4.0	0.2	ND (1.0)	1.9	2.8	ND(1.0)	ND(1.0)	4.7
PDB-2A	3.5 - 4.0	0	ND (1.0)	1.4	ND (1.0)	ND(1.0)	ND(1.0)	1.4
PDB-3A	3.5 - 4.0	42.0	130	ND (10)	470	ND(1.0)	ND(1.0)	600
PDB-3B	7.5 - 8.0	115.0	5,400	ND (100)	51,000	ND(100)	170	56,570
PDB-4A	3.5 - 4.0	4.8	ND (1.0)	1.3	2.2	ND(1.0)	ND(1.0)	3.5
PDB-4B	7.5 - 8.0	21.0	200	2,100	4100	ND(100)	ND (100)	6,400
PDB-5A	3.5 - 4.0	5.0	ND (5.0)	ND (5.0)	ND (5.0)	ND(5)	ND (5.0)	ND
PDB-5B	7.5 - 8.0	135.8	1,000	ND (100)	11,000	ND(100)	ND (100)	12,000
PDB-6A	3.5 - 4.0	3.6	ND (5.0)	12	5.5	ND(5)	ND (5.0)	17.5
PDB-6B	7.5 - 8.0	10.8	ND (100)	410	4,600	ND(100)	ND(100)	5,010
PDB-15A	3.5 - 4.0	0	ND (1.0)	ND (5.0)	ND (1.0)	ND(1.0)	ND(1.0)	ND
PDB-15B	7.5 - 8.0	0	ND (1.0)	ND (5.0)	ND (1.0)	ND(1.0)	ND(1.0)	ND
PDB-16A	3.5 - 4.0	<5	ND (1.0)	ND (5.0)	ND (1.0)	ND(1.0)	ND(1.0)	ND
PDB-16B	7.5 - 8.0	<5	ND (1.0)	ND (5.0)	ND (1.0)	ND(1.0)	ND(1.0)	ND

TABLE 1.3

**SUMMARY DETECTED COMPOUNDS - SOIL
PRE-DESIGN SOIL SAMPLING PROGRAM
VACAIR ALLOYS DIVISION
FREWSBURG, NEW YORK**

Sample ID	Depth (feet BGS)	Total Organic Depth (ppm)	Vinyl Chloride (µg/kg)	TCE (µg/kg)	1,2-DCE (cis) (µg/kg)	1,2-DCE (trans) (µg/kg)	1,1-DCE (µg/kg)	Total VOCs (µg/kg)
NYSDEC Soil Cleanup Objective (2)	--	--	200	700	NA	300	400	10,000
<u>Central Soil Remediation Area</u>								
PDB-7A	3.5 - 4.0	0	ND (1.0)	1.7	ND (1.0)	ND(1.0)	ND(1.0)	1.7
PDB-8A	3.5 - 4.0	0.1	ND (1.0)	1.3	ND (1.0)	ND(1.0)	ND(1.0)	1.3
PDB-9A	3.5 - 4.0	0.2	ND (1.0)	5.4	ND (1.0)	ND(1.0)	ND(1.0)	5.4
PDB-10A	3.5 - 4.0	0.3	ND (1.0)	25.0	8.2	ND(1.0)	ND(1.0)	33.2
PDB-10B	7.5 - 8.0	28.4	ND (1000)	55,000	1,400	ND(1000)	ND (1000)	56,400
PDB-10C	16 - 18	18.0	ND (1000)	21000	2300	ND(1000)	ND (1000)	23,300
PDB-11A/PDB-30A	3.5 - 4.0	3.2	ND (5.0) / ND (10.0)	260/440	27/40	ND(5)/ND(10)	ND (5.0) / ND (10)	287/480
PDB-11B	7.5 - 8.0	3.4	ND (5.0)	910	200	ND(S)	ND (5.0)	1110
PDB-12A	3.5 - 4.0	2.3	ND (5.0)	63.0	31.0	ND(S)	ND (5.0)	94
PDB-13A	3.5 - 4.0	0.2	ND (1.0)	32.0	ND (1.0)	ND(1.0)	ND(1.0)	32
PDB-13B	7.5 - 8.0	NR	ND (1.0)	140	12.0	ND(10)	ND (10)	152
PDB-14A	3.5 - 4.0	13	8.4	700	120	1.5	ND (1.0)	829.9
PDB-14B	7.5 - 8.0	4.9	ND (5.0)	870	140	ND(5)	ND (5.0)	1010
PDB-14C	16 - 18	1.0	ND (1.0)	5.3	ND (1.0)	ND(1.0)	ND (1.0)	5.3

Notes:

- (1) As measured in the field with a photoionization detector used in the field in ppm meter units. As presented in NYSDEC TAGM No. 4046: Determination of Soil Objectives and Cleanup Levels, dated January 24, 1994.
- (2)

BGS Below Ground Surface
 NA Not Available
 ND(Not detected at the detected limit stated within the parenthesis.
 TCE Trichloroethene
 1,2-DCE 1,2-Dichloroethene
 1,1-DCE 1,1-Dichloroethene
 VCCs Volatile Organic Compounds
 PDB Pre-Design Borehole

TABLE 4.1

SUMMARY OF DETECTED VOC COMPOUNDS - GROUNDWATER
VACAIR ALLOYS
FREWSBURG, ONTARIO

Components	Date Pilot Test Status: Well ID:	06/28/95		09/18/95		09/25/95		10/16/95	
		SVE1	SVE2	End of Constant Rate SVE Test SVE1	MW2	Constant Rate SVE/AS Testing - 1 wk. SVE1	SVE2	End of Testing SVE1	MW2
Units									
cis-1,3-Dichloroethene	mg/L	460	400	500	340	490	170	500	20
Trichloroethene	mg/L	280	43	270	190	280	89	210	0.96
Vinyl Chloride	mg/L	30	41	29	32	32	55	20	4.5
TOTAL		770	534	799	562	8~	265	730	26

TABLE 4.2

SOIL VAPOR VOC ANALYTICAL RESULTS - WELL SVE1
VACAIR ALLOYS DIVISION
FREWSBURG, NEW YORK

Date	28-Jun-95	28-Jun-95	30-Aug-95	06-Sept-95	18-Sept-95	18-Sept-95	19-Sept-95	02-Oct-95	10-Oct-95
Elapsed Hours, SVE Test	Pre-Test	8	33	85	293	301	313	624	814
Elapsed Hours, A/S Test					Pre-Test	8	20	331	521
Chlorinated VOCs (µg/L)									
1,1-DCE	520	81	10	51	27	28	30	5	16
1,1-DCA	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-DCE(total)	42,000	10,100	2,160	11,000	5,000	5,100	5,200	540	220
1,2-DCA	ND	ND	ND	770	ND	0.29	ND	ND	ND
1,1,1-TCA	ND	0.13	0.08	2	0.04	0.06	0.02	ND	ND
TCE	36,000	6,660	5,000	6,400	2,900	1,400	2,600	220	2,500
1,1,2-TCA	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCE	2	3	1	130	1	0.9	1	1	1.3
Vinyl Chloride	56,000	11,000	240	1,370	380	1,300	1,000	260	170
Total HVOCs	134,522	27,844	7,411	19,723	8,308	7,829	8,831	1,026	2,907
BETX VOCs (µg/L)									
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	6	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	3	ND	ND	ND	ND
Xylenes	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total BETX	0	6	0	0	3	0	0	0	0
Hydrocarbons (µg/L)									
Methane	65,000	12,600	380	770	1,600	4,900	3,800	2,090	1,500
Total VHC	190,000	21,700	2,900	25,000	1,900	1,900	1,900	6	2,400
Cumulative Mass Removal - Three Primary Chlorinated VOCs (lbs)(1)									
1,2-DCE	4	4	7	37	91	94	97	106	108
TCE	3	3	9	27	58	59	61	64	89
Vinyl Chloride	4	4	5	8	13	13	14	18	20
Total	11	11	21	73	162	166	172	188	217

Notes:

(1) Assumes average flow rate of 14 scfm and VOC concentrations as measured at the end of each testing period.

APPENDIX A

STATIGRAPHIC AND INSTRUMENTATION LOGS

MARCOR
OF NEW YORK, Inc.

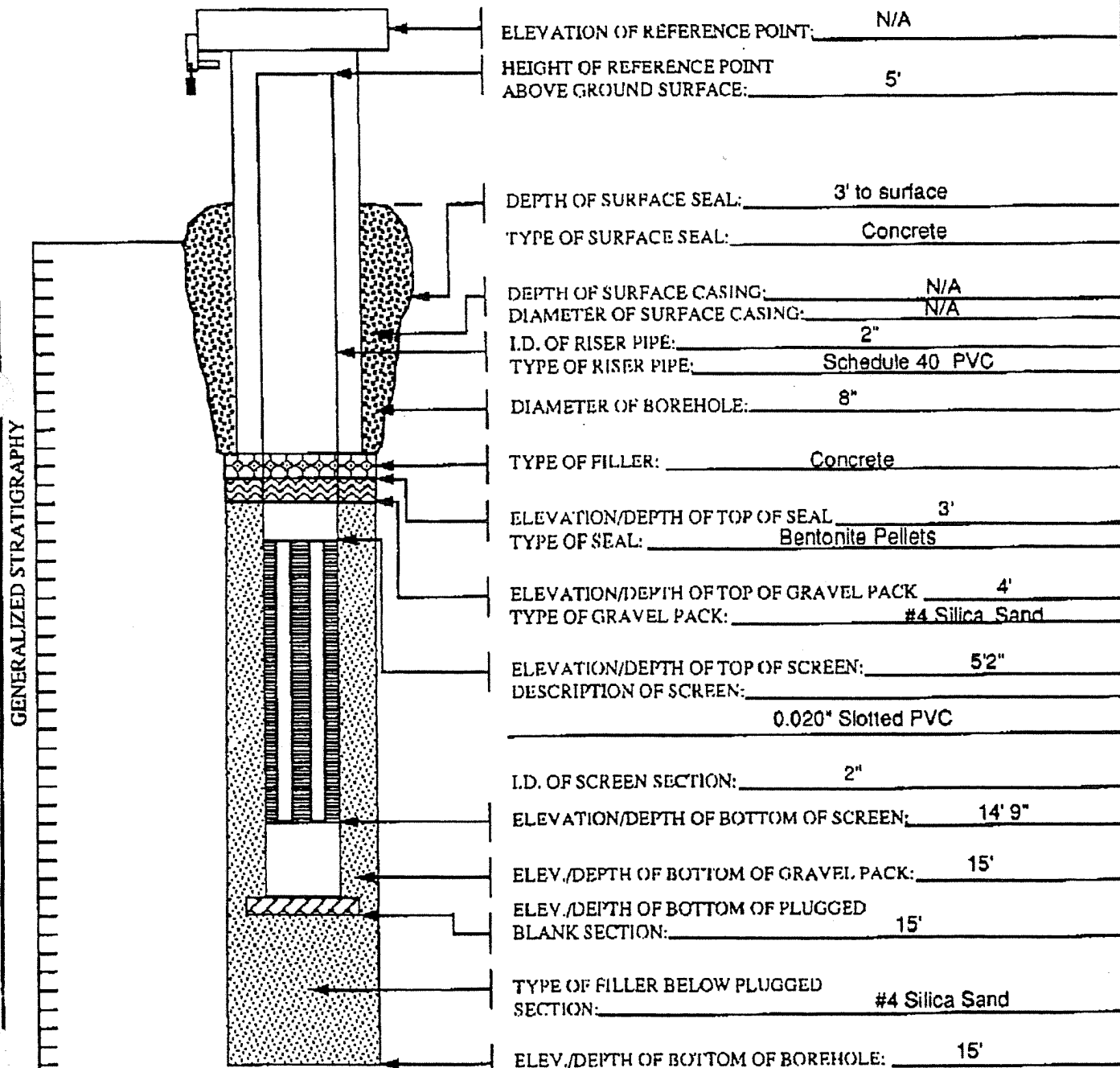
WELL CONSTRUCTION DETAIL

PROJECT NAME CRA Frewsburg PROJECT # RO-01040-001

SITE VAC Air Alloys WELL # PZ1

ADDRESS _____
(IF NOT SAME AS ABOVE)

DATE COMPLETED 06/21/95 SUPERVISED BY Keith Marcellus



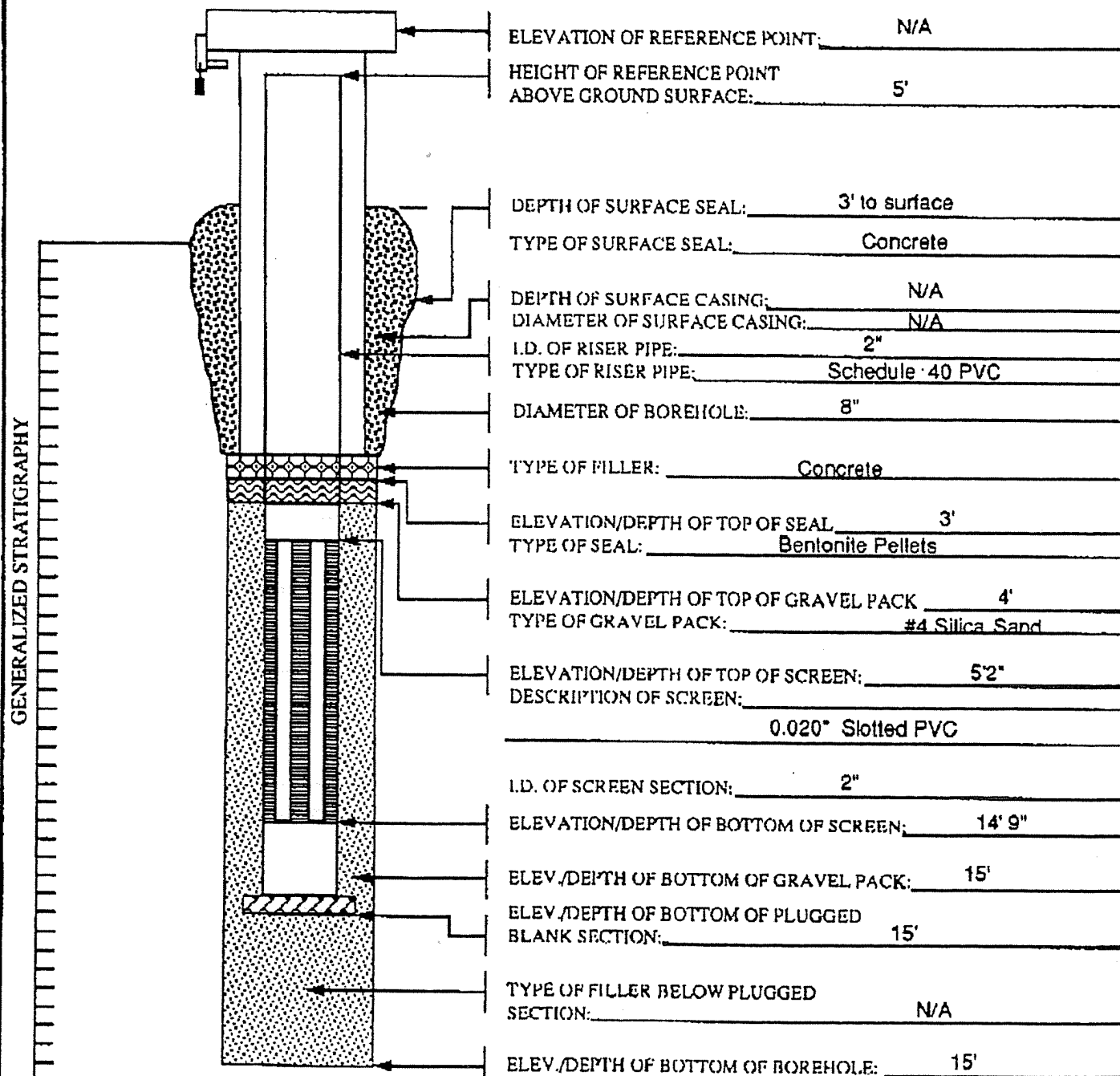
MARCOR
 OF NEW YORK, Inc.

WELL CONSTRUCTION DETAIL

 PROJECT NAME CRA Frewsburg PROJECT # R0-01040-001

 SITE VAC Air Alloys WELL # SVE1

 ADDRESS _____
 (IF NOT SAME AS ABOVE)

 DATE COMPLETED 06/21/95 SUPERVISED BY Keith Marcellus


MARCOR
 OF NEW YORK, Inc.

WELL CONSTRUCTION DETAIL

 PROJECT NAME CRA Frewsburg PROJECT # R0-01040-001

 SITE VAC Air Alloys WELL # SVE2

ADDRESS _____

(IF NOT SAME AS ABOVE)

 DATE COMPLETED 06/21/95 SUPERVISED BY Keith Marcellus

ELEVATION OF REFERENCE POINT: N/A

HEIGHT OF REFERENCE POINT ABOVE GROUND SURFACE: 5'

DEPTH OF SURFACE SEAL: 3' to surface

TYPE OF SURFACE SEAL: Concrete

DEPTH OF SURFACE CASING: N/A

DIAMETER OF SURFACE CASING: N/A

I.D. OF RISER PIPE: 2"

TYPE OF RISER PIPE: Schedule 40 PVC

DIAMETER OF BOREHOLE: 8"

TYPE OF FILLER: Concrete

ELEVATION/DEPTH OF TOP OF SEAL: 3'

TYPE OF SEAL: Bentonite Pellets

ELEVATION/DEPTH OF TOP OF GRAVEL PACK: 4'

TYPE OF GRAVEL PACK: #4 Silica Sand

ELEVATION/DEPTH OF TOP OF SCREEN: 5'2"

DESCRIPTION OF SCREEN: 0.020" Slotted PVC

I.D. OF SCREEN SECTION: 2"

ELEVATION/DEPTH OF BOTTOM OF SCREEN: 14' 9"

ELEV./DEPTH OF BOTTOM OF GRAVEL PACK: 15'

ELEV./DEPTH OF BOTTOM OF PLUGGED BLANK SECTION: 15'

TYPE OF FILLER BELOW PLUGGED SECTION: N/A

ELEV./DEPTH OF BOTTOM OF BOREHOLE: 15'

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-11)

PROJECT NAME: VAC-AIR ALLOYS

PROJECT NO.: 2326

CLIENT: VAC-AIR ALLOYS

LOCATION: NORTH END OF SITE NEAR
LARGE OIL-WATER SEPARATOR

HOLE DESIGNATION: MW-2

DATE COMPLETED: APRIL 23, 1991

DRILLING METHOD: 4 1/4" ID HSA

CRA SUPERVISOR: D. OSCAR

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE			
				NUMBER	STATE	VALUE	UNITS
	REFERENCE POINT (Top of Riser) GROUND SURFACE	1251.6 1249.1	 CONCRETE SEAL 2" WELL PIPE CEMENT/BENTONITE GROUT BENTONITE PELLET SEAL 8" BOREHOLE SAND PACK WELL SCREEN				
2.5	Brown and gray SILT, some fine sand, little fine to medium gravel, little vegetation, trace metal turnings, moist, FILL Same, except gray			1SS		9	0.4
5.0	Same, with little medium sand, moist			2SS		8	0.7
7.5	Gray SILT, little clay, fine sand, trace medium rounded gravel, trace vegetation, moist, NATIVE	1242.6		3SS		4	0.8
	Gray mottled SILT, little clay, fine to medium sand, trace fine gravel, moist	1240.5		4SS		4	10
10.0	Brown mottled, fine to medium SAND, little silt, moist			5SS		13	5
12.5	Same, with brown, little gravel and clay, wet Brown, fine to medium SAND, and fine GRAVEL, little silt, wet	1236.2		6SS		14	-
	Gray brown, SILT, and CLAY, trace fine rounded gravel, moist	1235.1		7SS		15	-
15.0	END OF HOLE 14.0 FT. BGS						
17.5							
20.0							
22.5							
25.0							
27.5							
30.0							
32.5							

SCREEN DETAILS:
Screened Interval:
8.0 to 13.0' BGS
Length - 5.0'
Diameter - 2.0"
Slot # 10
Material - Stainless Steel
Sand pack interval:
6.5 to 14.0' BGS
Material - #1 QROC,
#4 QROC

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

GRAIN SIZE ANALYSIS



WATER FOUND



STATIC WATER LEVEL



APPENDIX B

GROUNDWATER EXTRACTION, DISPOSAL AND BACKGROUND LETTERS

TABLE B.1

DEPTH TO GROUNDWATER PILOT TEST WELLS (1)
VACAIR SVE/AS PILOT TEST
FREWSBURG, NEW YORK

Date:	08/28/95	08/30/95	08/31/95	09/06/95	09/18/95	09/25/95	10/02/95	10/10/95	10/16/95
Well ID									
SVE Test in Progress	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
SVE-1 (2)	8.75	12.71	12.71	12.71	12.71	12.71	12.71	12.71	8.6
SVE-2	10.55	11.86	11.88	11.89	12.1	11.49	11.9	11.39	10.79
PS-I	10.88	13.	12.86	13.	12.96	12.63	13.01	12.39	

Notes:

- (1) Measured in feet from top of PVC casing.
 (2) Depth of well SVE-1 during the SVE test assumed at 12.71 feet due to the length of the extraction pipe.

CRA

CONESTOGA-ROVERS & ASSOCIATES

2055 Niagara Falls Boulevard, Suite Three
Niagara Falls, New York 14304
(716) 297-6150 Fax: (716) 297-2265

July 27, 1995

Reference No. 2326

Mr. Greg P. Sutton, P.E.
Environmental Engineer II
NEW YORK STATE DEPARTMENT
OF ENVIRONMENTAL CONSERVATION
270 Michigan Avenue
Buffalo, NY 14203-2999

Dear Mr. Sutton:

Re: SVE Pilot Study
VacAir Alloys Site
Frewsburg, New York

Following our telephone conversations during the week of July 17, 1995, on behalf of Keywell Corporation, Conestoga-Rovers & Associates (CRA) is requesting approval from the New York State Department of Environmental Conservation (NYSDEC) to treat and discharge groundwater extracted during the Soil Vapor Extraction (SVE)/Air Sparging (AS) Pilot Study to be conducted at the VacAir Alloys Plant (Site) in Frewsburg, New York.

Due to a higher than anticipated groundwater level, CRA estimates pumping 10,000 gallons of groundwater during the four week pilot study. CRA is proposing to install a vessel (e.g., drum) to which extracted groundwater will be conveyed from the moisture separator. The groundwater will be treated in the vessel by air stripping at an air flow rate of 20-30 cfm to remove volatile organic compounds (VOCs) from the groundwater. The groundwater will then be conveyed to a fract tank which will be located immediately adjacent to the pilot study area, probably on the south side. A sample will be collected from the fract tank and will be analyzed for Target Compound List (TCL) VOCs. Based on the analytical results, the water will be discharged directly to Conewango Creek, or it will be further air stripped in the fract tank until analytical results indicate the water is clean and it can be discharged.

The estimated amount of contaminants to be extracted is 2.4 lb/day. This estimate was calculated from historical contaminant levels in MW-2 and current levels in well SVE-1 (see attached Table 1).

July 27, 1995

Reference No. 2326

- 2 -

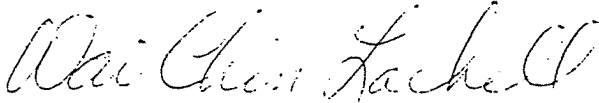
Based on theoretical emission rates and ambient air concentrations estimated for key VOCs at the request of the NYSDEC and presented in the report entitled, "Remedial Investigation/Feasibility Study, Remedial Investigation (RI) Report, VacAir Alloys Division, Frewsburg, New York," CRA, March 30, 1994, the nearest downwind receptor, based on prevailing winds blowing to the north, was the private well owners north of the Site at a distance of 2,500 feet.

If the NYSDEC is in approval of these process changes, CRA would anticipate resuming Site activities August 7, 1995.

If you have any questions or comments, or if you require additional information, please do not hesitate to contact me at (716) 297-6150.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES



Wai Chin Lachell

WCL/ms/24

c.c. J. Mark Lozier, Keywell
Bruce White, Karaganis and White
Dennis Trostle, VacAir

b.c.c. D. McLeod
M. Mateyk
F. Rovers
D. Oscar
Files

Table 1 - Vac Air Pilot Test Water

Estimate of Contaminant Mass, based on historical MW-2 maximum levels
and current Well SVE-1 levels

Volume 10000 gal
Duration 4 weeks

<i>Analyte</i>	<i>mg/l</i>	<i>total lbs.</i>	<i>lbs./day</i>
Vinyl Chloride	30.000	2.502	0.089
1,1-DCE	0.450	0.038	0.001
1,2-DCE(total)	460.000	38.364	1.370
1,2-DCA	19.000	1.585	0.057
TCE	280.000	23.352	0.834
1,1,2-DCA	0.013	0.001	0.000
Benzene	0.011	0.001	0.000
Toluene	0.012	0.001	0.000
Ethylbenzene	0.014	0.001	0.000
Xylene(total)	0.017	0.001	0.000
TOTALS	789.52	65.85	2.352

270 Michigan Avenue, Buffalo, New York 14203-2999
(716) 851-7220

- 2326
D McLeod
W Clobert

servation

EARTH DAY 25
1995
ENVIRONMENTAL PARTNERS

Fitzers
B White
~~D Wagner~~
R Grestek

Michael D. Zagata
Commissioner

Michael D. Zagata
Commissioner

Dear Ms. Lachell:

I have completed a review of your letter dated July 27, 1995 requesting approval to extract, treat and discharge groundwater during the SVE pilot Study. Approval is granted to conduct the study contingent that the following conditions are met:

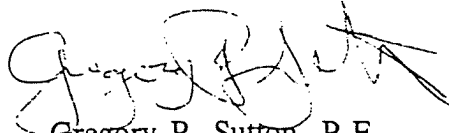
1. Effluent limits, as provided in Table I below, must be achieved by air stripping or other treatment means prior to the initiation of discharge to Conewango Creek. The analytical data must be provided and approved by NYSDEC before discharge.
2. Discharge shall be by pipe, hose or other means directly to Conewango Creek so that the discharge will be below the water surface. Discharge to the adjacent wet lands will not be permitted.

TABLE I
VacAir Alloys Pilot Test Water Discharge Limitations

Analyte	Limit (ug/l,ppb)
Vinyl Chloride	0.3
1,1-DCE	5
1,2-DCE(total)	5
1,2-DCA	0.8
TCE	11
1,1,2-DCA	5
Benzene	6
Toluene	5
Ethylbenzene	5
Total Xylenes	5

If you have any questions please contact the me at (716)851-7220.

Sincerely,

A handwritten signature in black ink, appearing to read 'Gregory P. Sutton', with a stylized flourish at the end.

Gregory P. Sutton, P.E.
Environmental Engineer II

cc: Mr. J. Mark Lozier, Keywell



A Full Service Environmental Laboratory

November 17, 1995

Mr. Paul McMahon
Conestoga Rovers & Associates
2055 Niagara Falls Blvd.
STE 3
Niagara Falls, NY 14304

RE: Vacair Project 2326
Submission #: 9510000061

Dear Mr. McMahon:

Enclosed are the results of the analysis requested. All data has been reviewed prior to report submission. Should you have any questions, please do not hesitate to contact me at (716) 634-0454.

Thank you for allowing us to provide this service.

Sincerely,

GENERAL TESTING CORPORATION

A handwritten signature in cursive script, reading 'Katherine A. Wager'.

Katherine A. Wager
Senior Project Chemist

enc.

CASE NARRATIVE

COMPANY: Conestoga-Rovers & Associates

Project #2326

SUBMISSION #: 9510000061

CRA water samples were collected on 11/03/95 and received at GTC on 11/04/95 in good condition at cooler temperature of 4.5 C.

VOLATILE ORGANICS

Sample W-110395-BTF001 was analyzed for a site specific list of volatiles by methods 601/602 and all results were reported to the method detection limits (MDL) instead of the PQL.

All tuning criteria for BFB were within QC limits.

The initial calibration criteria were met for all analytes.

All continuing calibration check (CCC) criteria were met.

The surrogate standard recoveries were within acceptance limits on all samples.

All Laboratory Blanks were free of contamination.

The Trip Blank was free of contamination.

The required holding time of 14 days was met for all samples.

No analytical or QC problems were encountered with these analyses.

GTC LIST OF QUALIFIERS

(The basis of this proposal are the EPA-CLP Qualifiers)

- U - Indicates compound was analyzed for but was not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.
- J - Indicates an estimated value. For further explanation see case narrative / cover letter.
- B - This flag is used when the analyte is found in the associated blank as well as in the sample.
- E - This flag identifies compounds whose concentrations exceed the calibration range.
- A - This flag indicates that a TIC is a suspected aldol-condensation product.
- N - Spiked sample recovery not within control limits.
(Flag the entire batch - Inorganic analysis only)
- * - Duplicate analysis not within control limits.
(Flag the entire batch - Inorganic analysis only)
- Also used to qualify Organics QC data outside limits.
- D - Spike diluted out.
- S - Reported value determined by Method of Standard Additions. (MSA)
- X - As specified in the case narrative.

GTC Lab ID # for State Certifications

NY ID # in Rochester: 10145
NY ID # in Hackensack: 10801
NY ID # in Massachusetts: M-NY032

NJ ID # in Rochester: 73331
NJ ID # in Hackensack: 02317

Conestoga Rovers & Associates

Project Reference: 601/602 SPECIAL DL 3 DAY TAT PROJECT 2326

Client Sample ID : W-11395-BTF-001

Date Sampled : 11/03/95 GTC Order # : 43139 Sample Matrix: WATER
Date Received: 11/04/95 Submission #: 9510000061 Analytical Run: 4782

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 11/07/95			
ANALYTICAL DILUTION: 1.0			
BENZENE	1.0	1.0 U	UG/L
1,2-DICHLOROETHANE	0.80	0.80 U	UG/L
1,1-DICHLOROETHENE	0.65	0.65 U	UG/L
CIS-1,2-DICHLOROETHENE	0.63	0.63 U	UG/L
TRANS-1,2-DICHLOROETHENE	0.66	0.66 U	UG/L
ETHYLBENZENE	1.0	1.0 U	UG/L
TOLUENE	1.0	1.0 U	UG/L
1,1,2-TRICHLOROETHANE	0.71	0.71 U	UG/L
TRICHLOROETHENE	0.55	0.55 U	UG/L
VINYL CHLORIDE	0.30	0.30 U	UG/L
M+P-XYLENE	1.2	1.2 U	UG/L
O-XYLENE	0.84	0.84 U	UG/L

SURROGATE RECOVERIES

BROMOCHLOROMETHANE

CHLOROFLUOROBENZENE

CHLOROFLUOROBENZENE (PID)

QC LIMITS

(60 - 138)

(60 - 121)

(60 - 128)

77

66

99

%

%

%



VOLATILE ORGANICS
METHOD 601/602 SPECIAL LIST
Reported: 11/10/95

Conestoga Rovers & Associates

Project Reference: 601/602 SPECIAL DL 3 DAY TAT PROJECT 2326

Client Sample ID : TRIP BLANK

Date Sampled : 11/03/95 GTC Order # : 43141 Sample Matrix:WATER
Date Received: 11/04/95 Submission #: 9510000061 Analytical Run: 4782

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 11/07/95			
ANALYTICAL DILUTION: 1.0			
BENZENE	1.0	1.0 U	UG/L
1,2-DICHLOROETHANE	0.80	0.80 U	UG/L
1,1-DICHLOROETHENE	0.65	0.65 U	UG/L
CIS-1,2-DICHLOROETHENE	0.63	0.63 U	UG/L
TRANS-1,2-DICHLOROETHENE	0.66	0.66 U	UG/L
ETHYLBENZENE	1.0	1.0 U	UG/L
TOLUENE	1.0	1.0 U	UG/L
1,1,2-TRICHLOROETHANE	0.71	0.71 U	UG/L
TRICHLOROETHENE	0.55	0.55 U	UG/L
VINYL CHLORIDE	0.30	0.30 U	UG/L
M+P-XYLENE	1.2	1.2 U	UG/L
O-XYLENE	0.84	0.84 U	UG/L

SURROGATE RECOVERIES	QC LIMITS		
BROMOCHLOROMETHANE	(60 - 138)	78	%
CHLOROFLUOROBENZENE	(60 - 121)	66	%
CHLOROFLUOROBENZENE (PID)	(60 - 128)	100	%

Project Reference:
Client Sample ID : METHOD BLANK

Date Sampled : GTC Order # : 50247 Sample Matrix: WATER
Date Received: Submission #: Analytical Run: 4782

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 11/06/95			
ANALYTICAL DILUTION: 1.0			
BENZENE	1.0	1.0 U	UG/L
1,2-DICHLOROETHANE	0.80	0.80 U	UG/L
1,1-DICHLOROETHENE	0.65	0.65 U	UG/L
CIS-1,2-DICHLOROETHENE	0.63	0.63 U	UG/L
TRANS-1,2-DICHLOROETHENE	0.66	0.66 U	UG/L
ETHYLBENZENE	1.0	1.0 U	UG/L
TOLUENE	1.0	1.0 U	UG/L
1,1,2-TRICHLOROETHANE	0.71	0.71 U	UG/L
TRICHLOROETHENE	0.55	0.55 U	UG/L
VINYL CHLORIDE	0.30	0.30 U	UG/L
M+P-XYLENE	1.2	1.2 U	UG/L
O-XYLENE	0.84	0.84 U	UG/L

SURROGATE RECOVERIES

QC LIMITS

BROMOCHLOROMETHANE
CHLOROFLUOROBENZENE
CHLOROFLUOROBENZENE (PID)

(60 - 138)
(60 - 121)
(60 - 128)

83
72
118

%
%

APPENDIX C

PILOT TEST OPERATING LOG

Table C-1. SVE/AS Pilot Test Schedule
Vac Air Alloys Division—Frewsburg, New York

DAY	DATE	ACTIVITIES	SAMPLES
N/A	June 28, 1995	PreTest Data Collection DO levels, LEL,CO <i>Readings</i> (complete log sheets and take groundwater elevations) Step Tests	Air - SVE-1 Air - SVE-2 Groundwater SVE-1 Groundwater SVE-2
0	August 28, 1995	Groundwater levels Constant Rate SVE Test Start 8 hr <i>Readings</i>	Air @ 8 hrs.
1	August 29, 1995	Constant Rate SVE Test 9 hr <i>Readings</i>	
2	August 30, 1995	Constant Rate SVE Test 33 hr <i>readings</i>	Air @ 33 hrs.
3	August 31, 1995	Constant Rate SVE Test 56 hr <i>readings</i>	
8	September 5, 1995	Constant Rate SVE Test Down, electrical problems (62 hrs)	
21	September 18, 1995	293 hr readings DO Readings Constant Rate SVE Test End Start SVE/AS Test 8 hr. <i>readings</i> , DO	Air @ 293 hrs. Groundwater Air @ 8 hrs. (AS)
22	September 19, 1995	Constant Rate SVE/AS Test 21 hr. <i>readings</i> , DO	Air @ 21 hrs.
23	September 20, 1995	Constant Rate SVE/AS Test 45 hr <i>readings</i> , DO	
24	September 21, 1995	Constant Rate SVE/AS Test 70 hr. <i>readings</i> , DO	
28	September 25, 1995	Constant Rate SVE/AS Test 166 hr. <i>readings</i> , DO	Groundwater
35	October 2, 1995	Constant Rate SVE/AS Test 332 hr. <i>readings</i> , DO	Air @ 332 hrs.
43	October 10, 1995	Constant Rate SVE/AS Test 523 hr. <i>readings</i> , DO Repeat Step Tests-SVE-1	Air @ 523 hrs. Groundwater Storage tank
50	October 17, 1995	Resample	Groundwater Storage tank
59	October 26, 1995	Setup air sparge in Storage tank to further treat VOCs	
67	November 3, 1995	Resample storage tank	Storage tank

TABLE C-2

PRETEST DATA COLLECTION - JUNE 29, 1995
 VACAIR SVE PILOT TEST
 FREWSBURG, NEW YORK

Well/Probe ID:	SVE-1	SVE-2	PZ-1	MW-2	VP-15	VP-25	VP-40
Organic Vapors, % (1)	>1.0	0.12	>1.0	>1.0	>1.0	0.58	>1.0
O ₂ , %	6.1	19.7					
CO, ppm	"OVER"	434					

Notes:

- (1) As measured by a flame ionization detector, Forboro OVA Model 108.
 "OVER" Display on Passport Model 32102.

TABLE C-3

PILOT TEST DATA COLLECTION LOG

SOIL VAPOR EXTRACTION AND AIR SPARGING

VACAIR ALLOYS DIVISION-FREWSBURG, NEW YORK

VACUUM PROBE IS DIVISION/INSTRUMENTS, NEW YORK																			
Date	Time	Ambient Temp (Deg. F)	SVE System			Frac TK (ft.)	SVE Blower Discharge			Air Sparge		Bar Press (in. Hg)	Vacuum Probes - Inches Water						
			Flow (SCFM)	Vac (in. Hg)	Hours		Press (in. H2O)	Temp (Deg. F)	%O2	VOCs (1) (ppm)	Press (in. Hg)		Flow (SCFM)	8'	15'	10'	25'	40'	
8/28/95	10:05	75	12	12	1603.17	-	5	96	-	-	-	-	SVE-2 0.90	VP-15 0	PZ-1 1.8	VP-25 0	VP-40 0		
8/28/95	10:48	75	12.2	13.5	1603.83	-	5	124	16.0	Flame Out	-	-	1.0	Press	1.9	P	0		
8/28/95	14:05	75	12.8	12.8	1607.01	-	6	140	15.4	Flame Out	-	-	1.2	Press	2.0	0.1	0.1		
8/28/95	16:05	75	13.5	12	1609.04	-	7	137	15.5	Flame Out	-	-	1.0	0.055	2.5	0.2	0.18		
8/28/95	18:05	79	13.3	12	1610.84	-	7	136	15.5	Flame Out	-	-	0.88	0.125	3.0	0.17	0.15		
8/29/95	11:45	77	13	12	1612.24	-	6	131	14.8	>1000	-	-	2.0	0.10	2.5	-	-		
8/30/95	11:45	73	14.5	11.5	1636.13	0.30	7	141	15.6	>1000	-	-	3.5	0.14	3.9	0.17	0.10		
8/31/95	11:00	63	14.0	11.0	1659.22	0.45	6	128	15.9	>1000	-	-	3.0	0.17	3.8	0.25	0.05		
9/5/95	09:20	-	-	-	1665.36	-	-	-	-	-	-	-	-	-	-	-	-		
9/6/95	12:40	79	14.0	10.2	1688.68	0.45	7	130	14.8	>1000	-	-	3.5	0.12	4.0	0.30	0.06		
9/18/95	11:15	58	14.2	10	1895.69	1.4	5	111	-	>1000	-	-	4.0	0.25	4.0	0.35	0.155		
9/18/95	13:30	63	14.5	10	1896.35	1.4	5	110	-	>1000	22	6	30.50	0.21	3.8	0.25	0.115		
9/18/95	21:30	42	14.5	13	1904.31	1.5	6	100	-	>1000	22	6	30.50	0.21	3.8	0.25	0.115		
9/19/95	10:00	47	14.5	10	1916.54	1.5	8	112	14.9	>1000	20	6	30.60	0.11	3.8	0.25	0.04		
9/20/95	10:10	64	14.5	11	1940.54	1.5	6	120	15.1	>1000	17	6	30.35	0.22	3.8	0.25	0.07		
9/21/95	11:50	67	14.5	10	1960.11	1.6	8	112	15.1	>1000	17	6	30.45	0.20	3.8	0.25	0.05		
9/25/95	11:30	57	15	11	2061.53	1.6	6	100	14.8	>1000	15	6	29.30	0.25	3.8	0.25	0.05		
10/2/95	12:00	71	14.5	10	2228.12	3.0	6	122	14.8	>1000	12	6	29.20	0.15	4.0	0.25	0.09		
10/10/95	11:00	65	14.5	11	2418.68	3.42	6	124	14.8	>1000	12	6	29.45	0.25	4.2	0.26	0.11		

(1) Organic vapors as measured by a flame ionization detector in ppm meter units.

Horizontal Tank Capacity Chart

TANK I.D.: Vac Air SVE/AS Pilot Test Fract Tank

PROJECT NAME: Vac Air

PROJECT No.: 2326-00

DIAMETER, in: 96

LENGTH, in: 384

CAPACITY, gal: 12,033.2

8.00 ft.

32.00 ft.

1,608.5 cubic ft.

CALCULATE SPECIFIC VOLUME

INCHES: 0

GALLONS: 0.00

INCHES	GALLONS	INCHES	GALLONS	INCHES	GALLONS
1	21.7	49	6,176.2	97	
2	61.0	50	6,335.7	98	
3	111.8	51	6,495.0	99	
4	171.6	52	6,654.2	100	
5	239.0	53	6,813.1	101	
6	313.1	54	6,971.6	102	
7	393.3	55	7,129.8	103	
8	478.9	56	7,287.4	104	
9	569.6	57	7,444.5	105	
10	664.9	58	7,600.9	106	
11	764.5	59	7,756.6	107	
12	868.2	60	7,911.6	108	
13	975.6	61	8,065.7	109	
14	1,086.5	62	8,218.8	110	
15	1,200.8	63	8,370.9	111	
16	1,318.2	64	8,522.0	112	
17	1,438.7	65	8,671.8	113	
18	1,561.9	66	8,820.5	114	
19	1,687.8	67	8,967.7	115	
20	1,816.2	68	9,113.5	116	
21	1,947.0	69	9,257.8	117	
22	2,080.1	70	9,400.5	118	
23	2,215.3	71	9,541.5	119	
24	2,352.5	72	9,680.7	120	
25	2,491.7	73	9,817.9	121	
26	2,632.6	74	9,953.1	122	
27	2,775.3	75	10,086.2	123	
28	2,919.6	76	10,217.0	124	
29	3,065.4	77	10,345.4	125	
30	3,212.7	78	10,471.3	126	
31	3,361.3	79	10,594.5	127	
32	3,511.2	80	10,714.9	128	
33	3,662.2	81	10,832.3	129	
34	3,814.3	82	10,946.6	130	
35	3,967.5	83	11,057.6	131	
36	4,121.6	84	11,165.0	132	
37	4,276.5	85	11,268.6	133	
38	4,432.3	86	11,368.2	134	
39	4,588.7	87	11,463.5	135	
40	4,745.8	88	11,554.2	136	
41	4,903.4	89	11,639.8	137	
42	5,061.5	90	11,720.0	138	
43	5,220.0	91	11,794.2	139	
44	5,378.9	92	11,861.6	140	
45	5,538.1	93	11,921.4	141	
46	5,697.5	94	11,972.1	142	
47	5,857.0	95	12,011.5	143	
48	6,016.6	96	12,033.2	144	

Date Printed: 25-Nov-95

APPENDIX D

AIR PERMEABILITY CALCULATIONS

Figure D-1: Transient Vacuum Response with 90" H₂O Vacuum at Well SVE-1
 VacAir SVE Pilot Test, July 11, 1995

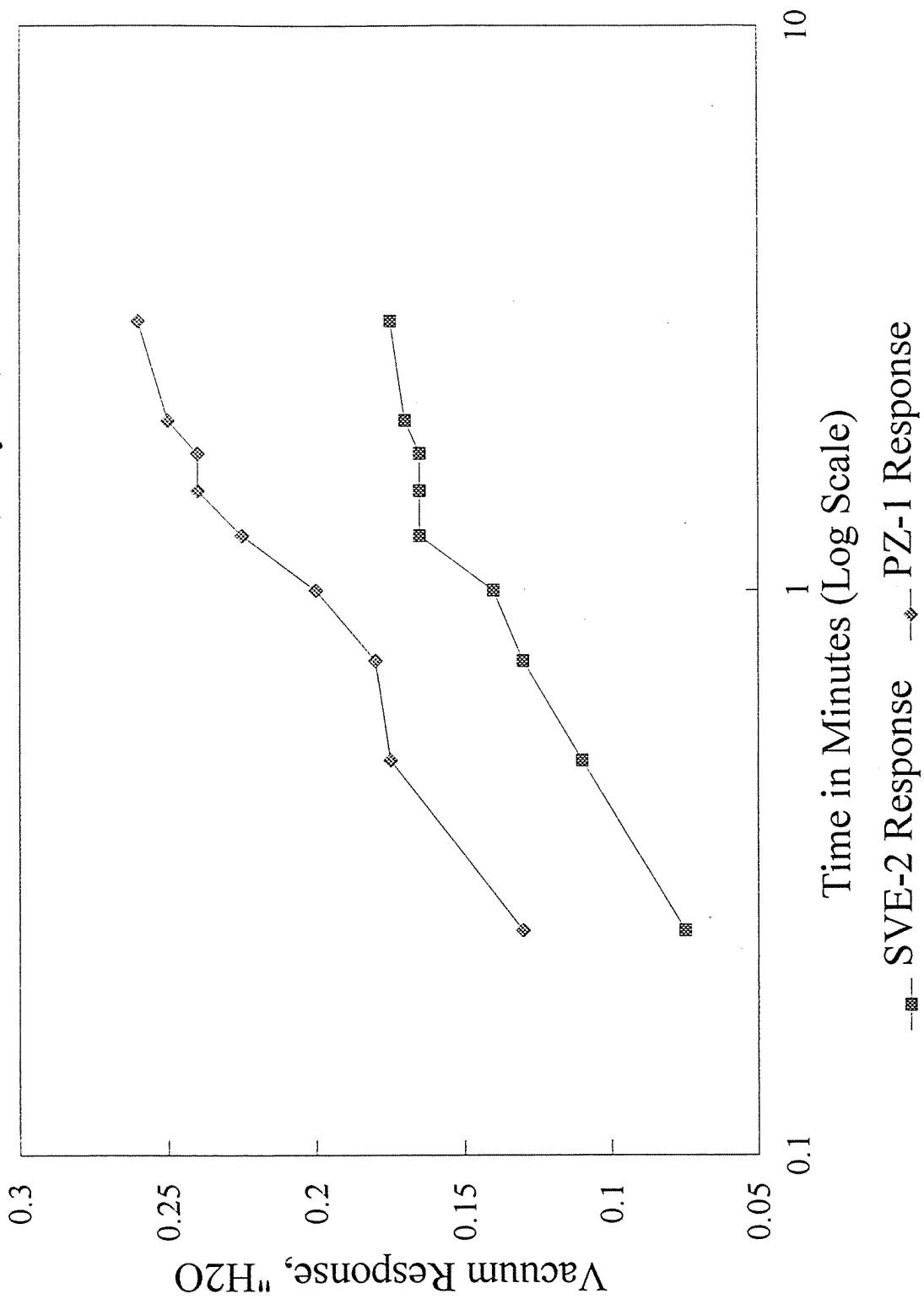


Figure D-2: Transient Pressure Response with 90" H₂O Pressure at Well SVE-1
VacAir Pilot Test, July 11, 1995

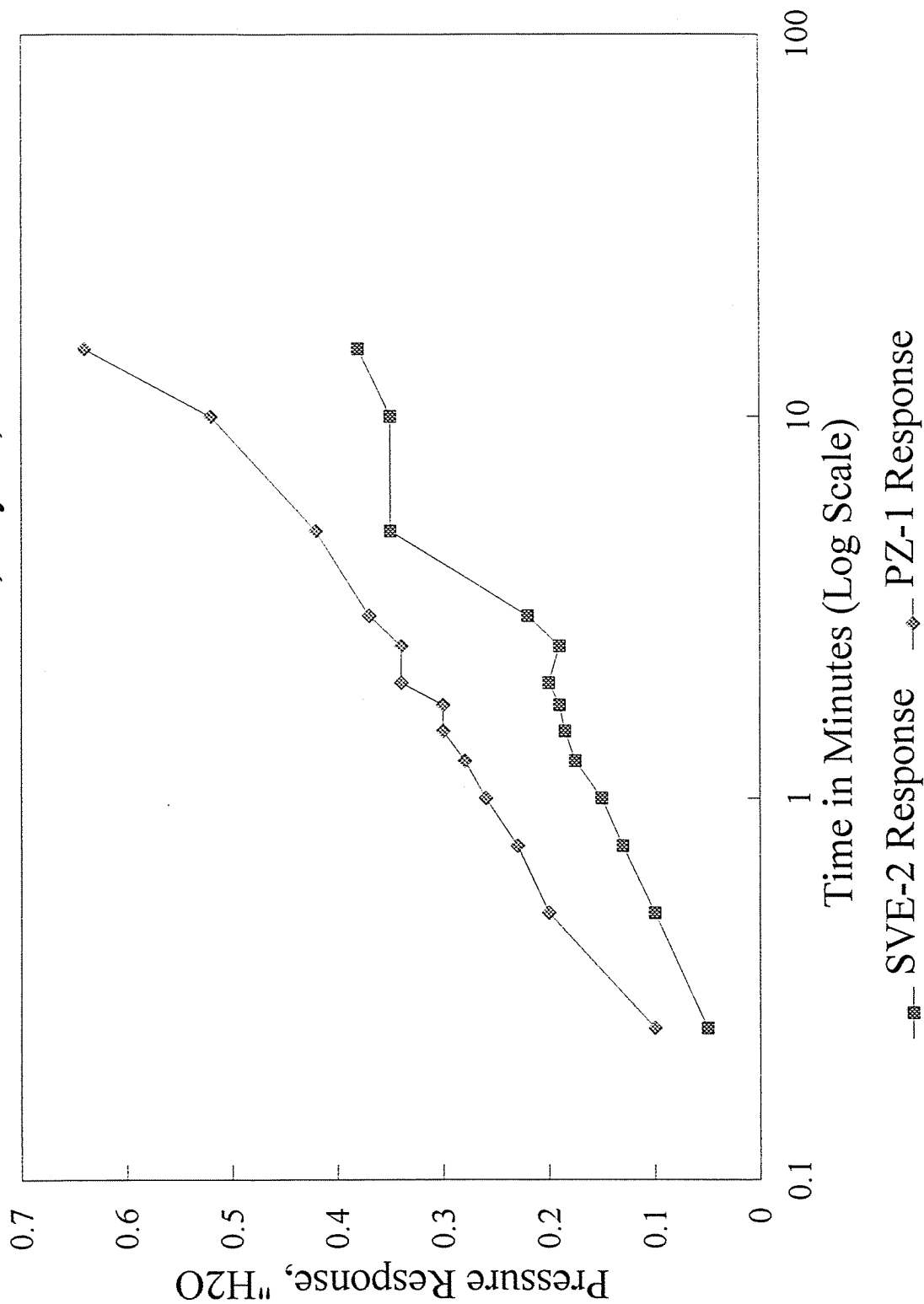


Figure D-3: Transient Pressure Response with 90" H₂O Pressure at Well SVE-2
 VacAir SVE Pilot Test, July 11, 1995

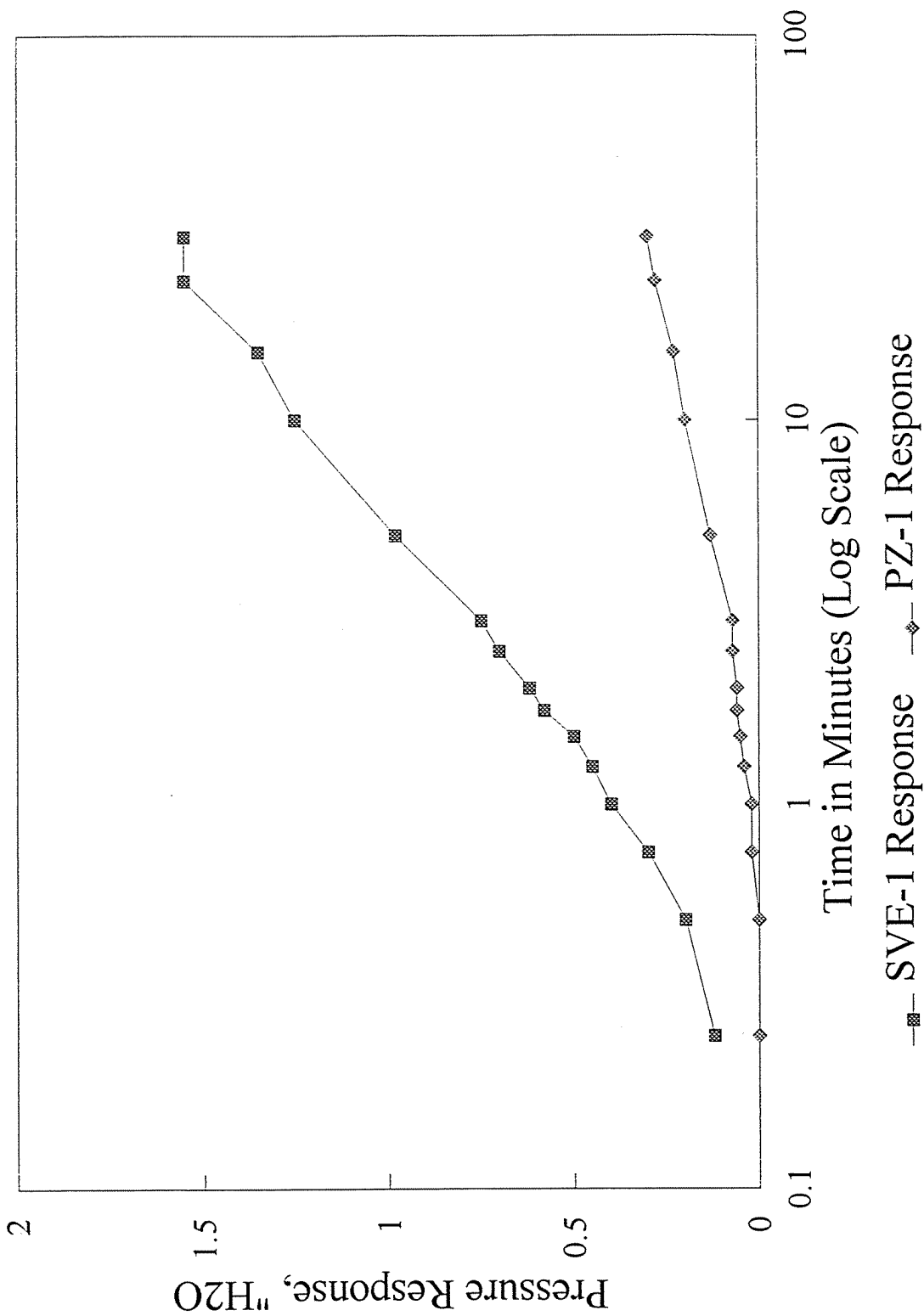


Table D-1: Calculation of Air Permeability from Transient Tests

VacAir Alloys Division
Frewsburg, New York

AIR PERMEABILITY (1), $k = Q \times u / (4 \times \pi \times m \times A)$

Note: Std. air viscosity = 0.00018 g/cm-sec.

Input Values

Graph P vs. $\ln(t)$, select two points along linear range, input below (time in seconds or minutes)

Test Date	11-Jul-95	11-Jul-95	11-Jul-95	11-Jul-95	11-Jul-95	11-Jul-95
Test Well	SVE-1	SVE-1	SVE-1	SVE-1	SVE-2	SVE-2
Test Well Vacuum (Pressure)	90"H2O	90"H2O	90"H2O	90"H2O	90"H2O	90"H2O
Response Well	SVE-2	PZ-1	SVE-2	PZ-1	SVE-1	PZ-1
Time A	0.25	0.25	0.25	0.25	0.25	0.75
Press A	0.075	0.13	0.05	0.1	0.1	0.02
Time B	2	1.5	15	10	30	30
Press B	0.17	0.24	0.38	0.52	1.55	0.3
Viscosity	0.00018	0.00018	0.00018	0.00018	0.00018	0.00018
Flow	5	5	6	6	5	5
Depth	12	12	12	12	12	12

Calculated Values

A = Slope of P vs. $\ln(t)$.

A, Units =

A, Units = g/cm-sec2

$$\text{Flow} = Q = \text{cm}^3/\text{sec}$$

depth, m = cm

viscosity = g/cm-sec

k = (sq. cm.)

$$k = \text{ (DARCY)}$$

Note (1): Johnson. P.C., M.W.Kemplowski, J.D.Colthart, D.L.Byers and C.C.Stanley.1988.

A Practical Approach to the Design, Operation and Monitoring of In-Situ Soil Venting Systems

Table D-2: Steady-State Vapor Flowrates

VacAir Alloys Division - Pilot Test

Calculation of air permeability, k, under steady-state conditions.

Equation(1) : $Q / H = \pi \times (k/u) \times P_w \times [1 - (P_{atm}/P_w) \times (P_{atm}/P_w)] / \ln(R_w/R_i)$

TestWell	Vac-SVE1	Vac-SVE1	Vac-SVE1	Vac-SVE1		
INPUTS						
Flow, cfm	12.5	12.5	13.75	14.75		
Pw,"H2OVac	81.6	122.4	142.8	163.2		
Bar.Press. "Hg	29.92	29.92	29.92	29.92		
Rw,in	1	1	1	1		
Ri, ft	20	20	20	20		
Well Screen Length	7	7	7	7		
Formation Depth, h	12	12	12	12		
Void Fraction	0.25	0.25	0.25	0.25		
Efficiency	50%	50%	50%	50%		
OUTPUTS					Geometric Average	
k, cm2	1.90E-08	1.17E-08	1.06E-08	9.45E-09	1.22E-08	cm2 = 1.22 darcy
u,g/cm-sec	0.00018	0.00018	0.00018	0.00018		
Pw,g/cm-sec2	809,962	708,343	657,534	606,724		
Patm,g/cm-sec2	1,013,200	1,013,200	1,013,200	1,013,200		
Rw,cm	2.54	2.54	2.54	2.54		
Ri, cm	609.6	609.6	609.6	609.6		
ln(Rw/Ri)	-5.48064	-5.48064	-5.48064	-5.48064		
FLOWRATE						
Q/H, cm3/sec/cm	27.65279	27.65279	30.41807	32.6303		
Q/H, cfm/ft	1.785714	1.785714	1.964286	2.107143		
Total Flow, cfm	13	13	14	15		
FLUX-Ft/min (2)						
@20%RI	0.08	0.08	0.09	0.10		
@40%RI	0.04	0.04	0.05	0.05		
@60%RI	0.03	0.03	0.03	0.03		
@80%RI	0.02	0.02	0.02	0.02		
@100%RI	0.02	0.02	0.02	0.02		
Pore Vol./Yr (2) (3)						
@20%RI	21,795	21,795	23,975	25,719		
@40%RI	5,449	5,449	5,994	6,430		
@60%RI	2,422	2,422	2,664	2,858		
@80%RI	1,362	1,362	1,498	1,607		
@100%RI	872	872	959	1,029		

Note 1) Johnson, P.C., M.W.Kemblowski,J.D.Colthart,D.L.Byers and C.C.Stanley.1988.

A Practical Approach to the Design, Operation and Monitoring of In-Situ Soil Venting Systems

2) Assumes site is sealed top and bottom.

3) Calculated as volume times efficiency divided by pore volume of cylinder with radius equal to x%RI and height h.

APPENDIX E

SVE PERFORMANCE AND DESIGN CALCULATIONS

Table E-1: Estimation of Average Soil VOC Concentrations

VacAir Alloys Division
Frewsburg, NY

NORTH SOIL REMEDIATION AREA (and Pilot Test Area)

Sample Location Year of Sample Depth, feet	PDB-3 1995 3.5-4.0	PDB-3 1995 7.5-8.0	PDB-4 1995 3.5-4.0	PDB-4 1995 7.5-8.0	PDB-5 1995 3.5-4.0	PDB-5 1995 7.5-8.0	PDB-6 1995 3.5-4.0	PDB-6 1995 7.5-8.0	TP2-A 1990 0-2	TP-1A 1990 0-6	Average
<i>Concentration, ppb</i>											
Vinyl Chloride	130	5,400	0	200	0	1,000	0	0	0	0	670
Trichloroethene	0	0	1.3	2,100	0	0	12	410	17,000,000	380,000	1,700,000
1,2-Dichloroethenes	470	51,000	2.2	4,100	0	11,000	5.5	4,600	620,000	2,400,000	310,000

CENTER SOIL REMEDIATION AREA

Sample Location Year of Sample Depth, feet	PDB-10 1995 3.5-4.0	PDB-10 1995 14-16	PDB-11 1995 3.5-4.0	PDB-11 1995 7.5-8.0	PDB-14 1995 3.5-4.0	PDB-14 1995 7.5-8.0	MW-11 1992 10-12	Average
<i>Concentration, ppb</i>								
Vinyl Chloride	0	0	0	0	8.4	0	0	1
Trichloroethene	25	55,000	350	910	700	870	85,000	20,000
1,2-Dichloroethenes	8.2	1,400	33.5	200	121.5	140	130	290

Data from October 1995 Predesign Soil Sampling Report
"ND" values have been assumed to be zero for averaging purposes

Table E-2a: SVE Performance Calculations

Pilot Test Area - Assumed Conditions

VacAir Alloys Division

Frewsburg, New York

INPUT CONDITIONS				
Contaminant	1,2-DCE	TCE	Vinyl Chloride	TOTALS/ AVERAGE
Molecular Weight	96.95	131.40	62.50	125.46
Soil ppm, initial	310	1,700	20	2030
Soil ppm, final target	0.3	0.7	0.2	1.2
Vapor ppmv, initial, or	0	0	0	0
Vapor ug/l, initial (1)	5,050	2,150	840	8040
<i>Treatment Area</i>				
Areal extent, ft2 (20' radius)	1,256	1,256	1,256	1256
Depth, ft	12	12	12	12
Soil Density, dry lb/ft3	110	110	110	110
Void Fraction	0.25	0.25	0.25	0.25
Temp, C	20	20	20	20
<i>SVE System</i>				
ROI, ft (Ri)	20	20	20	20
Air Permeability, cm2 (k)	1.22E-08	1.22E-08	1.22E-08	1.22E-08
Flow Rate, PV/day	5	5	5	5
Well Radius, in. (Rw)	1	1	1	1
% On (Blowers)	100%	100%	100%	100%
<i>Carbon Treatment</i>				
Initial Carbon Efficiency, or	0	0	0	
Correlation Constant "A" (2)	0.47567	1.02411	-0.98889	
Correlation Constant "B"	0.39061	0.29929	0.66564	
Correlation Constant "C"	-0.02554	-0.02539	0.04320	
CALCULATED				
Contaminant				
Soil Volume, ft3	15,072	15,072	15,072	15,072
Total Mass, Initial lb. [x(o)]	514.0	2818.5	33.2	3,366
Total Mass, Final lb. [x(f)]	0.5	1.2	0.3	2
Mass Removed, lb.	513.5	2817.3	32.8	3,364
Molar volume, l/mole insitu	24.1	24.1	24.1	24.1
Vapor ppmv, initial	1,302.2	409.1	336.0	2,047.3
Vapor ug/l initial insitu	5,050.0	2,150.0	840.0	8,040.0
Initial Removal Rate, lb/day (K)	5.935	2.527	0.987	9.449
<i>Treatment Estimates</i>				
Treatment Duration, days (3)				2,648
Treatment Duration, years				7.3
Initial Carbon Efficiency, % (2)	27.8	42.9	9.3	
Final Carbon Efficiency, % (2)	3.3	6.0	0.2	
Carbon, lbs, @ 1/2 initial efficiency	3,690	13,130	706	17,526
Carbon Cost @ \$2/lb	\$7,380	\$26,260	\$1,412	\$35,052
<i>SVE System Design Data</i>				
Feet of Screen, minimum				12
Wellhead Vacuum Req'd. "H2O (4)				78
Wellhead Vacuum Req'd. "Hg				5.7
Total ACFM, minimum				13
Total SCFM (0 C, 1 atm)				10
Flow per foot of screen (Q/H)				1.1

Report Date: 04-Jan-96

Notes: (1) ug/l x (25/MW) = ppmv, where 25 = l/mole @ room temperature and pressure.

(2) Based on Yaws report, Feb.95 Pollution Engineering, where
 $\log Q = A + B \log y + C (\log y)^2$; where Q = adsorption capacity(g/100g carbon)
and y = concentration, ppmv, at 25 C, 1 atm.

(3) Assumes constant ratio of soil vapor VOC concentration to soil VOC concentration for duration of treatment (i.e. ignores short-circuiting and diffusion limiting conditions)
 $t(f) = [\ln x(o) - \ln x(f)] * x(o) / K$
Where: t(f) = time, in days, to reach x(f) mass remaining

(4) Johnson, P.C., M.W.Kemblowski, J.D.Colthart, D.L.Byers and C.C.Stanley. 1988.
A Practical Approach to the Design, Operation and Monitoring of In-Situ Soil Venting Systems
 $Q / H = \pi i x (k/u) x P_w x [1 - (P_{atm}/P_w) x (P_{atm}/P_w)] / \ln(R_w/R_i)$
Where: P_{atm} = Atmospheric Pressure, absolute
P_w = Wellhead pressure, absolute
u = Viscosity of air (0.00018 g/cm-s)

Table E-2b: SVE Performance Calculations

Pilot Test Area - Initial Soil VOC Concentrations Doubled, Based on Assumed Conditions

VacAir Alloys Division

Frewsburg, New York

INPUT CONDITIONS				
<i>Contaminants</i>				TOTALS/ AVERAGE
Contaminant	1,2-DCE	TCE	Vinyl Chloride	
Molecular Weight	96.95	131.40	62.50	125.46
Soil ppm, initial	620	3,400	40	4,060
Soil ppm, final target	0.3	0.7	0.2	1.2
Vapor ppmv, initial, or	0	0	0	0
Vapor ug/l, initial (1)	5,050	2,150	840	8,040
<i>Treatment Area</i>				
Areal extent, ft2 (20' radius)	1,256	1,256	1,256	1,256
Depth, ft	12	12	12	12
Soil Density, dry lb/ft3	110	110	110	110
Void Fraction	0.25	0.25	0.25	0.25
Temp, C	20	20	20	20
<i>SVE System</i>				
ROI, ft (Ri)	20	20	20	20
Air Permeability, cm2 (k)	1.22E-08	1.22E-08	1.22E-08	1.22E-08
Flow Rate, PV/day	5	5	5	5
Well Radius, in. (Rw)	1	1	1	1
% On (Blowers)	100%	100%	100%	100%
<i>Carbon Treatment</i>				
Initial Carbon Efficiency, or	0	0	0	
Correlation Constant "A" (2)	0.47567	1.02411	-0.98889	
Correlation Constant "B"	0.39061	0.29929	0.66564	
Correlation Constant "C"	-0.02554	-0.02539	0.04320	
CALCULATED				
<i>Contaminant</i>				
Soil Volume, ft3	15,072	15,072	15,072	15,072
Total Mass, Initial lb. [x(o)]	1027.9	5636.9	66.3	6,731
Total Mass, Final lb. [x(f)]	0.5	1.2	0.3	2
Mass Removed, lb.	1027.4	5635.8	66.0	6,729
Molar volume, l/mole insitu	24.1	24.1	24.1	24.1
Vapor ppmv, initial	1,302.2	409.1	336.0	2,047.3
Vapor ug/l initial insitu	5,050.0	2,150.0	840.0	8,040.0
Initial Removal Rate, lb/day (K)	5.935	2.527	0.987	9.449
<i>Treatment Estimates</i>				
Treatment Duration, days (3)				5,789
Treatment Duration, years				15.9
Initial Carbon Efficiency, % (2)	27.8	42.9	9.3	
Final Carbon Efficiency, % (2)	2.5	4.7	0.1	
Carbon, lbs. @ 1/2 initial efficiency	7,383	26,266	1,419	35,068
Carbon Cost @ \$2/lb	\$14,767	\$52,531	\$2,838	\$70,136
<i>SVE System Design Data</i>				
Feet of Screen, minimum				12
Wellhead Vacuum Req'd. "H2O (4)				78
Wellhead Vacuum Req'd. "Hg				5.7
Total ACFM, minimum				13
Total SCFM (0 C, 1 atm)				10
Flow per foot of screen (Q/H)				1.1

Report Date:

04-Jan-96

Notes: (1) ug/l x (25/MW) = ppmv, where 25 = l/mole @ room temperature and pressure.

(2) Based on Yaws report, Feb.95 Pollution Engineering, where
 $\log Q = A + B \log y + C (\log y)^2$; where Q = adsorption capacity(g/100g carbon)
 and y = concentration, ppmv, at 25 C, 1 atm.

(3) Assumes constant ratio of soil vapor VOC concentration to soil VOC concentration for
 duration of treatment (i.e. ignores short-circuiting and diffusion limiting conditions)

$$t(f) = [\ln x(o) - \ln x(f)] \cdot x(o) / K$$

Where: $t(f)$ = time, in days, to reach x(f) mass remaining

(4) Johnson, P.C., M.W.Kemblowski, J.D.Colthart, D.L.Byers and C.C.Stanley.1988.
A Practical Approach to the Design, Operation and Monitoring of In-Situ Soil Venting Systems

$$Q / H = \pi i \times (k/u) \times P_w \times [1 - (P_{atm}/P_w) \times (P_{atm}/P_w)] / \ln(R_w/R_i)$$

Where: P_{atm} = Atmospheric Pressure, absolute

P_w = Wellhead pressure, absolute

u = Viscosity of air (0.00018 g/cm-s)

Table E-3: SVE Performance Calculations

North Soil Remediation Area

VacAir Alloys Division

Frewsburg, New York

INPUT CONDITIONS				
Contaminants	1,2-DCE	TCE	Vinyl Chloride	TOTALS/ AVERAGE
Contaminant				
Molecular Weight	96.95	131.40	62.50	126.11
Soil ppm, initial	310	1,700	0.7	2,011
Soil ppm, final target	0.3	0.7	0.2	1.2
Vapor ppmv, initial, or	0	0	0	0
Vapor ug/l, initial (1)	5,050	2,150	29	7,229
<i>Treatment Area</i>				
Areal extent, ft2 (140' x 170')	23,800	23,800	23,800	23,800
Depth, ft	15	15	15	15
Soil Density, dry lb/ft3	110	110	110	110
Void Fraction	0.25	0.25	0.25	0.25
Temp, C	20	20	20	20
<i>SVE System</i>				
ROI, ft (Ri)	20	20	20	20
Air Permeability, cm2 (k)	1.22E-08	1.22E-08	1.22E-08	1.22E-08
Flow Rate, PV/day	5	5	5	5
Well Radius, in. (Rw)	2	2	2	2
% On (Blowers)	100%	100%	100%	100%
<i>Carbon Treatment</i>				
Initial Carbon Efficiency, or	0	0	0	
Correlation Constant "A" (2)	0.47567	1.02411	-0.98889	
Correlation Constant "B"	0.39061	0.29929	0.66564	
Correlation Constant "C"	-0.02554	-0.02539	0.04320	
CALCULATED				
Contaminant				
Soil Volume, ft3	357,000	357,000	357,000	357,000
Total Mass, Initial lb. [x(o)]	12173.7	66759.0	27.5	78,960
Total Mass, Final lb. [x(f)]	11.8	27.5	7.9	47
Mass Removed, lb.	12161.9	66731.5	19.6	78,913
Molar volume, l/mole insitu	24.1	24.1	24.1	24.1
Vapor ppmv, initial	1,302.2	409.1	11.8	1,723.0
Vapor ug/l initial insitu	5,050.0	2,150.0	29.4	7,229.4
Initial Removal Rate, lb/day (K)	140.575	59.849	0.818	201.242
<i>Treatment Estimates</i>				
Treatment Duration, days (3)				2,913
Treatment Duration, years				8.0
Initial Carbon Efficiency, % (2)	27.8	42.9	0.6	
Final Carbon Efficiency, % (2)	3.3	6.0	0.2	
Carbon, lbs, @ 1/2 initial efficiency	87,399	311,004	6,621	405,024
Carbon Cost @ \$2/lb	\$174,798	\$622,008	\$13,243	\$810,048
<i>SVE System Design Data</i>				
Feet of Screen, minimum				284
Wellhead Vacuum Req'd. "H2O (4)				69
Wellhead Vacuum Req'd. "Hg				5.1
Total ACFM, minimum				310
Total SCFM (0 C, 1 atm)				240
Flow per foot of screen (Q/H)				1.1

Report Date: 04-Jan-96

Notes: (1) ug/l x (25/MW) = ppmv, where 25 = l/mole @ room temperature and pressure.

(2) Based on Yaws report, Feb.95 Pollution Engineering, where
 $\log Q = A + B \log y + C (\log y)^2$; where Q = adsorption capacity(g/100g carbon)
 and y = concentration, ppmv, at 25 C, 1 atm.

(3) Assumes constant ratio of soil vapor VOC concentration to soil VOC concentration for
 duration of treatment (i.e. ignores short-circuiting and diffusion limiting conditions)
 $t(f) = [\ln x(o) - \ln x(f)] * x(o) / K$
 Where: t(f) = time, in days, to reach x(f) mass remaining

(4) Johnson, P.C., M.W.Kemblowski, J.D.Colthart, D.L.Byers and C.C.Stanley.1988.
A Practical Approach to the Design, Operation and Monitoring of In-Situ Soil Venting Systems
 $Q / H = \pi \times (k/u) \times P_w \times [1 - (P_{atm}/P_w) \times (P_{atm}/P_w)] / \ln(R_w/R_i)$
 Where: P_{atm} = Atmospheric Pressure, absolute
 P_w = Wellhead pressure, absolute
 u = Viscosity of air (0.00018 g/cm-s)

Table E-4: SVE Performance Calculations

Center Soil Remediation Area

VacAir Alloys Division

Frewsburg, New York

INPUT CONDITIONS				
<i>Contaminants</i>				TOTALS/ AVERAGE
Contaminant	1,2-DCE	TCE	Vinyl Chloride	
Molecular Weight	96.95	131.40	62.50	131.51
Soil ppm, initial	0.3	20	0.200	21
Soil ppm, final target	0.3	0.7	0.2	1.2
Vapor ppmv, initial, or	0	0	0	0
Vapor ug/l, initial (1)	5	25	8	39
<i>Treatment Area</i>				
Areal extent, ft2 (80' x 85')	6,800	6,800	6,800	6,800
Depth, ft	18	18	18	18
Soil Density, dry lb/ft3	110	110	110	110
Void Fraction	0.25	0.25	0.25	0.25
Temp, C	20	20	20	20
<i>SVE System</i>				
ROI, ft (Ri)	20	20	20	20
Air Permeability, cm2 (k)	1.22E-08	1.22E-08	1.22E-08	1.22E-08
Flow Rate, PV/day	5	5	5	5
Well Radius, in. (Rw)	2	2	2	2
% On (Blowers)	100%	100%	100%	100%
<i>Carbon Treatment</i>				
Initial Carbon Efficiency, or	0	0	0	
Correlation Constant "A" (2)	0.47567	1.02411	-0.98889	
Correlation Constant "B"	0.39061	0.29929	0.66564	
Correlation Constant "C"	-0.02554	-0.02539	0.04320	
CALCULATED				
<i>Contaminant</i>				
Soil Volume, ft3	122,400	122,400	122,400	122,400
Total Mass, Initial lb. [x(o)]	4.0	269.3	2.7	276
Total Mass, Final lb. [x(f)]	4.0	9.4	2.7	16
Mass Removed, lb.	0.0	259.9	0.0	260
Molar volume, l/mole insitu	24.1	24.1	24.1	24.1
Vapor ppmv, initial	1.3	4.8	3.4	9.4
Vapor ug/l initial insitu	4.9	25.3	8.4	38.6
Initial Removal Rate, lb/day (K)	0.047	0.241	0.080	0.368
<i>Treatment Estimates</i>				
Treatment Duration, days (3)				2,127
Treatment Duration, years				5.8
Initial Carbon Efficiency, % (2)	3.3	16.5	0.2	
Final Carbon Efficiency, % (2)	3.3	6.0	0.2	
Carbon, lbs. @ 1/2 initial efficiency	0	3,157	0	3,157
Carbon Cost @ \$2/lb	\$0	\$6,314	\$0	\$6,314
<i>SVE System Design Data</i>				
Feet of Screen, minimum				97
Wellhead Vacuum Req'd. "H2O (4)				69
Wellhead Vacuum Req'd. "Hg				5.1
Total ACFM, minimum				106
Total SCFM (0 C, 1 atm)				82
Flow per foot of screen (Q/H)				1.1

Report Date: 04-Jan-96

Notes: (1) $\text{ug/l} \times (25/\text{MW}) = \text{ppmv}$, where 25 = l/mole @ room temperature and pressure.

- (2) Based on Yaws report, Feb.95 Pollution Engineering, where
 $\log Q = A + B \log y + C (\log y)^2$; where Q = adsorption capacity(g/100g carbon)
and y = concentration, ppmv, at 25 C, 1 atm.
- (3) Assumes constant ratio of soil vapor VOC concentration to soil VOC concentration for
duration of treatment (i.e. ignores short-circuiting and diffusion limiting conditions)
 $t(f) = [\ln x(o) - \ln x(f)] \times x(o) / K$
Where: $t(f)$ = time, in days, to reach x(f) mass remaining
- (4) Johnson, P.C., M.W.Kemblowski, J.D.Colthart, D.L.Byers and C.C.Stanley.1988.
A Practical Approach to the Design, Operation and Monitoring of In-Situ Soil Venting Systems
 $Q/H = \pi \times (k/u) \times P_w \times [1 - (P_{atm}/P_w) \times (P_{atm}/P_w)] / \ln(R_w/R_i)$
Where:
 P_{atm} = Atmospheric Pressure, absolute
 P_w = Wellhead pressure, absolute
 u = Viscosity of air (0.00018 g/cm-s)

APPENDIX F

LABORATORY REPORTS - GROUNDWATER ANALYSES

General Testing Corporation



A FULL SERVICE ENVIRONMENTAL LABORATORY

July 13, 1995

Mr. Paul McMahon
Conestoga Rovers & Associates
2055 Niagara Falls Blvd.
Niagara Falls, NY 14304

RE: PROJECT #2326
Submission #:9506000536

Dear Mr. McMahon

Enclosed are the analytical results of the analyses requested. All data has been reviewed prior to report submission. Should you have any questions please contact me at 454-3760.

Thank you for letting us provide this service.

Sincerely,

GENERAL TESTING CORPORATION

Karen Bunker/CG

Karen Bunker
Client Service Representative

Enc.

This package has been reviewed by General Testing Corporation's QA Department/Laboratory Director prior to report submittal. *7/14/95*

710 Exchange Street • Rochester, NY 14608 • Tele:(716)454-3760 • Fax:(716)454-1245
85 Trinity Place • Hackensack, NJ 07601 • Tele:(201)488-5242 • Fax:(201)488-6386
435 Lawrence Bell Drive • Amherst, NY 14421 • Tele:(716)634-0454 • Fax:(716)634-9019



A Full Service Environmental Laboratory

Effective 05/09/95

GTC LIST OF QUALIFIERS

(The basis of this proposal are the EPA-CLP Qualifiers)

- U - Indicates compound was analyzed for but was not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.
- J - Indicates an estimated value. For further explanation see case narrative / cover letter.
- B - This flag is used when the analyte is found in the associated blank as well as in the sample.
- E - This flag identifies compounds whose concentrations exceed the calibration range.
- A - This flag indicates that a TIC is a suspected aldol-condensation product.
- N - Spiked sample recovery not within control limits.
(Flag the entire batch - Inorganic analysis only)
- * - Duplicate analysis not within control limits.
(Flag the entire batch - Inorganic analysis only)
 - Also used to qualify Organics QC data outside limits.
- D - Spike diluted out.
- S - Reported value determined by Method of Standard Additions. (MSA)
- X - As specified in the case narrative.

GTC Lab ID # for State Certifications

NY ID # in Rochester: 10145
NY ID # in Hackensack: 10801
NY ID # in Massachusetts: M-NY032

NJ ID # in Rochester: 73331
NJ ID # in Hackensack: 02317



VOLATILE ORGANICS
METHOD 8260 SPECIAL LIST
Reported: 07/13/95

Conestoga Rovers & Associates
Project Reference: PROJECT #2326
Client Sample ID : SVE-2

Date Sampled : 06/28/95 GTC Order # : 23912 Sample Matrix: WATER
Date Received: 06/30/95 Submission #: 9506000536 Analytical Run: 1925

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED	: 07/11/95		
ANALYTICAL DILUTION:	2500.0		
BENZENE	5.0	13000 U	UG/L
1,1-DICHLOROETHANE	5.0	13000 U	UG/L
1,2-DICHLOROETHANE	5.0	13000 U	UG/L
1,1-DICHLOROETHENE	5.0	13000 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	400000	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	13000 U	UG/L
ETHYLBENZENE	5.0	13000 U	UG/L
TETRACHLOROETHENE	5.0	13000 U	UG/L
TOLUENE	5.0	13000 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	13000 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	13000 U	UG/L
TRICHLOROETHENE	5.0	93000	UG/L
VINYL CHLORIDE	5.0	41000	UG/L
-XYLENE	5.0	13000 U	UG/L
M+P-XYLENE	5.0	13000 U	UG/L

SURROGATE RECOVERIES	QC LIMITS		
4-BROMOFLUOROBENZENE	(86 - 115)	96	%
TOLUENE-D8	(88 - 110)	99	%
DIBROMOFLUOROMETHANE	(86 - 118)	97	%



VOLATILE ORGANICS
METHOD 8260 SPECIAL LIST
Reported: 07/13/95

Conestoga Rovers & Associates
Project Reference: PROJECT #2326
Client Sample ID : SVE-1

Date Sampled : 06/28/95 GTC Order # : 23913 Sample Matrix: WATER
Date Received: 06/30/95 Submission #: 9506000536 Analytical Run: 1925

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 07/12/95			
ANALYTICAL DILUTION: 2500.0			
BENZENE	5.0	13000 U	UG/L
1,1-DICHLOROETHANE	5.0	13000 U	UG/L
1,2-DICHLOROETHANE	5.0	13000 U	UG/L
1,1-DICHLOROETHENE	5.0	13000 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	460000	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	13000 U	UG/L
ETHYLBENZENE	5.0	13000 U	UG/L
TETRACHLOROETHENE	5.0	13000 U	UG/L
TOLUENE	5.0	13000 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	13000 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	13000 U	UG/L
TRICHLOROETHENE	5.0	280000	UG/L
VINYL CHLORIDE	5.0	30000	UG/L
O-XYLENE	5.0	13000 U	UG/L
M+P-XYLENE	5.0	13000 U	UG/L

SURROGATE RECOVERIES

QC LIMITS

4-BROMOFLUOROBENZENE	(86 - 115)	100	%
TOLUENE-D8	(88 - 110)	100	%
DIBROMOFLUOROMETHANE	(86 - 118)	98	%

Conestoga Rovers & Associates
Project Reference: PROJECT #2326
Client Sample ID : MW-2

VOLATILE ORGANICS
METHOD 8260 SPECIAL LIST
Reported: 07/13/95

Date Sampled : 06/28/95 GTC Order # : 23914 Sample Matrix: WATER
Date Received: 06/30/95 Submission #: 9506000536 Analytical Run: 1925

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 07/12/95			
ANALYTICAL DILUTION: 2500.0			
BENZENE	5.0	13000 U	UG/L
1,1-DICHLOROETHANE	5.0	13000 U	UG/L
1,2-DICHLOROETHANE	5.0	13000 U	UG/L
1,1-DICHLOROETHENE	5.0	13000 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	300000	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	13000 U	UG/L
ETHYLBENZENE	5.0	13000 U	UG/L
TETRACHLOROETHENE	5.0	13000 U	UG/L
TOLUENE	5.0	13000 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	13000 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	13000 U	UG/L
TRICHLOROETHENE	5.0	21000	UG/L
VINYL CHLORIDE	5.0	23000	UG/L
O-XYLENE	5.0	13000 U	UG/L
M+P-XYLENE	5.0	13000 U	UG/L

SURROGATE RECOVERIES	QC LIMITS		
4-BROMOFLUOROBENZENE	(86 - 115)	99	%
TOLUENE-D8	(88 - 110)	100	%
DIBROMOFLUOROMETHANE	(86 - 118)	96	%



VOLATILE ORGANICS
METHOD 8260 SPECIAL LIST
Reported: 07/13/95

Conestoga Rovers & Associates
Project Reference: PROJECT #2326
Client Sample ID : TRIP BLANK

Date Sampled : 06/28/95 GTC Order # : 23915 Sample Matrix: WATER
Date Received: 06/30/95 Submission #: 9506000536 Analytical Run: 1925

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 07/10/95			
ANALYTICAL DILUTION: 1.0			
BENZENE	5.0	5.0 U	UG/L
1,1-DICHLOROETHANE	5.0	5.0 U	UG/L
1,2-DICHLOROETHANE	5.0	5.0 U	UG/L
1,1-DICHLOROETHENE	5.0	5.0 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	5.0 U	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	5.0 U	UG/L
ETHYLBENZENE	5.0	5.0 U	UG/L
TETRACHLOROETHENE	5.0	5.0 U	UG/L
TOLUENE	5.0	5.0 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	5.0 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	5.0 U	UG/L
TRICHLOROETHENE	5.0	5.0 U	UG/L
VINYL CHLORIDE	5.0	5.0 U	UG/L
O-XYLENE	5.0	5.0 U	UG/L
M+P-XYLENE	5.0	5.0 U	UG/L

SURROGATE RECOVERIES

QC LIMITS

4-BROMOFLUOROBENZENE	(86 - 115)	93	%
TOLUENE-D8	(88 - 110)	98	%
DIBROMOFLUOROMETHANE	(86 - 118)	98	%

Project Reference:
Client Sample ID : METHOD BLANK

Date Sampled : GTC Order # : 26810 Sample Matrix: WATER
Date Received: Submission #: Analytical Run: 1925

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 07/10/95			
ANALYTICAL DILUTION: 1.0			
BENZENE	5.0	5.0 U	UG/L
1,1-DICHLOROETHANE	5.0	5.0 U	UG/L
1,2-DICHLOROETHANE	5.0	5.0 U	UG/L
1,1-DICHLOROETHENE	5.0	5.0 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	5.0 U	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	5.0 U	UG/L
ETHYLBENZENE	5.0	5.0 U	UG/L
TETRACHLOROETHENE	5.0	5.0 U	UG/L
TOLUENE	5.0	5.0 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	5.0 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	5.0 U	UG/L
TRICHLOROETHENE	5.0	5.0 U	UG/L
VINYL CHLORIDE	5.0	5.0 U	UG/L
m-XYLENE	5.0	5.0 U	UG/L
m+P-XYLENE	5.0	5.0 U	UG/L

SURROGATE RECOVERIES	QC LIMITS		
4-BROMOFLUOROBENZENE	(86 - 115)	96	%
TOLUENE-D8	(88 - 110)	99	%
DIBROMOFLUOROMETHANE	(86 - 118)	98	%

Project Reference:
Client Sample ID : METHOD BLANK

Date Sampled : GTC Order # : 26816 Sample Matrix: WATER
Date Received: Submission #: Analytical Run: 1925

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 07/11/95			
ANALYTICAL DILUTION: 1.0			
BENZENE	5.0	5.0 U	UG/L
1,1-DICHLOROETHANE	5.0	5.0 U	UG/L
1,2-DICHLOROETHANE	5.0	5.0 U	UG/L
1,1-DICHLOROETHENE	5.0	5.0 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	5.0 U	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	5.0 U	UG/L
ETHYLBENZENE	5.0	5.0 U	UG/L
TETRACHLOROETHENE	5.0	5.0 U	UG/L
TOLUENE	5.0	5.0 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	5.0 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	5.0 U	UG/L
TRICHLOROETHENE	5.0	5.0 U	UG/L
VINYL CHLORIDE	5.0	5.0 U	UG/L
O-XYLENE	5.0	5.0 U	UG/L
M+P-XYLENE	5.0	5.0 U	UG/L

SURROGATE RECOVERIES	QC LIMITS		
4-BROMOFLUOROBENZENE	(86 - 115)	95	%
TOLUENE-D8	(88 - 110)	99	%
DIBROMOFLUOROMETHANE	(86 - 118)	97	%

General
Testing
Corporation

A Full Service Environmental Laboratory

October 2, 1995

Mr. Paul McMahon
Conestoga-Rovers & Associates
2055 Niagara Falls Blvd.
Niagara Falls, NY 14304

RE: Project #2326
Submission #: 9506000538

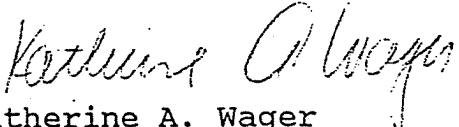
Dear Mr. McMahon:

Enclosed are the results of the analysis requested. All data has been reviewed prior to report submission. Should you have any questions, please do not hesitate to contact me at (716) 634-0454.

Thank you for allowing us to provide this service.

Sincerely,

GENERAL TESTING CORPORATION


Katherine A. Wager
Senior Project Chemist

enc.



A Full Service Environmental Laboratory

Effective 05/09/95

GTC LIST OF QUALIFIERS

(The basis of this proposal are the EPA-CLP Qualifiers)

- U - Indicates compound was analyzed for but was not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.
- J - Indicates an estimated value. For further explanation see case narrative / cover letter.
- B - This flag is used when the analyte is found in the associated blank as well as in the sample.
- E - This flag identifies compounds whose concentrations exceed the calibration range.
- A - This flag indicates that a TIC is a suspected aldol-condensation product.
- N - Spiked sample recovery not within control limits.
(Flag the entire batch - Inorganic analysis only)
- * - Duplicate analysis not within control limits.
(Flag the entire batch - Inorganic analysis only)
- Also used to qualify Organics QC data outside limits.
- D - Spike diluted out.
- S - Reported value determined by Method of Standard Additions. (MSA)
- X - As specified in the case narrative.

GTC Lab ID # for State Certifications

NY ID # in Rochester: 10145
NY ID # in Hackensack: 10801
NY ID # in Massachusetts: M-NY032

NJ ID # in Rochester: 73331
NJ ID # in Hackensack: 02317

CASE NARRATIVE

COMPANY: Conestoga-Rovers & Associates

VAC Air Pilot Test Project #2326

SUBMISSION #: 9506000538

CRA water samples were collected on 9/18/95 and received at GTC on 9/19/95 in good condition at a temperature of 4.0 C.

VOLATILE ORGANICS

Three CRA water samples were analyzed for a site specific list of volatile organics by method 8260 from SW-846.

All tuning criteria for BFB were within QC limits.

The initial calibration criteria were met for all analytes.

All continuing calibration check (CCC) criteria were met.

The surrogate standard recoveries were within acceptance limits on all samples.

All three samples were analyzed at dilutions to bring target analytes within the calibration range of the method.

All Laboratory Blanks were free of contamination.

The required holding time of 14 days was met for all samples.

No other analytical or QC problems were encountered with these analyses.



VOLATILE ORGANICS
METHOD 8260 SPECIAL LIST
Reported: 09/27/95

Conestoga Rovers & Associates
Project Reference: PROJECT #2326
Client Sample ID : SVE-2 W-091895-GB-001

Date Sampled : 09/18/95 GTC Order # : 23920 Sample Matrix:WATER
Date Received: 09/19/95 Submission #: 9506000538 Analytical Run: 3671

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 09/21/95			
ANALYTICAL DILUTION: 1000.0			
BENZENE	5.0	5000 U	UG/L
1,1-DICHLOROETHANE	5.0	5000 U	UG/L
1,2-DICHLOROETHANE	5.0	5000 U	UG/L
1,1-DICHLOROETHENE	5.0	5000 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	500000	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	5000 U	UG/L
ETHYLBENZENE	5.0	5000 U	UG/L
TETRACHLOROETHENE	5.0	5000 U	UG/L
TOLUENE	5.0	5000 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	5000 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	5000 U	UG/L
TRICHLOROETHENE	5.0	270000	UG/L
VINYL CHLORIDE	5.0	29000	UG/L
O-XYLENE	5.0	5000 U	UG/L
M+P-XYLENE	5.0	5000 U	UG/L

SURROGATE RECOVERIES

QC LIMITS

4-BROMOFLUOROBENZENE
TOLUENE-D8
DIBROMOFLUOROMETHANE

(86 - 115)
(88 - 110)
(86 - 118)

103
103
100

%
%
%



VOLATILE ORGANICS
METHOD 8260 SPECIAL LIST
Reported: 09/27/95

Conestoga Rovers & Associates
Project Reference: PROJECT #2326
Client Sample ID : SVE-1 W-091895-GB-002

Date Sampled : 09/18/95 GTC Order # : 23921 Sample Matrix:WATER
Date Received: 09/19/95 Submission #: 9506000538 Analytical Run: 3669

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 09/22/95			
ANALYTICAL DILUTION: 1000.0			
BENZENE	5.0	5000 U	UG/L
1,1-DICHLOROETHANE	5.0	5000 U	UG/L
1,2-DICHLOROETHANE	5.0	5000 U	UG/L
1,1-DICHLOROETHENE	5.0	5000 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	130000	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	5000 U	UG/L
ETHYLBENZENE	5.0	5000 U	UG/L
TETRACHLOROETHENE	5.0	5000 U	UG/L
TOLUENE	5.0	5000 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	5000 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	5000 U	UG/L
TRICHLOROETHENE	5.0	21000	UG/L
VINYL CHLORIDE	5.0	13000	UG/L
O-XYLENE	5.0	5000 U	UG/L
M+P-XYLENE	5.0	5000 U	UG/L

SURROGATE RECOVERIES

QC LIMITS

4-BROMOFLUOROBENZENE
TOLUENE-D8
DIBROMOFLUOROMETHANE

(86 - 115)
(88 - 110)
(86 - 118)

109
102
99

⊗
⊗
⊗



VOLATILE ORGANICS
METHOD 8260 SPECIAL LIST
Reported: 09/27/95

Conestoga Rovers & Associates
Project Reference: PROJECT #2326
Client Sample ID : MW-2 W-091895-GB-003

Date Sampled : 09/18/95 GTC Order # : 23922 Sample Matrix:WATER
Date Received: 09/19/95 Submission #: 9506000538 Analytical Run: 3671

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 09/21/95			
ANALYTICAL DILUTION: 2000.0			
BENZENE	5.0	10000 U	UG/L
1,1-DICHLOROETHANE	5.0	10000 U	UG/L
1,2-DICHLOROETHANE	5.0	10000 U	UG/L
1,1-DICHLOROETHENE	5.0	10000 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	340000	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	10000 U	UG/L
ETHYLBENZENE	5.0	10000 U	UG/L
TETRACHLOROETHENE	5.0	10000 U	UG/L
TOLUENE	5.0	10000 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	10000 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	10000 U	UG/L
TRICHLOROETHENE	5.0	190000	UG/L
VINYL CHLORIDE	5.0	32000	UG/L
O-XYLENE	5.0	10000 U	UG/L
M+P-XYLENE	5.0	10000 U	UG/L

SURROGATE RECOVERIES

QC LIMITS

4-BROMOFLUOROBENZENE
TOLUENE-D8
DIBROMOFLUOROMETHANE

(86 - 115)
(88 - 110)
(86 - 118)

97
95
108

%
%
%

Project Reference:

Client Sample ID : METHOD BLANK

Date Sampled :	GTC Order # : 40854	Sample Matrix: WATER
Date Received:	Submission #:	Analytical Run: 3671

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 09/21/95			
ANALYTICAL DILUTION: 1.0			
BENZENE	5.0	5.0 U	UG/L
1,1-DICHLOROETHANE	5.0	5.0 U	UG/L
1,2-DICHLOROETHANE	5.0	5.0 U	UG/L
1,1-DICHLOROETHENE	5.0	5.0 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	5.0 U	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	5.0 U	UG/L
ETHYLBENZENE	5.0	5.0 U	UG/L
TETRACHLOROETHENE	5.0	5.0 U	UG/L
TOLUENE	5.0	5.0 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	5.0 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	5.0 U	UG/L
TRICHLOROETHENE	5.0	5.0 U	UG/L
VINYL CHLORIDE	5.0	5.0 U	UG/L
O-XYLENE	5.0	5.0 U	UG/L
M+P-XYLENE	5.0	5.0 U	UG/L

SURROGATE RECOVERIES	QC LIMITS		
4-BROMOFLUOROBENZENE	(86 - 115)	94	%
TOLUENE-D8	(88 - 110)	92	%
DIBROMOFLUOROMETHANE	(86 - 118)	110	%

Project Reference:
Client Sample ID : METHOD BLANK

Date Sampled : GTC Order # : 40852 Sample Matrix: WATER
Date Received: Submission #: Analytical Run: 3669

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 09/22/95			
ANALYTICAL DILUTION: 1.0			
BENZENE	5.0	5.0 U	UG/L
1,1-DICHLOROETHANE	5.0	5.0 U	UG/L
1,2-DICHLOROETHANE	5.0	5.0 U	UG/L
1,1-DICHLOROETHENE	5.0	5.0 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	5.0 U	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	5.0 U	UG/L
ETHYLBENZENE	5.0	5.0 U	UG/L
TETRACHLOROETHENE	5.0	5.0 U	UG/L
TOLUENE	5.0	5.0 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	5.0 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	5.0 U	UG/L
TRICHLOROETHENE	5.0	5.0 U	UG/L
VINYL CHLORIDE	5.0	5.0 U	UG/L
O-XYLENE	5.0	5.0 U	UG/L
M+P-XYLENE	5.0	5.0 U	UG/L

SURROGATE RECOVERIES

QC LIMITS

4-BROMOFLUOROBENZENE	(86 - 115)	96	%
TOLUENE-D8	(88 - 110)	96	%
DIBROMOFLUOROMETHANE	(86 - 118)	114	%

GENERAL TESTING CORPORATION / CHAIN-OF-CUSTODY RECORD

710 Exchange Street 85 Trinity Place
Rochester, NY 14608 Hackensack, NJ 07601

435 Lawrence Bell Drive
Amherst, NY 14221-7077

GTC Job. No. 6-538
Client Project No. 2326

Sample Origination & Shipping Information

Collection Site WAC AIR PILOT TEST
Address FRANKS BARR NY State 100 Zip
Collector D MCLIFORD Print Signature

Bottles Prepared by _____ Rec'd by _____
Bottles Shipped to Client via Fed Ex Seal/Shipping # _____
Samples Shipped via Fed Ex Seal/Shipping # _____

Sample(s) Relinquished by:		Received by:		Date/Time
1. Sign <u>[Signature]</u>	<u>9/18/95</u>	1. Sign		<u>1 1</u>
for <u>Treat Creek CRA</u>	<u>4:30 P.</u>	for		<u>:</u>
2. Sign		2. Sign		<u>1 1</u>
for		for		<u>:</u>
3. Sign		3. Sign		<u>1 1</u>
for		for		<u>:</u>

Sample(s) Received in Laboratory by [Signature] 9/19/95 @ 6:30

	Client I.D. #	Sample Location	*	Analyte or Analyte Group(s) Required (see below for additional)	Sample Prep				Bottle Set(s) (see below)
	Lab #	Date/Time			Preserved	Y	N	Y	
1		5VE-2 W-091895-GB-001							002 2-40ML
	23920	9/18/95 : 1:05P		8260	✓			✓	
2		5VE1 W-091895-GB-002		8260	✓			✓	003 2-40ML
	23921	9/18/95 : 1:10P							
3		MW-2 W-091895-GB-003		8260	✓			✓	004 2-40ML
	23922	9/18/95 : 1:15P							
4									
		/ / :							
5									
		/ / :							

Use Bottle No. for indicating type bottles used in each bottle set and fill in box with # of bottles used for each type.

Bottle No.	1	2	3	4	5	6	7	8	9	10	11
Bottle Type	40 ml Vial	Pint Glass	Qt. Glass	4 oz. Plastic	8 oz. Plastic	16 oz. Plastic	Qt. Pl.	Gal. Pl.	Steril. Pl.		
# of each	<u>2</u>										

Additional Analytes _____

Shaded area for Lab use only; bottom copy for client; maximum of 5 samples per page.

* Source Codes: Monitoring Well (W), Soil (S), Treatment Plant (T), Drinking Water (D), Leachate (L), Hazardous Waste (H), River or Stream (R), Pond (P), Industrial Discharge (I), _____ (X), _____ (Y).

General Testing Corporation



A FULL SERVICE ENVIRONMENTAL LABORATORY

October 13, 1995

Mr. Paul McMahon
Conestoga Rovers & Associates
2055 Niagara Falls Blvd.
Niagara Falls, NY 14304

RE: PROJECT #2326
Submission #:9506000537

Dear Mr. McMahon

Enclosed are the analytical results of the analyses requested. All data has been reviewed prior to report submission. Should you have any questions please contact me at 454-3760.

Thank you for letting us provide this service.

Sincerely,

GENERAL TESTING CORPORATION

Kathy Wager /KB

Kathy Wager
Project Chemist

Enc.

This package has been reviewed by General Testing Corporation's QA Department/Laboratory Director prior to report submittal. MMR 10/16/95

710 Exchange Street • Rochester, NY 14608 • Tele:(716)454-3760 • Fax:(716)454-1245
85 Trinity Place • Hackensack, NJ 07601 • Tele:(201)488-5242 • Fax:(201)488-6386
435 Lawrence Bell Drive • Amherst, NY 14421 • Tele:(716)634-0454 • Fax:(716)634-9019

GTC LIST OF QUALIFIERS

(The basis of this proposal are the EPA-CLP Qualifiers)

- U - Indicates compound was analyzed for but was not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.
- J - Indicates an estimated value. For further explanation see case narrative / cover letter.
- B - This flag is used when the analyte is found in the associated blank as well as in the sample.
- E - This flag identifies compounds whose concentrations exceed the calibration range.
- A - This flag indicates that a TIC is a suspected aldol-condensation product.
- N - Spiked sample recovery not within control limits.
(Flag the entire batch - Inorganic analysis only)
- * - Duplicate analysis not within control limits.
(Flag the entire batch - Inorganic analysis only)
 - Also used to qualify Organics QC data outside limits.
- D - Spike diluted out.
- S - Reported value determined by Method of Standard Additions. (MSA)
- X - As specified in the case narrative.

GTC Lab ID # for State Certifications

NY ID # in Rochester: 10145
NY ID # in Hackensack: 10801
NY ID # in Massachusetts: M-NY032

NJ ID # in Rochester: 73331
NJ ID # in Hackensack: 02317



CASE NARRATIVE

COMPANY: Conestoga-Rovers & Associates

Project #5067

SUBMISSION #: 9510000049

CRA water samples were collected on 09/25/95 and received at GTC on 09/26/95 in good condition at cooler temperature of 4.6 C.

VOLATILE ORGANICS

Three CRA water samples were analyzed for a site specific list of volatile organics by method 8260 from SW-846.

All tuning criteria for BFB were within QC limits.

The initial calibration criteria were met for all analytes.

All continuing calibration check (CCC) criteria were met.

The surrogate standard recoveries were within acceptance limits on all samples.

All Laboratory Blanks were free of contamination.

The required holding time of 14 days was met for all samples.

All three samples were analyzed at dilutions to bring target analytes within the concentration range of the method.

No other analytical or QC problems were encountered with these analyses.

Conestoga Rovers & Associates
Project Reference: PROJECT #2326
Client Sample ID : SVE-1

Date Sampled : 09/25/95 GTC Order # : 23917 Sample Matrix: WATER
Date Received: 09/26/95 Submission #: 9506000537 Analytical Run: 4128

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 09/27/95			
ANALYTICAL DILUTION: 2500.0			
BENZENE	5.0	13000 U	UG/L
1,1-DICHLOROETHANE	5.0	13000 U	UG/L
1,2-DICHLOROETHANE	5.0	13000 U	UG/L
1,1-DICHLOROETHENE	5.0	13000 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	490000	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	13000 U	UG/L
ETHYLBENZENE	5.0	13000 U	UG/L
TETRACHLOROETHENE	5.0	13000 U	UG/L
TOLUENE	5.0	13000 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	13000 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	13000 U	UG/L
TRICHLOROETHENE	5.0	280000	UG/L
VINYL CHLORIDE	5.0	32000	UG/L
O-XYLENE	5.0	13000 U	UG/
M+P-XYLENE	5.0	13000 U	UG/

SURROGATE RECOVERIES

QC LIMITS

4-BROMOFLUOROBENZENE
TOLUENE-D8
DIBROMOFLUOROMETHANE

(86 - 115)
(88 - 110)
(86 - 118)

105
104
106

%
%
%



VOLATILE ORGANICS
METHOD 8260 SPECIAL LIST
Reported: 10/13/95

Conestoga Rovers & Associates
Project Reference: PROJECT #2326
Client Sample ID : MW-2

Date Sampled : 09/25/95 GTC Order # : 23918 Sample Matrix: WATER
Date Received: 09/26/95 Submission #: 9506000537 Analytical Run: 4128

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 09/27/95			
ANALYTICAL DILUTION: 1000.0			
BENZENE	5.0	5000 U	UG/L
1,1-DICHLOROETHANE	5.0	5000 U	UG/L
1,2-DICHLOROETHANE	5.0	5000 U	UG/L
1,1-DICHLOROETHENE	5.0	5000 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	160000	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	5000 U	UG/L
ETHYLBENZENE	5.0	5000 U	UG/L
TETRACHLOROETHENE	5.0	5000 U	UG/L
TOLUENE	5.0	5000 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	5000 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	5000 U	UG/L
TRICHLOROETHENE	5.0	21000	UG/L
VINYL CHLORIDE	5.0	12000	UG/L
O-XYLENE	5.0	5000 U	UG/L
M+P-XYLENE	5.0	5000 U	UG/L

SURROGATE RECOVERIES

QC LIMITS

4-BROMOFLUOROBENZENE
TOLUENE-D8
DIBROMOFLUOROMETHANE

(86 - 115)
(88 - 110)
(86 - 118)

98
102
109

%
%
%



VOLATILE ORGANICS
METHOD 8260 SPECIAL LIST
Reported: 10/13/95

Conestoga Rovers & Associates
Project Reference: PROJECT #2326
Client Sample ID : SVE-2

Date Sampled : 09/25/95 GTC Order # : 23916 Sample Matrix:WATER
Date Received: 09/26/95 Submission #: 9506000537 Analytical Run: 4128

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 09/27/95			
ANALYTICAL DILUTION: 1000.0			
BENZENE	5.0	5000 U	UG/L
1,1-DICHLOROETHANE	5.0	5000 U	UG/L
1,2-DICHLOROETHANE	5.0	5000 U	UG/L
1,1-DICHLOROETHENE	5.0	5000 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	170000	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	5000 U	UG/L
ETHYLBENZENE	5.0	5000 U	UG/L
TETRACHLOROETHENE	5.0	5000 U	UG/L
TOLUENE	5.0	5000 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	5000 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	5000 U	UG/L
TRICHLOROETHENE	5.0	89000	UG/L
VINYL CHLORIDE	5.0	5500	UG/L
O-XYLENE	5.0	5000 U	UG/
M+P-XYLENE	5.0	5000 U	UG/

SURROGATE RECOVERIES	QC LIMITS		
4-BROMOFLUOROBENZENE	(86 - 115)	105	%
TOLUENE-D8	(88 - 110)	103	%
DIBROMOFLUOROMETHANE	(86 - 118)	105	%

Project Reference:
Client Sample ID : METHOD BLANK

Date Sampled : GTC Order # : 45173 Sample Matrix: WATER
Date Received: Submission #: Analytical Run: 4128

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 09/27/95			
ANALYTICAL DILUTION: 1.0			
BENZENE	5.0	5.0 U	UG/L
1,1-DICHLOROETHANE	5.0	5.0 U	UG/L
1,2-DICHLOROETHANE	5.0	5.0 U	UG/L
1,1-DICHLOROETHENE	5.0	5.0 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	5.0 U	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	5.0 U	UG/L
ETHYLBENZENE	5.0	5.0 U	UG/L
TETRACHLOROETHENE	5.0	5.0 U	UG/L
TOLUENE	5.0	5.0 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	5.0 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	5.0 U	UG/L
TRICHLOROETHENE	5.0	5.0 U	UG/L
VINYL CHLORIDE	5.0	5.0 U	UG/L
O-XYLENE	5.0	5.0 U	UG/L
M+P-XYLENE	5.0	5.0 U	UG/L

SURROGATE RECOVERIES

QC LIMITS

4-BROMOFLUOROBENZENE
TOLUENE-D8
DIBROMOFLUOROMETHANE

(86 - 115)
(88 - 110)
(86 - 118)

92
97
110

%
%
%

GENERAL TESTING CORPORATION / CHAIN-OF-CUSTODY RECORD

710 Exchange Street 85 Trinity Place 435 Lawrence Bell Drive GTC Job. No. 9506-337
 Rochester, NY 14608 Hackensack, NJ 07601 Amherst, NY 14221-7077 Client Project No. 2326

Sample Origination & Shipping Information

Collection Site Vac Air Alloys Division
 Address Kew-Forest NY
 Collector Gregory Bank Gregory Bank
 Street City State Zip
 Print Signature

Bottles Prepared by _____ Rec'd by _____
 Bottles Shipped to Client via _____ Seal/Shipping # _____
 Samples Shipped via _____ Seal/Shipping # _____

Sample(s) Relinquished by:	Received by:	Date/Time
1. Sign <u>Gregory Bank</u>	1. Sign	1 / 1
for <u>9/25/95</u>	for	:
2. Sign	2. Sign	1 / 1
for	for	:
3. Sign	3. Sign	1 / 1
for	for	:

Sample(s) Received in Laboratory by DA Gardner 9/26/95 @ 09:30

	Client I.D. #	Sample Location	*	Analyte or Analyte Group(s) Required (see below for additional)	Sample Prep				Bottle Set(s) (see below)
	Lab #	Date/Time			Preserved	Filtered	Y	N	
1	W-092595- GB-001	SVE-2		8260	✓				002
	<u>23916</u>	<u>9/25/95 13:00</u>							<u>2 x 40ml</u>
2	W-092595- GB-002	SVE-1		8260	✓				003
	<u>23917</u>	<u>9/25/95 13:10</u>							<u>2 x 40ml</u>
3	W-092595- GB-003	MW-2		8260	✓				004
	<u>23918</u>	<u>9/25/95 13:20</u>							<u>2 x 40ml</u>
4	W-092595- GB-004	TB-Trip Blank		8260	✓				005
	<u>Hold</u>	<u>9/25/95 13:30</u>							<u>2 x 40ml</u>
5									

Use Bottle No. for indicating type bottles used in each bottle set and fill in box with # of bottles used for each type.

Bottle No.	1	2	3	4	5	6	7	8	9	10	11
Bottle Type	40 ml Vial	Pint Glass	Qt. Glass	4 oz. Plastic	8 oz. Plastic	16 oz. Plastic	Qt. Pl.	Gal. Pl.	Steril. Pl.		
# of each											

Additional Analytes _____

Shaded area for Lab use only; bottom copy for client; maximum of 5 samples per page.

* Source Codes: Monitoring Well (W), Soil (S), Treatment Plant (T), Drinking Water (D), Leachate (L), Hazardous Waste (H), River or Stream (R), Pond (P), Industrial Discharge (I), _____(X), _____(Y).

General Testing Corporation



A FULL SERVICE ENVIRONMENTAL LABORATORY

November 8, 1995

Mr. Paul McMahon
Conestoga Rovers & Associates
2055 Niagara Falls Blvd.
Niagara Falls, NY 14304

RE: PROJECT #2326 VAC AIR
Submission #:9510000250

Dear Mr. McMahon:

Enclosed are the analytical results of the analyses requested. The analytical data was provided to you on 10/20/95 per a Facsimile transmittal. All data has been reviewed prior to report submission.

Should you have any questions please contact me at 634-0454.

Thank you for letting us provide this service.

Sincerely,

GENERAL TESTING CORPORATION

Kathy Wager
Project Chemist

Enc.

This package has been reviewed by General Testing Corporation's QA Department/Laboratory Director prior to report submittal. mkp 11/2

710 Exchange Street • Rochester, NY 14608 • Tele:(716)454-3760 • Fax:(716)454-1245
85 Trinity Place • Hackensack, NJ 07601 • Tele:(201)488-5242 • Fax:(201)488-6386
435 Lawrence Bell Drive • Amherst, NY 14421 • Tele:(716)634-0454 • Fax:(716)634-9019

GTC LIST OF QUALIFIERS

(The basis of this proposal are the EPA-CLP Qualifiers)

- U - Indicates compound was analyzed for but was not detected. The sample quantitation limit must be corrected for dilution and for percent moisture.
- J - Indicates an estimated value. For further explanation see case narrative / cover letter.
- B - This flag is used when the analyte is found in the associated blank as well as in the sample.
- E - This flag identifies compounds whose concentrations exceed the calibration range.
- A - This flag indicates that a TIC is a suspected aldol-condensation product.
- N - Spiked sample recovery not within control limits.
(Flag the entire batch - Inorganic analysis only)
- * - Duplicate analysis not within control limits.
(Flag the entire batch - Inorganic analysis only)
 - Also used to qualify Organics QC data outside limits.
- D - Spike diluted out.
- S - Reported value determined by Method of Standard Additions. (MSA)
- X - As specified in the case narrative.

GTC Lab ID # for State Certifications

NY ID # in Rochester: 10145
NY ID # in Hackensack: 10801
NY ID # in Massachusetts: M-NY032

NJ ID # in Rochester: 73331
NJ ID # in Hackensack: 02317

CASE NARRATIVE

COMPANY: Conestoga-Rovers & Associates

Project #5067

SUBMISSION #: 9510000250

CRA water samples were collected on 10/16/95 and received at GTC on 10/17/95 in good condition at cooler temperature of 2.0 C. Note: These samples were originally collected on 10/10/95 but were cancelled due to the temperature of the samples upon arrival at the laboratory.

VOLATILE ORGANICS

Three CRA water samples were analyzed for a site specific list of volatile organics by method 8260 from SW-846. Sample W-101695-004 (discharge) was analyzed for a site specific list of volatiles by methods 601/602 and all results were reported to the method detection limits (MDL) instead of the PQL.

All tuning criteria for BFB were within QC limits.

The initial calibration criteria were met for all analytes.

All continuing calibration check (CCC) criteria were met.

The surrogate standard recoveries were within acceptance limits on all samples.

All Laboratory Blanks were free of contamination.

The Trip Blank was free of contamination.

The required holding time of 14 days was met for all samples.

All three samples were analyzed at dilutions for the 8260 analysis to bring target analytes within the concentration range of the method.

No other analytical or QC problems were encountered with these analyses.

Conestoga Rovers & Associates
Project Reference: PROJECT #2326 VAC AIR
Client Sample ID : W-101695-GB-001

Date Sampled : 10/17/95 GTC Order # : 45696 Sample Matrix: WATER
Date Received: 10/17/95 Submission #: 9510000250 Analytical Run: 4352

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 10/17/95			
ANALYTICAL DILUTION: 2000.0			
BENZENE	5.0	10000 U	UG/L
1,1-DICHLOROETHANE	5.0	10000 U	UG/L
1,2-DICHLOROETHANE	5.0	10000 U	UG/L
1,1-DICHLOROETHENE	5.0	10000 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	250000	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	10000 U	UG/L
ETHYLBENZENE	5.0	10000 U	UG/L
TETRACHLOROETHENE	5.0	10000 U	UG/L
TOLUENE	5.0	10000 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	10000 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	10000 U	UG/L
TRICHLOROETHENE	5.0	110000	UG/L
VINYL CHLORIDE	5.0	14000	UG/L
O-XYLENE	5.0	10000 U	UG/L
M+P-XYLENE	5.0	10000 U	UG/L

SURROGATE RECOVERIES	QC LIMITS		
4-BROMOFLUOROBENZENE	(86 - 115)	94	%
TOLUENE-D8	(88 - 110)	97	%
DIBROMOFLUOROMETHANE	(86 - 118)	99	%

Conestoga Rovers & Associates
Project Reference: PROJECT #2326 VAC AIR
Client Sample ID : W-101695-GB-002

Date Sampled : 10/17/95 GTC Order # : 45697 Sample Matrix: WATER
Date Received: 10/17/95 Submission #: 9510000250 Analytical Run: 4352

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 10/17/95			
ANALYTICAL DILUTION: 2000.0			
BENZENE	5.0	10000 U	UG/L
1,1-DICHLOROETHANE	5.0	10000 U	UG/L
1,2-DICHLOROETHANE	5.0	10000 U	UG/L
1,1-DICHLOROETHENE	5.0	10000 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	470000 E	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	10000 U	UG/L
ETHYLBENZENE	5.0	10000 U	UG/L
TETRACHLOROETHENE	5.0	10000 U	UG/L
TOLUENE	5.0	10000 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	10000 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	10000 U	UG/L
TRICHLOROETHENE	5.0	200000	UG/L
VINYL CHLORIDE	5.0	22000	UG/L
-XYLENE	5.0	10000 U	UG/L
M+P-XYLENE	5.0	10000 U	UG/L

SURROGATE RECOVERIES

QC LIMITS

4-BROMOFLUOROBENZENE	(86 - 115)	92	%
TOLUENE-D8	(88 - 110)	99	%
DIBROMOFLUOROMETHANE	(86 - 118)	101	%



VOLATILE ORGANICS
METHOD 8260 SPECIAL LIST
Reported: 11/01/95

Conestoga Rovers & Associates
Project Reference: PROJECT #2326 VAC AIR
Client Sample ID : W-101695-GB-002

Date Sampled : 10/17/95 GTC Order # : 45697 Sample Matrix: WATER
Date Received: 10/17/95 Submission #: 9510000250 Analytical Run: 4352

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 10/17/95			
ANALYTICAL DILUTION: 2500.0			
BENZENE	5.0	13000 U	UG/L
1,1-DICHLOROETHANE	5.0	13000 U	UG/L
1,2-DICHLOROETHANE	5.0	13000 U	UG/L
1,1-DICHLOROETHENE	5.0	13000 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	500000	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	13000 U	UG/L
ETHYLBENZENE	5.0	13000 U	UG/L
TETRACHLOROETHENE	5.0	13000 U	UG/L
TOLUENE	5.0	13000 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	13000 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	13000 U	UG/L
TRICHLOROETHENE	5.0	210000	UG/L
VINYL CHLORIDE	5.0	20000	UG/L
O-XYLENE	5.0	13000 U	UG/L
M+P-XYLENE	5.0	13000 U	UG/L

SURROGATE RECOVERIES	QC LIMITS		
4-BROMOFLUOROBENZENE	(86 - 115)	100	%
TOLUENE-D8	(88 - 110)	99	%
DIBROMOFLUOROMETHANE	(86 - 118)	100	%

Conestoga Rovers & Associates

Project Reference: PROJECT #2326 VAC AIR

Client Sample ID : W-101695-GB-003

Date Sampled : 10/17/95 GTC Order # : 45698 Sample Matrix: WATER

Date Received: 10/17/95 Submission #: 9510000250 Analytical Run: 4352

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED	: 10/17/95		
ANALYTICAL DILUTION:	100.0		
BENZENE	5.0	500 U	UG/L
1,1-DICHLOROETHANE	5.0	500 U	UG/L
1,2-DICHLOROETHANE	5.0	500 U	UG/L
1,1-DICHLOROETHENE	5.0	500 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	20000	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	500 U	UG/L
ETHYLBENZENE	5.0	500 U	UG/L
TETRACHLOROETHENE	5.0	500 U	UG/L
TOLUENE	5.0	500 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	500 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	500 U	UG/L
TRICHLOROETHENE	5.0	960	UG/L
VINYL CHLORIDE	5.0	4500	UG/L
XYLENE	5.0	500 U	UG/L
m-P-XYLENE	5.0	500 U	UG/L

SURROGATE RECOVERIES

QC LIMITS

4-BROMOFLUOROBENZENE	(86 - 115)	93	%
TOLUENE-D8	(88 - 110)	99	%
DIBROMOFLUOROMETHANE	(86 - 118)	100	%



Conestoga Rovers & Associates
Project Reference: PROJECT #2326 VAC AIR
Client Sample ID : W-101695-GB-003

VOLATILE ORGANICS
METHOD 8260 SPECIAL LIST
Reported: 11/01/95

Date Sampled : 10/17/95 GTC Order # : 45698 Sample Matrix: WATER
Date Received: 10/17/95 Submission #: 9510000250 Analytical Run: 4352

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 10/17/95			
ANALYTICAL DILUTION: 1000.0			
BENZENE	5.0	5000 U	UG/L
1,1-DICHLOROETHANE	5.0	5000 U	UG/L
1,2-DICHLOROETHANE	5.0	5000 U	UG/L
1,1-DICHLOROETHENE	5.0	5000 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	18000	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	5000 U	UG/L
ETHYLBENZENE	5.0	5000 U	UG/L
TETRACHLOROETHENE	5.0	5000 U	UG/L
TOLUENE	5.0	5000 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	5000 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	5000 U	UG/L
TRICHLOROETHENE	5.0	5000 U	UG/L
VINYL CHLORIDE	5.0	4600 J	UG/L
O-XYLENE	5.0	5000 U	UG/L
M+P-XYLENE	5.0	5000 U	UG/L
SURROGATE RECOVERIES		QC LIMITS	
4-BROMOFLUOROBENZENE	(86 - 115)	99	%
TOLUENE-D8	(88 - 110)	100	%
DIBROMOFLUOROMETHANE	(86 - 118)	100	%



VOLATILE ORGANICS
METHOD 601/602 SPECIAL LIST
Reported: 11/07/95

Conestoga Rovers & Associates
Project Reference: PROJECT #2326 VAC AIR
Client Sample ID : TRIP BLANK

Date Sampled : 10/17/95 GTC Order # : 50044 Sample Matrix:WATER
Date Received: 10/17/95 Submission #: 9510000250 Analytical Run: 4775

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED	11/06/95		
ANALYTICAL DILUTION:	1.0		
BENZENE	1.0	1.0 U	UG/L
1,2-DICHLOROETHANE	0.80	0.80 U	UG/L
1,1-DICHLOROETHENE	0.65	0.65 U	UG/L
CIS-1,2-DICHLOROETHENE	0.63	0.63 U	UG/L
TRANS-1,2-DICHLOROETHENE	0.66	0.66 U	UG/L
ETHYLBENZENE	1.0	1.0 U	UG/L
TOLUENE	1.0	1.0 U	UG/L
1,1,2-TRICHLOROETHANE	0.71	0.71 U	UG/L
TRICHLOROETHENE	0.55	0.55 U	UG/L
VINYL CHLORIDE	0.30	0.30 U	UG/L
M+P-XYLENE	1.2	1.2 U	UG/L
O-XYLENE	0.84	0.84 U	UG/L

SURROGATE RECOVERIES	QC LIMITS		
BROMOCHLOROMETHANE	(60 - 138)	100	%
CHLOROFLUOROBENZENE	(60 - 121)	94	%
CHLOROFLUOROBENZENE (PID)	(60 - 128)	90	%

Conestoga Rovers & Associates
Project Reference: PROJECT #2326 VAC AIR
Client Sample ID : W-101695-GB-004

Date Sampled : 10/17/95 GTC Order # : 45699 Sample Matrix:WATER
Date Received: 10/17/95 Submission #: 9510000250 Analytical Run: 4355

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 10/20/95			
ANALYTICAL DILUTION: 1.0			
BENZENE	1.0	1.0 U	UG/L
1,2-DICHLOROETHANE	0.80	0.80 U	UG/L
1,1-DICHLOROETHENE	0.65	0.65 U	UG/L
CIS-1,2-DICHLOROETHENE	0.63	120	UG/L
TRANS-1,2-DICHLOROETHENE	0.66	0.66 U	UG/L
ETHYLBENZENE	1.0	1.0 U	UG/L
TOLUENE	1.0	1.0 U	UG/L
1,1,2-TRICHLOROETHANE	0.71	0.71 U	UG/L
TRICHLOROETHENE	0.55	120	UG/L
VINYL CHLORIDE	0.30	0.30 U	UG/L
M+P-XYLENE	1.2	1.2 U	UG/L
O-XYLENE	0.84	0.84 U	UG/L

SURROGATE RECOVERIES	QC LIMITS		
BROMOCHLOROMETHANE	(60 - 138)	113	%
CHLOROFLUOROBENZENE	(60 - 121)	99	%
CHLOROFLUOROBENZENE (PID)	(60 - 128)	77	%

Project Reference:
Client Sample ID : METHOD BLANK

Date Sampled : GTC Order # : 46991 Sample Matrix: WATER
Date Received: Submission #: Analytical Run: 4352

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 10/17/95			
ANALYTICAL DILUTION: 1.0			
BENZENE	5.0	5.0 U	UG/L
1,1-DICHLOROETHANE	5.0	5.0 U	UG/L
1,2-DICHLOROETHANE	5.0	5.0 U	UG/L
1,1-DICHLOROETHENE	5.0	5.0 U	UG/L
CIS-1,2-DICHLOROETHENE	5.0	5.0 U	UG/L
TRANS-1,2-DICHLOROETHENE	5.0	5.0 U	UG/L
ETHYLBENZENE	5.0	5.0 U	UG/L
TETRACHLOROETHENE	5.0	5.0 U	UG/L
TOLUENE	5.0	5.0 U	UG/L
1,1,1-TRICHLOROETHANE	5.0	5.0 U	UG/L
1,1,2-TRICHLOROETHANE	5.0	5.0 U	UG/L
TRICHLOROETHENE	5.0	5.0 U	UG/L
VINYL CHLORIDE	5.0	5.0 U	UG/L
O-XYLENE	5.0	5.0 U	UG/L
M-P-XYLENE	5.0	5.0 U	UG/L

SURROGATE RECOVERIES

QC LIMITS

4-BROMOFLUOROBENZENE	(86 - 115)	98	%
TOLUENE-D8	(88 - 110)	98	%
DIBROMOFLUOROMETHANE	(86 - 118)	100	%

Project Reference:
Client Sample ID : METHOD BLANK

Date Sampled : GTC Order # : 47009 Sample Matrix: WATER
Date Received: Submission #: Analytical Run: 4355

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 10/19/95			
ANALYTICAL DILUTION: 1.0			
BENZENE	1.0	1.0 U	UG/L
1,2-DICHLOROETHANE	0.80	0.80 U	UG/L
1,1-DICHLOROETHENE	0.65	0.65 U	UG/L
CIS-1,2-DICHLOROETHENE	0.63	0.63 U	UG/L
TRANS-1,2-DICHLOROETHENE	0.66	0.66 U	UG/L
ETHYLBENZENE	1.0	1.0 U	UG/L
TOLUENE	1.0	1.0 U	UG/L
1,1,2-TRICHLOROETHANE	0.71	0.71 U	UG/L
TRICHLOROETHENE	0.55	0.55 U	UG/L
VINYL CHLORIDE	0.30	0.30 U	UG/L
M+P-XYLENE	1.2	1.2 U	UG/L
O-XYLENE	0.84	0.84 U	UG/L

SURROGATE RECOVERIES

BROMOCHLOROMETHANE
CHLOROFLUOROBENZENE
CHLOROFLUOROBENZENE (PID)

QC LIMITS

(60 - 138)
(60 - 121)
(60 - 128)

91
90
83

%
%
%

Project Reference:
Client Sample ID : METHOD BLANK

Date Sampled : GTC Order # : 50227 Sample Matrix: WATER
Date Received: Submission #: Analytical Run: 4775

ANALYTE	PQL	RESULT	UNITS
DATE ANALYZED : 11/06/95			
ANALYTICAL DILUTION: 1.0			
BENZENE	1.0	1.0 U	UG/L
1,2-DICHLOROETHANE	0.80	0.80 U	UG/L
1,1-DICHLOROETHENE	0.65	0.65 U	UG/L
CIS-1,2-DICHLOROETHENE	0.63	0.63 U	UG/L
TRANS-1,2-DICHLOROETHENE	0.66	0.66 U	UG/L
ETHYLBENZENE	1.0	1.0 U	UG/L
TOLUENE	1.0	1.0 U	UG/L
1,1,2-TRICHLOROETHANE	0.71	0.71 U	UG/L
TRICHLOROETHENE	0.55	0.55 U	UG/L
VINYL CHLORIDE	0.30	0.30 U	UG/L
M+P-XYLENE	1.2	1.2 U	UG/L
O-XYLENE	0.84	0.84 U	UG/L

SURROGATE RECOVERIES	QC LIMITS		
BROMOCHLOROMETHANE	(60 - 138)	93	%
CHLOROFLUOROBENZENE	(60 - 121)	86	%
CHLOROFLUOROBENZENE (PID)	(60 - 128)	92	%

10-250

CHAIN OF CUSTODY RECORD

Treatek - CRA™ COMPANY

2055 Niagara Falls Blvd. Suite Three
Niagara Falls, N.Y. 14304 (716) 297-2160

SHIPPED TO (Laboratory Name):
General Testing Corp.
710 Exchange Street
Rochester NY 14608 (716) 454-3760

REFERENCE NUMBER:

SAMPLER'S SIGNATURE: Greg Bank PRINTED NAME: Greg Bank

PARAMETERS

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	CONTAINERS	REMARKS
1	10/16/95		W-101695-CB-001	45696	2	SVE-2
2			W-101695-CB-002	45697	2	SVE-1
3			W-101695-CB-003	45698	2	MW-2
4			W-101695-CB-004	45699	2	Discharge
5			W-101695-CB-005	45700	2	Trip Blank
* Note - Sample W-101695-CB-004 (discharge) to be analyzed by 601/2						
* Note - Sample - W-101695-CB-005 (Trip Blank) only analyze if hit is found in sample W-101695-CB-004 (discharge)						
TOTAL NUMBER OF CONTAINERS						
HEALTH/CHEMICAL HAZARDS						
RELINQUISHED BY: <u>Greg Bank</u> RECEIVED BY: DATE: 10/16/95 TIME: 12:00						
RELINQUISHED BY: DATE: TIME:						
RELINQUISHED BY: DATE: TIME:						

METHOD OF SHIPMENT:

WAY BILL No.

White - Fully Executed Copy
Yellow - Receiving Laboratory Copy
Pink - Shipper Copy
Golden - Sampler Copy

SAMPLE TEAM: Greg Bank

RECEIVED FOR LABORATORY BY:

Nº NF-0008

DATE: 10/17 TIME: 08:45

CHAIN OF CUSTODY RECORD

Trecek - CRA TM COMPANY

2055 Niagara Falls Blvd. Suite Three
Niagara Falls, N.Y. 14304 (716) 297-2160

SHIPPED TO (Laboratory Name):

General Testing Corp
710 Exchange St.
Rochester NY 14608 (516) 454-3760

REFERENCE NUMBER:

SAMPLER'S SIGNATURE: [Signature] PRINTED NAME: Craig Bank

PARAMETERS

REMARKS

SEQ. No.	DATE	TIME	SAMPLE No.	SAMPLE TYPE	CONTAINER NO.	PARAMETERS	REMARKS
1	10/6/95		W-101095-GB-001	H ₂ O	2		SVE-2
2			W-101095-GB-002	H ₂ O	2		SVE-1
3			W-101095-GB-003	H ₂ O	2		MW-2
4			W-101095-GB-004	H ₂ O	2		Paper Tank
5			W-101095-GB-005	H ₂ O	2		Trip Blank
* Note - Sample W-10095-GB-004 (Fou Tank) to be analyzed by Method 601/2							
* Note - Sample W-101095-GB-005 (Trip Blank) only analyze if hit is found in sample							
W-101095-GB-004 (Fou Tank)							
As per P. McMahon resample and Vol temp of samples when received 10/12/95							

TOTAL NUMBER OF CONTAINERS

HEALTH/CHEMICAL HAZARDS

RELINQUISHED BY: <u>[Signature]</u>	DATE: 10/11/95	RECEIVED BY: <u>[Signature]</u>	DATE: 10/11/95
RELINQUISHED BY: <u>[Signature]</u>	TIME: 13100	RECEIVED BY: <u>[Signature]</u>	TIME: 13100
RELINQUISHED BY: <u>[Signature]</u>	DATE: 10/11/95	RECEIVED BY: <u>[Signature]</u>	DATE: 10/11/95
RELINQUISHED BY: <u>[Signature]</u>	TIME: 13100	RECEIVED BY: <u>[Signature]</u>	TIME: 13100
RELINQUISHED BY: <u>[Signature]</u>	DATE: 10/11/95	RECEIVED BY: <u>[Signature]</u>	DATE: 10/11/95
RELINQUISHED BY: <u>[Signature]</u>	TIME: 13100	RECEIVED BY: <u>[Signature]</u>	TIME: 13100

METHOD OF SHIPMENT:

WAY BILL No. 3333

White	-Fully Executed Copy	SAMPLE TEAM:	RECEIVED FOR LABORATORY BY:
Yellow	-Receiving Laboratory Copy	<u>Pony Oscaar</u>	
Pink	-Shipper Copy	<u>Craig Bank</u>	
Goldenrod	-Sampler Copy		

NF-0004

DATE: 10/12/95 TIME: 0930

-Feel Ex.

APPENDIX G

LABORATORY REPORTS - SOIL VAPOUR ANALYSES



VAPOR TRACE® EXPRESS SAMPLE ANALYSIS
VAC AIR SVE SITE
TREATEK - CRA COMPANY

A *Vapor Trace® Express* Mini-Canister investigation was performed at the Vac Air SVE site in Niagara Falls, New York. The samples were collected by representatives of TreaTek-CRA on June 28, 1995. The soil gas samples were analyzed for the following analyte class and compounds:

Analyte Class: Hydrocarbon

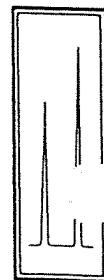
benzene, toluene, ethylbenzene, xylenes (BTEX)
total volatile hydrocarbons (TVHC)
methane

Analyte Class: Halocarbon

1,1-dichloroethene (1,1-DCE)
1,1-dichloroethane (1,1-DCA)
Total 1,2-dichloroethene (Total 1,2-DCE) 1,2-dichloroethane (1,2-DCA)
1,1,1-TCA
TCE
1,1,2-TCA
PCE
vinyl chloride

For this investigation, two vapor samples were received as well as one Quality Assurance (QA) sample. The vapor samples were reported to have been collected from a soil vapor extraction system. Samples were analyzed in the Tracer Research Corporation laboratory on July 5, 1995.

The detection limits for target compounds have been predetermined. A larger



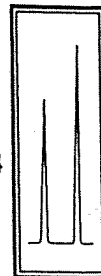
detection limit may be used in some cases if it is necessary to use a smaller than usual aliquot of sample for analysis. If a compound was not detected in an analysis, its concentration is reported as ND. The approximate detection limits for the target compounds are included with the data.

Quality Assurance samples include, but are not limited to, a daily minimum of one ambient air sample, one analytical trip blank and one field system blank. An air blank was collected for this investigation, but, no system or trip blank was received by Tracer Research.

The ambient air samples are obtained by sampling the air on site and directly injecting it into a Mini-Canister. These are taken to determine the level of background contamination. Analytical trip blanks are canisters that are sent out to the field and returned to the laboratory without having been used. These are taken to assess the potential for contamination entering the canisters as a result of handling and shipping.

Field system blanks are analyzed to check for contamination of the sampling apparatus, e.g., probe and sampling syringe. A sample is collected through the sampling equipment, but without putting the probe into the ground. The results are compared to those obtained from a concurrently sampled and analyzed ambient air sample. If the field system blanks detect compounds of interest at concentrations that exceed normal background levels (ambient air analysis), there is an indication that the sampling equipment is contaminated. This should be considered when interpreting the analytical results.

The analytical results from this *Vapor Trace® Express* Mini-Canister vapor sample investigation are attached. The data are presented by probe number as noted on the chain of custody record and by lab sample ID number. Where the compound is not detected, the concentration is reported as ND. For each sample and compound, the detection limit is reported next to the concentration.



FOR: Trea Tek-CRA Company, 20055 Niagara Falls Boulevard, Suite 3, Niagara Falls, New York 14304

SITE: Vac Air SVE

Field Collection: June 28, 1995
 Samples Recieved: June 30, 1995
 Samples Analyzed: July 5, 1995
 Data Checked: July 5, 1995
 Report Written: July 14, 1995

Tracer Job Number 5250313X

page 1 of 2

Probe # (COCR)	Sample I.D.	Compound	Concentration µg/L	Detection Limit µg/L
SVE-1	SVE-1	1,1-DCE	520	0.2
SVE-1	SVE-1	1,1-DCA	ND	7
SVE-1	SVE-1	Total 1,2-DCE	42000	4
SVE-1	SVE-1	1,2-DCA	ND	4
SVE-1	SVE-1	1,1,1-TCA	ND	0.007
SVE-1	SVE-1	TCE	36000	0.04
SVE-1	SVE-1	1,1,2-TCA	ND	0.04
SVE-1	SVE-1	PCE	2	0.005
SVE-1	SVE-1	Methane	65000	36
SVE-1	SVE-1	Vinyl Chloride	56000	2
SVE-1	SVE-1	Benzene	ND	0.2
SVE-1	SVE-1	Toluene	ND	0.6
SVE-1	SVE-1	Ethylbenzene	ND	3
SVE-1	SVE-1	Xylenes	ND	3
SVE-1	SVE-1	TVHC	190000	3
SVE-2	SVE-2	1,1-DCE	260	0.2
SVE-2	SVE-2	1,1-DCA	ND	7
SVE-2	SVE-2	Total 1,2-DCE	25000	4
SVE-2	SVE-2	1,2-DCA	ND	4
SVE-2	SVE-2	1,1,1-TCA	ND	0.007
SVE-2	SVE-2	TCE	18000	0.04
SVE-2	SVE-2	1,1,2-TCA	ND	0.04
SVE-2	SVE-2	PCE	23	0.005
SVE-2	SVE-2	Methane	200000	36
SVE-2	SVE-2	Vinyl Chloride	22000	2
SVE-2	SVE-2	Benzene	ND	0.2
SVE-2	SVE-2	Toluene	ND	0.6
SVE-2	SVE-2	Ethylbenzene	ND	3
SVE-2	SVE-2	Xylenes	ND	3
SVE-2	SVE-2	TVHC	220000	3

ND - Compound not detected, concentration is below detection limits.

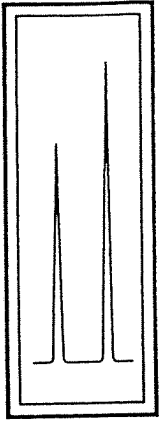


Tracer Job Number 5250313X

page 2 of 2

Probe # (COCR)	Sample I.D.	Compound	Concentration µg/L	Detection Limit µg/L
Air Blank	Air Blank	1,1-DCE	ND	0.2
Air Blank	Air Blank	1,1-DCA	ND	7
Air Blank	Air Blank	Total 1,2-DCE	ND	4
Air Blank	Air Blank	1,2-DCA	ND	4
Air Blank	Air Blank	1,1,1-TCA	0.1	0.007
Air Blank	Air Blank	TCE	1	0.04
Air Blank	Air Blank	1,1,2-TCA	ND	0.04
Air Blank	Air Blank	PCE	0.1	0.005
Air Blank	Air Blank	Methane	2	36
Air Blank	Air Blank	Vinyl Chloride	ND	3
Air Blank	Air Blank	Benzene	ND	0.2
Air Blank	Air Blank	Toluene	ND	0.6
Air Blank	Air Blank	Ethylbenzene	ND	3
Air Blank	Air Blank	Xylenes	ND	3
Air Blank	Air Blank	TVHC	ND	3

ND - Compound not detected, concentration is below detection limits.



Tracer Research Corporation

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VAPOR TRACE® EXPRESS SAMPLE ANALYSIS

VAC AIR SVE SITE

TREATEK - CRA COMPANY

A *Vapor Trace® Express* Mini-Canister investigation was performed at the Vac Air SVE site in Frewsburg, New York. The samples were collected by representatives of TreaTek-CRA on August 28 & 30, 1995. The soil gas samples were analyzed for the following analyte class and compounds:

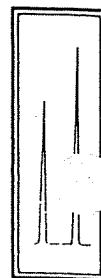
Analyte Class: Hydrocarbon

benzene, toluene, ethylbenzene, xylenes (BTEX)
total volatile hydrocarbons (TVHC)
methane

Analyte Class: Halocarbon

1,1-dichloroethene (1,1-DCE)
1,1-dichloroethane (1,1-DCA)
Total 1,2-dichloroethene (Total 1,2-DCE)
1,2-dichloroethane (1,2-DCA)
1,1,1-TCA
TCE
1,1,2-TCA
PCE
vinyl chloride

For this investigation, four vapor samples were received. The vapor samples were reported to have been collected from a soil vapor extraction system. Samples were analyzed in the Tracer Research Corporation laboratory on September 7, 1995.



The detection limits for target compounds have been predetermined. A larger detection limit may be used in some cases if it is necessary to use a smaller than usual aliquot of sample for analysis. If a compound was not detected in an analysis, its concentration is reported as ND. The approximate detection limits for the target compounds are included with the data.

Quality Assurance samples include, but are not limited to, a daily minimum of one ambient air sample, one analytical trip blank and one field system blank. No air blank, system or trip blanks were received by Tracer Research.

The ambient air samples are obtained by sampling the air on site and directly injecting it into a Mini-Canister. These are taken to determine the level of background contamination. Analytical trip blanks are canisters that are sent out to the field and returned to the laboratory without having been used. These are taken to assess the potential for contamination entering the canisters as a result of handling and shipping.

Field system blanks are analyzed to check for contamination of the sampling apparatus, e.g., probe and sampling syringe. A sample is collected through the sampling equipment, but without putting the probe into the ground. The results are compared to those obtained from a concurrently sampled and analyzed ambient air sample. If the field system blanks detect compounds of interest at concentrations that exceed normal background levels (ambient air analysis), there is an indication that the sampling equipment is contaminated. This should be considered when interpreting the analytical results.

The analytical results from this *Vapor Trace® Express* Mini-Canister vapor sample investigation are attached. The data are presented by probe number as noted on the chain of custody record and by lab sample ID number. Where the compound is not detected, the concentration is reported as ND. For each sample and compound, the detection limit is reported next to the concentration.



FOR: TreaTek-CRA Company, 2055 Niagara Falls Blvd., Ste. 3, Niagara Falls, NY 143

SITE: VAC AIR, Frewsburg, NY

Field Collection: August 28 & 30, 1995
 Samples Received: August 31, 1995
 Samples Analyzed: September 7, 1995
 Data Checked: September 7, 1995
 Report Written: September 8, 1995

Tracer Job Number 5250313X

Probe # (COCR)	Sample I.D.	Compound	Concentration µg/L	Detection Limit µg/L
001	001	1,1-DCE	81	0.075
001	001	1,1-DCA	ND	3.9
001	001	Total 1,2-DCE	10100	2.67
001	001	1,2-DCA	ND	4.67
001	001	1,1,1-TCA	0.13	0.006
001	001	TCE	6660	0.029
001	001	1,1,2-TCA	ND	0.278
001	001	PCE	3	0.019
001	001	Methane	12600	0.25
001	001	Vinyl Chloride	11000	2.272
001	001	Benzene	ND	1.428
001	001	Toluene	6	5
001	001	Ethylbenzene	ND	18.75
001	001	Xylenes	ND	18.75
001	001	TVHC	21700	18.75
002	002	1,1-DCE	ND	0.075
002	002	1,1-DCA	ND	3.9
002	002	Total 1,2-DCE	15	2.67
002	002	1,2-DCA	ND	4.67
002	002	1,1,1-TCA	0.06	0.006
002	002	TCE	23	0.029
002	002	1,1,2-TCA	ND	0.278
002	002	PCE	0.17	0.019
002	002	Methane	1	0.25
002	002	Vinyl Chloride	ND	2.272
002	002	Benzene	ND	1.428
002	002	Toluene	ND	5
002	002	Ethylbenzene	ND	18.75
002	002	Xylenes	ND	18.75
002	002	TVHC	16	18.75

ND - Compound not detected, concentration is below detection limits.



FOR: TreaTek-CRA Company, 2055 Niagara Falls Blvd., Ste. 3, Niagara Falls, NY 143

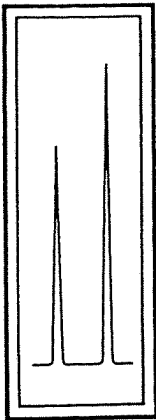
SITE: VAC AIR, Frewsburg, NY

Field Collection: August 28 & 30, 1995
Samples Received: August 31, 1995
Samples Analyzed: September 7, 1995
Data Checked: September 7, 1995
Report Written: September 8, 1995

Tracer Job Number 5250313X

Probe # (COCR)	Sample I.D.	Compound	Concentration µg/L	Detection Limit µg/L
003	003	1,1-DCE	10	0.075
003	003	1,1-DCA	ND	3.9
003	003	Total 1,2-DCE	2160	2.67
003	003	1,2-DCA	ND	4.67
003	003	1,1,1-TCA	0.08	0.006
003	003	TCE	5000	0.029
003	003	1,1,2-TCA	ND	0.278
003	003	PCE	1	0.019
003	003	Methane	380	0.25
003	003	Vinyl Chloride	240	2.272
003	003	Benzene	ND	1.428
003	003	Toluene	ND	5
003	003	Ethylbenzene	ND	18.75
003	003	Xylenes	ND	18.75
003	003	TVHC	2900	18.75
004	004	1,1-DCE	0.11	0.075
004	004	1,1-DCA	ND	3.9
004	004	Total 1,2-DCE	15	2.67
004	004	1,2-DCA	ND	4.67
004	004	1,1,1-TCA	0.06	0.006
004	004	TCE	26	0.029
004	004	1,1,2-TCA	ND	0.278
004	004	PCE	0.1	0.019
004	004	Methane	79	0.25
004	004	Vinyl Chloride	63	2.272
004	004	Benzene	ND	1.428
004	004	Toluene	ND	5
004	004	Ethylbenzene	ND	18.75
004	004	Xylenes	ND	18.75
004	004	TVHC	23	18.75

ND - Compound not detected, concentration is below detection limits.



Tracer Research Corporation

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VAPOR TRACE® EXPRESS SAMPLE ANALYSIS

VAC AIR SVE SITE

TREATEK - CRA COMPANY

A Vapor Trace® Express Mini-Canister investigation was performed at the Vac Air SVE site in Frewsburg, New York. The samples were collected by representatives of TreaTek-CRA on September 6, 1995. The soil gas samples were analyzed for the following analyte class and compounds:

Analyte Class: Hydrocarbon

benzene, toluene, ethylbenzene, xylenes (BTEX)

total volatile hydrocarbons (TVHC)

methane

Analyte Class: Halocarbon

1,1-dichloroethene (1,1-DCE)

1,1-dichloroethane (1,1-DCA)

Total 1,2-dichloroethene (Total 1,2-DCE)

1,2-dichloroethane (1,2-DCA)

1,1,1-TCA

TCE

1,1,2-TCA

PCE

vinyl chloride



For this investigation, one vapor sample was received as well as two Quality Assurance (QA) samples. The vapor sample was reported to have been collected from a soil vapor extraction system. Samples were analyzed in the Tracer Research Corporation laboratory on September 13, 1995.

The detection limits for target compounds have been predetermined. A larger detection limit may be used in some cases if it is necessary to use a smaller than usual aliquot of sample for analysis. If a compound was not detected in an analysis, its concentration is reported as ND. The approximate detection limits for the target compounds are included with the data.

Quality Assurance samples include, but are not limited to, a daily minimum of one ambient air sample, one analytical trip blank and one field system blank. An air blank and trip blank were collected for this investigation, but no system blank was received by Tracer Research.

The ambient air samples are obtained by sampling the air on site and directly injecting it into a Mini-Canister. These are taken to determine the level of background contamination. Analytical trip blanks are canisters that are sent out to the field and returned to the laboratory without having been used. These are taken to assess the potential for contamination entering the canisters as a result of handling and shipping.

The analytical results from this *Vapor Trace® Express* Mini-Canister vapor sample investigation are attached. The data are presented by probe number as noted on the chain of custody record and by lab sample ID number. Where the compound is not detected, the concentration is reported as ND. For each sample and compound, the detection limit is reported next to the concentration.

FOR: TreaTek-CRA Company, 2055 Niagara Falls Blvd., Ste. 3, Niagara Falls, NY 143

SITE: VAC AIR, Frewsburg, NY

Field Collection: September 6, 1995
 Samples Received: September 7, 1995
 Samples Analyzed: September 13, 1995
 Data Checked: September 13, 1995
 Report Written: September 14, 1995

Tracer Job Number 5250313X

Probe # (COCR)	Sample I.D.	Compound	Concentration µg/L	Detection Limit µg/L
SVE-1	SVE-1	1,1-DCE	51	0.2
SVE-1	SVE-1	1,1-DCA	ND	4.8
SVE-1	SVE-1	Total 1,2-DCE	11000	9.3
SVE-1	SVE-1	1,2-DCA	770	5.6
SVE-1	SVE-1	1,1,1-TCA	2	0.015
SVE-1	SVE-1	TCE	6400	0.053
SVE-1	SVE-1	1,1,2-TCA	ND	0.06
SVE-1	SVE-1	PCE	130	0.03
SVE-1	SVE-1	Methane	770	0.17
SVE-1	SVE-1	Vinyl Chloride	1370	1.2
SVE-1	SVE-1	Benzene	ND	2.3
SVE-1	SVE-1	Toluene	ND	9.4
SVE-1	SVE-1	Ethylbenzene	ND	38
SVE-1	SVE-1	Xylenes	ND	38
SVE-1	SVE-1	TVHC	25000	38
Air Blank	Air Blank	1,1-DCE	ND	0.2
Air Blank	Air Blank	1,1-DCA	ND	4.8
Air Blank	Air Blank	Total 1,2-DCE	26	9.3
Air Blank	Air Blank	1,2-DCA	9	5.6
Air Blank	Air Blank	1,1,1-TCA	0.06	0.015
Air Blank	Air Blank	TCE	100	0.053
Air Blank	Air Blank	1,1,2-TCA	ND	0.06
Air Blank	Air Blank	PCE	3	0.03
Air Blank	Air Blank	Methane	2	0.17
Air Blank	Air Blank	Vinyl Chloride	ND	1.2
Air Blank	Air Blank	Benzene	ND	2.3
Air Blank	Air Blank	Toluene	ND	9.4
Air Blank	Air Blank	Ethylbenzene	ND	38
Air Blank	Air Blank	Xylenes	ND	38
Air Blank	Air Blank	TVHC	42	38

ND - Compound not detected, concentration is below detection limits.



FOR: TreaTek-CRA Company, 2055 Niagara Falls Blvd., Ste. 3, Niagara Falls, NY 143

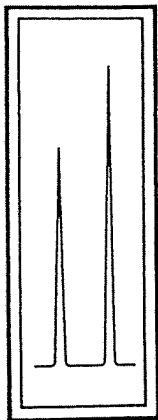
SITE: VAC AIR, Frewsburg, NY

Field Collection: September 6, 1995
Samples Received: September 7, 1995
Samples Analyzed: September 13, 1995
Data Checked: September 13, 1995
Report Written: September 14, 1995

Tracer Job Number 5250313X

Probe # (COCR)	Sample I.D.	Compound	Concentration µg/L	Detection Limit µg/L
Trip Blank	Trip Blank	1,1-DCE	ND	0.2
Trip Blank	Trip Blank	1,1-DCA	ND	4.8
Trip Blank	Trip Blank	Total 1,2-DCE	ND	9.3
Trip Blank	Trip Blank	1,2-DCA	11	5.6
Trip Blank	Trip Blank	1,1,1-TCA	0.7	0.015
Trip Blank	Trip Blank	TCE	4	0.053
Trip Blank	Trip Blank	1,1,2-TCA	ND	0.06
Trip Blank	Trip Blank	PCE	0.04	0.03
Trip Blank	Trip Blank	Methane	0.23	0.17
Trip Blank	Trip Blank	Vinyl Chloride	ND	1.2
Trip Blank	Trip Blank	Benzene	ND	2.3
Trip Blank	Trip Blank	Toluene	ND	9.4
Trip Blank	Trip Blank	Ethylbenzene	ND	38
Trip Blank	Trip Blank	Xylenes	ND	38
Trip Blank	Trip Blank	TVHC	ND	38

ND - Compound not detected, concentration is below detection limits.



Tracer Research Corporation

3755 North Business Center Drive Tucson, Arizona 85705
(602) 888-9400 Fax (602) 293-1306

VAPOR TRACE® EXPRESS SAMPLE ANALYSIS

VAC AIR SVE SITE

TREATEK - CRA COMPANY

A Vapor Trace® Express Mini-Canister investigation was performed at the Vac Air SVE site in Frewsburg, New York. The samples were collected by representatives of TreaTek-CRA on September 18 and 19, 1995. The soil gas samples were analyzed for the following analyte class and compounds:

Analyte Class: Hydrocarbon

benzene, toluene, ethylbenzene, xylenes (BTEX)
total volatile hydrocarbons (TVHC)
methane

Analyte Class: Halocarbon

1,1-dichloroethene (1,1-DCE)
1,1-dichloroethane (1,1-DCA)
Total 1,2-dichloroethene (Total 1,2-DCE)
1,2-dichloroethane (1,2-DCA)
1,1,1-TCA
TCE
1,1,2-TCA
PCE
vinyl chloride



For this investigation, three vapor samples were received as well as two Quality Assurance (QA) samples. The vapor samples were reported to have been collected from a soil vapor extraction system. Samples were analyzed in the Tracer Research Corporation laboratory on September 26, 1995.

The detection limits for target compounds have been predetermined. A larger detection limit may be used in some cases if it is necessary to use a smaller than usual aliquot of sample for analysis. If a compound was not detected in an analysis, its concentration is reported as ND. The approximate detection limits for the target compounds are included with the data.

Quality Assurance samples include, but are not limited to, a daily minimum of one ambient air sample, one analytical trip blank and one field system blank. An air blank and trip blank were collected for this investigation, but no system blank was received by Tracer Research.

The ambient air samples are obtained by sampling the air on site and directly injecting it into a Mini-Canister. These are taken to determine the level of background contamination. Analytical trip blanks are canisters that are sent out to the field and returned to the laboratory without having been used. These are taken to assess the potential for contamination entering the canisters as a result of handling and shipping.

The analytical results from this *Vapor Trace® Express* Mini-Canister vapor sample investigation are attached. The data are presented by probe number as noted on the chain of custody record and by lab sample ID number. Where the compound is not detected, the concentration is reported as ND. For each sample and compound, the detection limit is reported next to the concentration.



FOR: TreaTek-CRA Company, 2055 Niagara Falls Blvd., Ste. 3, Niagara Falls, NY 143

SITE: VAC AIR, Frewsburg, NY

Field Collection: September 18 - 19, 1995
 Samples Received: September 20, 1995
 Samples Analyzed: September 26, 1995
 Data Checked: September 26, 1995
 Report Written: September 26, 1995

Tracer Job Number 5250313X

Probe # (COCR)	Sample I.D.	Compound	Concentration µg/L	Detection Limit µg/L
SVE-1	SVE-1	1,1-DCE	27	0.08
SVE-1	SVE-1	1,1-DCA	ND	2
SVE-1	SVE-1	Total 1,2-DCE	5000	2
SVE-1	SVE-1	1,2-DCA	ND	0.002
SVE-1	SVE-1	1,1,1-TCA	0.04	0.003
SVE-1	SVE-1	TCE	2900	0.01
SVE-1	SVE-1	1,1,2-TCA	ND	0.8
SVE-1	SVE-1	PCE	1	0.006
SVE-1	SVE-1	Methane	1600	0.6
SVE-1	SVE-1	Vinyl Chloride	380	6
SVE-1	SVE-1	Benzene	ND	0.5
SVE-1	SVE-1	Toluene	ND	0.9
SVE-1	SVE-1	Ethylbenzene	3	2
SVE-1	SVE-1	Xylenes	ND	2
SVE-1	SVE-1	TVHC	1900	2
Air Blank	Air Blank	1,1-DCE	ND	0.08
Air Blank	Air Blank	1,1-DCA	ND	2
Air Blank	Air Blank	Total 1,2-DCE	ND	2
Air Blank	Air Blank	1,2-DCA	0.01	0.002
Air Blank	Air Blank	1,1,1-TCA	0.02	0.003
Air Blank	Air Blank	TCE	84	0.01
Air Blank	Air Blank	1,1,2-TCA	ND	0.8
Air Blank	Air Blank	PCE	0.02	0.006
Air Blank	Air Blank	Methane	2	0.6
Air Blank	Air Blank	Vinyl Chloride	ND	6
Air Blank	Air Blank	Benzene	ND	0.5
Air Blank	Air Blank	Toluene	ND	0.9
Air Blank	Air Blank	Ethylbenzene	ND	2
Air Blank	Air Blank	Xylenes	ND	2
Air Blank	Air Blank	TVHC	5	2

ND - Compound not detected, concentration is below detection limits.



FOR: TreaTek-CRA Company, 2055 Niagara Falls Blvd., Ste. 3, Niagara Falls, NY 143

SITE: VAC AIR, Frewsburg, NY

Field Collection: September 18 - 19, 1995
 Samples Received: September 20, 1995
 Samples Analyzed: September 26, 1995
 Data Checked: September 26, 1995
 Report Written: September 26, 1995

Tracer Job Number 5250313X

Probe # (COCR)	Sample I.D.	Compound	Concentration µg/L	Detection Limit µg/L
Trip Blank	Trip Blank	1,1-DCE	ND	0.08
Trip Blank	Trip Blank	1,1-DCA	ND	2
Trip Blank	Trip Blank	Total 1,2-DCE	ND	2
Trip Blank	Trip Blank	1,2-DCA	0.05	0.002
Trip Blank	Trip Blank	1,1,1-TCA	0.03	0.003
Trip Blank	Trip Blank	TCE	13	0.01
Trip Blank	Trip Blank	1,1,2-TCA	ND	0.8
Trip Blank	Trip Blank	PCE	0.02	0.006
Trip Blank	Trip Blank	Methane	2	0.6
Trip Blank	Trip Blank	Vinyl Chloride	ND	6
Trip Blank	Trip Blank	Benzene	ND	0.5
Trip Blank	Trip Blank	Toluene	ND	0.9
Trip Blank	Trip Blank	Ethylbenzene	ND	2
Trip Blank	Trip Blank	Xylenes	ND	2
Trip Blank	Trip Blank	TVHC	ND	2
SVE-1-047	SVE-1-047	1,1-DCE	28	0.08
SVE-1-047	SVE-1-047	1,1-DCA	ND	2
SVE-1-047	SVE-1-047	Total 1,2-DCE	5100	2
SVE-1-047	SVE-1-047	1,2-DCA	0.29	0.002
SVE-1-047	SVE-1-047	1,1,1-TCA	0.06	0.003
SVE-1-047	SVE-1-047	TCE	1400	0.01
SVE-1-047	SVE-1-047	1,1,2-TCA	ND	0.8
SVE-1-047	SVE-1-047	PCE	0.9	0.006
SVE-1-047	SVE-1-047	Methane	4900	0.6
SVE-1-047	SVE-1-047	Vinyl Chloride	1300	6
SVE-1-047	SVE-1-047	Benzene	ND	0.5
SVE-1-047	SVE-1-047	Toluene	ND	0.9
SVE-1-047	SVE-1-047	Ethylbenzene	ND	2
SVE-1-047	SVE-1-047	Xylenes	ND	2
SVE-1-047	SVE-1-047	TVHC	1900	2

ND - Compound not detected, concentration is below detection limits.



FOR: TreaTek-CRA Company, 2055 Niagara Falls Blvd., Ste. 3, Niagara Falls, NY 143

SITE: VAC AIR, Frewsburg, NY

Field Collection: September 18 - 19, 1995
Samples Received: September 20, 1995
Samples Analyzed: September 26, 1995
Data Checked: September 26, 1995
Report Written: September 26, 1995

Tracer Job Number 5250313X

Probe # (COCR)	Sample I.D.	Compound	Concentration µg/L	Detection Limit µg/L
SVE-1-042	SVE-1-042	1,1-DCE	30	0.08
SVE-1-042	SVE-1-042	1,1-DCA	ND	2
SVE-1-042	SVE-1-042	Total 1,2-DCE	5200	2
SVE-1-042	SVE-1-042	1,2-DCA	ND	0.002
SVE-1-042	SVE-1-042	1,1,1-TCA	0.02	0.003
SVE-1-042	SVE-1-042	TCE	2600	0.01
SVE-1-042	SVE-1-042	1,1,2-TCA	ND	0.8
SVE-1-042	SVE-1-042	PCE	1	0.006
SVE-1-042	SVE-1-042	Methane	3800	0.6
SVE-1-042	SVE-1-042	Vinyl Chloride	1000	6
SVE-1-042	SVE-1-042	Benzene	ND	0.5
SVE-1-042	SVE-1-042	Toluene	ND	0.9
SVE-1-042	SVE-1-042	Ethylbenzene	ND	2
SVE-1-042	SVE-1-042	Xylenes	ND	2
SVE-1-042	SVE-1-042	TVHC	1900	2

ND - Compound not detected, concentration is below detection limits.



FOR: TreaTek-CRA Company, 2055 Niagara Falls Blvd., Suite 3, Niagara Falls NY 14304

SITE: VAC AIR, Frewsburg, NY

c. toher

Field Collection: September 2, 1995
Samples Received: September 3, 1995
Samples Analyzed: September 9, 1995
Data Checked: September 9, 1995
Report Written: September 20, 1995

Tracer Job Number: 5250313X

Probe# (COCR)	Sample ID	Compound	Concentration (ug/L)	Detection Limit
TRIP	A-100295-GB-001	1,1-DCE	2	1
TRIP	A-100295-GB-001	1,1-DCA	21	2
TRIP	A-100295-GB-001	total-1,2-DCE	ND	33
TRIP	A-100295-GB-001	1,2-DCA	ND	1
TRIP	A-100295-GB-001	1,1,1-TCA	ND	0.1
TRIP	A-100295-GB-001	TCE	ND	0.1
TRIP	A-100295-GB-001	1,1,2-TCA	ND	0.1
TRIP	A-100295-GB-001	PCE	0.3	0.1
TRIP	A-100295-GB-001	Benzene	ND	1
TRIP	A-100295-GB-001	Toluene	ND	1
TRIP	A-100295-GB-001	Ethylbenzene	ND	1
TRIP	A-100295-GB-001	Xylenes	ND	1
TRIP	A-100295-GB-001	TVHC	ND	2
TRIP	A-100295-GB-001	Methane	2	1
TRIP	A-100295-GB-001	Vinyl chloride	ND	1



FOR: TreaTek-CRA Company, 2055 Niagara Falls Blvd., Suite 3, Niagara Falls NY 14304

SITE: VAC AIR, Frewsburg, NY

Field Collection: September 2, 1995
Samples Received: September 3, 1995
Samples Analyzed: September 9, 1995
Data Checked: September 9, 1995
Report Written: September 20, 1995

Tracer Job Number: 5250313X

Probe# (COCR)	Sample ID	Compound	Concentration (ug/L)	Detection Limit
AIR	A-100295-GB-002	1,1-DCE	ND	1
AIR	A-100295-GB-002	1,1-DCA	ND	2
AIR	A-100295-GB-002	total-1,2-DCE	ND	33
AIR	A-100295-GB-002	1,2-DCA	ND	1
AIR	A-100295-GB-002	1,1,1-TCA	ND	0.1
AIR	A-100295-GB-002	TCE	ND	0.1
AIR	A-100295-GB-002	1,1,2-TCA	ND	0.1
AIR	A-100295-GB-002	PCE	ND	0.1
AIR	A-100295-GB-002	Benzene	ND	1
AIR	A-100295-GB-002	Toluene	ND	1
AIR	A-100295-GB-002	Ethylbenzene	ND	1
AIR	A-100295-GB-002	Xylenes	ND	1
AIR	A-100295-GB-002	TVHC	ND	2
AIR	A-100295-GB-002	Methane	1	1
AIR	A-100295-GB-002	Vinyl chloride	ND	1



FOR: TreaTek-CRA Company, 2055 Niagara Falls Blvd., Suite 3, Niagara Falls NY 14304

SITE: VAC AIR, Frewsburg, NY

Field Collection: September 2, 1995
Samples Received: September 3, 1995
Samples Analyzed: September 9, 1995
Data Checked: September 9, 1995
Report Written: September 20, 1995

Tracer Job Number: 5250313X

Probe# (COCR)	Sample ID	Compound	Concentration (ug/L)	Detection Limit
SVE-1	A-100295-GB-003	1,1-DCE	5	1
SVE-1	A-100295-GB-003	1,1-DCA	ND	2
SVE-1	A-100295-GB-003	total-1,2-DCE	540	33
SVE-1	A-100295-GB-003	1,2-DCA	ND	1
SVE-1	A-100295-GB-003	1,1,1-TCA	ND	0.1
SVE-1	A-100295-GB-003	TCE	220	0.1
SVE-1	A-100295-GB-003	1,1,2-TCA	ND	0.1
SVE-1	A-100295-GB-003	PCE	1	0.1
SVE-1	A-100295-GB-003	Benzene	ND	1
SVE-1	A-100295-GB-003	Toluene	ND	1
SVE-1	A-100295-GB-003	Ethylbenzene	ND	1
SVE-1	A-100295-GB-003	Xylenes	ND	1
SVE-1	A-100295-GB-003	TVHC	6	2
SVE-1	A-100295-GB-003	Methane	2090	1
SVE-1	A-100295-GB-003	Vinyl chloride	260	1



FOR: TreaTek-CRA Company, 2055 Niagara Falls Blvd., Suite 3, Niagara Falls NY 14304

SITE: VAC AIR, Frewsburg, NY

Field Collection: September 10, 1995
Samples Received: September 12, 1995
Samples Analyzed: September 17-18, 1995
Data Checked: September 18, 1995
Report Written: September 23, 1995

Tracer Job Number: 5250313X.6

Probe# (COCR)	Sample ID	Compound	Concentration (ug/L)	Detection Limit (ug/L)
TRIP	A-101095-GB-001	1,1-DCE	ND	1.0
TRIP	A-101095-GB-001	1,1-DCA	ND	1.0
TRIP	A-101095-GB-001	total-1,2-DCE	ND	1.0
TRIP	A-101095-GB-001	1,2-DCA	ND	1.0
TRIP	A-101095-GB-001	1,1,1-TCA	ND	0.10
TRIP	A-101095-GB-001	TCE	ND	0.10
TRIP	A-101095-GB-001	1,1,2-TCA	ND	0.10
TRIP	A-101095-GB-001	PCE	ND	0.10
TRIP	A-101095-GB-001	Methane	3.9	1.0
TRIP	A-101095-GB-001	Vinyl chloride	2.7	1.0
TRIP	A-101095-GB-001	Benzene	ND	1.0
TRIP	A-101095-GB-001	Toluene	ND	1.0
TRIP	A-101095-GB-001	Ethylbenzene	ND	1.0
TRIP	A-101095-GB-001	Xylenes	ND	1.0
TRIP	A-101095-GB-001	TVHC	3.4	1.0



FOR: TreaTek-CRA Company, 2055 Niagara Falls Blvd., Suite 3, Niagara Falls NY 14304

SITE: VAC AIR, Frewsburg, NY

Field Collection: September 10, 1995
Samples Received: September 12, 1995
Samples Analyzed: September 17-18, 1995
Data Checked: September 18, 1995
Report Written: September 23, 1995

Tracer Job Number: 5250313X.6

Probe# (COCR)	Sample ID	Compound	Concentration (ug/L)	Detection Limit (ug/L)
AIR	A-101095-GB-002	1,1-DCE	ND	1.0
AIR	A-101095-GB-002	1,1-DCA	ND	1.0
AIR	A-101095-GB-002	total-1,2-DCE	ND	1.0
AIR	A-101095-GB-002	1,2-DCA	ND	1.0
AIR	A-101095-GB-002	1,1,1-TCA	ND	0.10
AIR	A-101095-GB-002	TCE	ND	0.10
AIR	A-101095-GB-002	1,1,2-TCA	ND	0.10
AIR	A-101095-GB-002	PCE	ND	0.10
AIR	A-101095-GB-002	Methane	ND	1.0
AIR	A-101095-GB-002	Vinyl chloride	ND	1.0
AIR	A-101095-GB-002	Benzene	ND	1.0
AIR	A-101095-GB-002	Toluene	ND	1.0
AIR	A-101095-GB-002	Ethylbenzene	ND	1.0
AIR	A-101095-GB-002	Xylenes	ND	1.0
AIR	A-101095-GB-002	TVHC	7.0	1.0



FOR: TreaTek-CRA Company, 2055 Niagara Falls Blvd., Suite 3, Niagara Falls NY 14304

SITE: VAC AIR, Frewsburg, NY

Field Collection: September 10, 1995
Samples Received: September 12, 1995
Samples Analyzed: September 17-18, 1995
Data Checked: September 18, 1995
Report Written: September 23, 1995

Tracer Job Number: 5250313X.6

Probe# (COCR)	Sample ID	Compound	Concentration (ug/L)	Detection Limit (ug/L)
SVE-1	A-101095-GB-003	1,1-DCE	16.	1.0
SVE-1	A-101095-GB-003	1,1-DCA	ND	1.0
SVE-1	A-101095-GB-003	total-1,2-DCE	220	1.0
SVE-1	A-101095-GB-003	1,2-DCA	ND	1.0
SVE-1	A-101095-GB-003	1,1,1-TCA	ND	0.10
SVE-1	A-101095-GB-003	TCE	2500	0.10
SVE-1	A-101095-GB-003	1,1,2-TCA	ND	1.5
SVE-1	A-101095-GB-003	PCE	1.3	0.10
SVE-1	A-101095-GB-003	Methane	1500	1.0
SVE-1	A-101095-GB-003	Vinyl chloride	170	1.0
SVE-1	A-101095-GB-003	Benzene	ND	1.6
SVE-1	A-101095-GB-003	Toluene	ND	4.5
SVE-1	A-101095-GB-003	Ethylbenzene	ND	13
SVE-1	A-101095-GB-003	Xylenes	ND	16
SVE-1	A-101095-GB-003	TVHC	2400	16

APPENDIX H

SVE ESTIMATED COSTS

VACAIR SVE COST ESTIMATE - NORTH SOIL REMEDIATION AREA
Carbon Offgas Treatment

Components	Unit	Quantity	Unit Cost	Direct Capital Costs	Indirect Capital Costs	Total Capital Costs	Annual O & M Costs	Net Present Worth (1)
Soil Vapor Extraction & Treatment System								
Surface Asphalt, 150' x 200'	sq. yd.	3,333	\$8	\$26,667		\$26,667		\$26,667
Install extraction wells 35-North	Each	35	\$1,500	\$52,500		\$52,500		\$52,500
Underground piping	Ft	1,340	\$40	\$53,600		\$53,600		\$53,600
Blowers and equipment	L.S.	1	\$30,000	\$30,000		\$30,000		\$30,000
Vapor phase Carbon	L.S.	1	\$20,000	\$20,000		\$20,000		\$20,000
Instrumentation/elec.	L.S.	1	\$7,500	\$7,500		\$7,500		\$7,500
Civil/mechanical	L.S.	1	\$10,000	\$10,000		\$10,000		\$10,000
Installation	L.S.	1	\$7,500	\$7,500		\$7,500		\$7,500
Design & Engineering	%	15%			\$31,165	\$31,165		\$31,165
Startup	%	2%			\$4,155	\$4,155		\$4,155
Yearly carbon replacement and disposal, Year:								
1	Pound	200000	\$2				\$400,000	\$372,000
2	Pound	100000	\$2				\$200,000	\$172,980
3	Pound	50000	\$2				\$100,000	\$80,436
4	Pound	25000	\$2				\$50,000	\$37,403
5	Pound	12500	\$2				\$25,000	\$17,392
6	Pound	6250	\$2				\$12,500	\$8,087
7	Pound	3125	\$2				\$6,250	\$3,761
8	Pound	3125	\$2				\$6,250	\$3,497
Equipment maintenance	%	2%	\$4,155				\$4,155	\$24,813
Annual utilities - SVE System	L.S.	1	\$13,500				\$13,500	\$80,613
Analytical	L.S.	1	\$2,400				\$2,400	\$14,331
Operator labor	L.S.	1	\$18,000				\$18,000	\$107,483
Total Costs:				\$207,767	\$35,320	\$243,087	NA	\$1,165,883

Total Net Present Worth of Offgas Treatment System: \$715,556

Notes:

(1) Net present worth is calculated using a 7 percent compound interest factor and an operational life of 8 years.

VACAIR SVE COST ESTIMATE - NORTH SOIL REMEDIATION AREA
Cat-Ox Offgas Treatment

Components	Unit	Quantity	Unit Cost	Direct Capital Costs	Indirect Capital Costs	Total Capital Costs	Annual O & M Costs	Net Present Worth (1)
Soil Vapor Extraction & Treatment System								
Surface Asphalt, 150' x 200'	sq. yd.	3,333	\$8	\$26,667		\$26,667		\$26,667
Install extraction wells 35-North	Each	35	\$1,500	\$52,500		\$52,500		\$52,500
Underground piping	Ft	1,340	\$40	\$53,600		\$53,600		\$53,600
Blowers and equipment	L.S.	1	\$30,000	\$30,000		\$30,000		\$30,000
Cat-Ox, Scrubber, 500 cfm	L.S.	1	\$175,000	\$175,000		\$175,000		\$175,000
Instrumentation/elec.	L.S.	1	\$7,500	\$7,500		\$7,500		\$7,500
Civil/mechanical	L.S.	1	\$10,000	\$10,000		\$10,000		\$10,000
Installation	L.S.	1	\$7,500	\$7,500		\$7,500		\$7,500
Design & Engineering	%	20%		\$72,553	\$72,553	\$72,553		\$72,553
Startup	%	2%		\$7,255	\$7,255	\$7,255		\$7,255
Yearly Utilities - Cat-Ox/Scrubber System, Year:								
1	L.S.	1	\$36,000			\$36,000	\$36,000	\$33,480
2	L.S.	1	\$30,000			\$30,000	\$30,000	\$25,947
3	L.S.	1	\$24,000			\$24,000	\$24,000	\$19,305
4	L.S.	1	\$24,000			\$24,000	\$24,000	\$17,953
5	L.S.	1	\$24,000			\$24,000	\$24,000	\$16,697
6	L.S.	1	\$24,000			\$24,000	\$24,000	\$15,528
7	L.S.	1	\$24,000			\$24,000	\$24,000	\$14,441
8	L.S.	1	\$24,000			\$24,000	\$24,000	\$13,430
Equipment maintenance	%	2%	\$7,255			\$7,255	\$7,255	\$43,324
Annual utilities - SVE System	L.S.	1	\$18,000			\$18,000	\$18,000	\$107,483
Analytical	L.S.	1	\$4,800			\$4,800	\$4,800	\$28,662
Operator labor	L.S.	1	\$18,000			\$18,000	\$18,000	\$107,483
Total Costs:				\$362,767	\$79,809	\$442,575	NA	\$886,308

Total Net Present Worth of Offgas Treatment System: \$331,780

Notes:

(1) Net present worth is calculated using a 7 percent compound interest factor and an operational life of 8 years.

VACAIR SVE COSTS E - CENTER SOIL REMEDIATION AREA
Carbon Offgas Treatment

Components	Unit	Quantity	Unit Cost	Direct Capital Costs	Indirect Capital Costs	Total Capital Costs	Annual O & M Costs	Net Present Worth (1)
Soil Vapor Extraction & Treatment System								
Surface Asphalt	sq. yd.	0	\$8	\$0		\$0		\$0
Install extraction wells 9 - Center	Each	9	\$1,500	\$13,500		\$13,500		\$13,500
Underground piping	Ft	355	\$50	\$17,750		\$17,750		\$17,750
Blowers and equipment	L.S.	1	\$20,000	\$20,000		\$20,000		\$20,000
Vapor phase Carbon	L.S.	1	\$4,000	\$4,000		\$4,000		\$4,000
Instrumentation/elec.	L.S.	1	\$7,500	\$7,500		\$7,500		\$7,500
Civil/mechanical	L.S.	1	\$10,000	\$10,000		\$10,000		\$10,000
Installation	L.S.	1	\$7,500	\$7,500		\$7,500		\$7,500
Design & Engineering	%	25%			\$20,063	\$20,063		\$20,063
Startup	%	5%			\$4,013	\$4,013		\$4,013
Yearly carbon replacement and disposal (2), Year:								
1	Pound	1,500	\$2				\$3,000	\$2,790
2	Pound	750	\$2				\$1,500	\$1,297
3	Pound	375	\$2				\$750	\$603
4	Pound	188	\$2				\$375	\$281
5	Pound	188	\$2				\$375	\$261
6	Pound		\$2				\$0	\$0
7	Pound		\$2				\$0	\$0
Equipment maintenance	%	2%	\$1,605				\$1,605	\$7,650
Annual utilities - SVE System	L.S.	6	\$4,500				\$4,500	\$21,449
Analytical	L.S.	6	\$2,400				\$2,400	\$11,440
Operator labor	L.S.	6	\$18,000				\$18,000	\$85,798
Total Costs:				\$80,250	\$24,075	\$104,325	NA	\$235,894

Total Net Present Worth of Offgas Treatment System: \$9,232

Notes:

(1) Net present worth is calculated using a 7 percent compound interest factor and an operational life of 6 years.

(2) Carbon requirement assumes a soil volume of 85' x 80' x 18' deep, with an average TCE concentration of 20 mg/kg.

