N00164.AR.000574
NSWC CRANE
5090.3a

DEPARTMENT OF THE NAVY
CRANE DIVISION
NAVAL SURFACE WARFARE CENTER
300 HIGHWAY 361
CRANE, INDIANA 47522-5000

IN REPLY REFER TO:

5090
Ser 095/0169
08 AUG 2000

U.S. Environmental Protection Agency, Region V
Waste, Pesticides, & Toxics Division
Waste Management Branch
Illinois, Indiana, and Michigan Section
ATTN: Mr. Peter Ramanauskas (DW-8J)
77 West Jackson Blvd.
Chicago, IL 60604

Dear Mr. Ramanauskas:

Enclosure (1) is a letter from Mr. Tom Johnston of Tetra Tech NUS to Mr. Tom Brent of Crane Division, Naval Surface Warfare Center (NAVSURFWARCENDIV Crane). The letter submits the data package for the Mustard Gas Burial Grounds project. The data package pertains to the analysis of Mustard, 1,4-Dithiane, and 1,4-Thioxane in soil and water. NAVSURFWARCENDIV Crane is providing three copies of the enclosure and attached data. The permit required Certification Statement is provided as enclosure (2).

NAVSURFWARCENDIV Crane point of contact is Mr. Thomas J. Brent, Code 09510, telephone 812-854-6160.

Sincerely,

James M. Hunsicker

JAMES M. HUNSICKER
Director, Environmental
Protection Department
By direction of
the Commander

Encl:
(1) Data Package Submittal Letter
(2) Certification Statement

Copy to:
Administrative Record
SOUTHNAVFACENGCOM (Code 1864) (w/o encl)
IDEM (Doug Griffin)
TTNUS (Tom Johnston) (w/o encl)

TETRA TECH NUS, INC.
661 Andersen Drive ▪ Pittsburgh, Pennsylvania 15220-2745
(412) 921-7090 ▪ FAX (412) 921-4040 ▪ www.tetratech.com

PITT-01-0-126

August 4, 2000

Project Number 0504

Environmental Site Manager
Department of the Navy
NSWC Crane
Attn: Mr. Tom Brent, Code 095
300 Highway 361
Crane, Indiana 47522-5009

Reference: CLEAN Contract No. N62467-94-D-0888
Contract Task Order 131

Subject: Hardcopy Data Package for evaluation by U.S. EPA Region 5 in conjunction with: Draft Phase III All Media RFI Quality Assurance Project Plan (QAPP) and Draft Health and Safety Plan for SWMU 01/12, Mustard Gas Burial Ground, NSWC Crane

Dear Mr. Brent:

Enclosed, please find one (1) copy of a hard copy data package which exemplifies the type of data package that TtNUS expects to receive from the U.S. Army Edgewood Chemical Biological Center laboratory for environmental sample analyses in support of CTO 131, Mustard Gas Burial Ground, at the NSWC Crane.

The ECBC laboratory is not a commercial laboratory, and the enclosed data package is related to a method detection limit study rather than environmental sample analyses. Furthermore, there was no transfer of sample custody to the ECBC laboratory from outside the laboratory. Consequently, the enclosed hard copy data deliverable exhibits the following differences from CLP data packages that one might otherwise expect to receive from a commercial laboratory:

(1) The enclosed case narrative is from a different project and is submitted as an example only.

(2) The ECBC laboratory deliberately omitted some pages to minimize the volume of paper when such omission were not viewed to detract from en evaluation of the *type* of hard copy deliverable that would be supplied under routine circumstances. TtNUS has the ECBC laboratory's assurance that the excluded information will be provided under routine circumstances in support of CTO 131 chemical analyses.

(3) Because there was no sample transfer *to* the ECBC laboratory there are no sample chain of custody forms.

(4) Documentation of a duplicate sample analysis is not included because several replicate analyses are documented on the "MDL RESULTS" page. This demonstrates that the ECBC laboratory can provide precision data on duplicate sample analyses. However, TtNUS will normally receive precision estimates from the ECBC laboratory in terms of relative percent difference (RPD) rather than standard deviation. Those precision estimates will be based on the analysis of a matrix spike duplicate (MSD), consistent with other organic chemical

Enclosure (1)

analyses planned under CTO 131. Analysis of an unspiked laboratory duplicate will not be performed, again consistent with standard practice for organic chemical analyses.

(5) An LCS was not analyzed because the determination of mustard gas and its degradates poses unique problems in this regard. In particular, the chemical of prime concern for CTO 131 — mustard gas — is not available from an independent source. Thus, the concept of analyzing an LCS from another chemical supplier is lost. However, the ECBC laboratory has many years of experience in recognizing analytical problems that might also be indicated through analysis of an LCS.

(6) Of the four ECBC target analytes (mustard gas, 1,4-dithiane, 1,4-thioxane and thiodiglycol), data for thiodiglycol analyses are not included in the enclosed data package. The ECBC laboratory continues to make method modifications for thiodiglycol analyses. However, the ECBC laboratory has assured TtNUS that the documentation provided for thiodiglycol analyses will be comparable to the example data package provided herein.

I feel compelled to point out that the computed MDLs provided in the enclosed materials sometimes exceed 10 times the standard concentration used in the MDL study. The greatest discrepancy is the computed MDL for 1,4-thioxane in water which is 0.01 mg/L whereas the standard concentration used in the study was 0.20 mg/L. This is a deviation from the 40CFR Part 136 Appendix B MDL determination protocol followed by the ECBC laboratory when determining the MDLs. However, the deviations are slight (MDL never more than 20 times the standard concentration). Furthermore, the computed MDLs are consistent with expectations of the ECBC laboratory prior to conducting the MDL study. These factors are indications that the computed MDLs are reasonable and that the ECBC laboratory has enough experience in these analyses to know what to expect in the way of analytical performance.

The enclosed materials, including the impact of the excluded documentation and discrepancies identified above, have been evaluated by TtNUS. It is the opinion of TtNUS that the ECBC laboratory will be able to provide sufficient documentation to adequately support the project objectives and documentation requirements of CTO 131. Based on this opinion, I respectfully submit the enclosed data package, as is, for U.S. EPA Region 5 review and approval as an example of the data packages to be received from the ECBC laboratory in support of CTO 131 chemical analyses.

Very truly yours,

T. Johnston

Tom Johnston, Ph.D.
Task Order Manager

TEJ

Attachment
Enclosures

Cc: Mr. Bill Gates (without enclosures)
Ms. Gail Deel (without enclosures)

SciTech Services, Inc.
1319 Woodbridge Station Way
Edgewood, Maryland 21040-3830

SciTech Services, Inc.

August 2, 2000

Mr. Tom Johnson
Tetra Tech NUS
661 Anderson Drive
Pittsburgh, Pennsylvania 15220-2745

Dear Tom;

Please find enclosed our P&A data for soil and water for Mustard, 1,4-Dithiane, and 1,4-Thioxane. This packet is an example of what kind of "CLP-like" package we can put together. I only put in enough forms to demonstrate what we would do – the forms are not completed for each sample. We would also include a narrative and cover letter.

If you have any questions, feel free to call or e-mail.

Sincerely,

Gail M. Deel
Laboratory Manager
SciTech Services, Inc.

MDL RESULTS
SOIL MATRIX

	MUSTARD	1,4-DITHIANE	1,4-THIOXANE	CEES (surrogate)
MDL #1	**0.17**/113	**0.18**/100	**0.16**/100	**0.55**/100
MDL #2	**0.15**/100	**0.18**/100	**0.15**/94	**0.53**/96
MDL #3	**0.15**/100	**0.18**/100	**0.16**/100	**0.53**/96
MDL #4	**0.14**/93	**0.17**/94	**0.16**/100	**0.54**/98
MDL #5	**0.15**/100	**0.18**/100	**0.14**/88	**0.56**/102
MDL #6	**0.14**/93	**0.17**/94	**0.16**/100	**0.53**/96
MDL #7	**0.15**/100	**0.17**/94	**0.16**/100	**0.52**/94
STD DEV	0.009258	0.004949	0.007284	0.012778
t	3.143	3.143	3.143	3.143
MDL	**0.0291**	**0.0156**	**0.0229**	**0.0402**

MDL RESULTS
WATER MATRIX

	MUSTARD	1,4-DITHIANE	1,4-THIOXANE	CEES (surrogate)
MDL #1	**0.14**/93	**0.19**/106	**0.20**/125	**0.61**/111
MDL #2	**0.13**/87	**0.18**/100	**0.20**/125	**0.62**/113
MDL #3	**0.13**/87	**0.18**/100	**0.20**/125	**0.63**/115
MDL #4	**0.13**/87	**0.18**/100	**0.20**/125	**0.60**/109
MDL #5	**0.13**/87	**0.18**/100	**0.20**/125	**0.59**/107
MDL #6	**0.13**/87	**0.18**/100	**0.20**/125	**0.59**/107
MDL #7	**0.12**/80	**0.18**/100	**0.20**/125	**0.61**/111
STD DEV	0.005345	0.003499	0	0.13851
t	3.143	3.143	3.143	3.143
MDL	**0.0168**	**0.0110**	**0.0100**	**0.0435**

Example Case Narrative
(Not from this MDL Study)

NARRATIVE

Coolers containing samples from were received from Fedex. The temperature of the temperature blanks were measured and recorded on the chain-of-custodies. Four separate extractions were performed on each sample, within the 14-day holding time. The extracts were analyzed by Gas Chromatography/Flame Photometric Detector (GC/FPD) and Gas Chromatography/Mass Selective Detector (GC/MSD) within the 40-day extract holding time.

The original method in use for the analysis of Thiodiglycol is an Internal Operating Procedure (SOP), "Application of Gas Chromatography/Mass Spectroscopy (GC/MS) For the Detection of Military Agent Breakdown Product Thiodiglycol in Soil and Water", produced false positives. Samples were extracted and concentrated numerous times – each time with comparable positive detections.

A second method for the analysis of Thiodiglycol and Phosphonic acids was utilized. This method was straight from an approved method used by the Organization of the Proliferation of Chemical Weapons (OPCW) for inspections. This method has been reviewed and the concept of the derivitization has been approved. This method yielded no positive responses for Thiodiglycol. Matrix spike recoveries averaged 70 percent.

Standards for the Phosphonic acid/Thiodiglycol method were derivitized with a 50% solution of Hexane and bis(Trimethylsily)Trifluoroacetamide (BSTFA) at a concentration of 50 ppm. These standards were then diluted down to the working level in hexane. It was discovered that the retention times shifted when hexane was used as the diluent. (The diluent for the samples was 50% Hexane/BSTFA solution.) This was discovered when the retention times for the matrix spike samples did not match the standards. All affected samples have two data sheets and two extracted ion chromatograms. This demonstrates that the compounds of interest are not present at either retention time.

Solvents used are of pesticide quality and were ordered from Sigma-Aldrich. Standards were ordered from Radian International and Oakwood Products, Inc., Sigma-Aldrich and are traceable to NIST standards. Agent standards were provided by the Chemical Agent Standard Analytical Reference Material (CASARM) group.

The MSD was tuned using the calibration gas Perfluorotributylamine (PFTBA). This was done every morning and every 12 hours thereafter. Good tune criteria are as follows: Base peak 69 at 100 percent, peak 219 >=30 percent, peak 502 >= 1.5 percent, peak widths within 0.05 of each other, total air and water each less than 10 percent.

Check standards were run every ten samples. Acceptable recovery is 70-130 percent. Duplicates are extracted every ten samples. Matrix spike and matrix spike duplicate samples are extracted every 20 samples. Water samples and wet soils have a markedly lower matrix spike recovery due to the hydrolysis of the compounds of interest.

Neither surrogates nor internal standards are utilized in the present methods. The view is that matrix spike samples provide satisfactory information. The regular extraction process is considered a "shake and shoot" method and has little room for losses. Results are based on an "as received" basis. We did not have the EPA forms for guidance while work was in process. Therefore, we do not have the airbills, sample tags, or the sample log in sheet. Many of the forms were not appropriate for our laboratory and are not enclosed. Calibration curves are included in every data package.

PROCEDURES

1.0 GB/GD/VX/HD – Two grams of the sample was weighed into a pyrex test tube. Two milliliters of Methylene chloride to which 0.1% 2-Diisopropylamino)ethanol (DIPAE was added to the sample. The DIPAE serves to stabilize the VX. The extract was vortexed for 30 seconds. The extract is filtered and analyzed by GC/FPD at a 1-1 concentration.

2.0 Organosulfur pesticides – Six grams of the sample was weighed into a pyrex test tube. Six milliliters of Methylene chloride was added to the sample. The sample was vortexed and filtered. Five milliliters of the filtered extract was concentrated to one milliliter. The samples were run at a 5-1 concentration by GC/MSD. All of the standards were not available at the same time, therefore, some of the samples had to be run again when the standards were received.

3.0 Phosphonic acids/Thiodiglycol – Six grams of sample was weighed into a pyrex test tube . Six milliliters of water was added to the sample. The sample was vortexed and filtered. The water extract was concentrated to dryness and derivitized with a 50 percent solution of Hexane and BSTFA. The extracts were analyzed by GC/MSD at a 5-1 concentration.

Included with the data packages is the Soil/Water QA/QC Plan for your review.

Example Only

ORGANICS COMLETE SDG FILE (CSF) INVENTORY SHEET

LABORATORY NAME Edgewood Chemical Biological Center (ECBC) Monitoring Branch Laboratory, Aberdeen Proving Ground, MD 21010 Operated by SciTech Services, Inc., 1319 Woodbridge Station Way, Edgewood, MD 21040

ORDER NUMBER OP-0097-YTSA

	Page Numbers From	To	Check EPA
1. Inventory Sheet	No number required.		_____
2. SDG Case Narrative	i-ii		_____
3. SDG Cover Sheet/Traffic Report	N/A		_____
4. Volatiles Data	N/A		_____
a. QC Summary	N/A		_____
System Monitoring Compound Summary (Form II VOA)	N/A		_____
Matrix Spike/Matrix Spike Duplicate Summary (Form III VOA)	N/A		_____
Method Blank Summary (Form IV VOA)	N/A		_____
GC/MS Instrument Performance Check (Form V VOA)	N/A		_____
Internal Standard Area and RT Summary (Form VIII VOA)	N/A		_____
b. Sample Data	N/A		_____
TCL Results (Form I VOA)	N/A		_____
Tentatively Identified Compounds (Form I VOA-TIC)	N/A		_____
Reconstructed Total Ion Chromatograms (RIC) for Each Sample	N/A		_____
Raw Spectra and Background-subtracted Mass Spectra of Target Compounds Identified	N/A		_____
Quantitation Reports	N/A		_____
Mass Spectra of all Reported TICs with Three Best Library Matches	N/A		_____
c. Standards Data (All Instruments)	N/A		_____
Initial Calibration Data (Form VI VOA)	N/A		_____
RICs and Quan Reports for All Standards	N/A		_____
Continuing Calibration Data (Form VII VOA)	N/A		_____
RICs and Quantitation Reports for All Standards	N/A		_____
d. Raw QC Data			_____
BFS	N/A		_____
Blank Data	N/A		_____
Matrix Spike/Matrix Spike Duplicate Data			_____
Matrix Spike Data Phosphonic Acids, Thiodiglycol	MS-1		_____
Matrix Spike Data Organosulfur Pesticides	MS-2		_____
Matrix Spike Data GB, GD, VX, HD	MS-3		_____
Chemical Warfare Data			
Chemical Warfare Materials and Related Compounds Data Sheet (Form 1C)	1C-1 thru 1C-41		_____
Method Blank Summary (Form 4B)	4B-1 thru 4B-9		_____
Continuing Calibration Check (Form 7B)	7B-1 thru 7B-13		

ORGANICS COMLETE SDG FILE (CSF) INVENTORY SHEET (Con't.)

	Page Numbers From	To	Check EPA
Monitoring Branch Soil and Water QA/QC Plan	i-iii, 1-30		_____
Chemical Warfare Data Sheets 1/20/00	1 thru 129		_____
Chemical Warfare Data Sheets 1/21/00	1 thru 115		_____
Chemical Warfare Data Sheets 1/24/00	1 thru 89		_____
Chemical Warfare Data Sheets 1/27/00	1 thru 48		_____
Chemical Warfare Data Sheets 2/1/00	1 thru 400		_____
Chemical Warfare Data Sheets 2/2/00	1 thru 214		_____
Chemical Warfare Data Sheets 2/10/00	1 thru 202		_____
Chemical Warfare Data Sheets 2/11/00	1 thru 87		_____
Chemical Warfare Data Sheets 2/16/00	1 thru 322		_____
Chemical Warfare Data Sheets 2/23/00	1 thru 239		_____
Chemical Warfare Data Sheets 2/24/00	1 thru 14		_____
Chemical Warfare Data Sheets 2/25/00 – 2/26/00	1 thru 293, 294 thru 660		_____
Chemical Warfare Data Sheets 2/28/00	1 thru 75		_____
Chemical Warfare Data Sheets 3/10/00	1 thru 153		_____
5. Miscellaneous Data			
EPA Chain of Custody Forms	CC-1 thru CC-7		_____
Extraction Sheets	MB Form-39-1 thru MB Form-39-		_____

1C

Chemical Warfare Materials and Related Compounds Data Sheet

Sample No: P&A #1

Lab Name: ECBC Monitoring Branch Laboratory

Contract No. N/A

Matrix: Soil

Lab File ID: 07170012

Sample wt/vol 1.98 (g/ml) 2.0

Level: (low/med) Low

Date Received: N/A

% Moisture: N/A

Date Extracted: 7/17/00

Final Extract Volume: 2 ml

Date Analyzed: 7/17/00

Injection Volume: 1 ul

Dilution Factor: 1-1 Conc

GPC Cleanup: (Y/N): No

pH: Not taken

Concentration Units: mg/Kg

CAS No.	Compound	Results	Q Value
505-60-2	HD [Mustard-Bis-(2-chloroethyl)sulfide]	0.17	100
505-29-3	1,4-Dithiane	0.18	99
15980-15-1	1,4-Thioxane	0.16	96

3C

Chemical Warfare Materials and Related Compounds Matrix Spike/Matrix Spike Duplicate Recovery

SAMPLE NO. Soil P&A #1

Lab Name: ECBC Monitoring Branch Laboratory, SciTech Services, Inc. Contract No. N/A

Order No.

Lab File ID: *07170012*

Compound	Spike Added	Sample Conc	MS Conc	MS % rec
1,4-Dithiane	0.18	--	0.18	100
1,4-Thioxane	0.16	--	0.16	100
Mustard	0.15	--	0.17	113

4B
Method Blank Summary

Lab Name: ECBC Monitoring Branch Laboratory, SciTech Services, Inc. Contract No. N/A
Order No. N/A

Lab File ID: 07170008

Instrument ID: MSD #4 Date Extracted: 07/17/00

Matrix: (soil/water) Soil Date Analyzed: 07/17/00

Level: (low/med) Low Time Analyzed: 1702

This Method Blank Applies to the following samples, MS and MSD:

	EPA Sample No.	Lab File ID	Date Analyzed
1	Soil P&A #1	07170012	07/17/00
2	Soil P&A #2	07170013	07/17/00
3	Soil P&A #3	07170014	07/17/00
4	Soil P&A #4	07170015	07/17/00
5	Soil P&A #5	07170016	07/17/00
6	Soil P&A #6	07170017	07/17/00
7	Soil P&A #7	07170018	07/17/00
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9			
10			
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Comments:

4B
Method Blank Summary

Lab Name: ECBC Monitoring Branch Laboratory, SciTech Services, Inc. Contract No. N/A
Order No. N/A

Lab File ID: 07170021

Instrument ID: MSD #4 Date Extracted: 07/17/00

Matrix: (soil/water) Water Date Analyzed: 07/17/00

Level: (low/med) Low Time Analyzed: 1909

This Method Blank Applies to the following samples, MS and MSD:

	EPA Sample No.	Lab File ID	Date Analyzed
1	Water P&A #1	07170022	07/17/00
2	Water P&A #2	07170023	07/17/00
3	Water P&A #3	07170024	07/17/00
4	Water P&A #4	07170025	07/17/00
5	Water P&A #5	07170026	07/17/00
6	Water P&A #6	07170027	07/17/00
7	Water P&A #7	07170028	07/17/00
8			
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Comments:

7B
CONTINUING CALIBRATION CHECK

Lab Name: ECBC Monitoring Branch Laboratory, SciTech Services, Inc. Contract No. N/A
Order No.
Instrument ID: MSD#4 Calibration Date: 7/17/00

Lab File ID: 07070019

COMPOUND	RESULTS (NG)	PERCENT RECOVERY
1,4-Dithiane	1.25	100
1,4-Thioxane	1.24	99
Mustard	1.24	99

Lab File ID: 07070029

COMPOUND	RESULTS (NG)	PERCENT RECOVERY
1,4-Dithiane	1.27	102
1,4-Thioxane	1.23	98
Mustard	1.23	98

Lab File ID: 07070030

COMPOUND	RESULTS (NG)	PERCENT RECOVERY
1,4-Dithiane	1.26	101
1,4-Thioxane	1.23	98
Mustard	1.24	98

SURROGATE RECOVERIES

Lab Name: ECBC Monitoring Branch Laboratory, SciTech Services, Inc. Contract No. N/A
Order No.

Instrument ID: MSD #4 Calibration Date: 7/17/00

SAMPLE ID	FILE ID	CEES REC (ng)	CEES % REC
Soil Method Blank	07170011	0.63	114
Soil P&A #1	07170012	0.55	100
Soil P&A #2	07170013	0.53	96
Soil P&A #3	07170014	0.53	96
Soil P&A #4	07170015	0.54	98
Soil P&A #5	07170016	0.56	102
Soil P&A #6	07170017	0.53	96
Soil P&A #7	07170018	0.52	94
Water Method Blank	07170021	0.58	105
Water P&A #1	07170022	0.61	111
Water P&A #2	07170023	0.62	113
Water P&A #3	07170024	0.63	115
Water P&A #4	07170025	0.60	109
Water P&A #5	07170026	0.59	107
Water P&A #6	07170027	0.59	107
Water P&A #7	07170028	0.61	111

SAMPLE RECEIPT SHEET
ECBC MONITORING BRANCH

Case Number
DAS Number
TR Number
Air Bill Number
Date Shipped
Carrier FedEx

Date Cooler Received @
Cooler Temperature Deg C.

Samples received in this shipment were all present and intact.

Samples received:

Revision 1

August 1977
MBFORM-1

AIR CALIBRATION DATA SHEET

GAS CHROMATOGRAPH NUMBER U5000 30686

STANDARD NUMBER III-52-2 → III-52-5
STANDARD NUMBER III-53-1
STANDARD NUMBER _____

ANALYST [illegible]

DATE 17 July 00

CORRELATION COEFFICIENT:

Thiox 1.000 CEES 1.000 DITHI 1.000 HD 1.000

CAL #	RUN #	CONCENTRATION ~~(ng)~~ ppm					AREA RESPONSE					
		THIOX	CEES	DITHI	HD		Thioxane	CEES	DITHI	HD	data File	INJ TIME
1	6	0.156	0.156	0.156	0.156		76234	96726	178155	172879	07170006 07170006	1550
2	5	0.312	0.312	0.312	0.312		154028	195165	359306	356407	07170005	1537
3	4	0.625	0.625	0.625	0.625		307398	389846	704882	722519	07170004	1524
4	3	1.25	1.25	1.25	1.25		600148	775448	1399895	1444943	07170003	1512
5	2	2.5	2.5	2.5	2.5		1192162	1533805	2754672	2858140	07170002	1459
CAL RESHOT												
CAL RESHOT												

Revision 0

March 1999
MBFORM-39

..AMPLE PREPARATION SHEET FOR SOILS AND WATERS

..E: 17 July 00 PROJECT NAME:

..ALYST(S): SAR EXTRACTION SOLVENT: CH_2Cl_2

CEES - III-49-1

SAMPLE ID	SAMPLE WT (g)	SOLVENT VOL (ml)	III-49-1 COMMENTS	
..thod Blank Na_2SO_4	1.98	2.0 ml	100 µl CEES 15.6 ppm	III-48-4
Soil #1	2.04			100 µl DHT 4.4 ppm
Soil #2	1.98			
#3	1.98			
#4	1.95			
#5	2.09			
#6	2.06			
#7	2.02			
Method Blank H_2O	2.0 ml			—
Water #1				100 µl DHT 4.4 ppm
#2				
#3				
#4				
#5				
#6				
#7				

..act a duplicate sample every ten. Extract a MS and MSD sample every twenty.

Theoretical MSA	MSA (FC) avg.	
CEES - 0.709 ppm	CEES - 0.58	(82%)
D/H/T - 0.20 ppm	DITHI - 0.16	(80%)
	HD - 0.135	(68%)
	Thiox - 0.135	(68%)

Revision 0

March 1999
MBFORM-37

SOIL/WATER DIRECT INJECT SEQUENCE SHEET

DATE: 17 JULY 00 Pg 2 of 2

INST: MSD #4 PROJECT NAME

CORR COEF: 1,4-Dithiane_____DMMP____ DIMP

1,4-Thioxane____ HD____ XL

Found Concentration = PPM

SAMPLE ID	RUN #	1,4-Dithiane	~~DMMP~~ INJ. TIME	~~DIMP~~	1,4-Thioxane	HD	~~XL~~ CEES
WATER QA #1	07170022	0.19 /106	1922		0.20 /125	0.14 /93	0.61 /111
" #2	07170023	0.18 /100	1935		0.20 /125	0.13 /87	0.62 /113
" #3	07170024	0.18 /100	1948		0.20 /125	0.13 /87	0.63 /115
" #4	07170025	0.18 /100	2000		0.20 /125	0.13 /87	0.60 /109
" #5	07170026	0.18 /100	2013		0.20 /125	0.13 /87	0.59 /107
" #6	07170027	0.18 /100	2026		0.20 /125	0.13 /87	0.59 /107
" #7	07170028	0.18 /100	2039		0.20 /125	0.12 /80	0.61 /111
1.25 ppm Check	07170029	1.27 /102	2051		1.23 /98	1.23 /98	1.23 /98
1.25 ppm Check	07170030	1.26 /101	2104		1.23 /98	1.24 /99	1.23 /98

ND= Not Detected N/A = Not Applicable Detection Limits = 250 ppb

Water	DITHIANE	THIOXANE	HD	CEES
Std. Dev →	0.003499	~~1.4E-30~~ 0	0.005345	0.013851
MDL →	0.0110	0.0100	0.0168	0.0435

III-45-1 / EA 5 July 00 [illegible]

The following amounts of Stocks were added to a 50 ml volumetric - Then QS with Ethyl Acetate

III-44-2 - CEES - 1560 ppm - 3.205 ml.
III-24-1 - TDG - 2008 ppm - 2.49 ml.

Final concentrations are as follows,

2-Chloroethyl ethyl sulfide - 100 ppm
Thiodiglycol - 100 ppm.

III-45-2 / HEX 6 July 00 [illegible]

5 Fold dilution of III-44-3
5 ml of III-44-3 + 20 ml Hexane.
Final Concentration = 20 ppm of each
HD / Dithiane / thioxane / CEES

III-45-3 / EA 6 July 00 [illegible]

5 fold dilution of III-45-1
Final Concentration = 20 ppm of each
TDG / CEES

III-45-4 / EA 10 July 00 [illegible]

TDG = Aldrich Cat# 16678-2 99% Lot# CX 07602 HW
0.0271 gm TDG - QS → 25 ml Ethyl Acetate.
27.1 mg x 0.99 = 26.8 mg
Final Concentration = 1073 ppm

III-47-1 10 July 00 Eve

The following amounts of stocks were added to a 50 ml Volumetric and then QS'ed to 50 ml with Hexane.

HD Stock (HD/N-HEX-0041-CTF-DIL) 1890ppm → 2.91 ml
III-37-1 - Dithiane - 2838ppm → 1.94 ml.
III-37-2 - Thioxane - 4822ppm → 1.14 ml

Final Concentration = 110 ppm.

III-47-2 10 July 00 Eve

25 fold dilution of III-47-1
1.0 ml + 24 ml Hexane
Final Concentration = 4.4 ppm {HD, THIOXANE, DITHIANE}

III-47-3 10 July 00 Eve

Dilution of CEES → (same as III-44-2) → 98% Purity
10.3 mg → QS → 25 ml H_2O (deionized-distilled Water)
Final Concentration = 403 ppm.

III-47-4 11 July 00 Eve

Dilution of 3,3-Thiodipropanol (98%) Aldrich Lot# 02402BV
14.2 mg → QS 25 ml Ethyl Acetate.
Final Concentration = 556 ppm
556 ppm

III-49-1 14 July 00 [illegible] CEES

Dilution of III-44-2
200µl of III-44-2 + 19.8 ml IPA
Final Concentration = 15.6 ppm Chloroethylethylsulfide

III-49-2 14 July 00 [illegible] TDG

Dilution of III-45-4
100µl of III-45-4 + 24.3 ml IPA
Final Concentration = 4.4 ppm TDG
Thiodiglycol = 4.4 ppm

III-49-3 14 July 00 [illegible] TDP

Dilution of III-47-4
500µl of III-47-4 + 14.5 ml IPA
Final Concentration = 18.5 ppm Thiodipropanol

III-49-4 19 July 00 [illegible] HN-1
1:100 Dilution of HN1/n-Hex (1.027 mg/ml)
300µl QS → 30 ml with IPA
Final Concentration = 10.27 ppm HN-1

III-49-5 19 July 00 [illegible] HN-3
1:100 Dilution of HN3/n-Hex (1.175 mg/ml)
300µl QS → 30 ml with IPA
Final Concentration = 11.75 ppm HN-3

III-53-1 11 July 00 [illegible]

2 fold dilution of III-52-5

5.0 ml III-52-5 + 5.0 ml Hexane

Final Concentration = 0.156 ppm all Compounds

HD / DITHIANE / THIOXANE / CEES

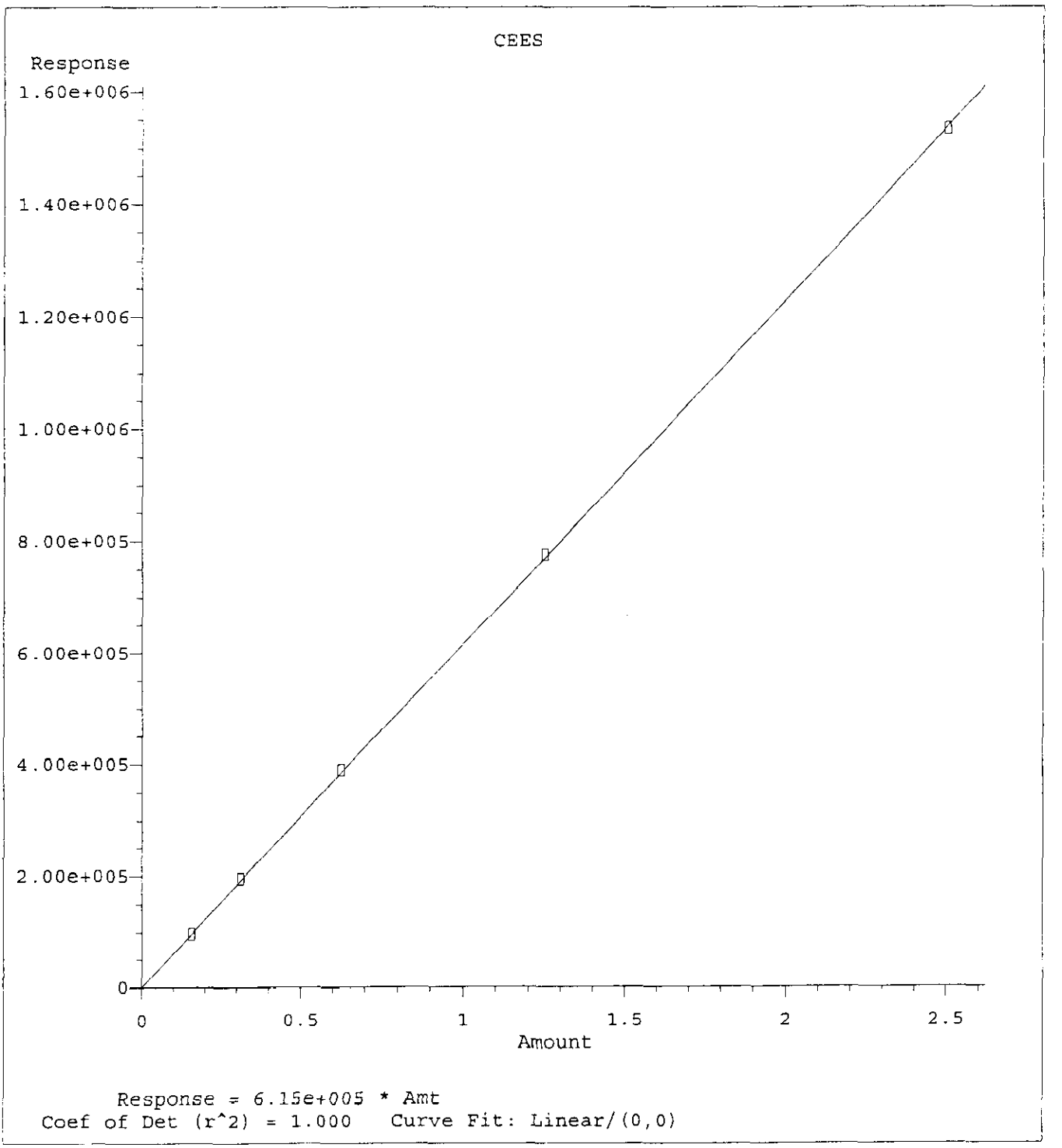
48

III-48-1 11 July 00 [illegible] TDP II
10 Fold Dilution of III-47-4.
2.0 mls. III-47-4 + 18 ml Ethyl Acetate
Final Concentration = 55.6 ppm
3,3-Thiodipropanol (TDG Surrogate)

III-48-2 [illegible] 13 July 00 TDG II
Dilution of III-46-2
4.0 ml of III-46-2 + 6.0 ml EA
Final Concentration
Thiodiglycol . 4.29 ppm

III-48-3 [illegible] 13 July 00 TDP I
Dilution of III-48-1
5.0 ml III-48-1 + 15.0 ml EA
Final Concentration = 13.9 ppm 3,3-Thiodipropanol

III-48-4 [illegible] 14 JUL 00 HD/DITH/THIOX II
Dilution of III-47-1
1.0 ml of III-47-1 + 24 ml IPA
Final Concentration of ALL = 4.4 ppm II
HD / DITHIANE / THIOXANE = 4.4 ppm



Method Name: C:\HPCHEM\1\5973\4CEES.M
Calibration Table Last Updated: Wed Jul 26 15:00:26 2000

52

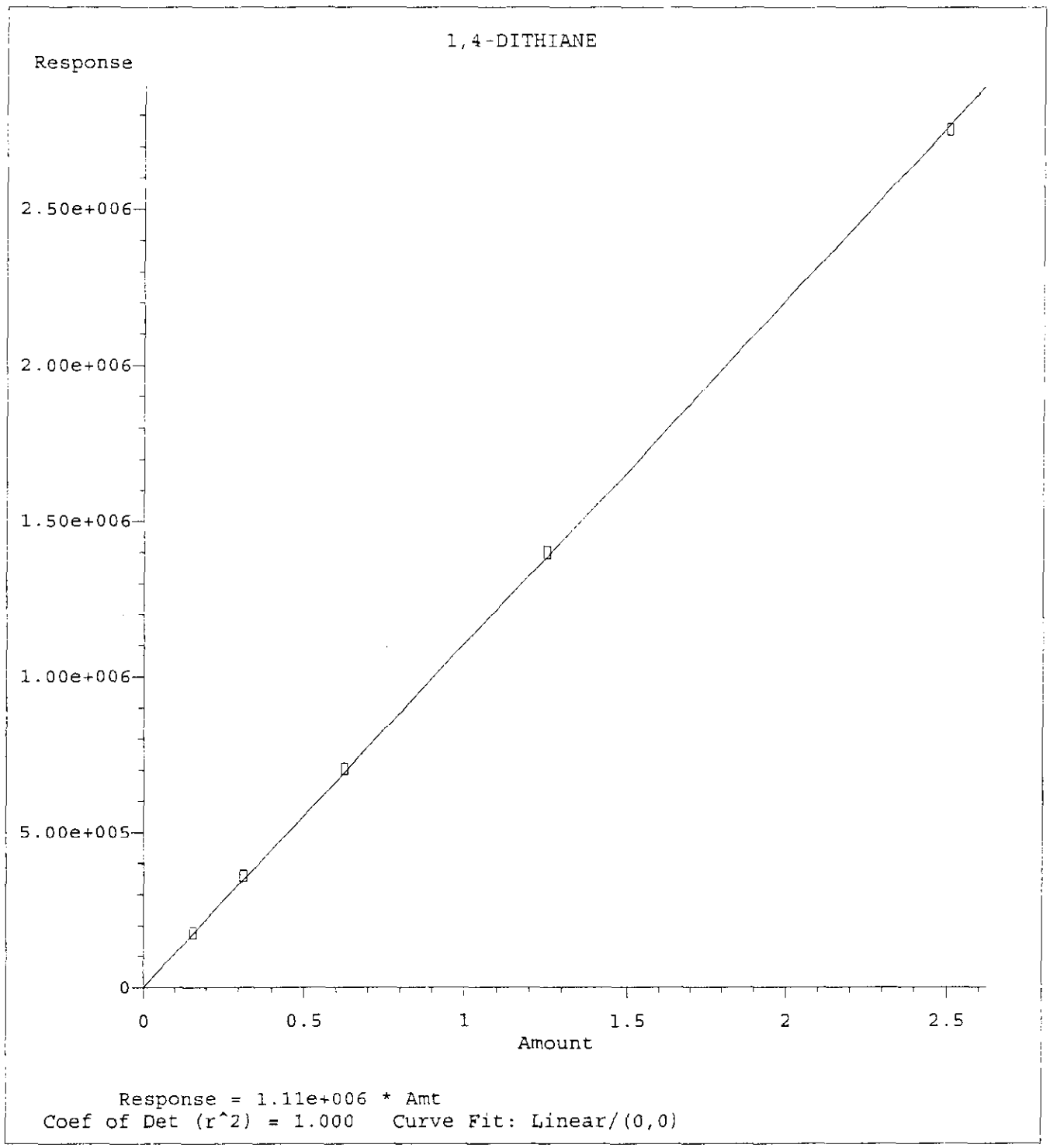
III-52-1 11 July 00 [illegible]
4 fold Dilution of III-45-2
5 ml III-45-2 + 15 ml Hexane
final Concentration of all compounds = 5.0 ppm
HD / Dithane / Thioxane / CEES = 5.0 ppm

III-52-2 11 July 00 [illegible]
2 fold dilution of III-52-1
5.0 ml III-52-1 + 5.0 ml Hexane
final Concentration = 2.5 ppm all Compounds.

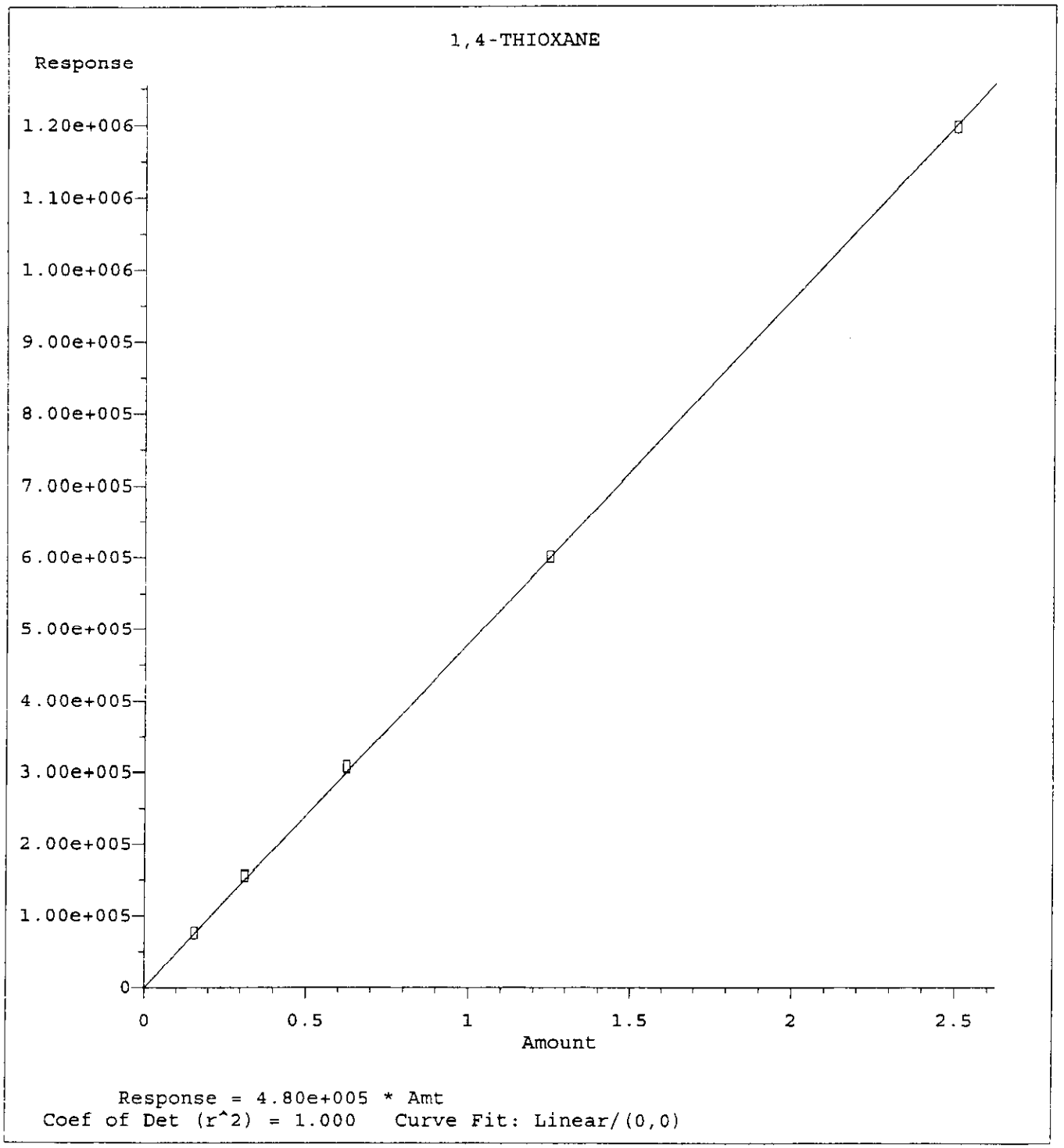
III-52-3 11 July 00 [illegible]
2 fold dilution of III-52-2
5.0 ml III-52-2 + 5.0 ml Hexane
final concentration = 1.25 ppm all compounds

III-52-4 11 July 00 [illegible]
2 fold dilution of III-52-3
5.0 ml III-52-3 + 5.0 ml Hexane
final Concentration = 0.625 ppm all Compounds.

I-52-5 11 July 00 [illegible]
2 fold dilution of III-52-4
5.0 ml III-52-4 + 5.0 ml Hexane
final Concentration = 0.312 ppm all Compounds.



Method Name: C:\HPCHEM\1\5973\4CEES.M
Calibration Table Last Updated: Wed Jul 26 15:01:13 2000



Method Name: C:\HPCHEM\1\5973\4CEES.M
Calibration Table Last Updated: Tue Jul 18 08:04:47 2000

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170001.D Vial: 1
Acq On : 17 Jul 2000 14:46 Operator:
Sample : RB Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

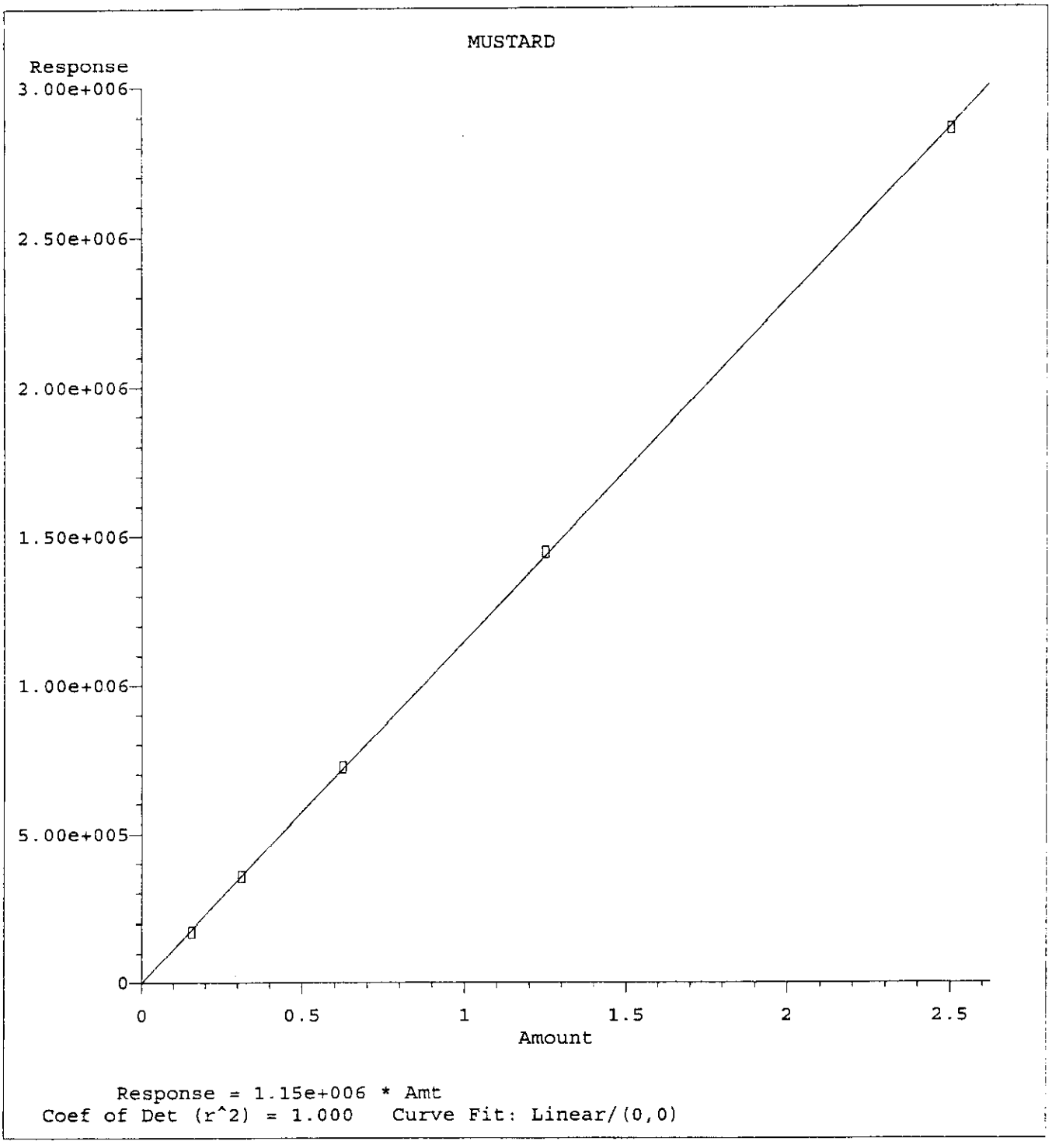
MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:52 2000 Quant Results File: 4CEES.RES

Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

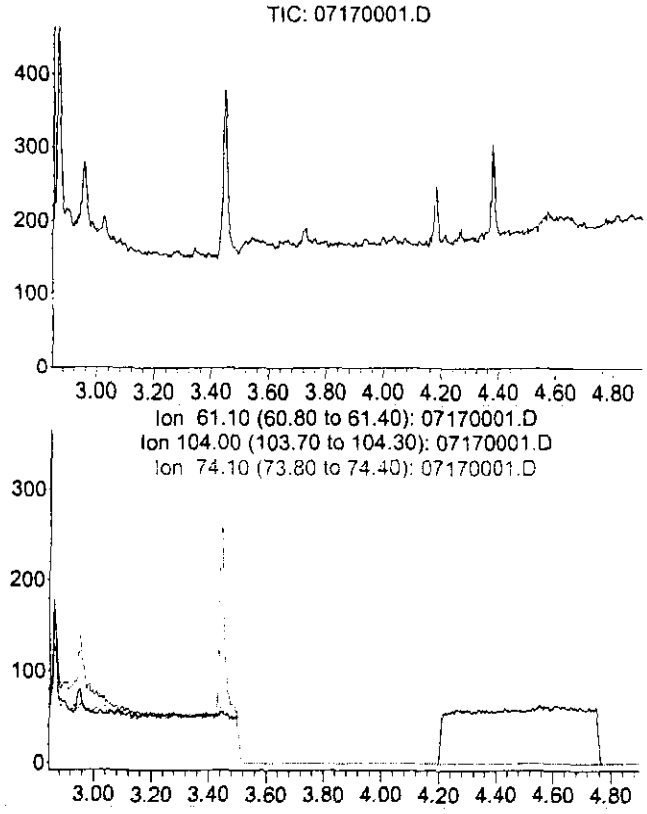
Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)

Target Compounds					Qvalue
1) 1,4-THIOXANE	0.00	61	0	N.D.	
2) CEES	0.00	124	0	N.D.	
3) 1,4-DITHIANE	0.00	120	0	N.D.	
4) MUSTARD	0.00	109	0	N.D.	

(#) = qualifier out of range (m) = manual integration



Method Name: C:\HPCHEM\1\5973\4CEES.M
Calibration Table Last Updated: Wed Jul 26 15:01:41 2000

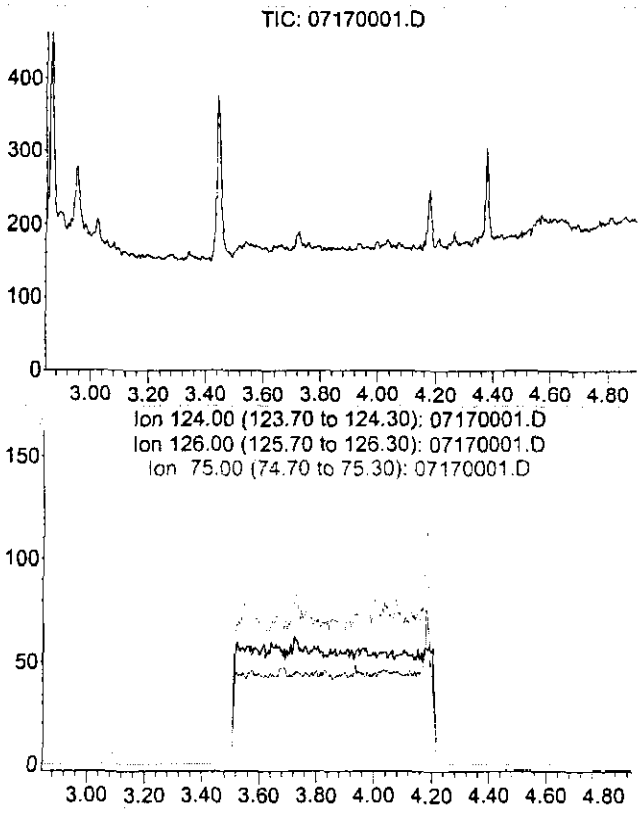


#1
1,4-THIOXANE
Concen: N.D.
Expected RT: 3.40 min

Lab File: 07170001.D
Acq: 17 Jul 2000 14:46

Tgt Ion: 61

Sig	Exp Ratio
61	100
104	161.5
74	43.1



#2
CEES
Concen: N.D.
Expected RT: 3.70 min

Lab File: 07170001.D
Acq: 17 Jul 2000 14:46

Tgt Ion: 124

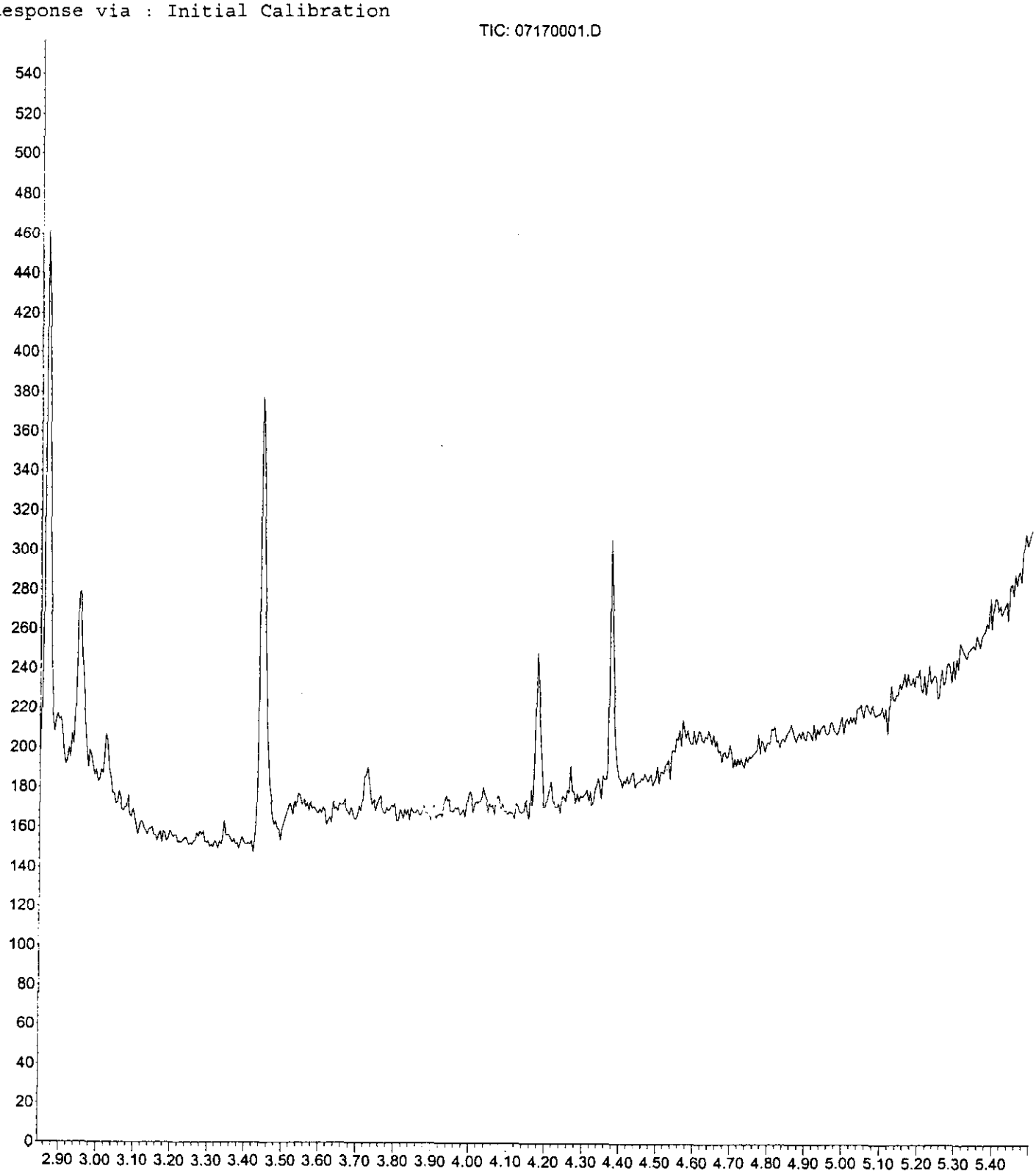
Sig	Exp Ratio
124	100
126	36.4
75	236.1

Quantitation Report

Data File : C:\HPCHEM\1\DATA\17JUL00\07170001.D Vial: 1
Acq On : 17 Jul 2000 14:46 Operator:
Sample : RB Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

} Integration Params: EVENTS.E
Quant Time: Jul 26 15:52 2000 Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170002.D Vial: 2
Acq On : 17 Jul 2000 14:59 Operator:
Sample : 2.5 ppm CAL STD Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

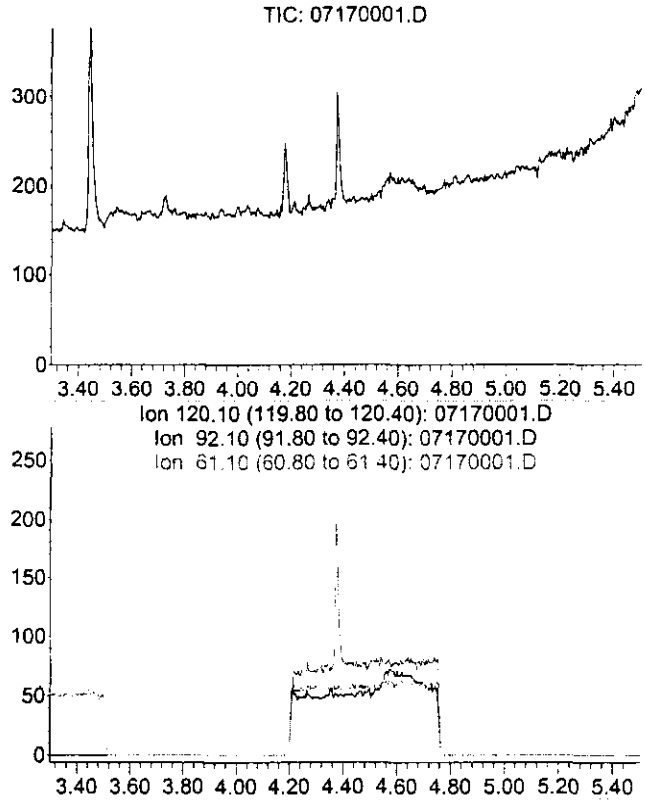
MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:02 2000 Quant Results File: 4CEES.RES

Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)

Target Compounds					Qvalue
1) 1,4-THIOXANE	3.38	61	1192162	2.49 ppm	99
2) CEES	3.71	124	1533805	2.49 ppm	99
3) 1,4-DITHIANE	4.54	120	2754672	2.49 ppm	100
4) MUSTARD	4.98	109	2858140	2.49 ppm	100

(#) = qualifier out of range (m) = manual integration

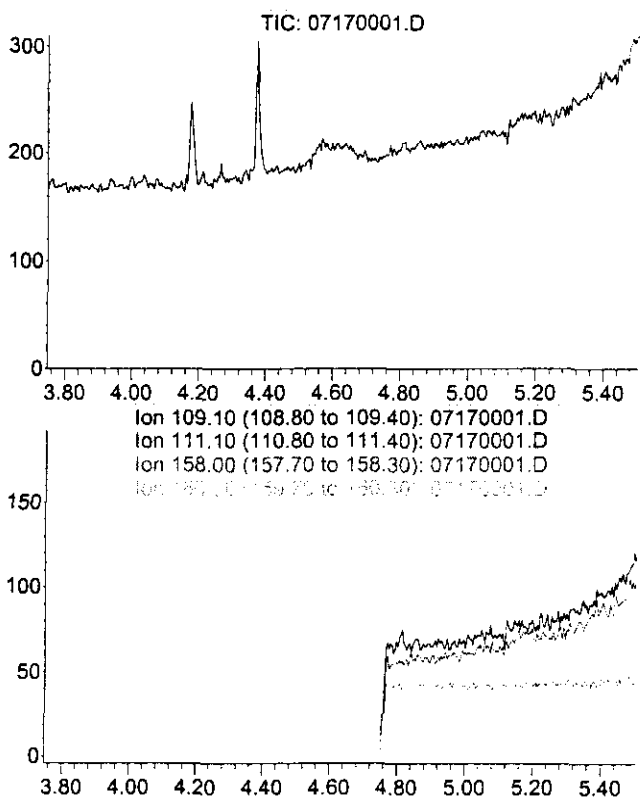


#3
1,4-DITHIANE
Concen: N.D.
Expected RT: 4.50 min

Lab File: 07170001.D
Acq: 17 Jul 2000 14:46

Tgt Ion: 120

Sig	Exp Ratio
120	100
92	15.6
61	40.0



#4
MUSTARD
Concen: N.D.
Expected RT: 4.95 min

Lab File: 07170001.D
Acq: 17 Jul 2000 14:46

Tgt Ion: 109

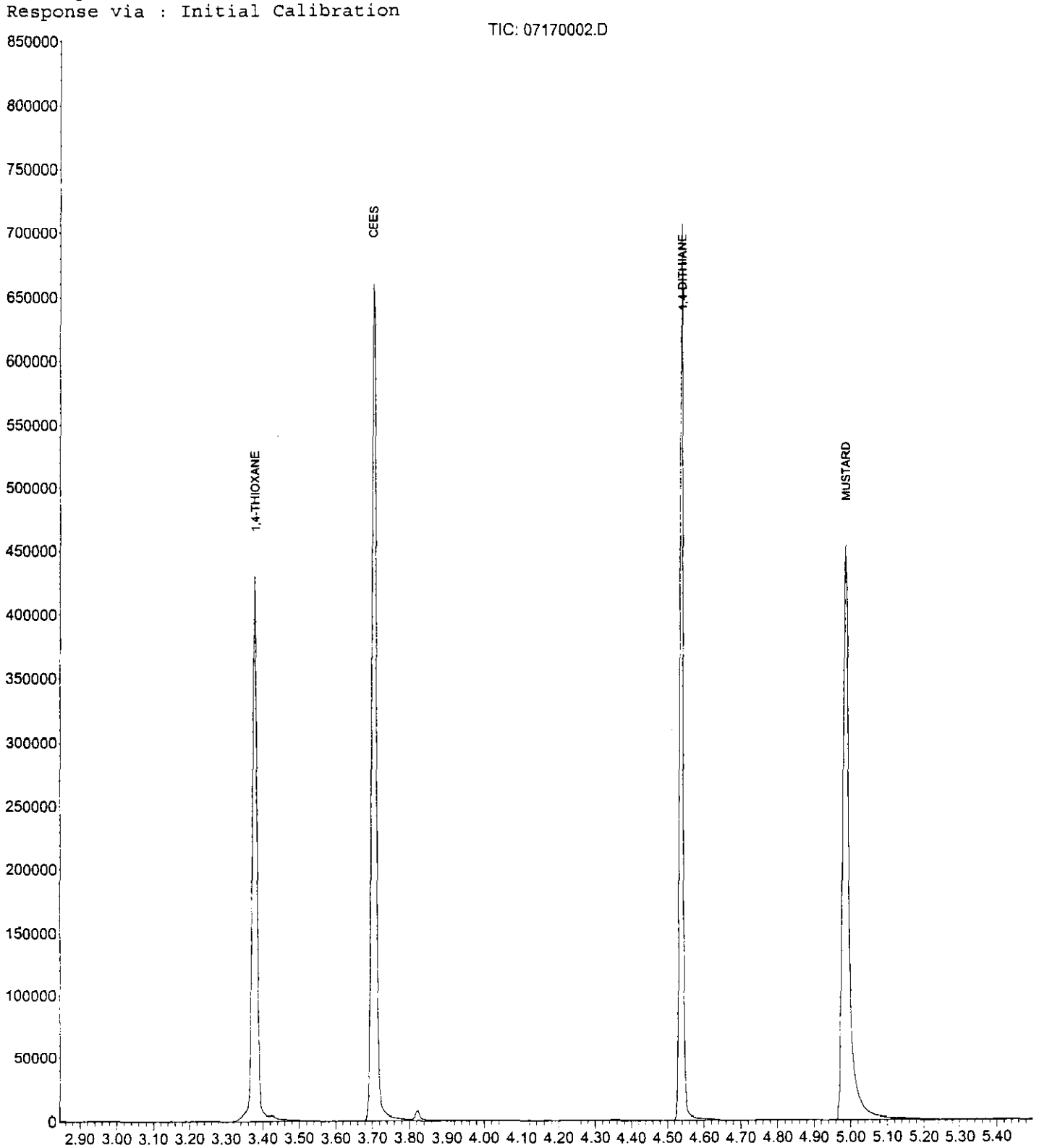
Sig	Exp Ratio
109	100
111	36.6
158	29.4
160	20.0

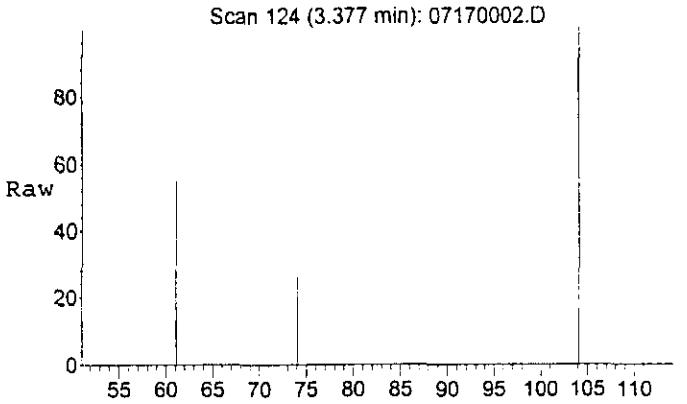
Quantitation Report

Data File : C:\HPCHEM\1\DATA\17JUL00\07170002.D Vial: 2
Acq On : 17 Jul 2000 14:59 Operator:
Sample : 2.5 ppm CAL STD Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:02 2000 Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration

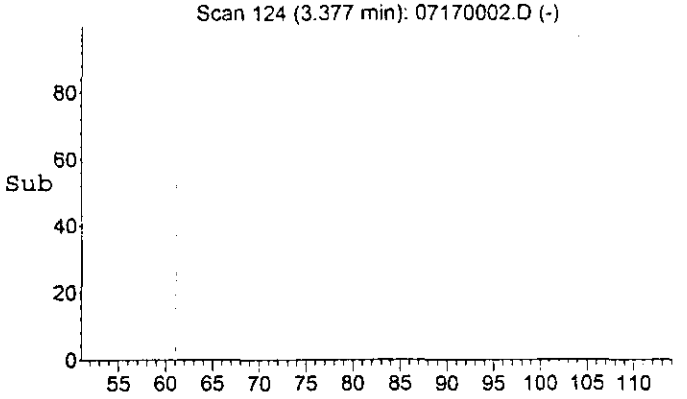


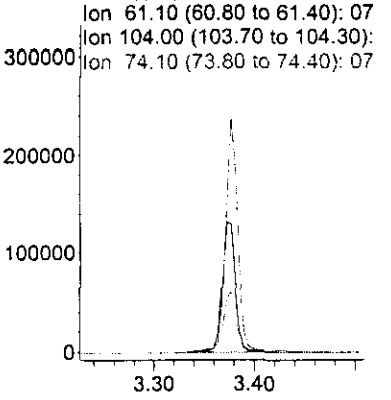


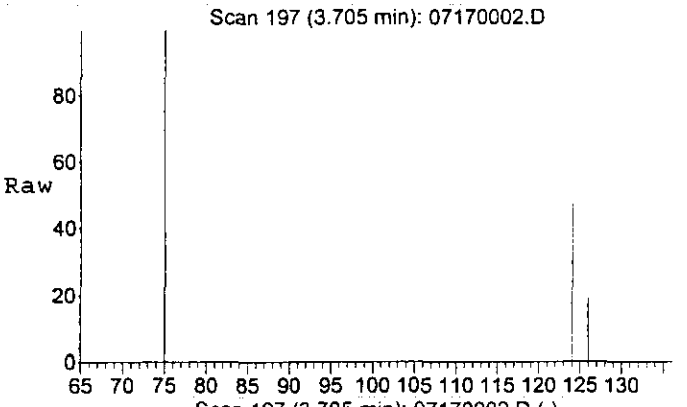
#1
1,4-THIOXANE
Concen: 2.49 ppm
RT: 3.38 min Scan# 124
Delta R.T. -0.02 min
Lab File: 07170002.D
Acq: 17 Jul 2000 14:59

Tgt Ion: 61 Resp: 1192162

Ion	Ratio	Lower	Upper
61	100		
104	162.3	129.2	193.8
74	42.9	34.5	51.7



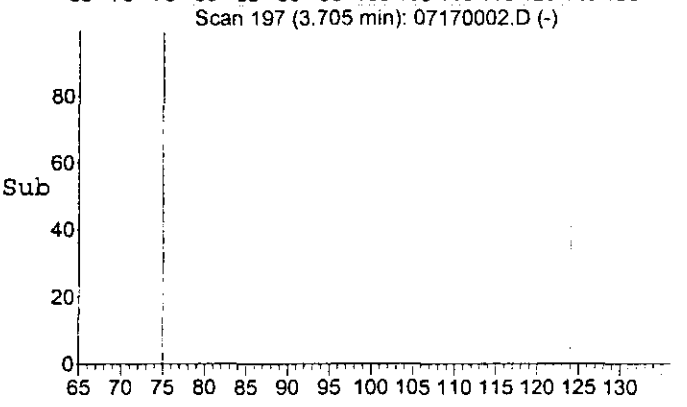


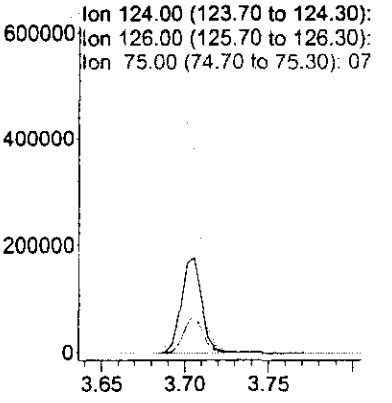


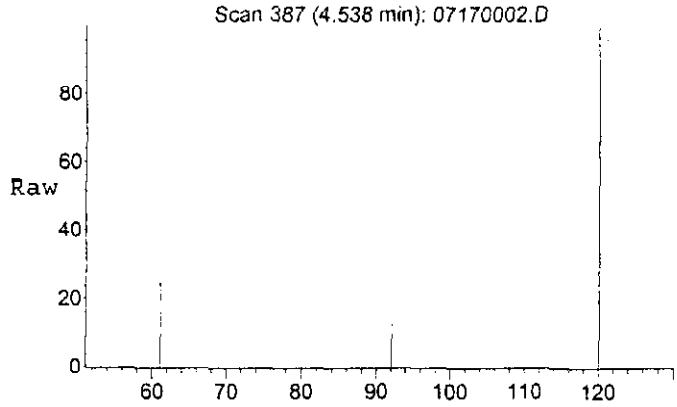
#2
CEES
Concen: 2.49 ppm
RT: 3.71 min Scan# 197
Delta R.T. 0.01 min
Lab File: 07170002.D
Acq: 17 Jul 2000 14:59

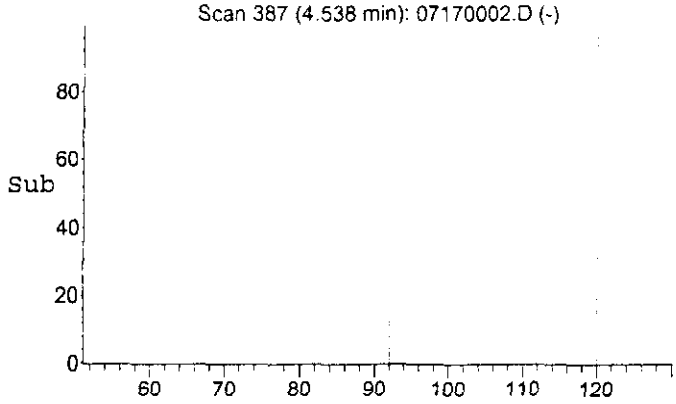
Tgt Ion:124 Resp: 1533805

Ion	Ratio	Lower	Upper
124	100		
126	37.0	29.1	43.7
75	237.2	188.9	283.3





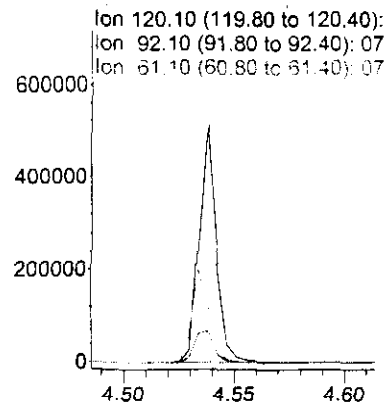


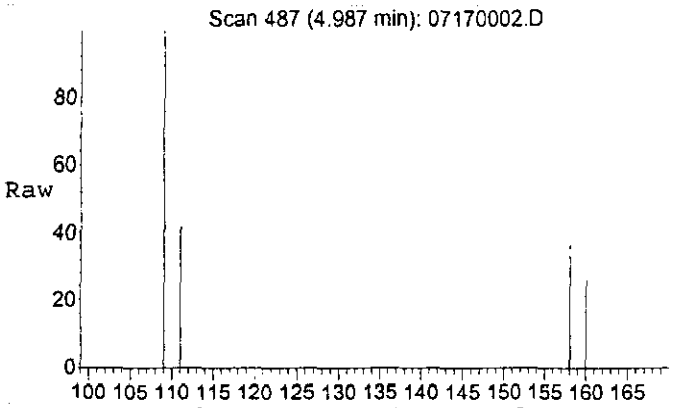


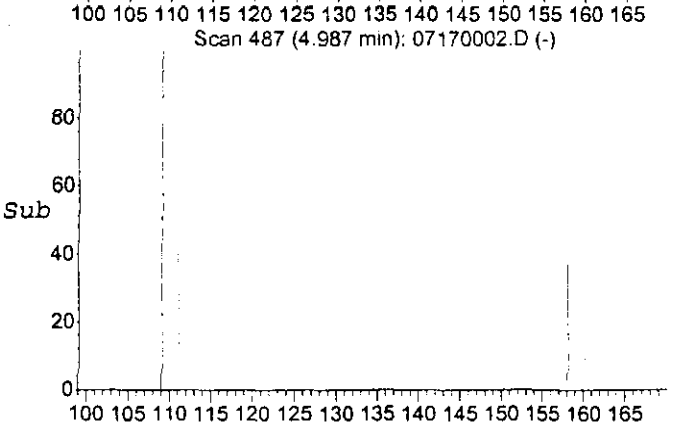
#3
1,4-DITHIANE
Concen: 2.49 ppm
RT: 4.54 min Scan# 387
Delta R.T. 0.04 min
Lab File: 07170002.D
Acq: 17 Jul 2000 14:59

Tgt Ion:120 Resp: 2754672

Ion	Ratio	Lower	Upper
120	100		
92	15.6	12.5	18.7
61	40.2	32.0	48.0



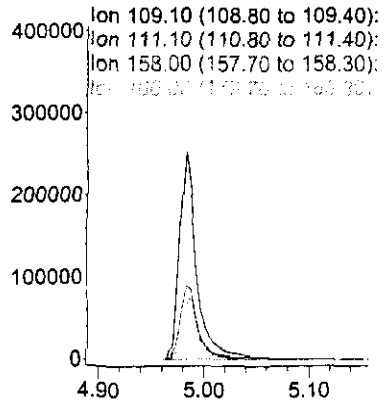




#4
MUSTARD
Concen: 2.49 ppm
RT: 4.98 min Scan# 487
Delta R.T. 0.03 min
Lab File: 07170002.D
Acq: 17 Jul 2000 14:59

Tgt Ion:109 Resp: 2858140

Ion	Ratio	Lower	Upper
109	100		
111	37.0	29.3	43.9
158	29.5	23.5	35.3
160	20.1	16.0	24.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170003.D Vial: 3
Acq On : 17 Jul 2000 15:12 Operator:
Sample : 1.25 ppm CAL STD Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:03 2000 Quant Results File: 4CEES.RES

Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)

Target Compounds					Qvalue
1) 1,4-THIOXANE	3.38	61	600148	1.25 ppm	100
2) CEES	3.71	124	775448	1.26 ppm	100
3) 1,4-DITHIANE	4.54	120	1399895	1.26 ppm	100
4) MUSTARD	4.99	109	1444943	1.26 ppm	100

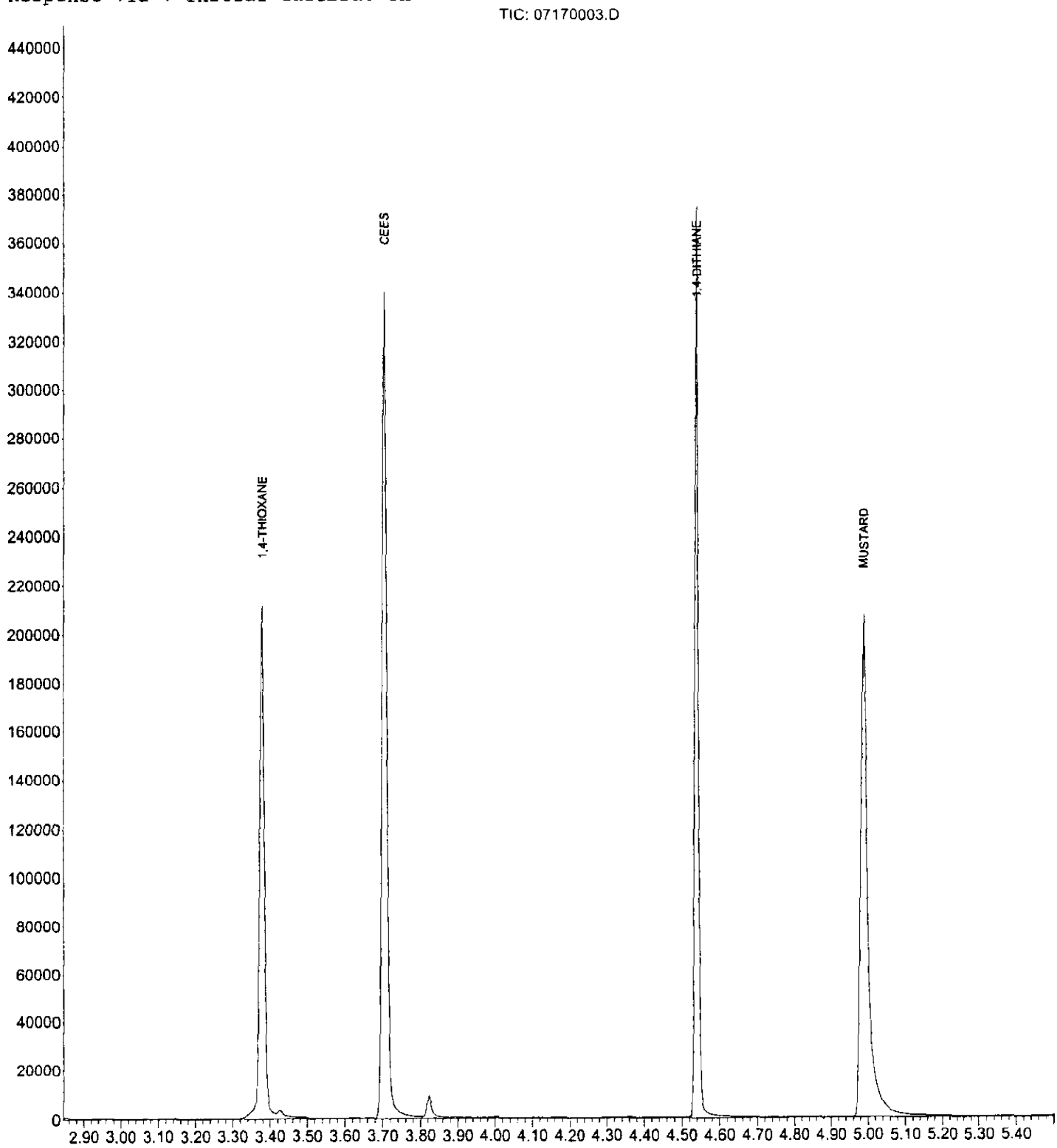
(#) = qualifier out of range (m) = manual integration
07170003.D 4CEES.M Wed Jul 26 15:03:48 2000

Quantitation Report

Data File : C:\HPCHEM\1\DATA\17JUL00\07170003.D Vial: 3
Acq On : 17 Jul 2000 15:12 Operator:
Sample : 1.25 ppm CAL STD Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:03 2000 Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration



21 JUN 00

III-44-1 / HEX - 20 fold dilution of III-20-5 [illegible]
and III-42-2
10 ml each of the 2 above standars + 18.0 ml
of Hexane. Final Concentrations are
HD - 1.06 ppm
HN-1 - 1.05 ppm
HN-3 - 1.04 ppm

III-44-2 / HEX Dilution of 2-Chloroethyl-ethyl Sulfide (CEES)
5 July 00 [illegible]
39.8 mg → CEES - Aldrich Cat# 24,264-0 98% Lot# 11413ms
39.00 mg → QS to 25 ml with Hexane
Final Concentration = 1560 ppm CEES

III-44-3 / HEX 5 July 00 [illegible]
The follow amounts of stocks were added to
a 50 ml Volumetric & Then QS'd to 50 ml with Hexane.

HD stock - HD/N-Hex-0041-CTF-DIL → (1890 ppm) → 2.65 ml
III-37-1 → Dithione → 2838 ppm → 1.76 ml
III-37-2 → Thioxane → 4822 ppm → 1.037 ml
III-44-2 → CEES → 1560 ppm → 3.205 ml.

Final Concentration is 100 ppm of all agents
HD / DITHIANE / THIOXANE / CEES

Revision 0

March 1999
MBFORM-37

SOIL/WATER DIRECT INJECT SEQUENCE SHEET

DATE: 17 JULY 00 Pg 1 of 2

INST: MSD#4 PROJECT NAME

CORR COEF: 1,4-Dithiane 1.000 DMMP ____ DIMP

1,4-Thioxane 1.000 HD 1.000 ~~XL~~ CEES 1.000

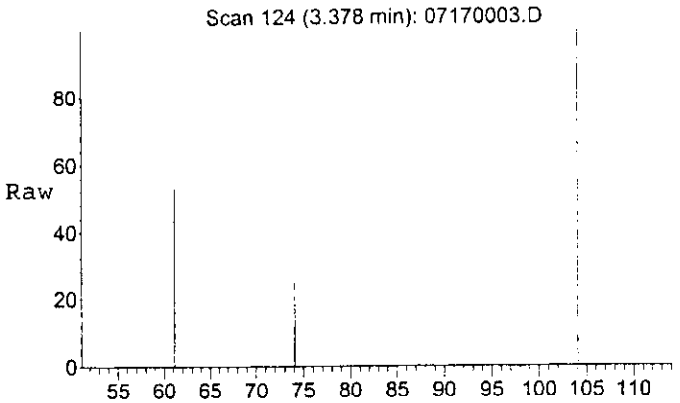
Found Concentration = ppm

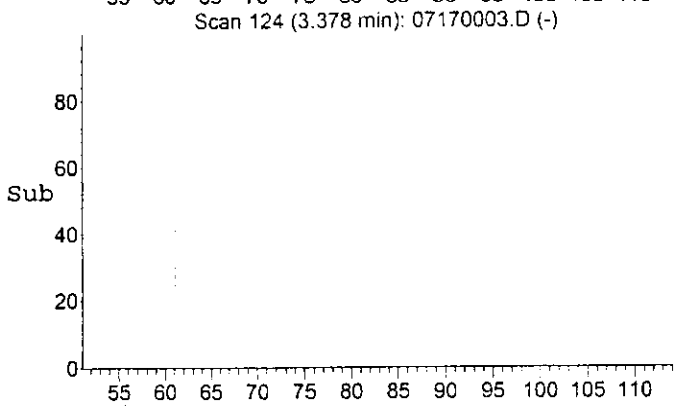
SAMPLE ID	RUN #	1,4-Dithiane	~~DMMP~~ INT. TIME	~~DIMP~~	1,4-Thioxane	HD	~~XL~~ CEES
RB	07170001	ND	1446		ND	ND	ND
1.25 ppm Check	07170007	data Lost upon	Reprocessing				
RB	07170008	ND	1624		ND	ND	ND
MSA#1	07170009	0.18	1636		0.15	0.15	0.54
MSA#2	07170010	0.18	1649		0.16	0.15	0.55
Soil Matrix Blank	07170011	ND	1702		ND	ND	0.63
Soil P4A #1	07170012	0.18 / 100	1714		0.16 / 100	0.17 / 113	0.55 / 100
" #2	07170013	0.18 / 100	1727		0.15 / 94	0.15 / 100	0.53 / 96
" #3	07170014	0.18 / 100	1740		0.16 / 100	0.15 / 100	0.53 / 96
" #4	07170015	0.17 / 94	1753		0.16 / 100	0.14 / 93	0.54 / 98
" #5	07170016	0.18 / 100	1806		0.14 / 88	0.15 / 100	0.56 / 102
" #6	07170017	0.17 / 94	1818		0.16 / 100	0.14 / 93	0.53 / 96
" #7	07170018	0.17 / 94	1831		0.16 / 100	0.15 / 100	0.52 / 94
1.25 ppm Check	07170019	1.26 / 101	1844		1.25 / 100	1.24 / 99	1.24 / 99
RB	07170020	ND	1857		ND	ND	ND
WATER MATRIX Blank	07170021	ND	1909		ND	ND	0.58

→ USED FOR % recovery

ND= Not Detected N/A = Not Applicable Detection Limits = 250 ppb

Soil	DITHIANE	Thioxane	HD	CEES
STD. DEV-	0.004949	0.007284	0.009258	0.012778
(x 3.143) MDL →	0.0156	0.0229	0.0291	0.0402

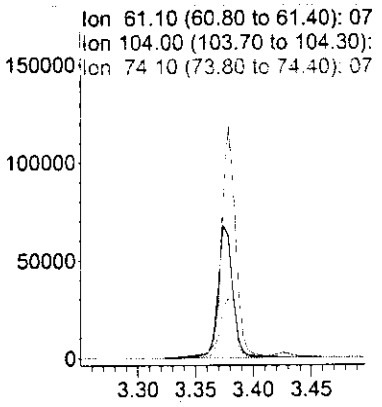


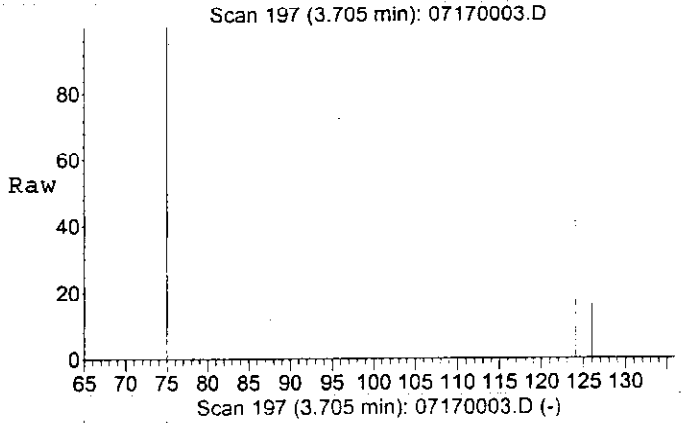


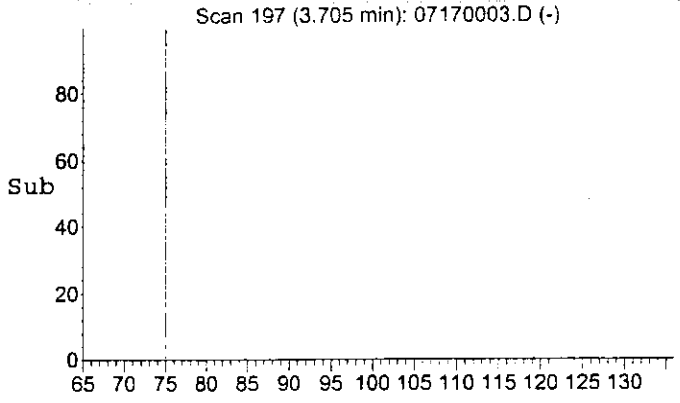
#1
1,4-THIOXANE
Concen: 1.25 ppm
RT: 3.38 min Scan# 124
Delta R.T. -0.02 min
Lab File: 07170003.D
Acq: 17 Jul 2000 15:12

Tgt Ion: 61 Resp: 600148

Ion	Ratio	Lower	Upper
61	100		
104	161.3	129.2	193.8
74	42.6	34.5	51.7



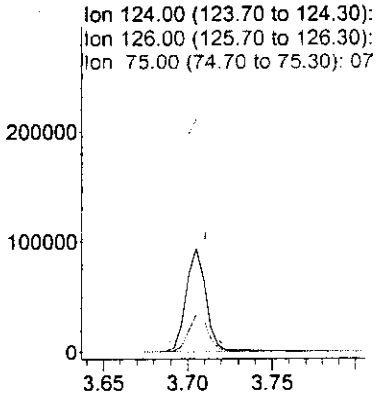


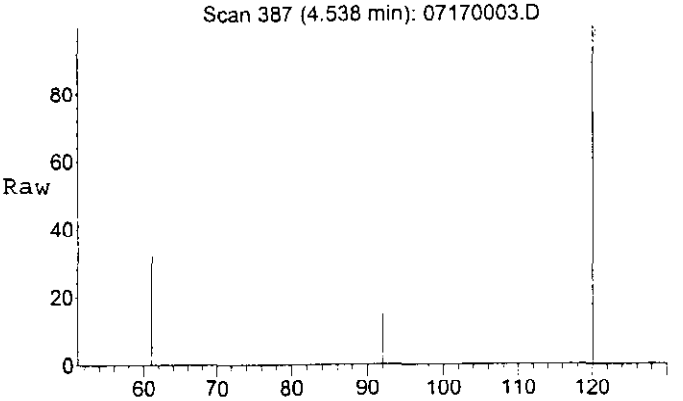


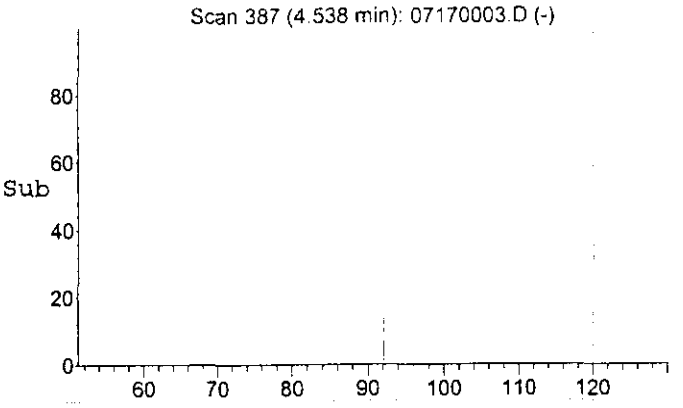
#2
CEES
Concen: 1.26 ppm
RT: 3.71 min Scan# 197
Delta R.T. 0.01 min
Lab File: 07170003.D
Acq: 17 Jul 2000 15:12

Tgt Ion:124 Resp: 775448

Ion	Ratio	Lower	Upper
124	100		
126	36.4	29.1	43.7
75	236.1	188.9	283.3



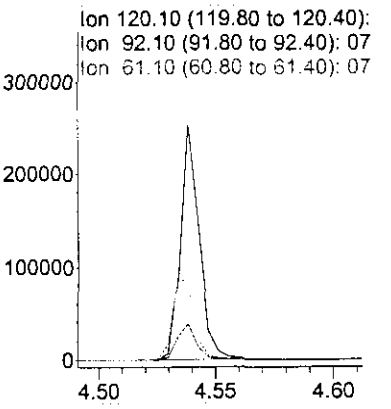


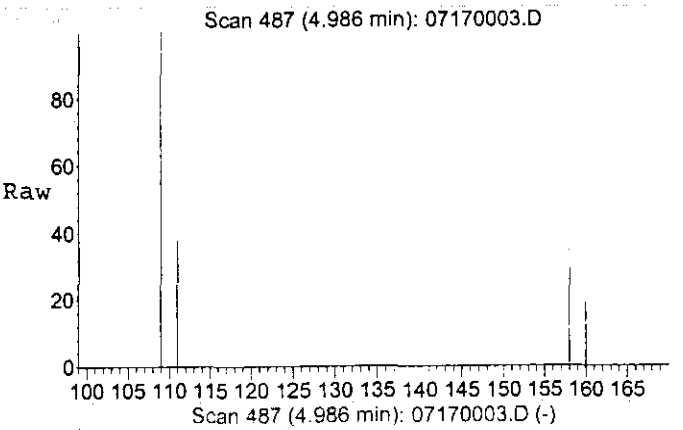


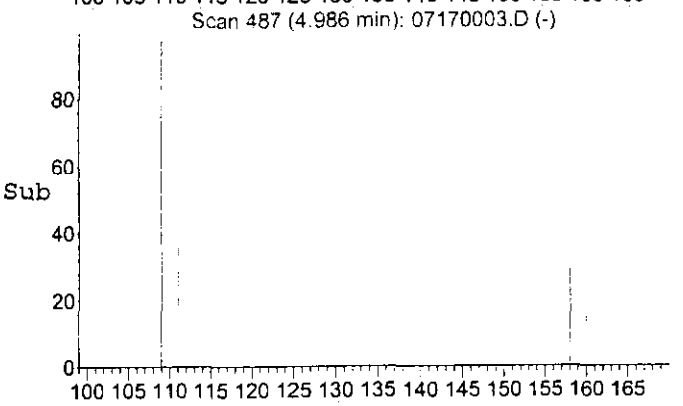
#3
1,4-DITHIANE
Concen: 1.26 ppm
RT: 4.54 min Scan# 387
Delta R.T. 0.04 min
Lab File: 07170003.D
Acq: 17 Jul 2000 15:12

Tgt Ion:120 Resp: 1399895

Ion	Ratio	Lower	Upper
120	100		
92	15.6	12.5	18.7
61	40.0	32.0	48.0



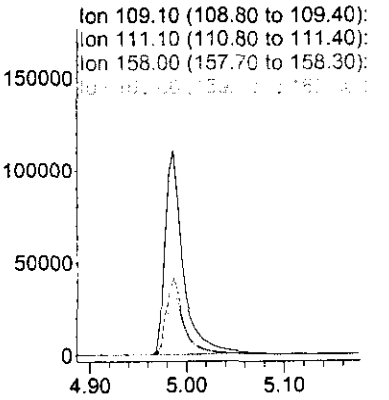




#4
MUSTARD
Concen: 1.26 ppm
RT: 4.99 min Scan# 487
Delta R.T. 0.04 min
Lab File: 07170003.D
Acq: 17 Jul 2000 15:12

Tgt Ion:109 Resp: 1444943

Ion	Ratio	Lower	Upper
109	100		
111	36.6	29.3	43.9
158	29.4	23.5	35.3
160	20.0	16.0	24.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170004.D Vial: 4
Acq On : 17 Jul 2000 15:24 Operator:
Sample : 0.625 ppm CAL STD Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

MS tegration Params: EVENTS.E
Quant Time: Jul 26 15:04 2000 Quant Results File: 4CEES.RES

Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)

Target Compounds					Qvalue
1) 1,4-THIOXANE	3.38	61	307398	0.64 ppm	99
2) CEES	3.71	124	389846	0.63 ppm	98
3) 1,4-DITHIANE	4.54	120	704882	0.64 ppm	100
4) MUSTARD	4.99	109	722519	0.63 ppm	99

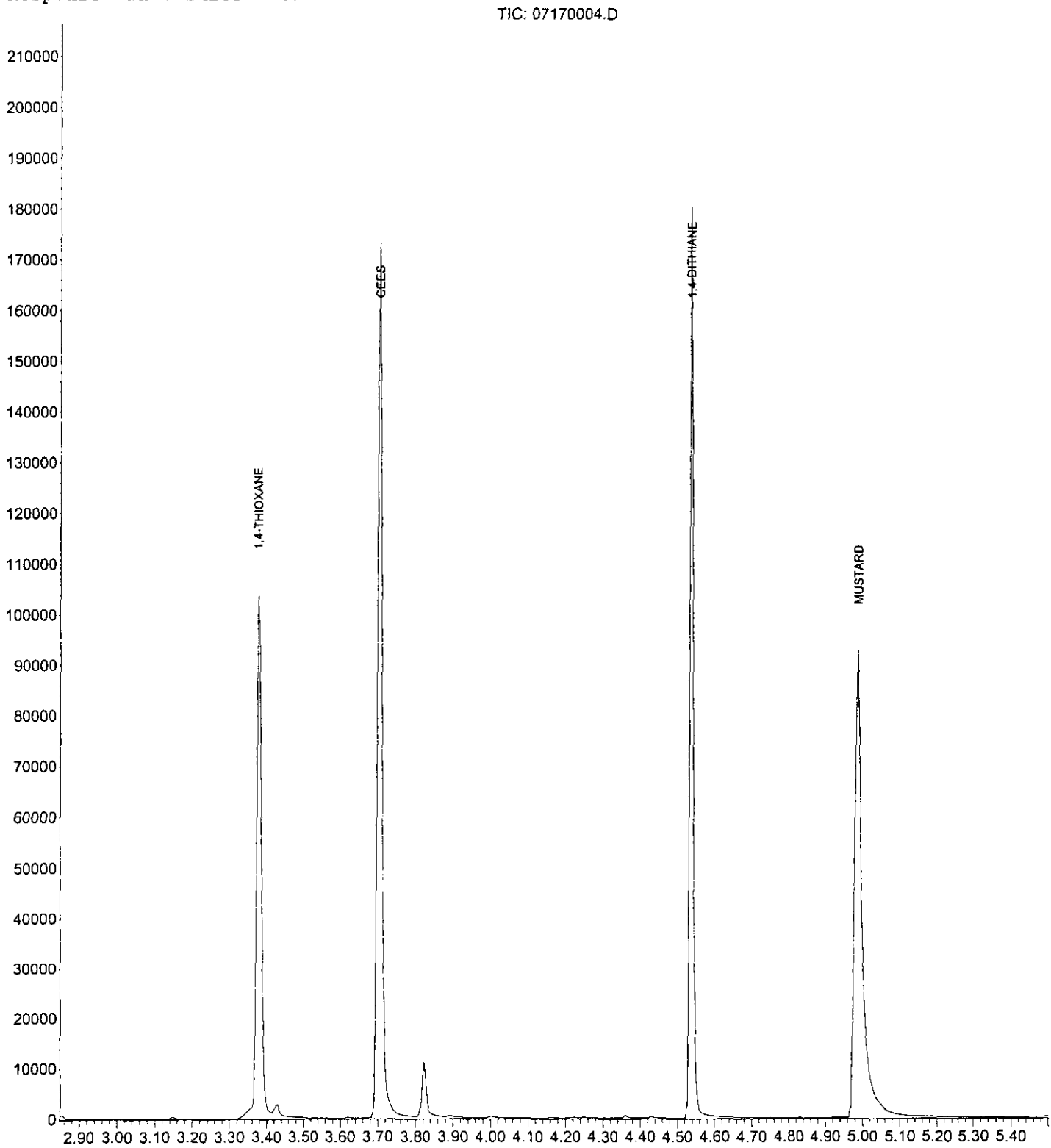
(#) = qualifier out of range (m) = manual integration

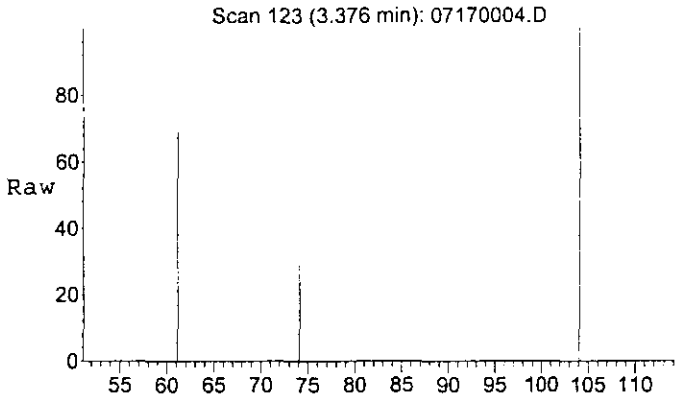
Quantitation Report

Data File : C:\HPCHEM\1\DATA\17JUL00\07170004.D Vial: 4
Acq On : 17 Jul 2000 15:24 Operator:
Sample : 0.625 ppm CAL STD Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:04 2000 Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration

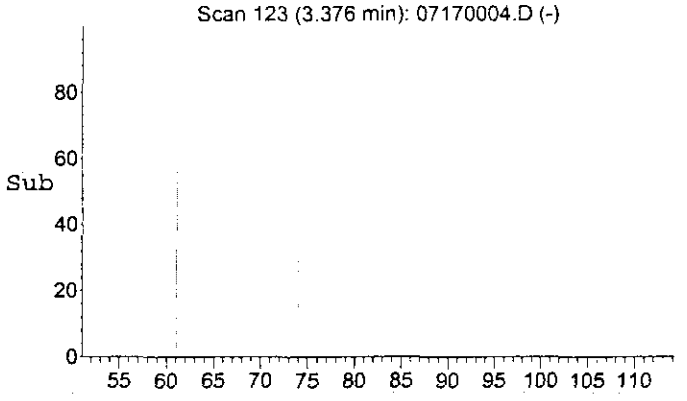


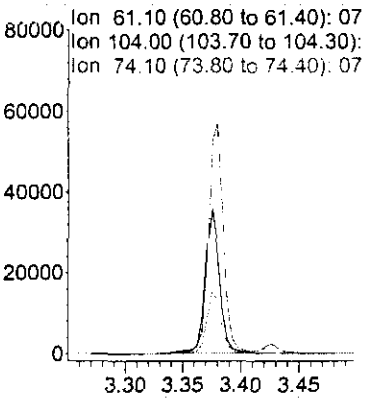


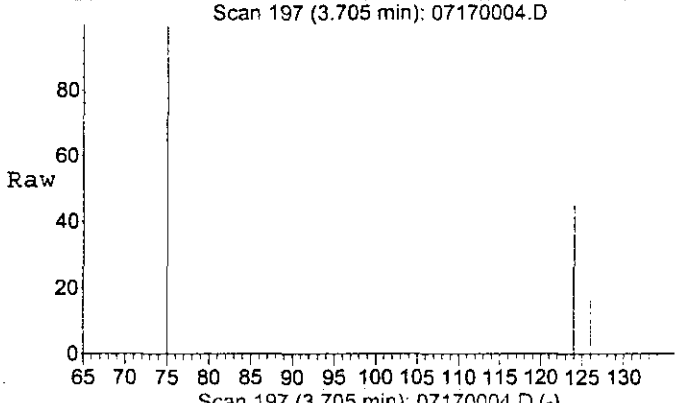
#1
1,4-THIOXANE
Concen: 0.64 ppm
RT: 3.38 min Scan# 123
Delta R.T. -0.02 min
Lab File: 07170004.D
Acq: 17 Jul 2000 15:24

Tgt Ion: 61 Resp: 307398

Ion	Ratio	Lower	Upper
61	100		
104	160.4	129.2	193.8
74	42.3	34.5	51.7



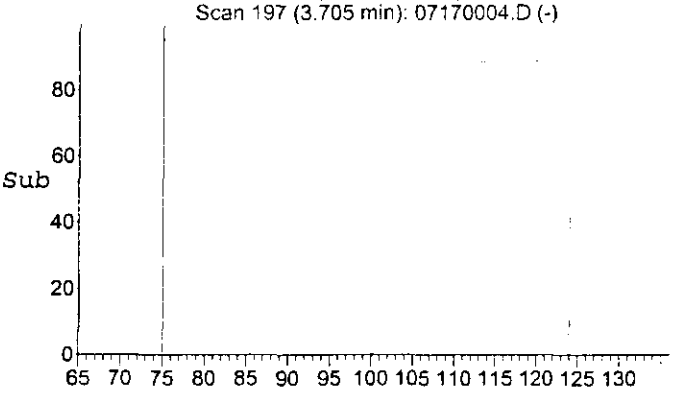


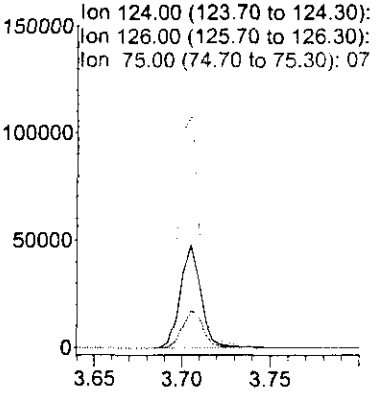


#2
CEES
Concen: 0.63 ppm
RT: 3.71 min Scan# 197
Delta R.T. 0.01 min
Lab File: 07170004.D
Acq: 17 Jul 2000 15:24

Tgt Ion:124 Resp: 389846

Ion	Ratio	Lower	Upper
124	100		
126	36.9	29.1	43.7
75	239.1	188.9	283.3





Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170005.D Vial: 5
Acq On : 17 Jul 2000 15:37 Operator:
Sample : 0.312 ppm CAL STD Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

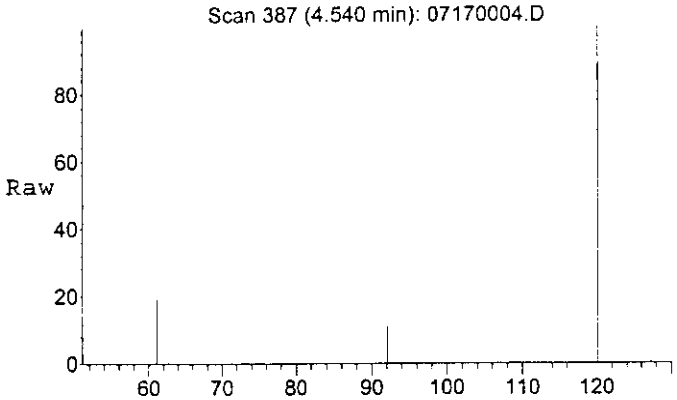
MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:09 2000 Quant Results File: 4CEES.RES

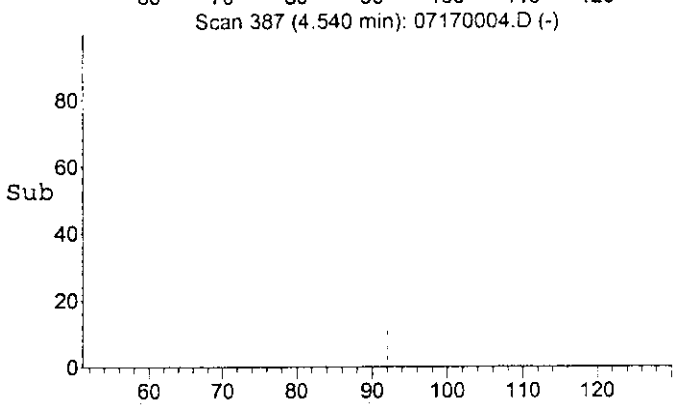
Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)

Target Compounds					Qvalue
1) 1,4-THIOXANE	3.38	61	154028	0.32 ppm	99
2) CEES	3.71	124	195165	0.32 ppm	98
3) 1,4-DITHIANE	4.54	120	359306	0.32 ppm	100
4) MUSTARD	4.99	109	356407	0.31 ppm	100

(#) = qualifier out of range (m) = manual integration

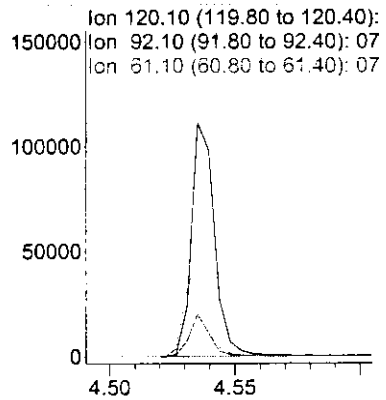


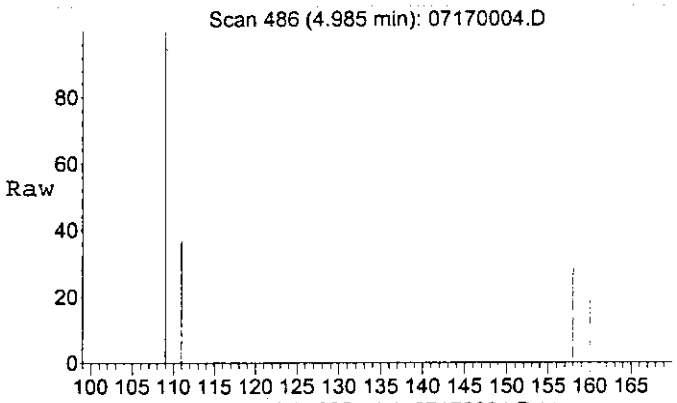


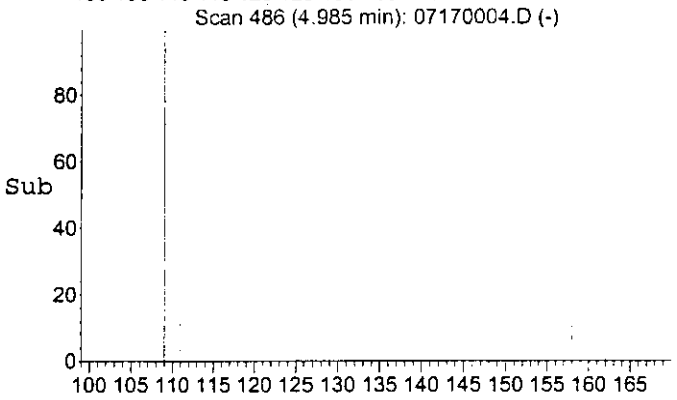
#3
1,4-DITHIANE
Concen: 0.64 ppm
RT: 4.54 min Scan# 387
Delta R.T. 0.04 min
Lab File: 07170004.D
Acq: 17 Jul 2000 15:24

Tgt Ion:120 Resp: 704882

Ion	Ratio	Lower	Upper
120	100		
92	15.7	12.5	18.7
61	40.0	32.0	48.0



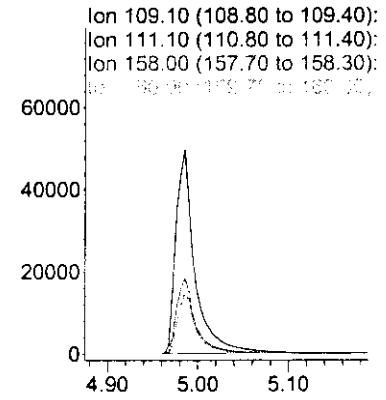




#4
MUSTARD
Concen: 0.63 ppm
RT: 4.99 min Scan# 486
Delta R.T. 0.04 min
Lab File: 07170004.D
Acq: 17 Jul 2000 15:24

Tgt Ion:109 Resp: 722519

Ion	Ratio	Lower	Upper
109	100		
111	36.5	29.3	43.9
158	28.9	23.5	35.3
160	19.9	16.0	24.0

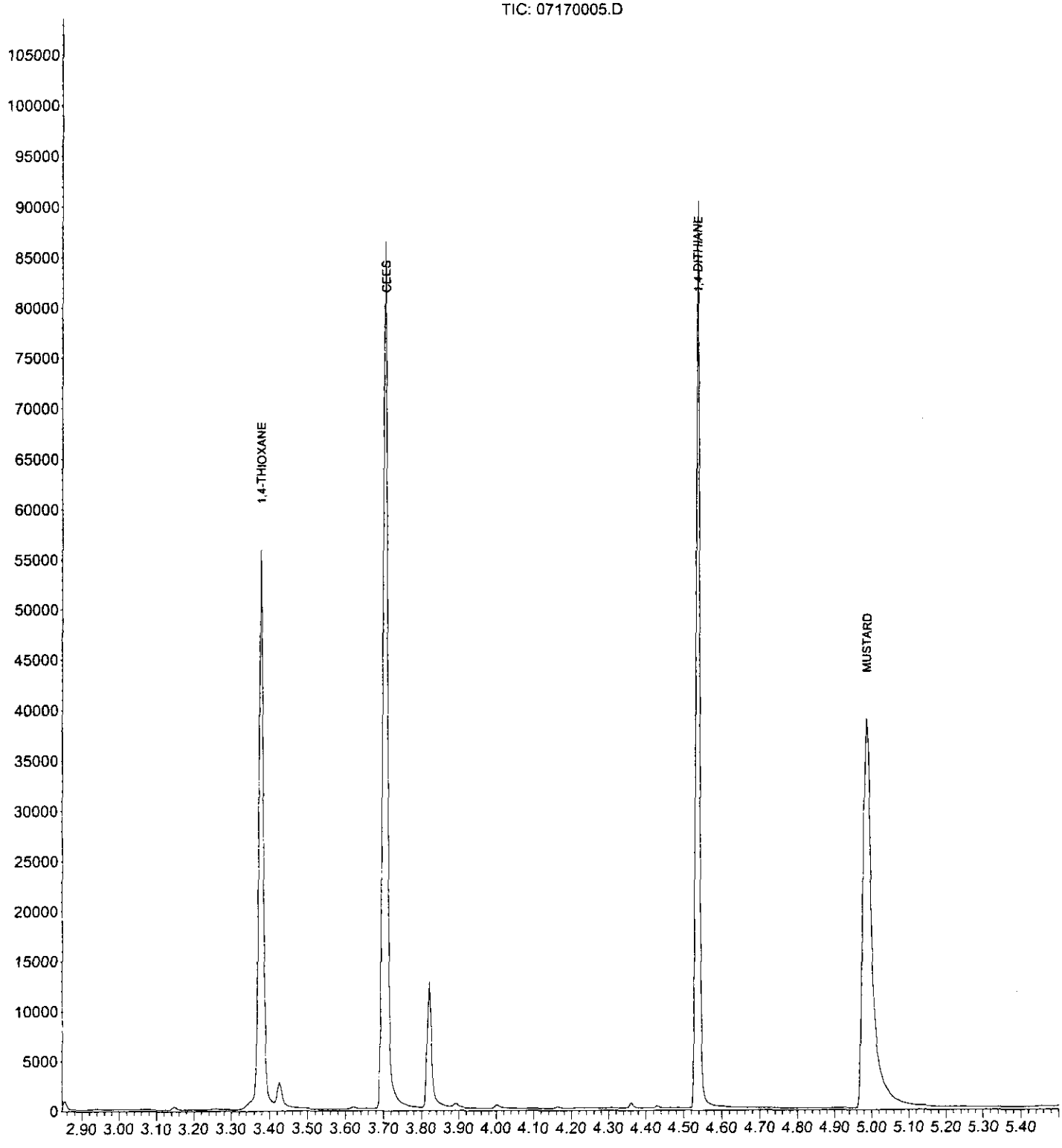


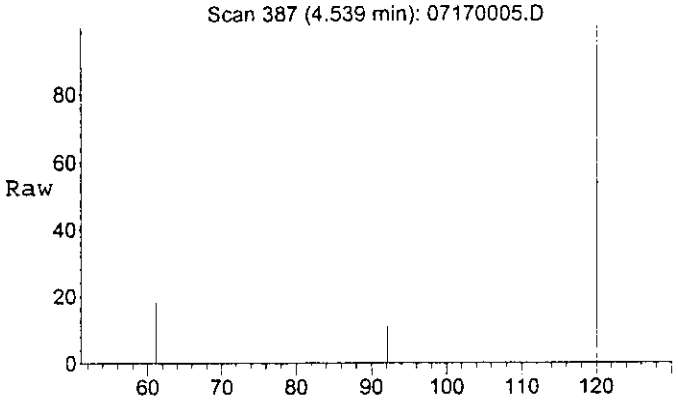
Quantitation Report

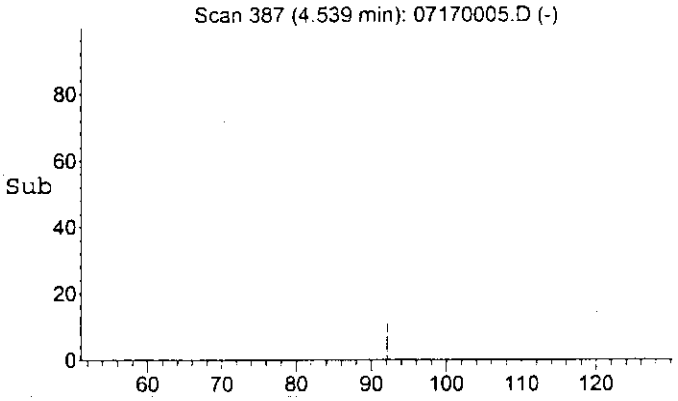
Data File : C:\HPCHEM\1\DATA\17JUL00\07170005.D Vial: 5
Acq On : 17 Jul 2000 15:37 Operator:
Sample : 0.312 ppm CAL STD Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:09 2000 Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration



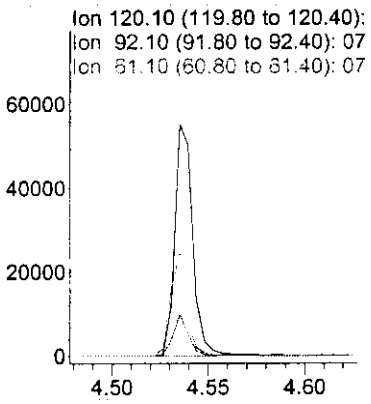


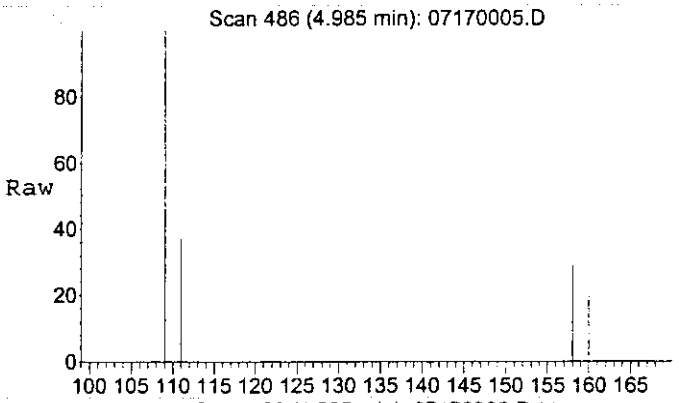


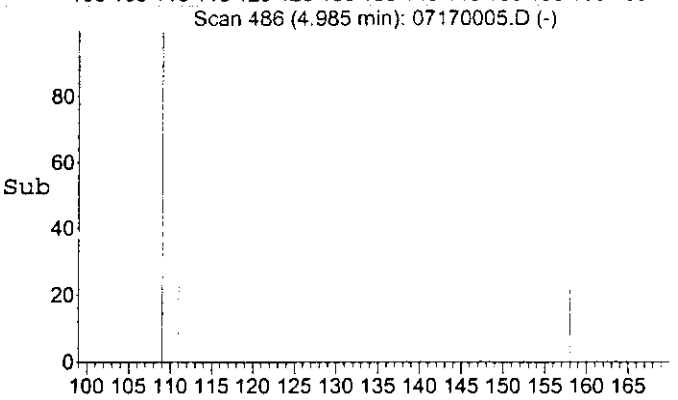
#3
1,4-DITHIANE
Concen: 0.32 ppm
RT: 4.54 min Scan# 387
Delta R.T. 0.04 min
Lab File: 07170005.D
Acq: 17 Jul 2000 15:37

Tgt Ion:120 Resp: 359306

Ion	Ratio	Lower	Upper
120	100		
92	15.4	12.5	18.7
61	40.0	32.0	48.0



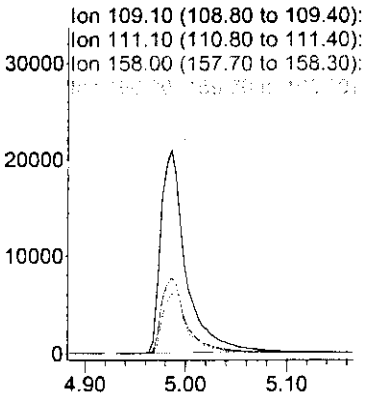


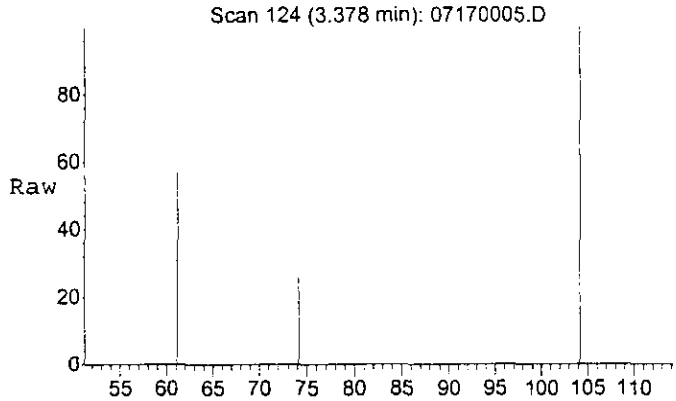


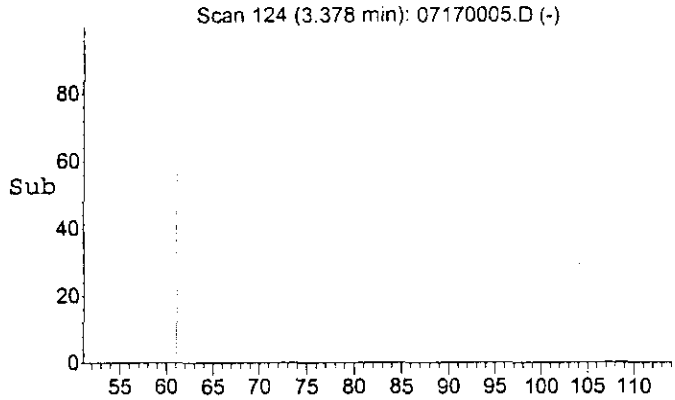
#4
MUSTARD
Concen: 0.31 ppm
RT: 4.99 min Scan# 486
Delta R.T. 0.04 min
Lab File: 07170005.D
Acq: 17 Jul 2000 15:37

Tgt Ion:109 Resp: 356407

Ion	Ratio	Lower	Upper
109	100		
111	36.6	29.3	43.9
158	29.0	23.5	35.3
160	20.0	16.0	24.0



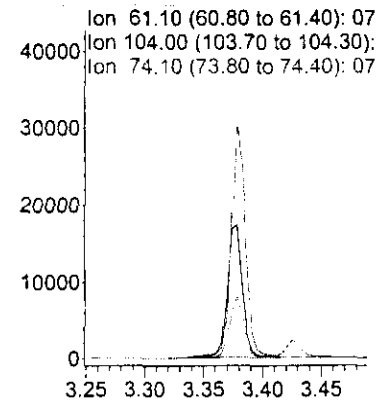


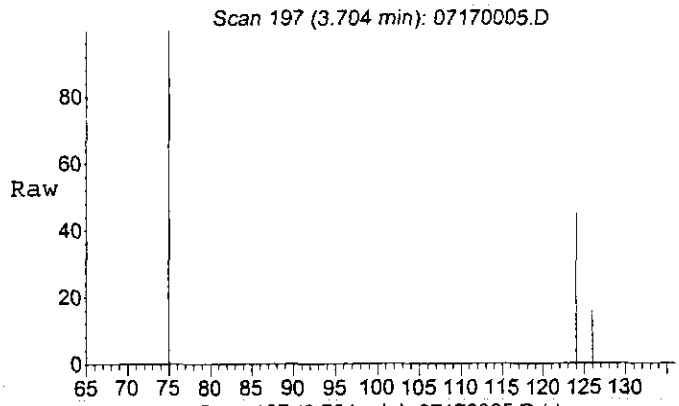


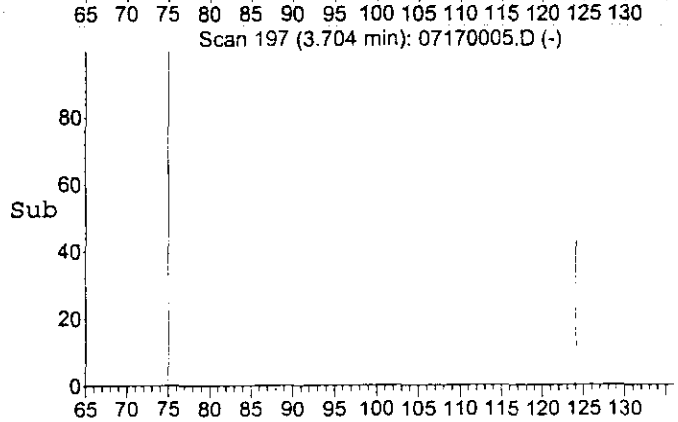
#1
1,4-THIOXANE
Concen: 0.32 ppm
RT: 3.38 min Scan# 124
Delta R.T. -0.02 min
Lab File: 07170005.D
Acq: 17 Jul 2000 15:37

Tgt Ion: 61 Resp: 154028

Ion	Ratio	Lower	Upper
61	100		
104	161.1	129.2	193.8
74	41.6	34.5	51.7



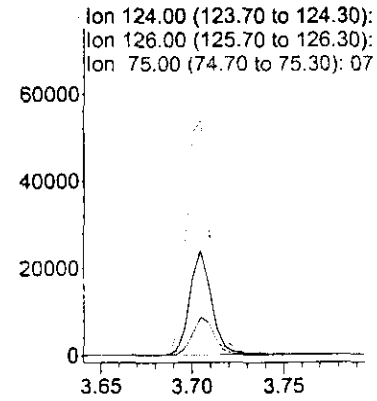




#2
CEES
Concen: 0.32 ppm
RT: 3.71 min Scan# 197
Delta R.T. 0.01 min
Lab File: 07170005.D
Acq: 17 Jul 2000 15:37

Tgt Ion:124 Resp: 195165

Ion	Ratio	Lower	Upper
124	100		
126	36.9	29.1	43.7
75	239.6	188.9	283.3

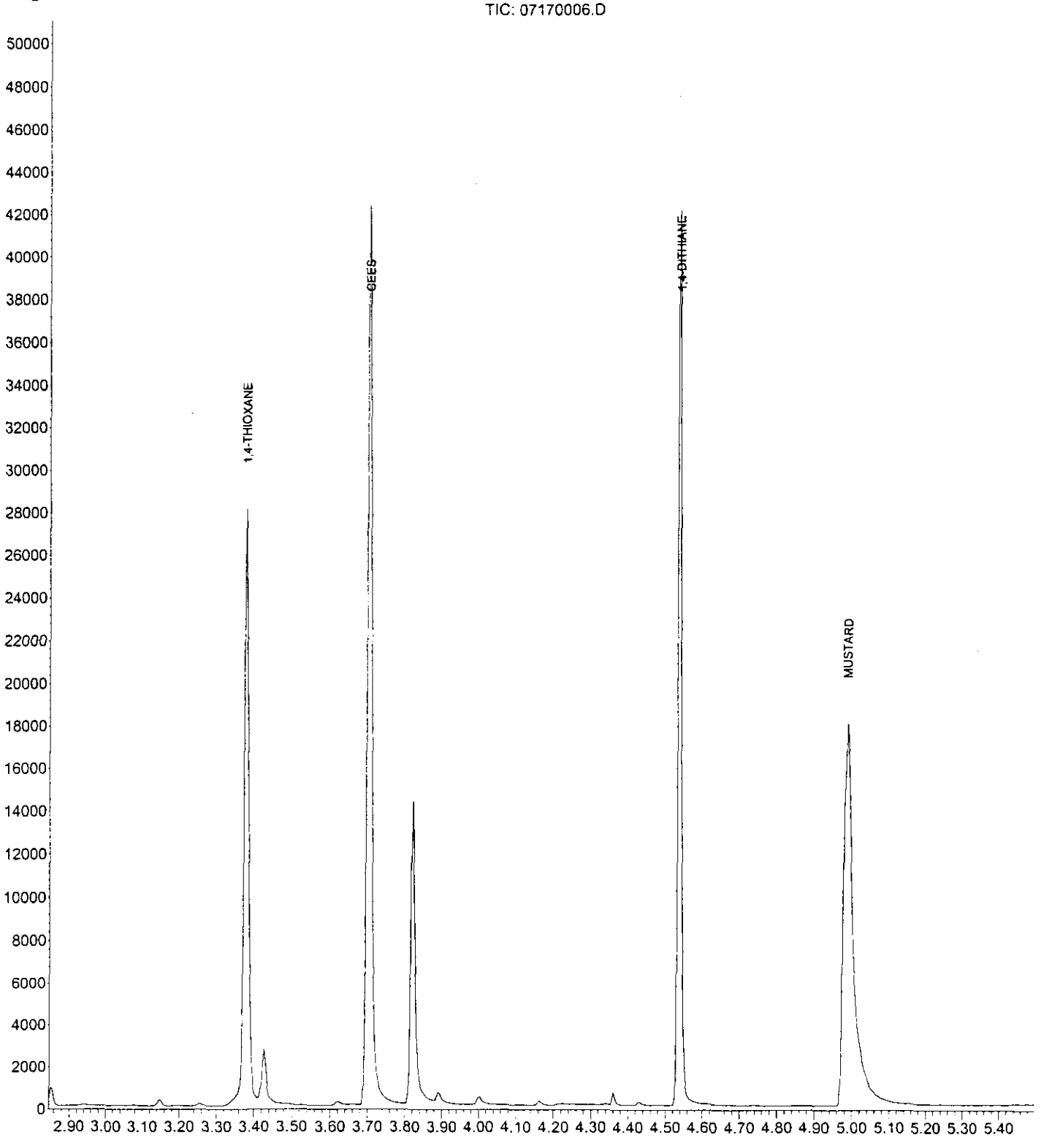


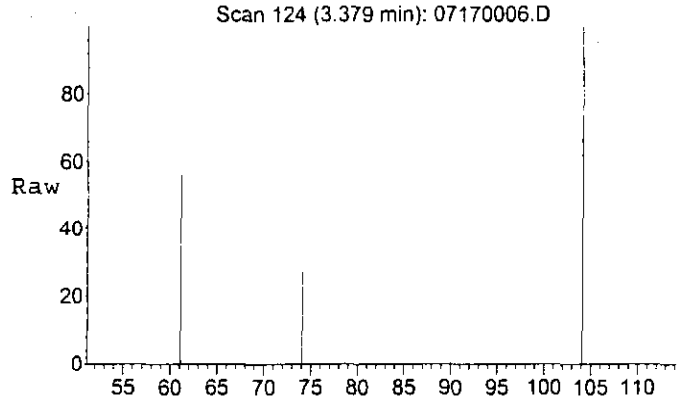
Quantitation Report

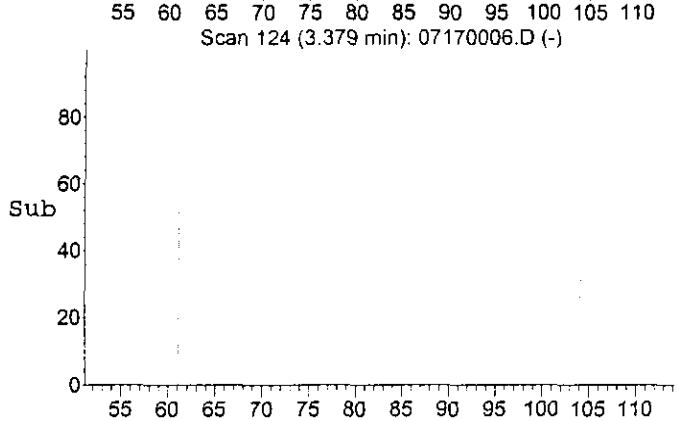
Data File : C:\HPCHEM\1\DATA\17JUL00\07170006.D Vial: 6
Acq On : 17 Jul 2000 15:50 Operator:
Sample : 0.156 ppm CAL STD Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:11 2000 Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration



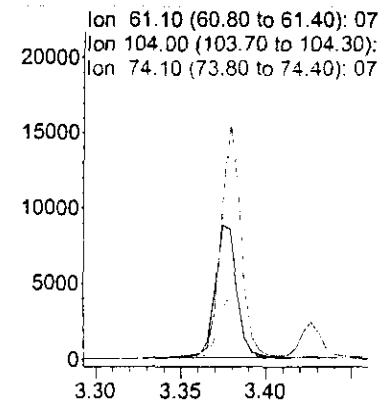


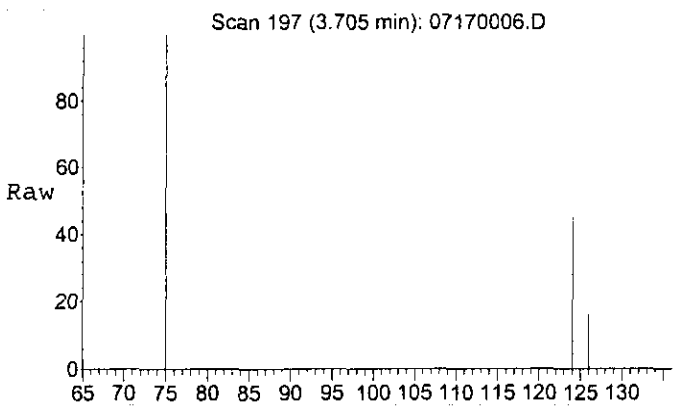


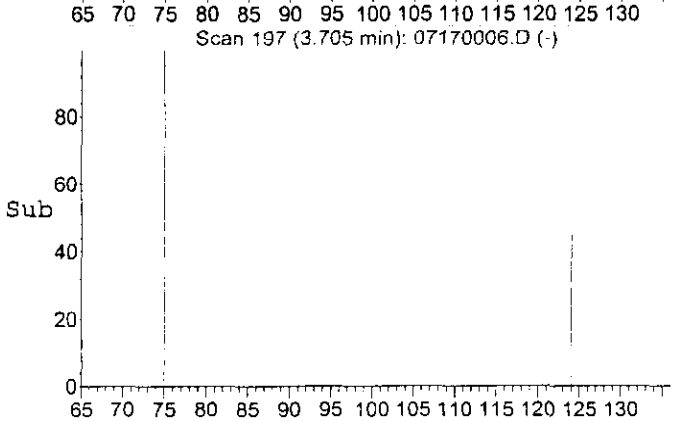
#1
1,4-THIOXANE
Concen: 0.16 ppm
RT: 3.38 min Scan# 124
Delta R.T. -0.02 min
Lab File: 07170006.D
Acq: 17 Jul 2000 15:50

Tgt Ion: 61 Resp: 76234

Ion	Ratio	Lower	Upper
61	100		
104	160.8	129.2	193.8
74	43.5	34.5	51.7



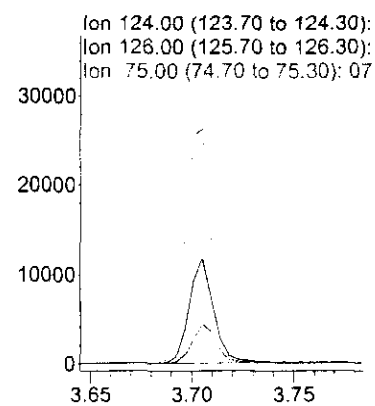


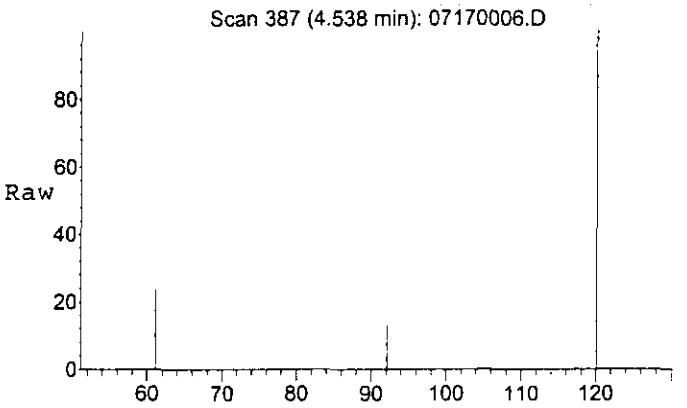


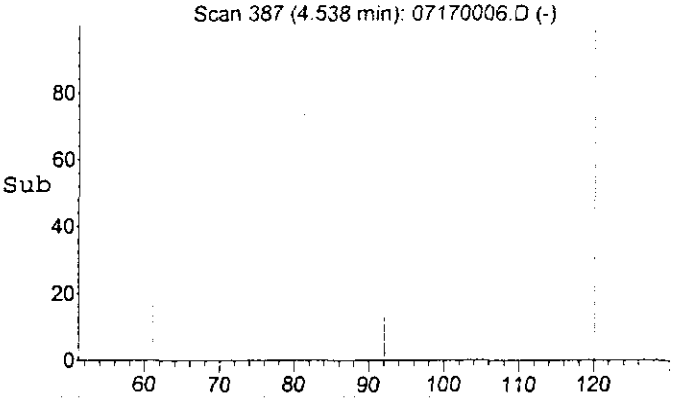
#2
CEES
Concen: 0.16 ppm
RT: 3.71 min Scan# 197
Delta R.T. 0.01 min
Lab File: 07170006.D
Acq: 17 Jul 2000 15:50

Tgt Ion:124 Resp: 96726

Ion	Ratio	Lower	Upper
124	100		
126	37.1	29.1	43.7
75	241.4	188.9	283.3



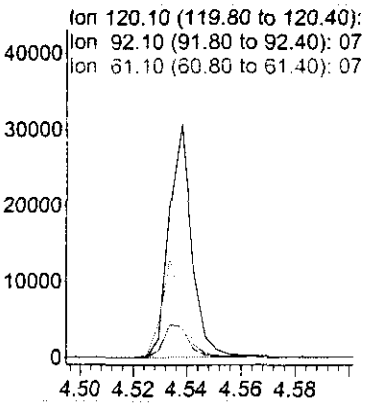


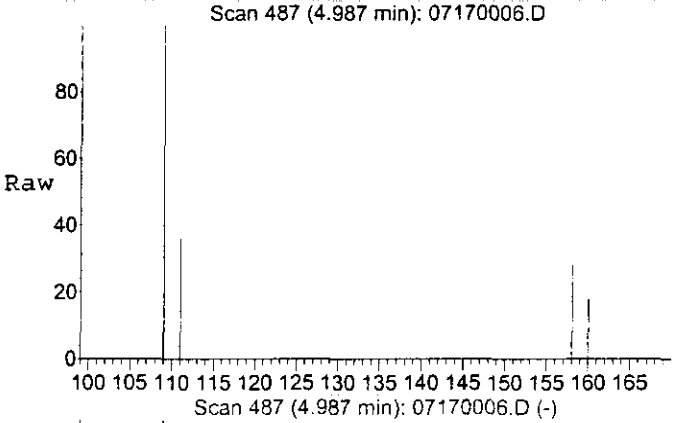


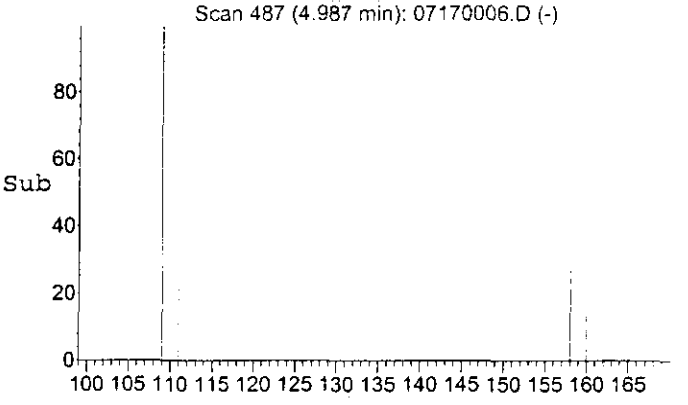
#3
1,4-DITHIANE
Concen: 0.16 ppm
RT: 4.54 min Scan# 387
Delta R.T. 0.04 min
Lab File: 07170006.D
Acq: 17 Jul 2000 15:50

Tgt Ion:120 Resp: 178155

Ion	Ratio	Lower	Upper
120	100		
92	15.5	12.5	18.7
61	39.8	32.0	48.0



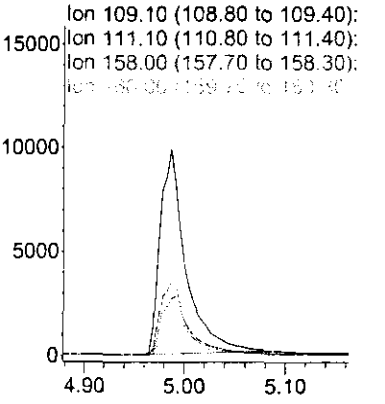




#4
MUSTARD
Concen: 0.15 ppm
RT: 4.99 min Scan# 487
Delta R.T. 0.04 min
Lab File: 07170006.D
Acq: 17 Jul 2000 15:50

Tgt Ion:109 Resp: 172899

Ion	Ratio	Lower	Upper
109	100		
111	37.0	29.3	43.9
158	29.0	23.5	35.3
160	19.4	16.0	24.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170008.D Vial: 1
Acq On : 17 Jul 2000 16:24 Operator: EWC
Sample : RB Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:13 2000 Quant Results File: 4CEES.RES

Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)

Target Compounds					Qvalue
1) 1,4-THIOXANE	0.00	61	0	N.D.	
2) CEES	0.00	124	0	N.D.	
3) 1,4-DITHIANE	0.00	120	0	N.D.	
4) MUSTARD	0.00	109	0	N.D.	

(#) = qualifier out of range (m) = manual integration

Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170006.D Vial: 6
Acq On : 17 Jul 2000 15:50 Operator:
Sample : 0.156 ppm CAL STD Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

I Integration Params: EVENTS.E
Quant Time: Jul 26 15:11 2000 Quant Results File: 4CEES.RES

Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)

Target Compounds					Qvalue
1) 1,4-THIOXANE	3.38	61	76234	0.16 ppm	99
2) CEES	3.71	124	96726	0.16 ppm	97
3) 1,4-DITHIANE	4.54	120	178155	0.16 ppm	100
4) MUSTARD	4.99	109	172899	0.15 ppm	99

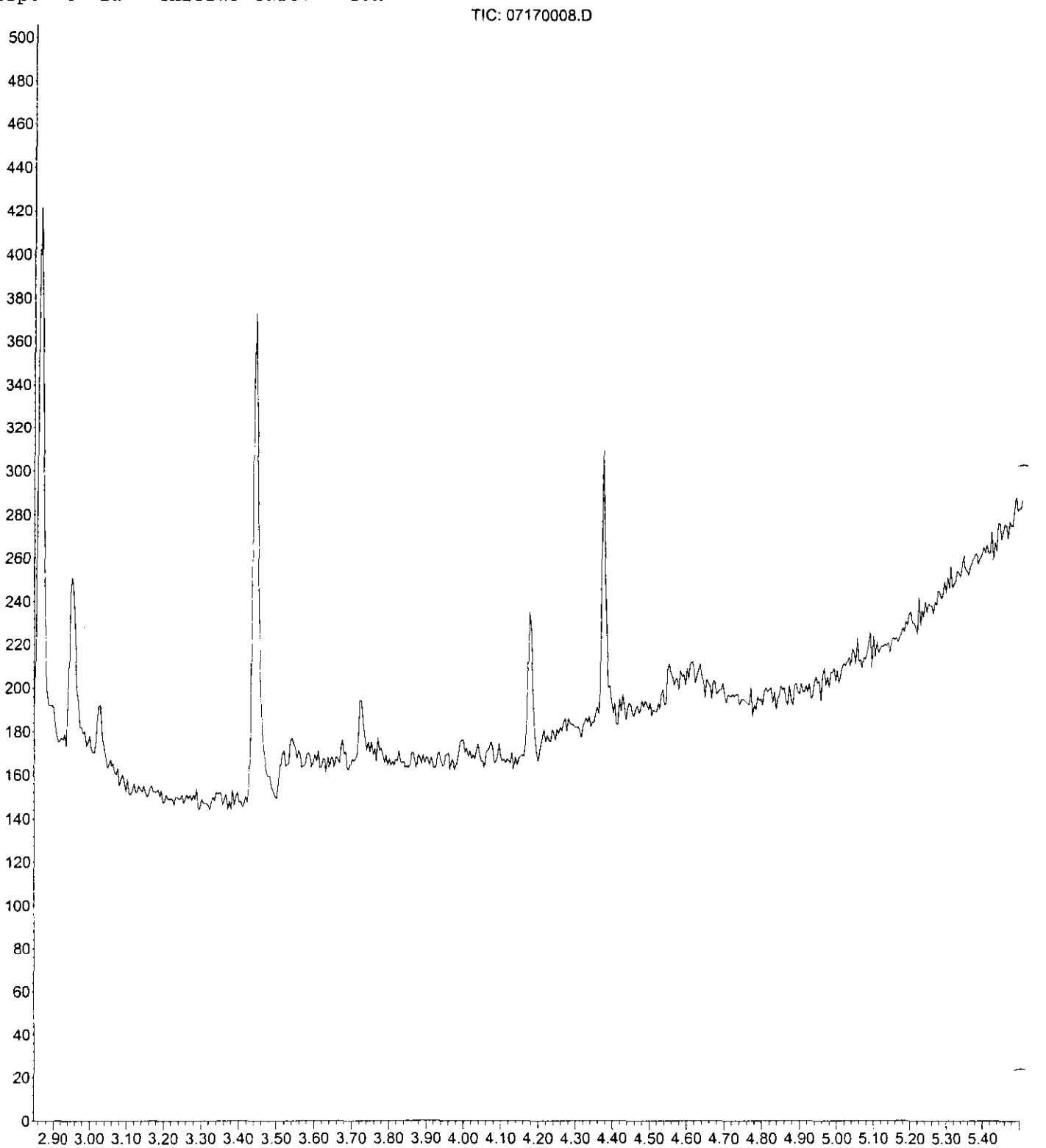
(#) = qualifier out of range (m) = manual integration

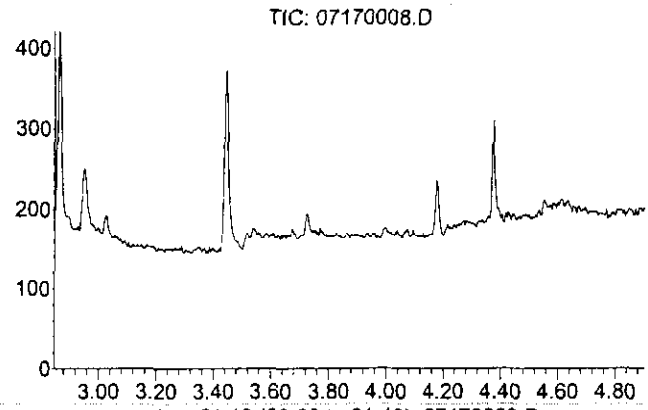
Quantitation Report

Data File : C:\HPCHEM\1\DATA\17JUL00\07170008.D Vial: 1
Acq On : 17 Jul 2000 16:24 Operator: EWC
Sample : RB Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:13 2000 Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration



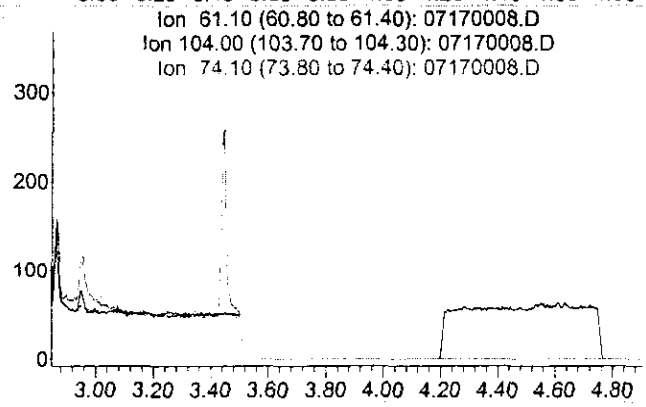


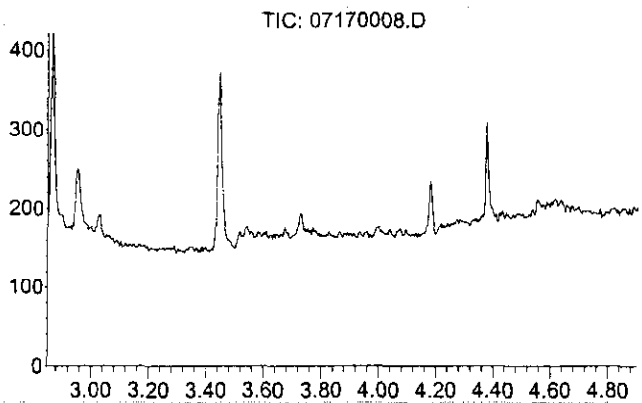
#1
1,4-THIOXANE
Concen: N.D.
Expected RT: 3.40 min

Lab File: 07170008.D
Acq: 17 Jul 2000 16:24

Tgt Ion: 61

Sig	Exp Ratio
61	100
104	161.5
74	43.1



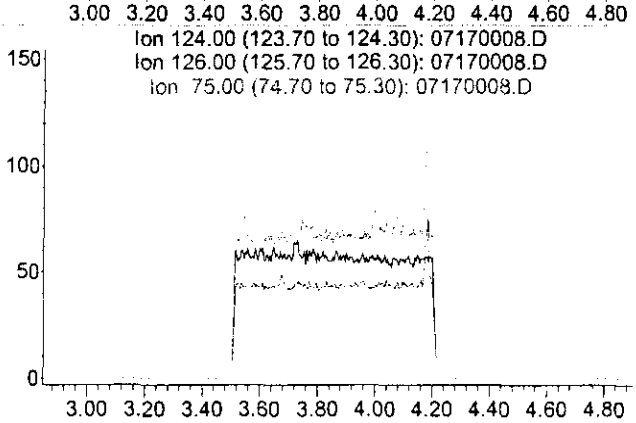


#2
CEES
Concen: N.D.
Expected RT: 3.70 min

Lab File: 07170008.D
Acq: 17 Jul 2000 16:24

Tgt Ion: 124

Sig	Exp Ratio
124	100
126	36.4
75	236.1



Quantitation Report

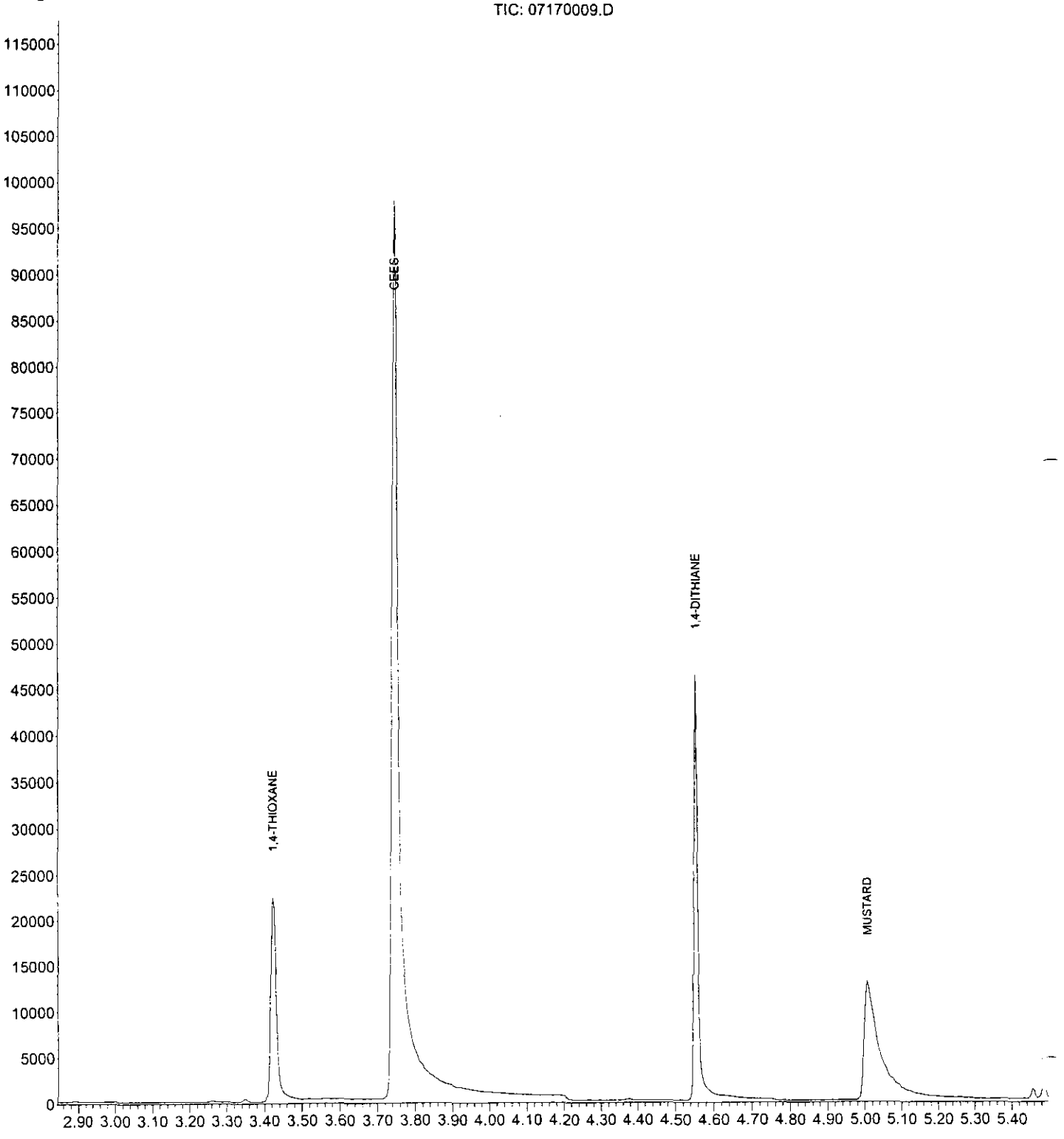
Data File : C:\HPCHEM\1\DATA\17JUL00\07170009.D
Acq On : 17 Jul 2000 16:36
Sample : MSA#1
Misc :

Vial: 7
Operator: EWC
Inst : GCMSD4
Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:13 2000

Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170009.D Vial: 7
Acq On : 17 Jul 2000 16:36 Operator: EWC
Sample : MSA#1 Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

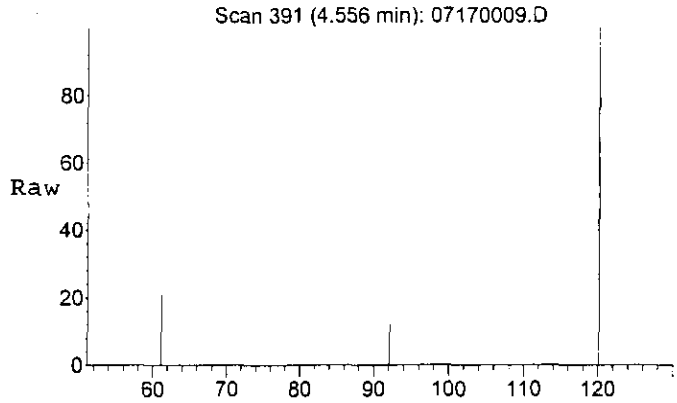
M Integration Params: EVENTS.E
Quant Time: Jul 26 15:13 2000 Quant Results File: 4CEES.RES

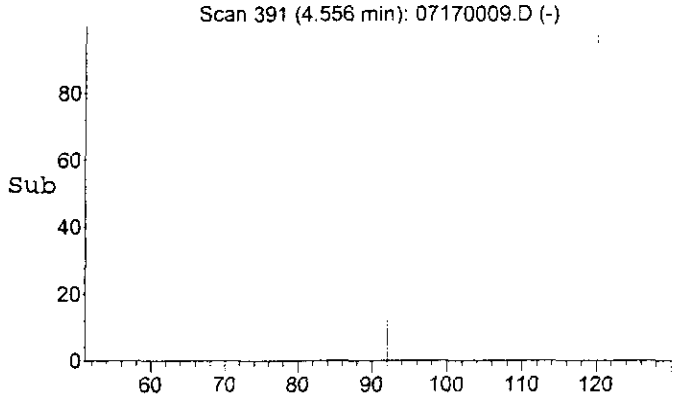
Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)

Target Compounds					Qvalue
1) 1,4-THIOXANE	3.42	61	73532	0.15 ppm	98
2) CEES	3.75	124	335191	0.54 ppm	95
3) 1,4-DITHIANE	4.56	120	202872	0.18 ppm	99
4) MUSTARD	5.01	109	177605	0.15 ppm	100

(#) = qualifier out of range (m) = manual integration

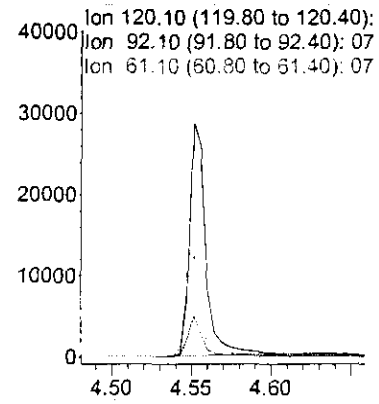


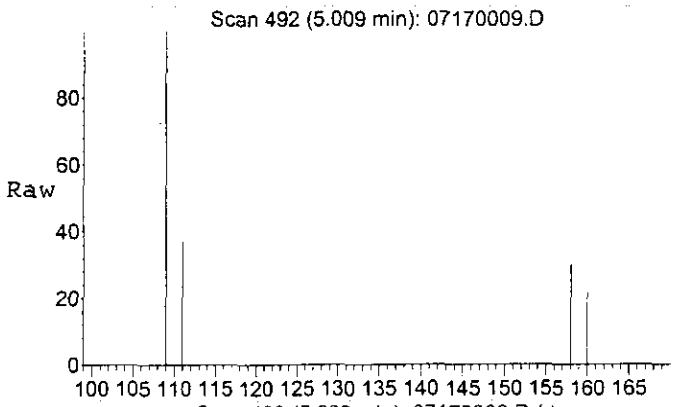


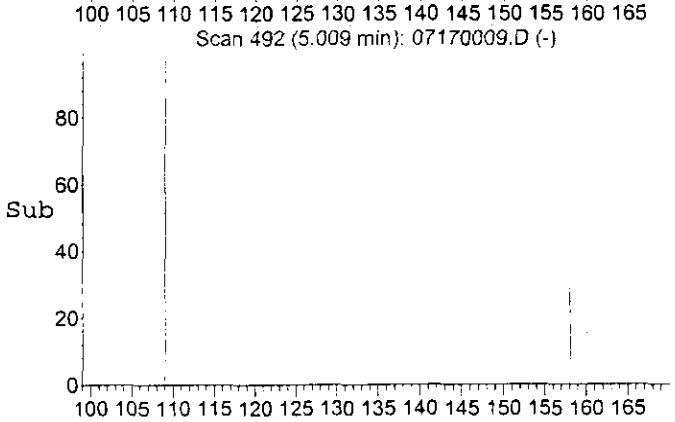
#3
1,4-DITHIANE
Concen: 0.18 ppm
RT: 4.56 min Scan# 391
Delta R.T. 0.06 min
Lab File: 07170009.D
Acq: 17 Jul 2000 16:36

Tgt Ion:120 Resp: 202872

Ion	Ratio	Lower	Upper
120	100		
92	14.9	12.5	18.7
61	39.9	32.0	48.0



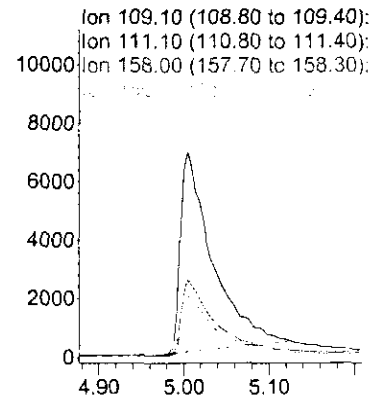


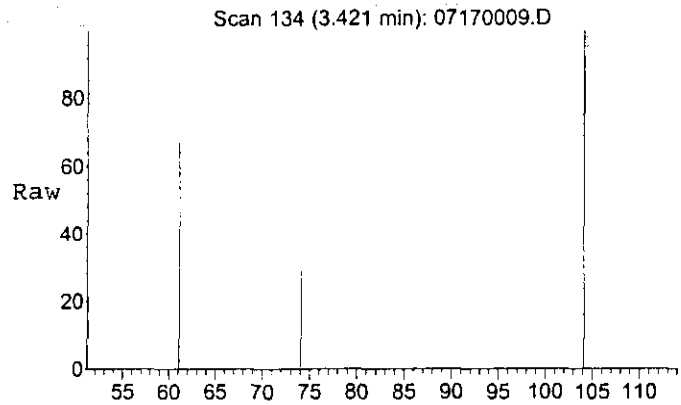


#4
MUSTARD
Concen: 0.15 ppm
RT: 5.01 min Scan# 492
Delta R.T. 0.06 min
Lab File: 07170009.D
Acq: 17 Jul 2000 16:36

Tgt Ion:109 Resp: 177605

Ion	Ratio	Lower	Upper
109	100		
111	36.9	29.3	43.9
158	29.3	23.5	35.3
160	20.2	16.0	24.0

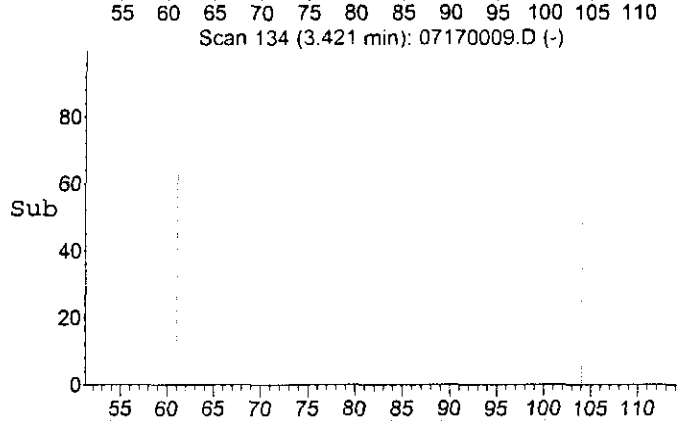


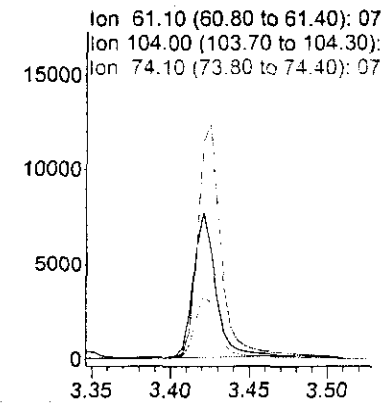


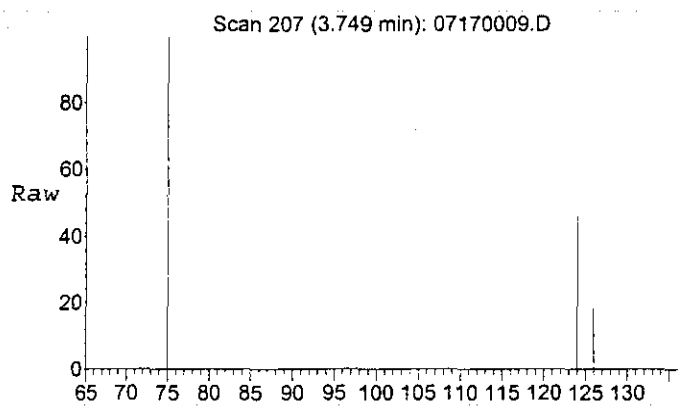
#1
1,4-THIOXANE
Concen: 0.15 ppm
RT: 3.42 min Scan# 134
Delta R.T. 0.02 min
Lab File: 07170009.D
Acq: 17 Jul 2000 16:36

Tgt Ion: 61 Resp: 73532

Ion	Ratio	Lower	Upper
61	100		
104	165.2	129.2	193.8
74	43.3	34.5	51.7



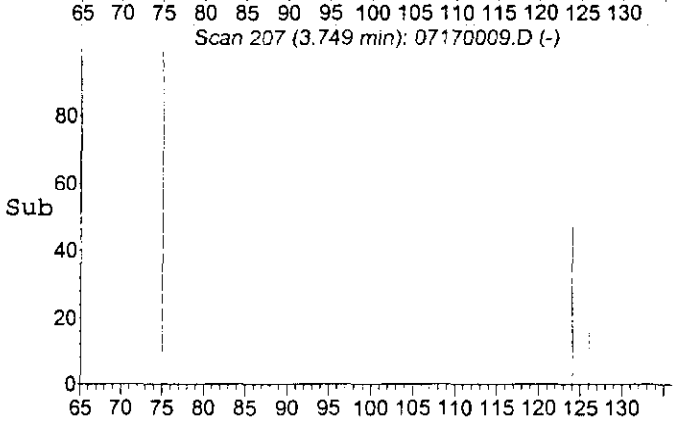


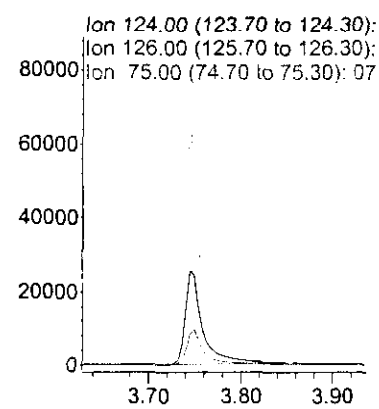


#2
CEES
Concen: 0.54 ppm
RT: 3.75 min Scan# 207
Delta R.T. 0.05 min
Lab File: 07170009.D
Acq: 17 Jul 2000 16:36

Tgt Ion:124 Resp: 335191

Ion	Ratio	Lower	Upper
124	100		
126	35.9	29.1	43.7
75	245.0	188.9	283.3



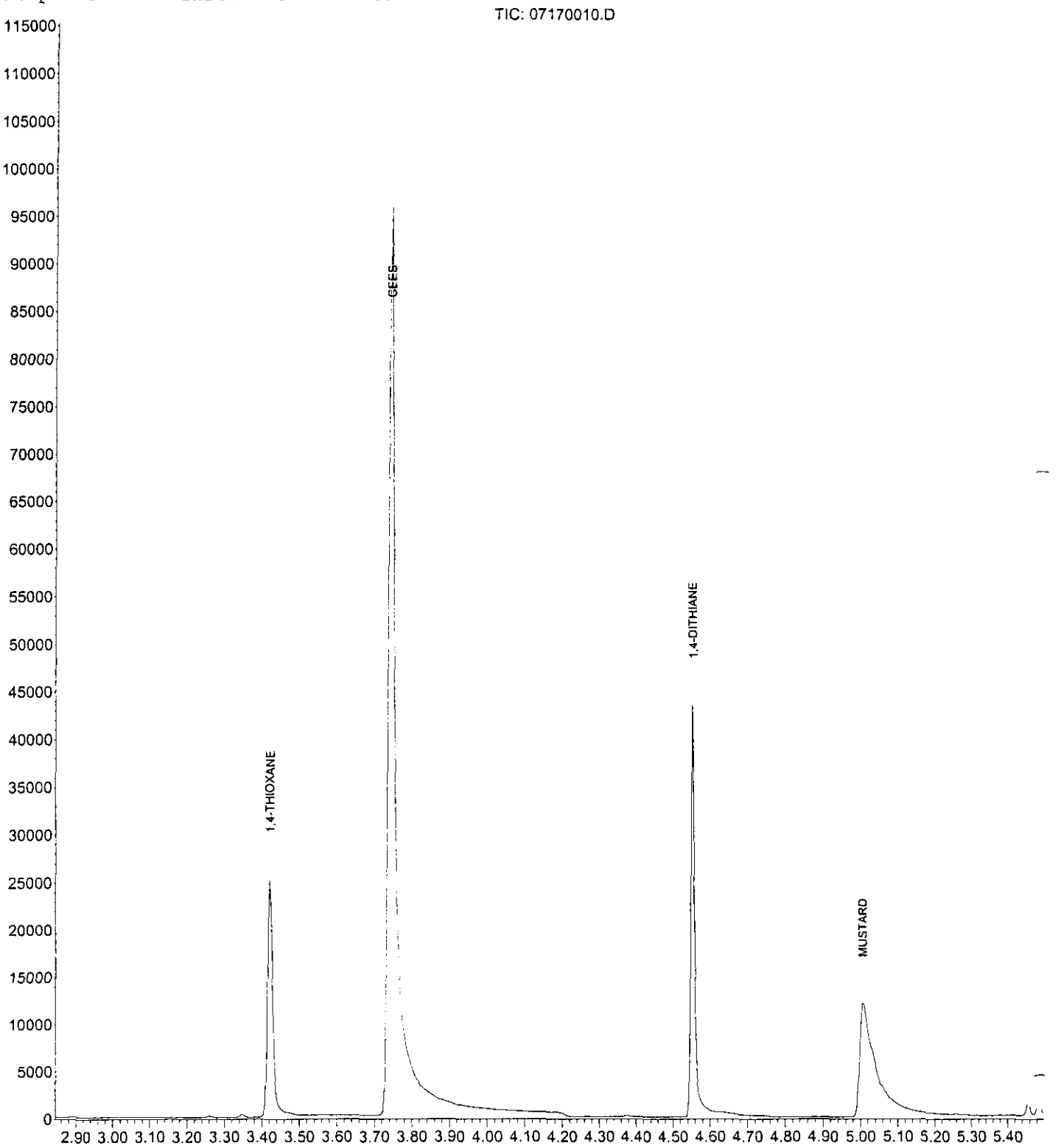


Quantitation Report

Data File : C:\HPCHEM\1\DATA\17JUL00\07170010.D Vial: 8
Acq On : 17 Jul 2000 16:49 Operator: EWC
Sample : MSA#2 Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:14 2000 Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170010.D Vial: 8
Acq On : 17 Jul 2000 16:49 Operator: EWC
Sample : MSA#2 Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

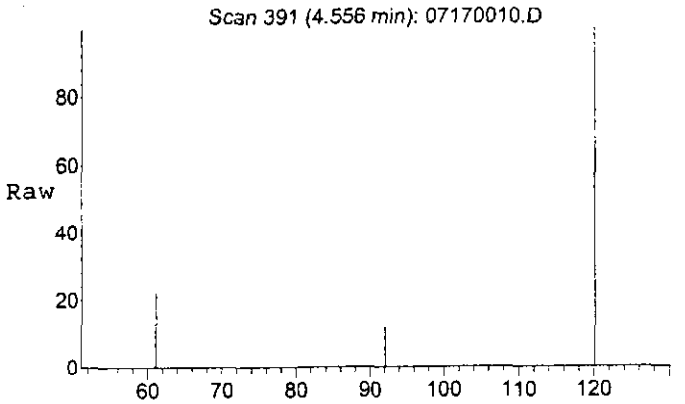
Integration Params: EVENTS.E
Quant Time: Jul 26 15:14 2000 Quant Results File: 4CEES.RES

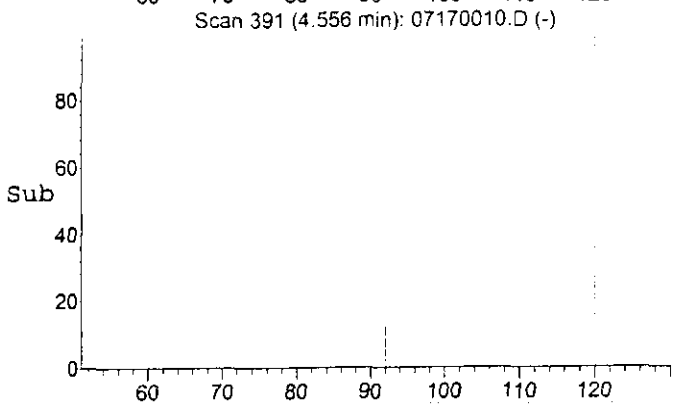
Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)

Target Compounds					Qvalue
1) 1,4-THIOXANE	3.42	61	77511	0.16 ppm	97
2) CEES	3.75	124	336292	0.55 ppm	98
3) 1,4-DITHIANE	4.56	120	196282	0.18 ppm	99
4) MUSTARD	5.01	109	170083	0.15 ppm	100

(#) = qualifier out of range (m) = manual integration
07170010.D 4CEES.M Wed Jul 26 15:14:52 2000

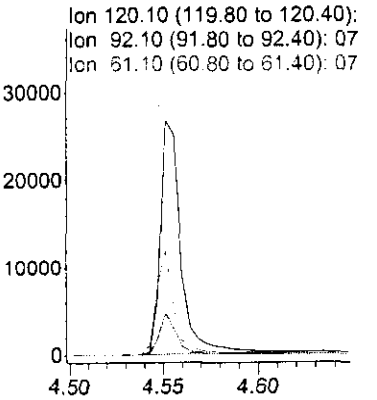


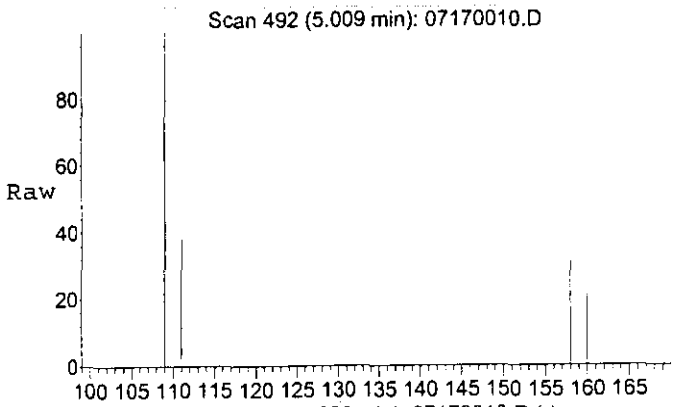


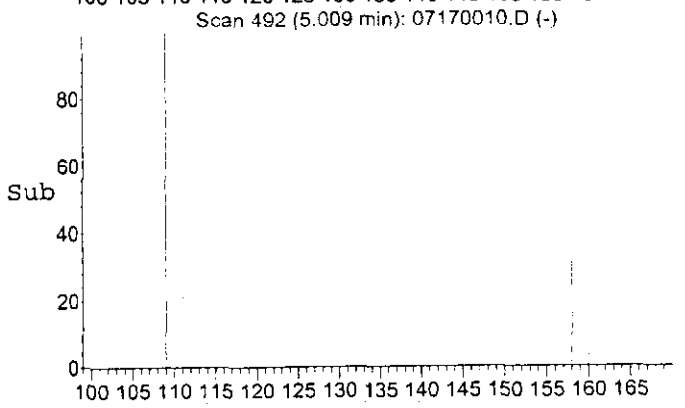
#3
1,4-DITHIANE
Concen: 0.18 ppm
RT: 4.56 min Scan# 391
Delta R.T. 0.06 min
Lab File: 07170010.D
Acq: 17 Jul 2000 16:49

Tgt Ion:120 Resp: 196282

Ion	Ratio	Lower	Upper
120	100		
92	15.0	12.5	18.7
61	39.6	32.0	48.0



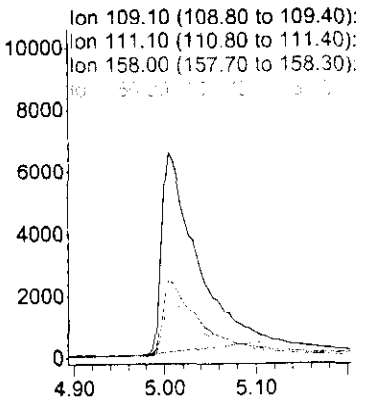


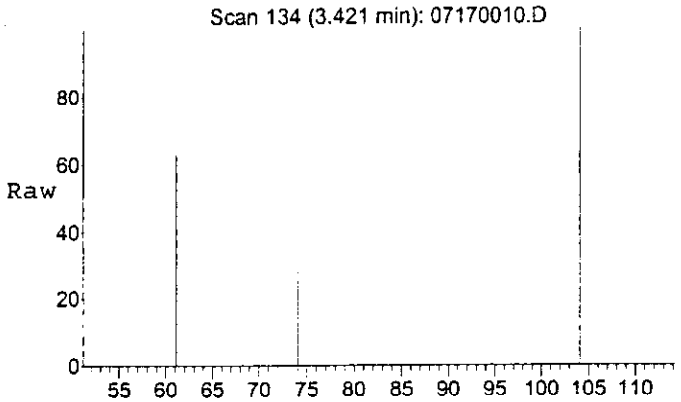


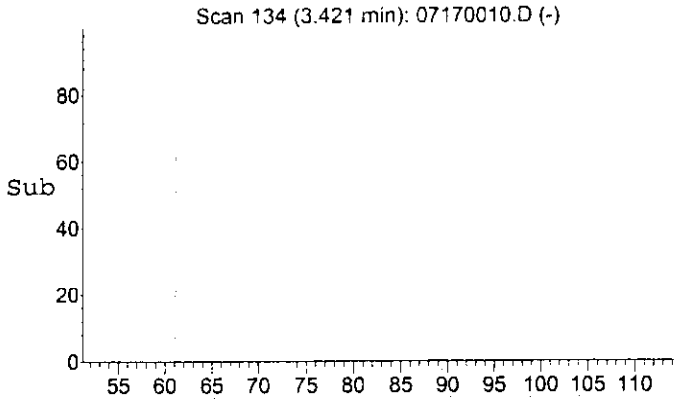
#4
MUSTARD
Concen: 0.15 ppm
RT: 5.01 min Scan# 492
Delta R.T. 0.06 min
Lab File: 07170010.D
Acq: 17 Jul 2000 16:49

Tgt Ion:109 Resp: 170083

Ion	Ratio	Lower	Upper
109	100		
111	37.0	29.3	43.9
158	29.4	23.5	35.3
160	20.1	16.0	24.0



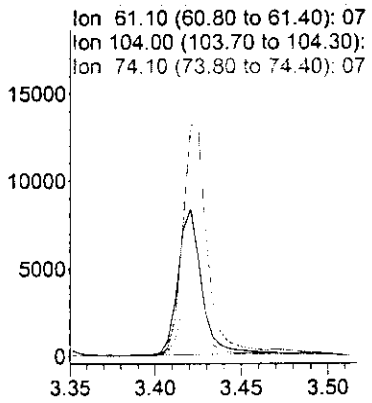


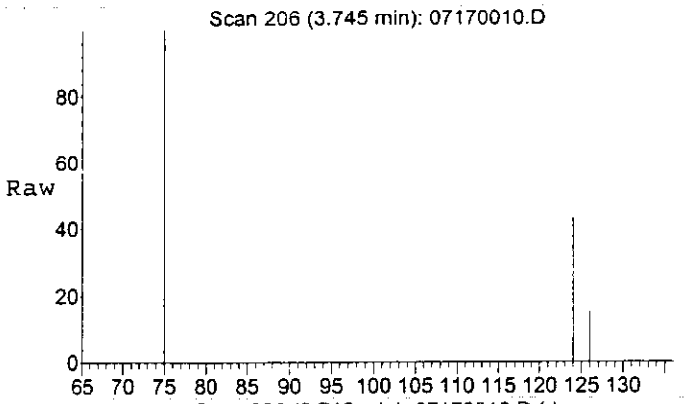


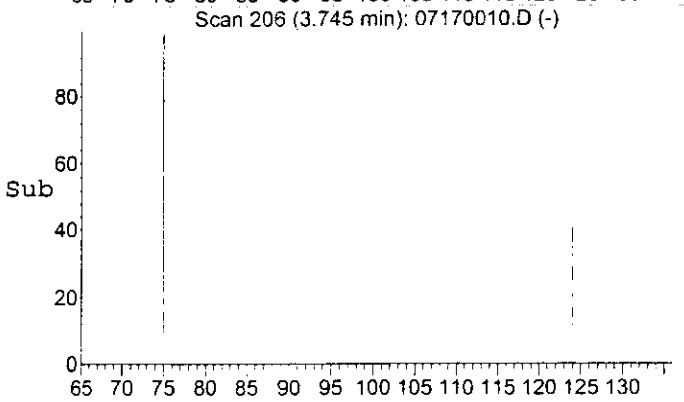
#1
1,4-THIOXANE
Concen: 0.16 ppm
RT: 3.42 min Scan# 134
Delta R.T. 0.02 min
Lab File: 07170010.D
Acq: 17 Jul 2000 16:49

Tgt Ion: 61 Resp: 77511

Ion	Ratio	Lower	Upper
61	100		
104	166.9	129.2	193.8
74	43.7	34.5	51.7



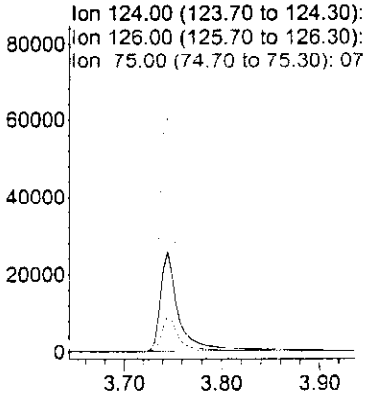




#2
CEES
Concen: 0.55 ppm
RT: 3.75 min Scan# 206
Delta R.T. 0.05 min
Lab File: 07170010.D
Acq: 17 Jul 2000 16:49

Tgt Ion:124 Resp: 336292

Ion	Ratio	Lower	Upper
124	100		
126	36.1	29.1	43.7
75	240.8	188.9	283.3



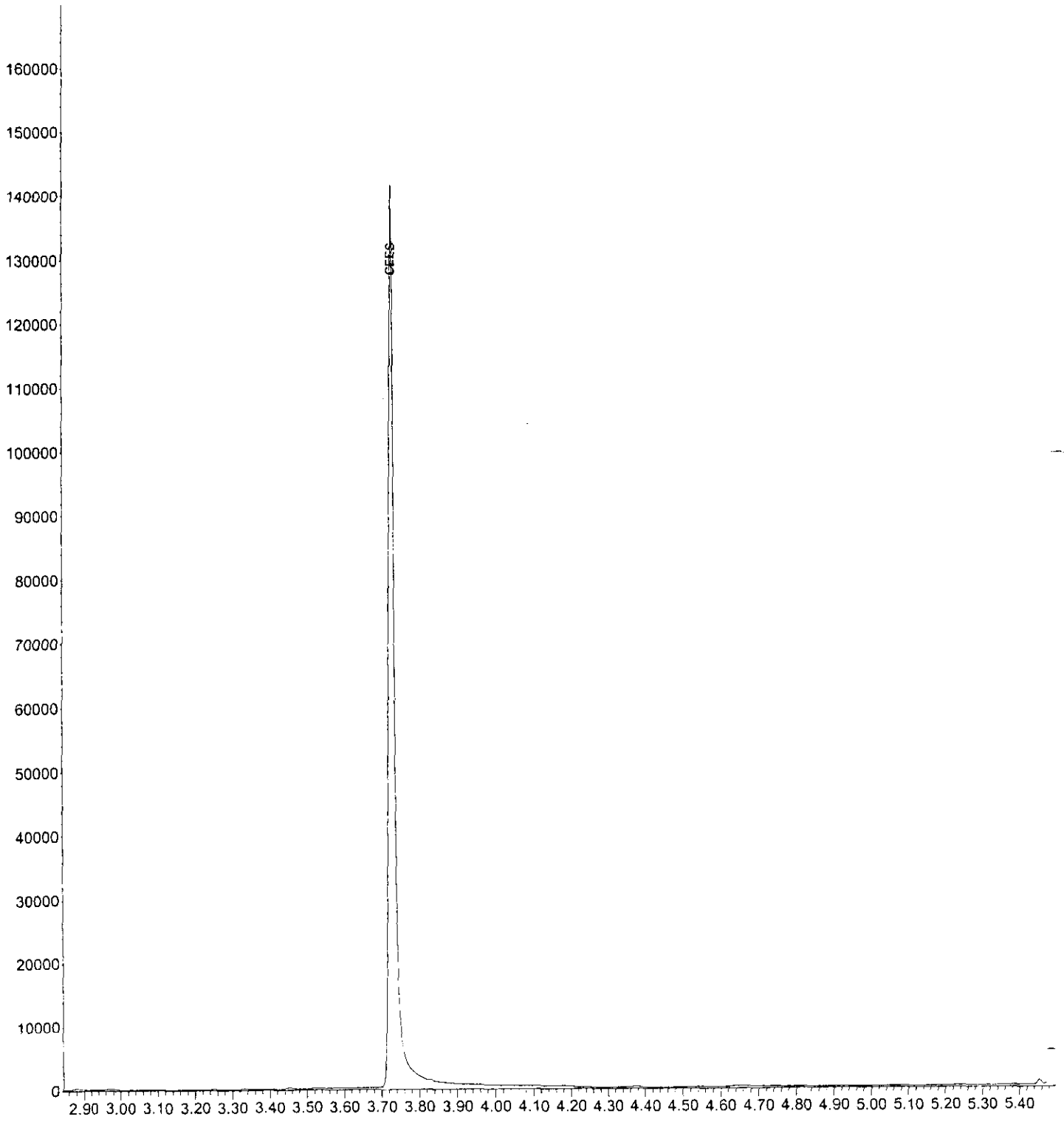
Quantitation Report

Data File : C:\HPCHEM\1\DATA\17JUL00\07170011.D Vial: 9
Acq On : 17 Jul 2000 17:02 Operator: EWC
Sample : SOIL MATRIX BLANK Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:22 2000 Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration

TIC: 07170011.D



Quantitation Report (Not Reviewed)

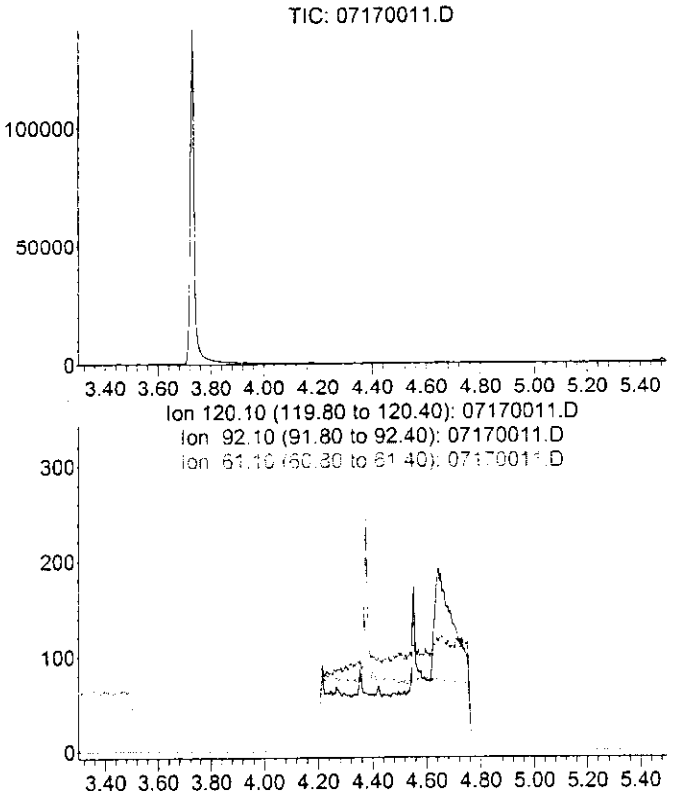
Data File : C:\HPCHEM\1\DATA\17JUL00\07170011.D Vial: 9
Acq On : 17 Jul 2000 17:02 Operator: EWC
Sample : SOIL MATRIX BLANK Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

M Integration Params: EVENTS.E
Quant Time: Jul 26 15:22 2000 Quant Results File: 4CEES.RES

Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
Target Compounds					Qvalue
1) 1,4-THIOXANE	0.00	61	0	N.D.	
2) CEES	3.73	124	387076	0.63 ppm	96
3) 1,4-DITHIANE	0.00	120	0	N.D.	
4) MUSTARD	0.00	109	0	N.D.	

(#) = qualifier out of range (m) = manual integration

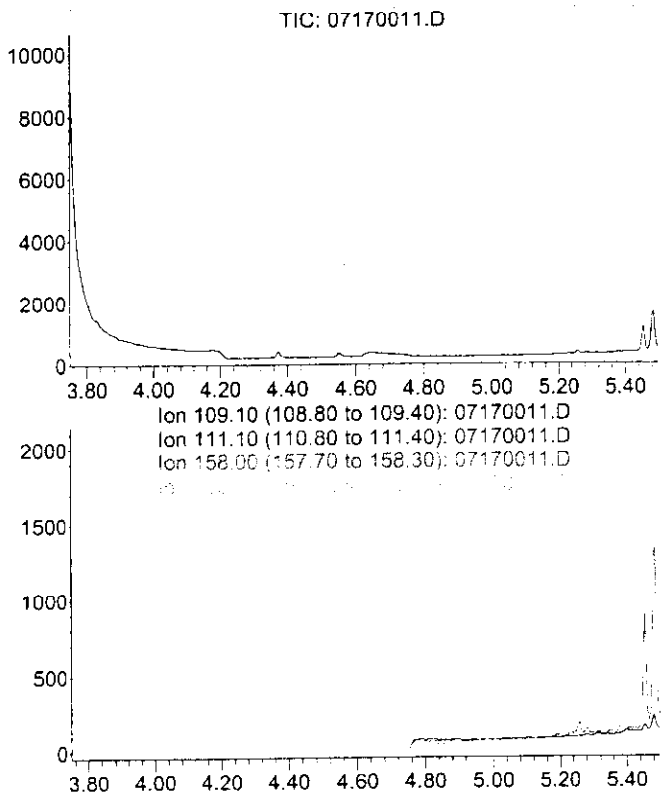


#3
1,4-DITHIANE
Concen: N.D.
Expected RT: 4.50 min

Lab File: 07170011.D
Acq: 17 Jul 2000 17:02

Tgt Ion: 120

Sig	Exp Ratio
120	100
92	15.6
61	40.0

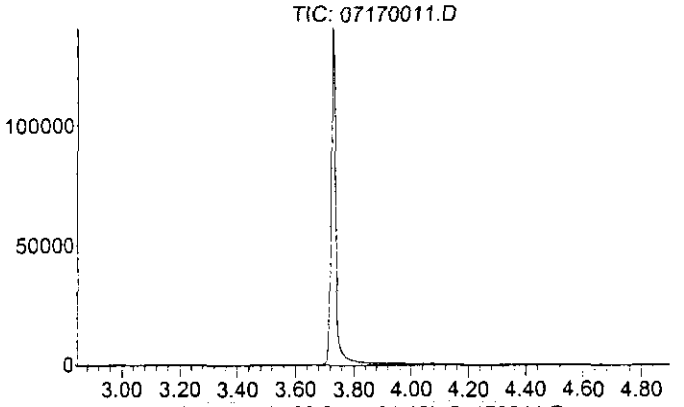


#4
MUSTARD
Concen: N.D.
Expected RT: 4.95 min

Lab File: 07170011.D
Acq: 17 Jul 2000 17:02

Tgt Ion: 109

Sig	Exp Ratio
109	100
111	36.6
158	29.4
160	20.0

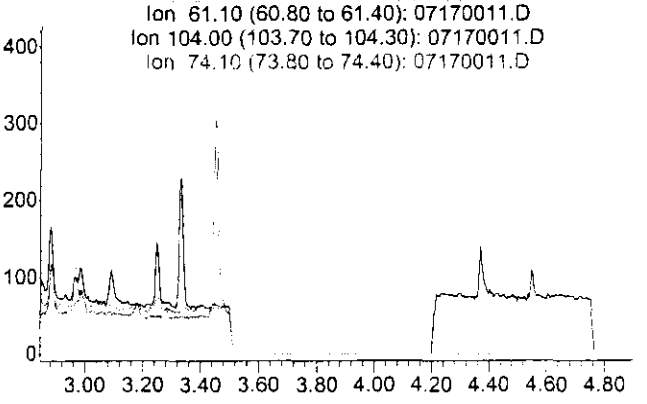


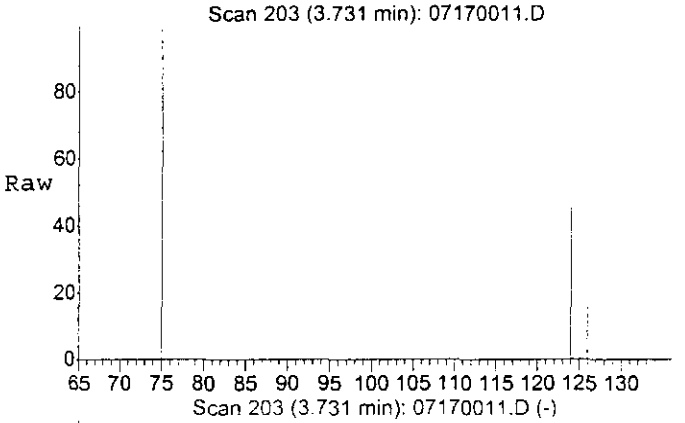
#1
1,4-THIOXANE
Concen: N.D.
Expected RT: 3.40 min

Lab File: 07170011.D
Acq: 17 Jul 2000 17:02

Tgt Ion: 61

Sig	Exp Ratio
61	100
104	161.5
74	43.1

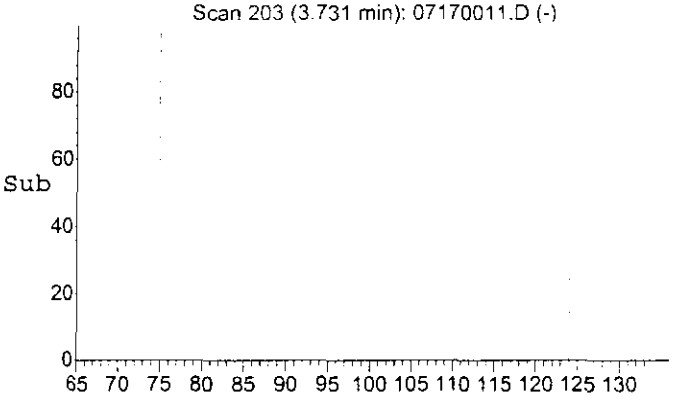


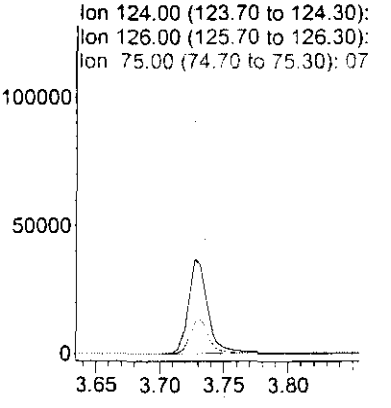


#2
CEES
Concen: 0.63 ppm
RT: 3.73 min Scan# 203
Delta R.T. 0.03 min
Lab File: 07170011.D
Acq: 17 Jul 2000 17:02

Tgt Ion:124 Resp: 387076

Ion	Ratio	Lower	Upper
124	100		
126	36.7	29.1	43.7
75	243.2	188.9	283.3



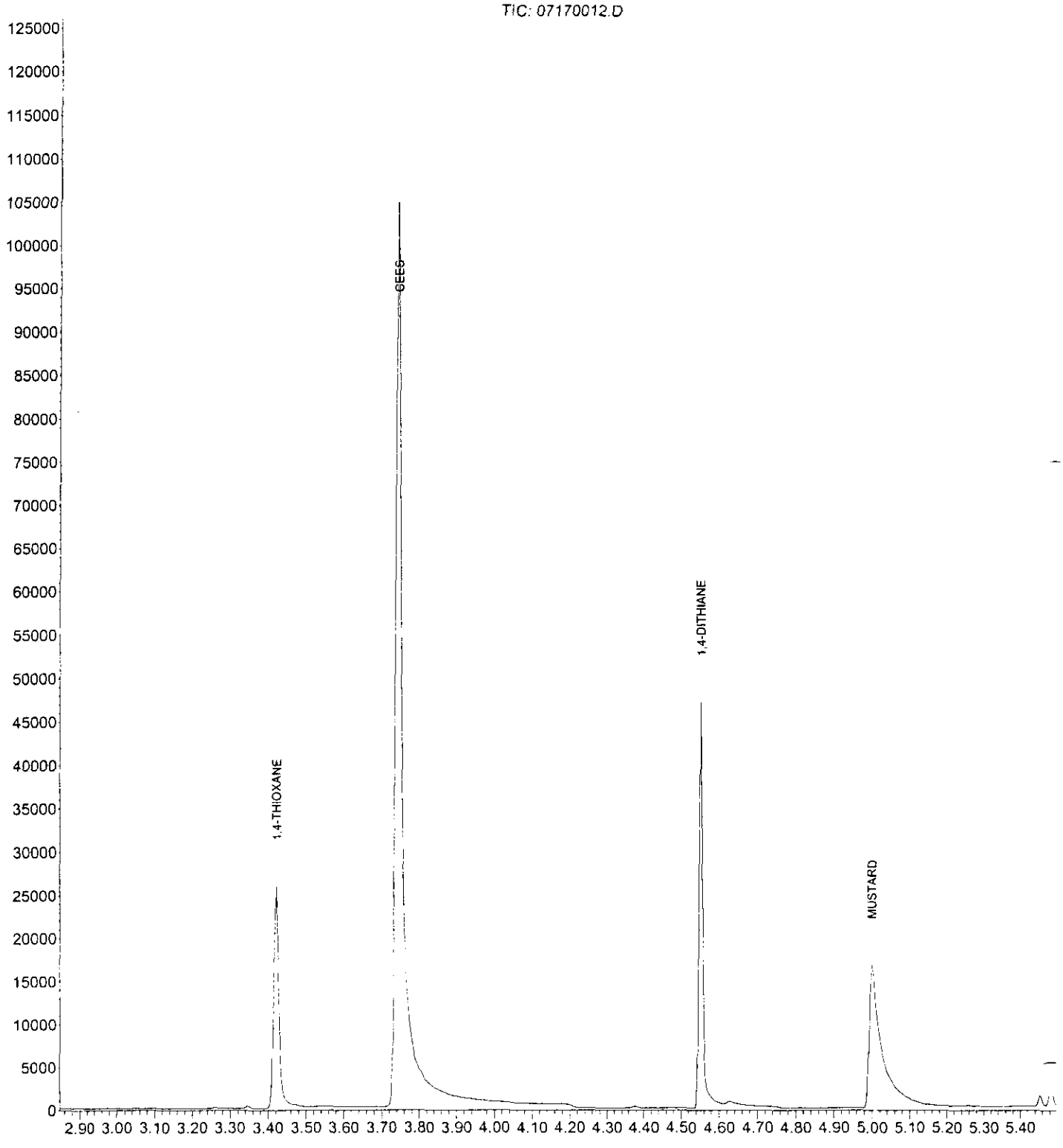


Quantitation Report

Data File : C:\HPCHEM\1\DATA\17JUL00\07170012.D Vial: 10
Acq On : 17 Jul 2000 17:14 Operator: EWC
Sample : SOIL P&A #1 Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:22 2000 Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170012.D
Acq On : 17 Jul 2000 17:14
Sample : SOIL P&A #1
Misc :

Vial: 10
Operator: EWC
Inst : GCMSD4
Multiplr: 1.00
Sample Amount: 0.00

Integration Params: EVENTS.E
Quant Time: Jul 26 15:22 2000

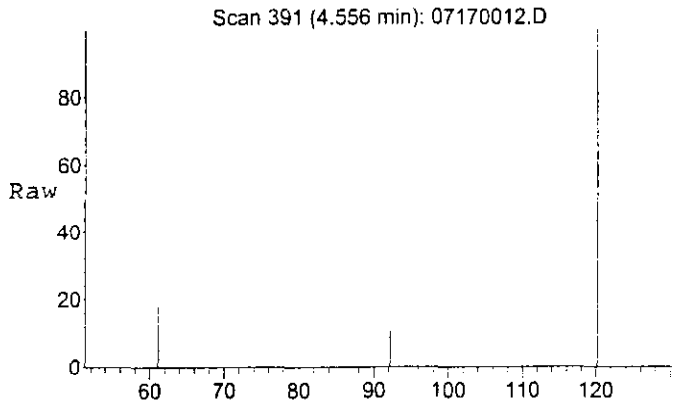
Quant Results File: 4CEES.RES

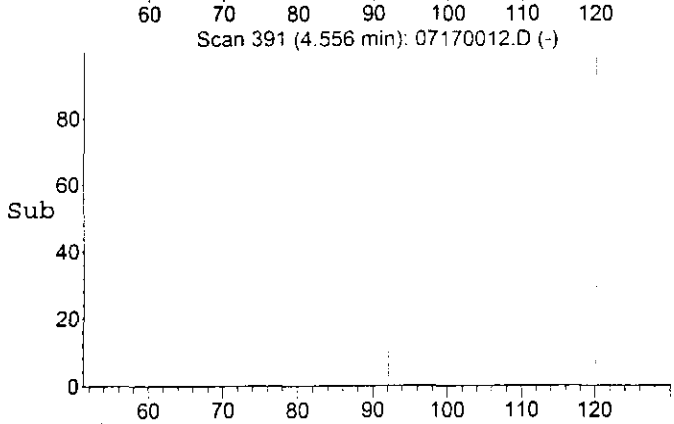
Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)

Target Compounds					Qvalue
1) 1,4-THIOXANE	3.42	61	78590	0.16 ppm	96
2) CEES	3.75	124	339750	0.55 ppm	96
3) 1,4-DITHIANE	4.55	120	197175	0.18 ppm	99
4) MUSTARD	5.00	109	193653	0.17 ppm	100

(#) = qualifier out of range (m) = manual integration

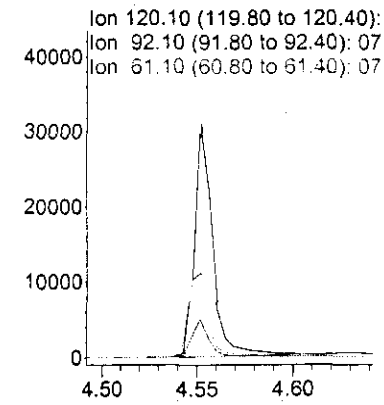


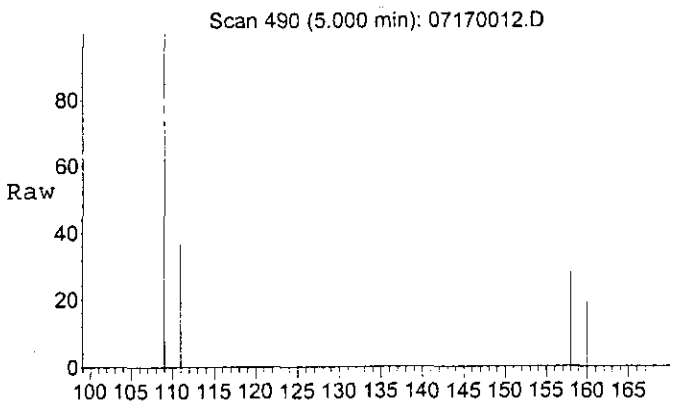


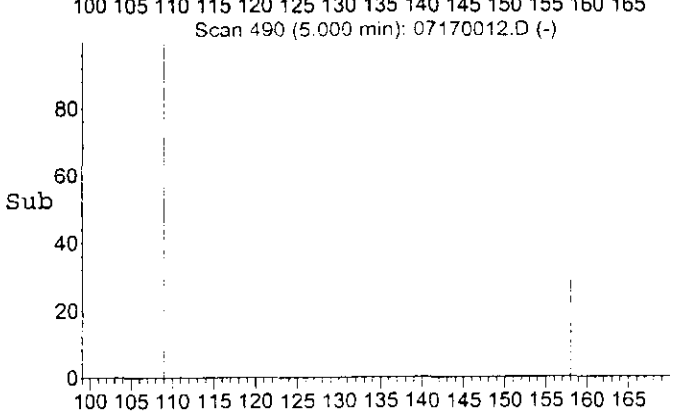
#3
1,4-DITHIANE
Concen: 0.18 ppm
RT: 4.55 min Scan# 391
Delta R.T. 0.05 min
Lab File: 07170012.D
Acq: 17 Jul 2000 17:14

Tgt Ion:120 Resp: 197175

Ion	Ratio	Lower	Upper
120	100		
92	15.3	12.5	18.7
61	39.2	32.0	48.0



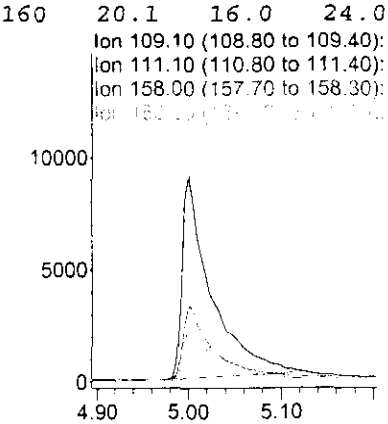


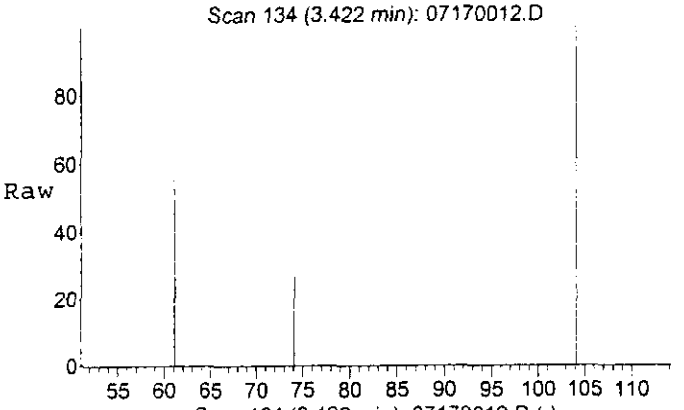


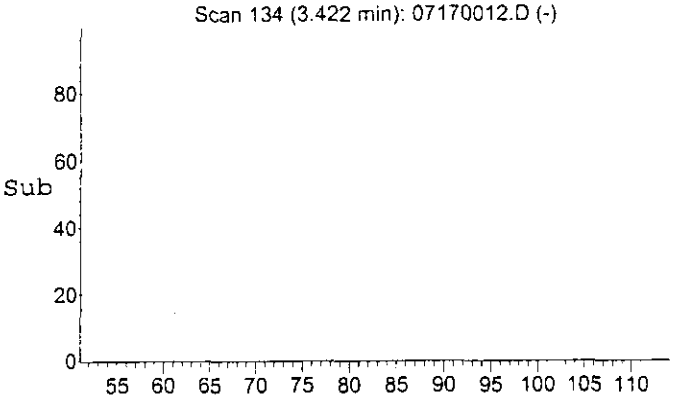
#4
MUSTARD
Concen: 0.17 ppm
RT: 5.00 min Scan# 490
Delta R.T. 0.05 min
Lab File: 07170012.D
Acq: 17 Jul 2000 17:14

Tgt Ion:109 Resp: 193653

Ion	Ratio	Lower	Upper
109	100		
111	36.3	29.3	43.9
158	29.1	23.5	35.3
160	20.1	16.0	24.0



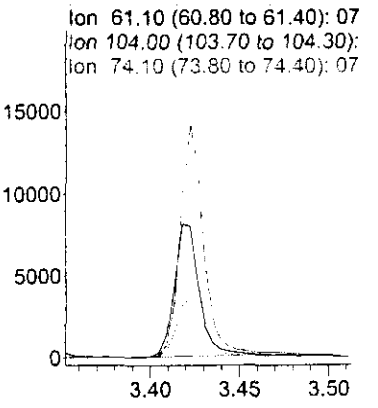


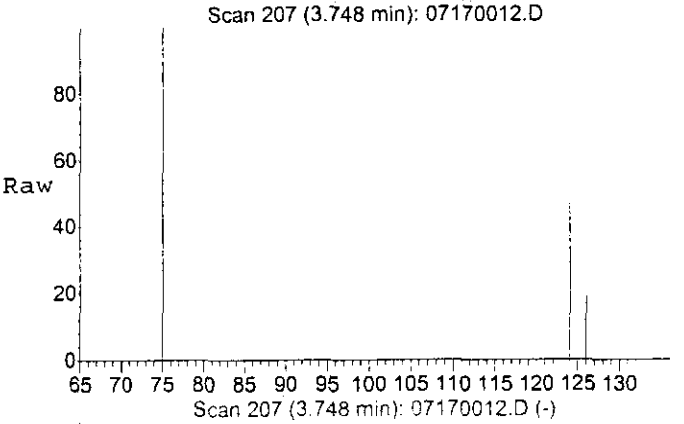


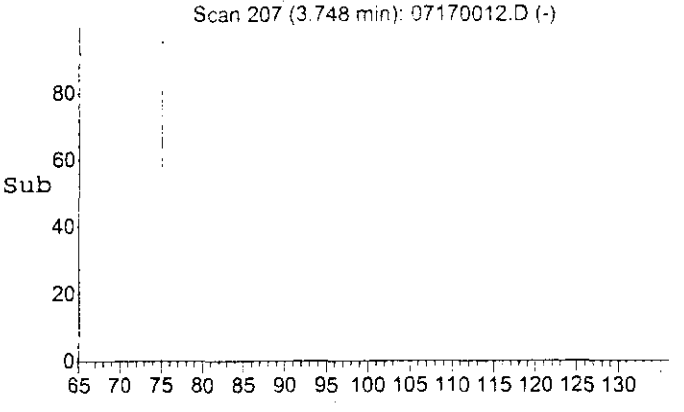
#1
1,4-THIOXANE
Concen: 0.16 ppm
RT: 3.42 min Scan# 134
Delta R.T. 0.02 min
Lab File: 07170012.D
Acq: 17 Jul 2000 17:14

Tgt Ion: 61 Resp: 78590

Ion	Ratio	Lower	Upper
61	100		
104	167.8	129.2	193.8
74	43.5	34.5	51.7



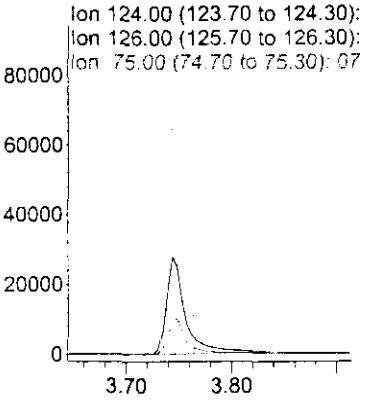




#2
CEES
Concen: 0.55 ppm
RT: 3.75 min Scan# 207
Delta R.T. 0.05 min
Lab File: 07170012.D
Acq: 17 Jul 2000 17:14

Tgt Ion:124 Resp: 339750

Ion	Ratio	Lower	Upper
124	100		
126	36.4	29.1	43.7
75	244.2	188.9	283.3

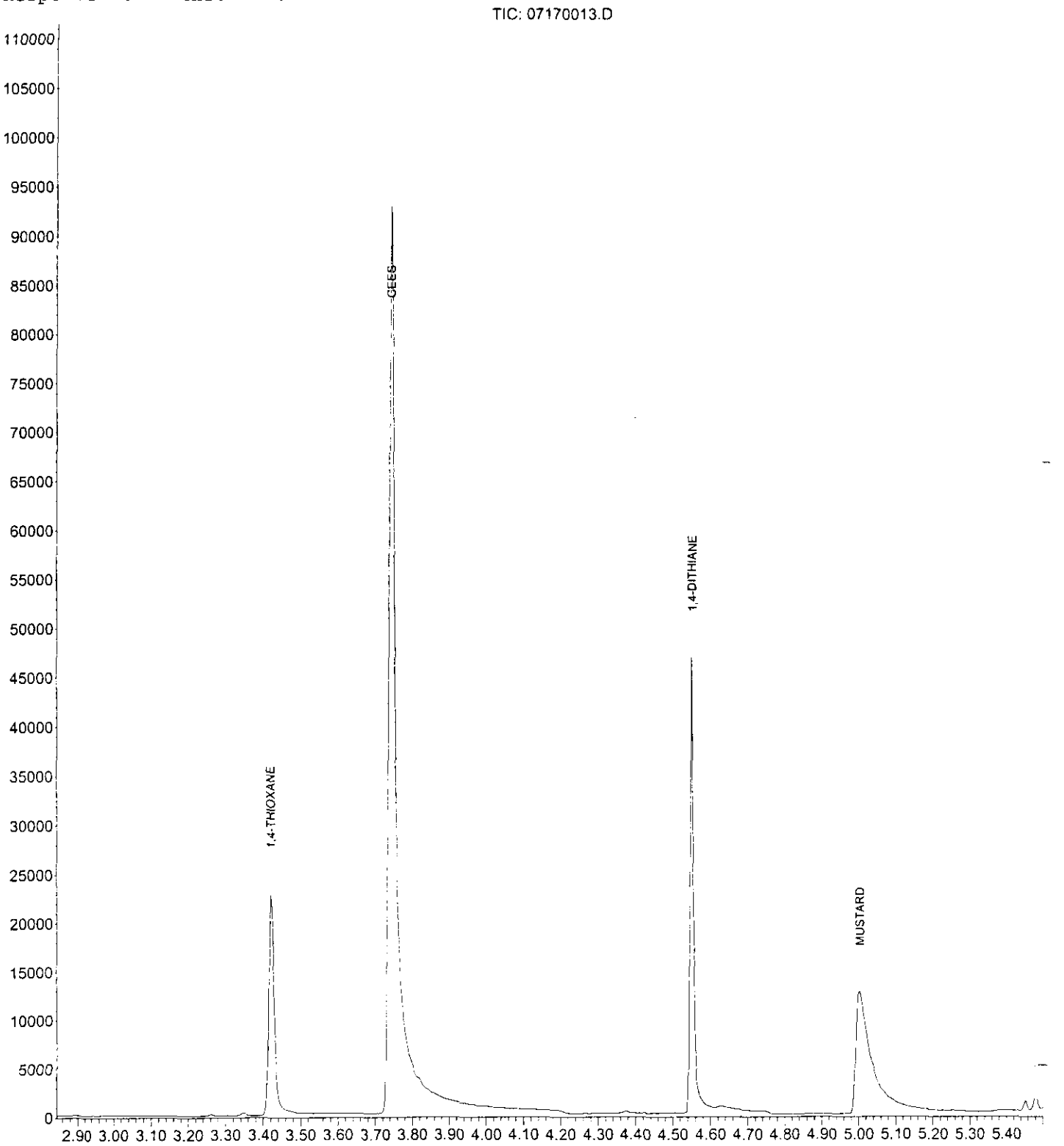


Quantitation Report

Data File : C:\HPCHEM\1\DATA\17JUL00\07170013.D Vial: 11
Acq On : 17 Jul 2000 17:27 Operator: EWC
Sample : SOIL P&A #2 Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:23 2000 Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170013.D
Acq On : 17 Jul 2000 17:27
Sample : SOIL P&A #2
Misc :

Vial: 11
Operator: EWC
Inst : GCMSD4
Multiplr: 1.00
Sample Amount: 0.00

Integration Params: EVENTS.E
Quant Time: Jul 26 15:23 2000

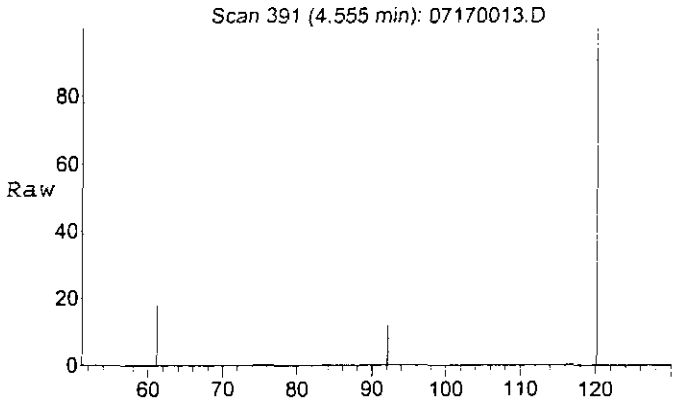
Quant Results File: 4CEES.RES

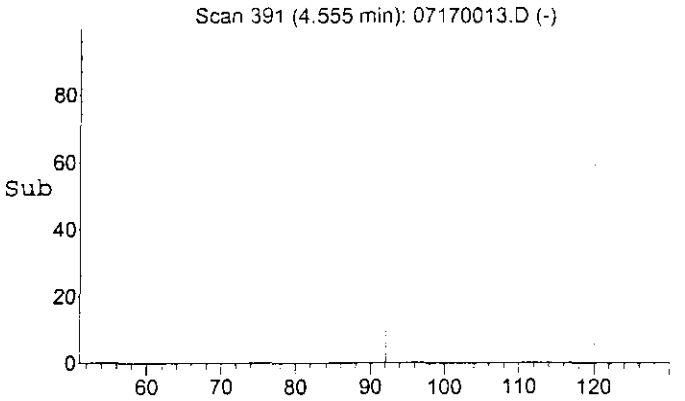
Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)

Target Compounds						Qvalue
1) 1,4-THIOXANE	3.42	61	72974	0.15	ppm	100
2) CEES	3.75	124	325523	0.53	ppm	96
3) 1,4-DITHIANE	4.55	120	195314	0.18	ppm	99
4) MUSTARD	5.00	109	177638	0.15	ppm	100

(#) = qualifier out of range (m) = manual integration

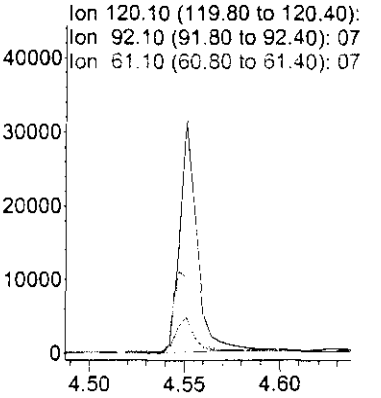


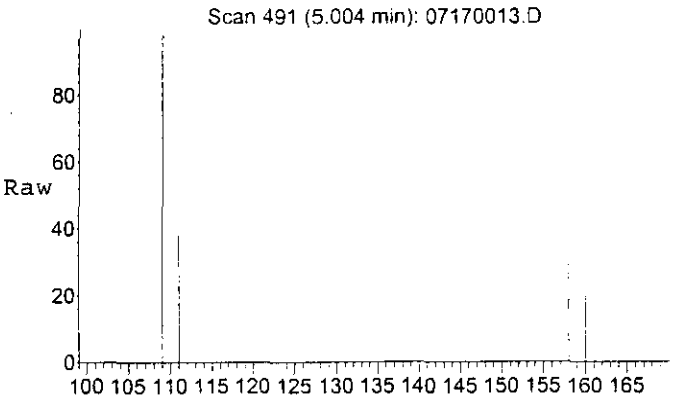


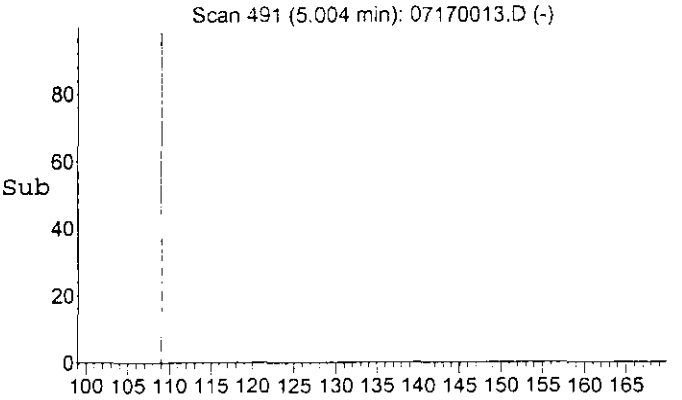
#3
1,4-DITHIANE
Concen: 0.18 ppm
RT: 4.55 min Scan# 391
Delta R.T. 0.05 min
Lab File: 07170013.D
Acq: 17 Jul 2000 17:27

Tgt Ion:120 Resp: 195314

Ion	Ratio	Lower	Upper
120	100		
92	15.3	12.5	18.7
61	39.5	32.0	48.0



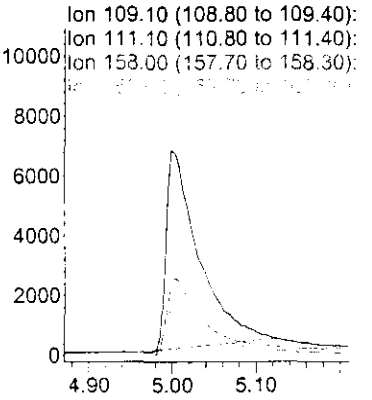


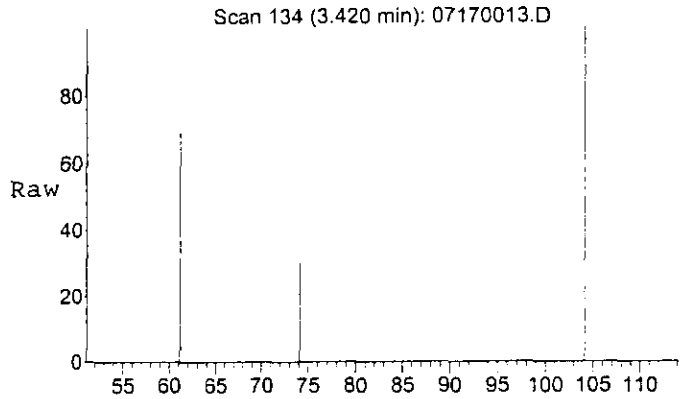


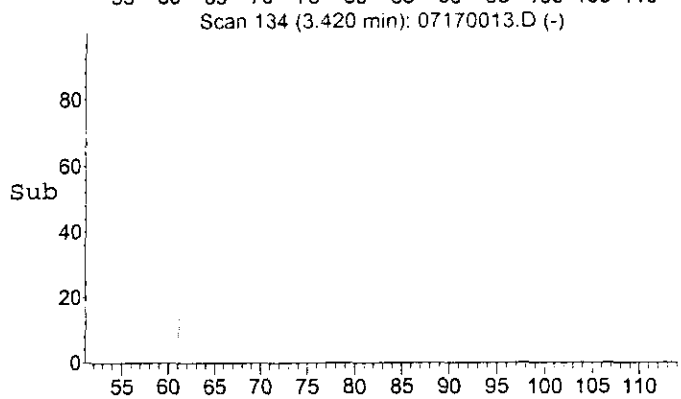
#4
MUSTARD
Concen: 0.15 ppm
RT: 5.00 min Scan# 491
Delta R.T. 0.05 min
Lab File: 07170013.D
Acq: 17 Jul 2000 17:27

Tgt Ion:109 Resp: 177638

Ion	Ratio	Lower	Upper
109	100		
111	36.7	29.3	43.9
158	29.5	23.5	35.3
160	20.1	16.0	24.0



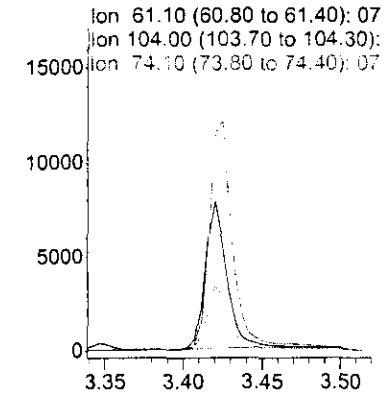


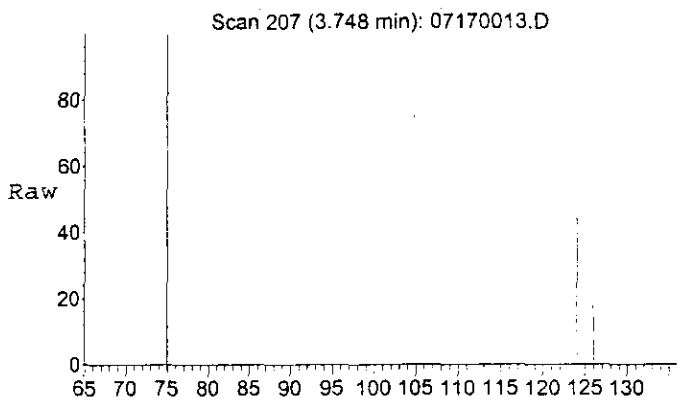


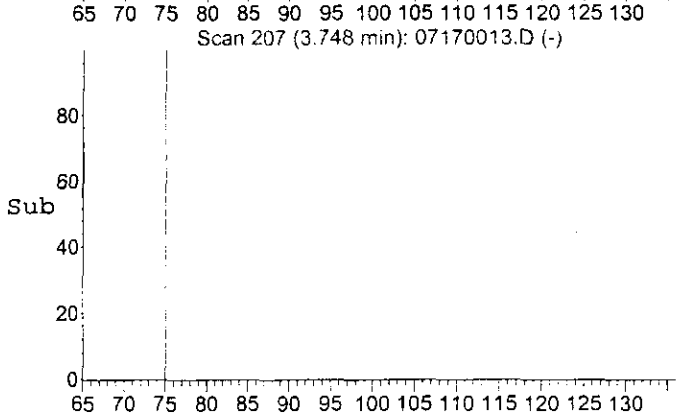
#1
1,4-THIOXANE
Concen: 0.15 ppm
RT: 3.42 min Scan# 134
Delta R.T. 0.02 min
Lab File: 07170013.D
Acq: 17 Jul 2000 17:27

Tgt Ion: 61 Resp: 72974

Ion	Ratio	Lower	Upper
61	100		
104	161.5	129.2	193.8
74	44.0	34.5	51.7



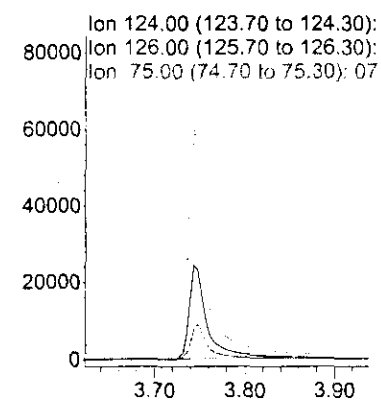




#2
CEES
Concen: 0.53 ppm
RT: 3.75 min Scan# 207
Delta R.T. 0.05 min
Lab File: 07170013.D
Acq: 17 Jul 2000 17:27

Tgt Ion:124 Resp: 325523

Ion	Ratio	Lower	Upper
124	100		
126	35.9	29.1	43.7
75	243.3	188.9	283.3



Quantitation Report

Data File : C:\HPCHEM\1\DATA\17JUL00\07170014.D
Acq On : 17 Jul 2000 17:40
Sample : SOIL P&A #3
Misc :

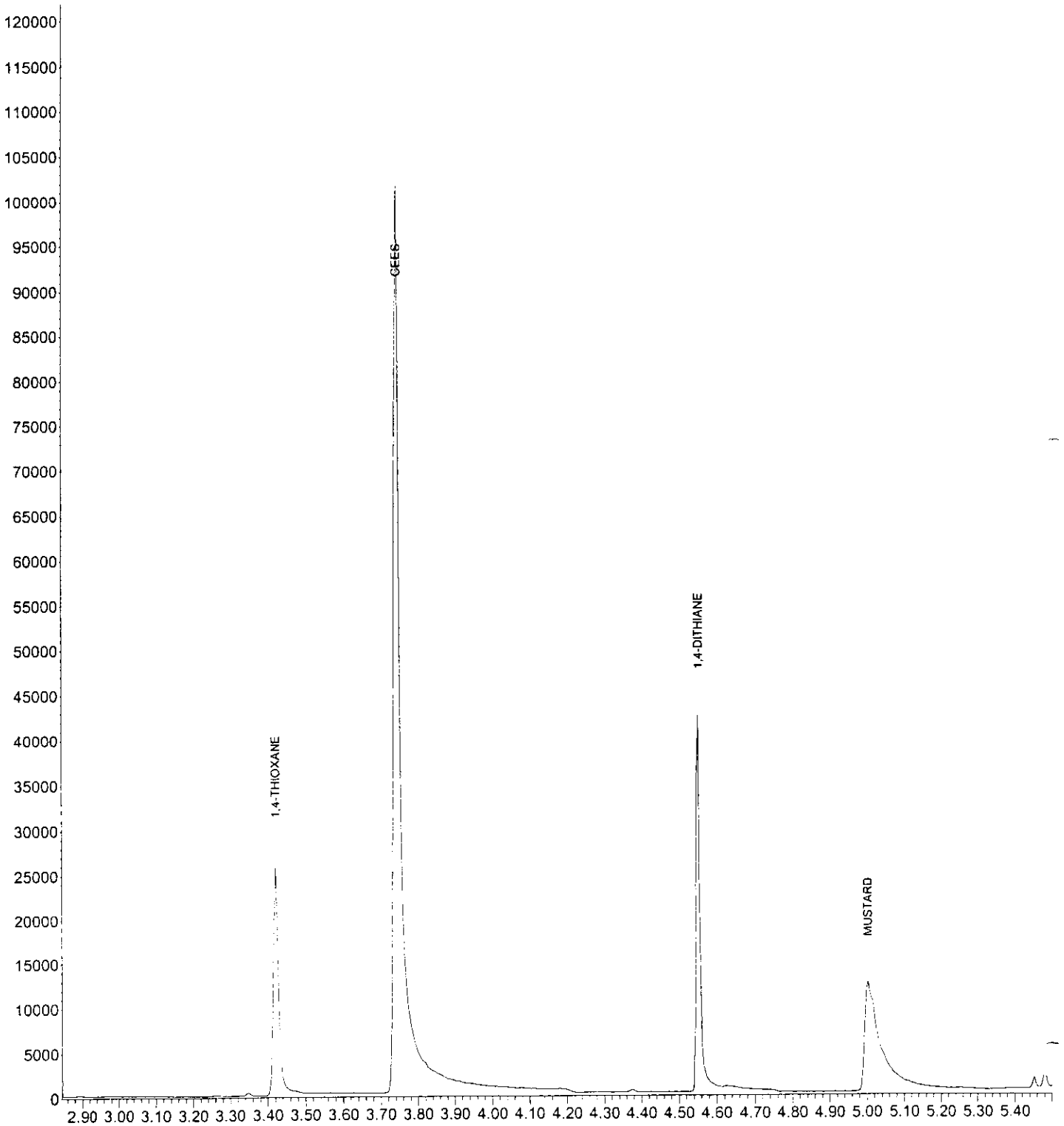
Vial: 12
Operator: EWC
Inst : GCMSD4
Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:29 2000

Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration

TIC: 07170014.D



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170014.D
Acq On : 17 Jul 2000 17:40
Sample : SOIL P&A #3
Misc :

Vial: 12
Operator: EWC
Inst : GCMSD4
Multiplr: 1.00
Sample Amount: 0.00

Integration Params: EVENTS.E
Quant Time: Jul 26 15:29 2000

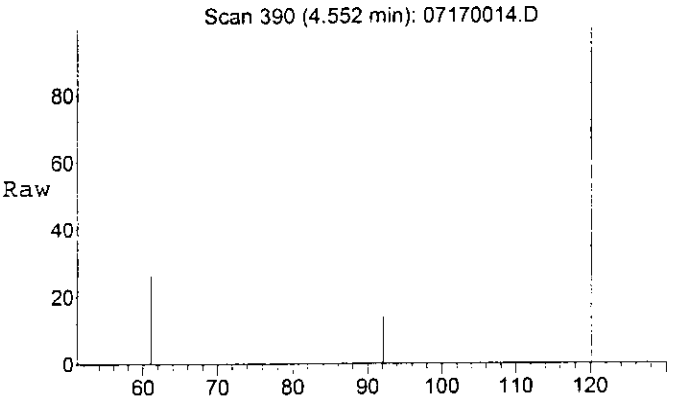
Quant Results File: 4CEES.RES

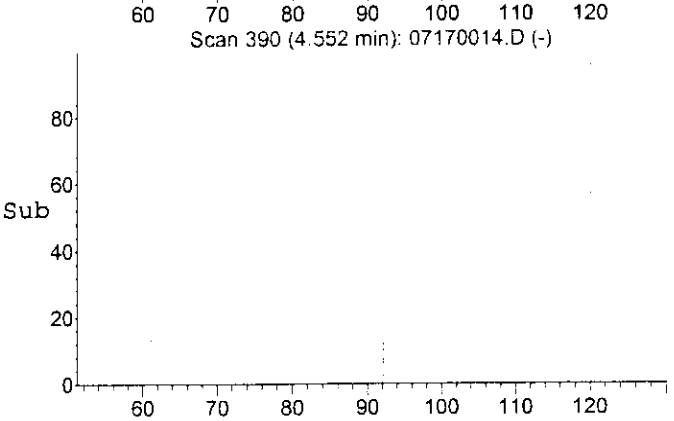
Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)

Target Compounds					Qvalue
1) 1,4-THIOXANE	3.42	61	78665	0.16 ppm	97
2) CEES	3.75	124	329105	0.53 ppm	97
3) 1,4-DITHIANE	4.55	120	196222	0.18 ppm	98
4) MUSTARD	5.00	109	172239	0.15 ppm	100

(#) = qualifier out of range (m) = manual integration

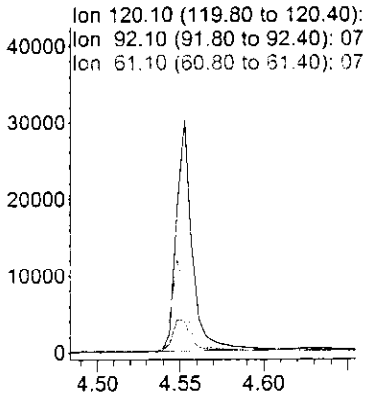


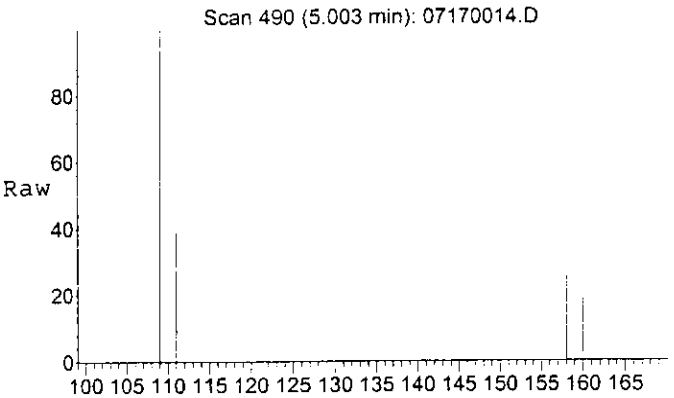


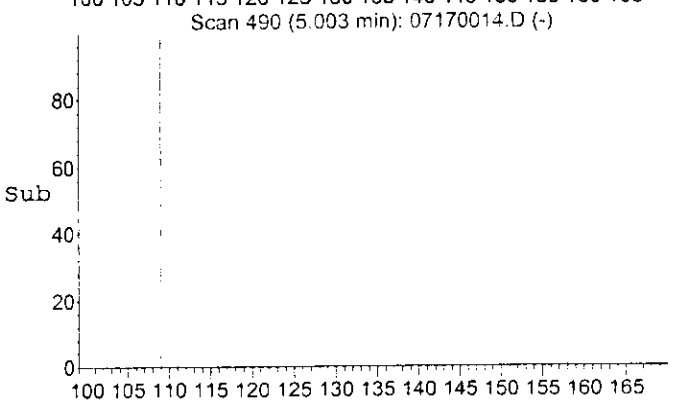
#3
1,4-DITHIANE
Concen: 0.18 ppm
RT: 4.55 min Scan# 390
Delta R.T. 0.05 min
Lab File: 07170014.D
Acq: 17 Jul 2000 17:40

Tgt Ion:120 Resp: 196222

Ion	Ratio	Lower	Upper
120	100		
92	15.0	12.5	18.7
61	38.6	32.0	48.0



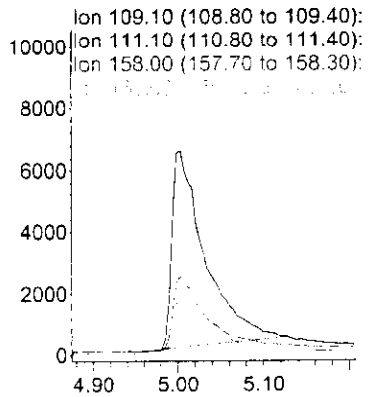


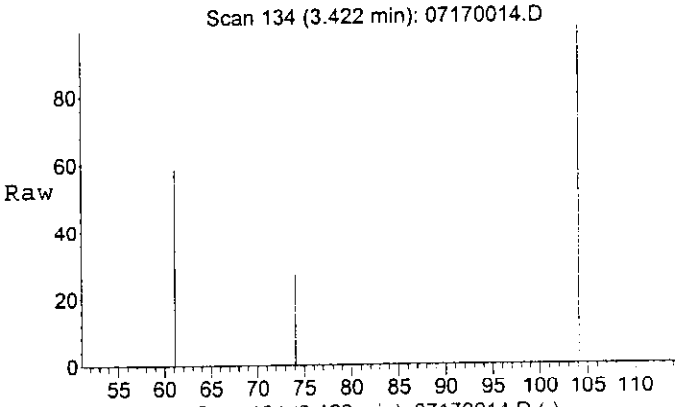


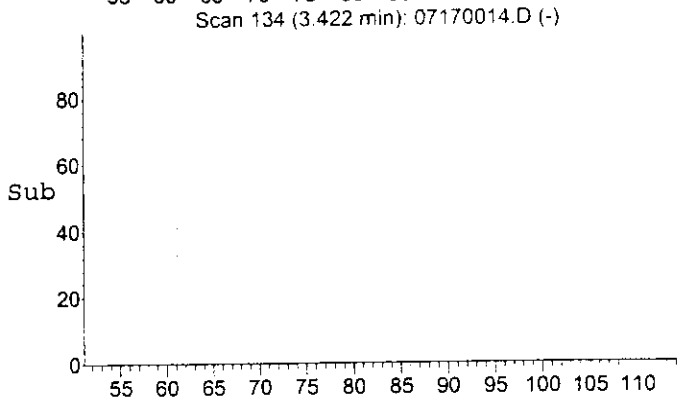
#4
MUSTARD
Concen: 0.15 ppm
RT: 5.00 min Scan# 490
Delta R.T. 0.05 min
Lab File: 07170014.D
Acq: 17 Jul 2000 17:40

Tgt Ion:109 Resp: 172239

Ion	Ratio	Lower	Upper
109	100		
111	36.9	29.3	43.9
158	29.2	23.5	35.3
160	20.2	16.0	24.0



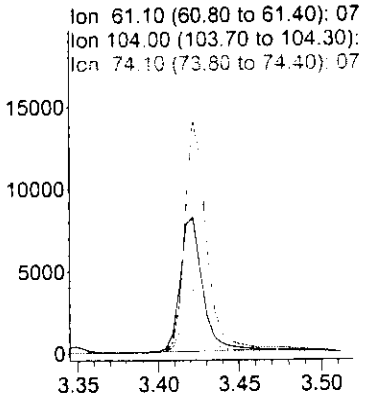


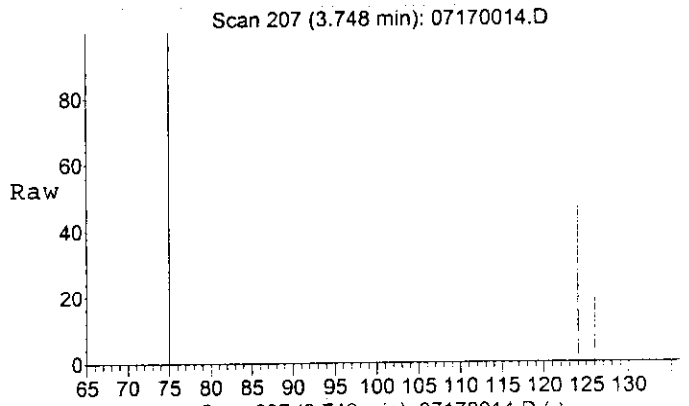


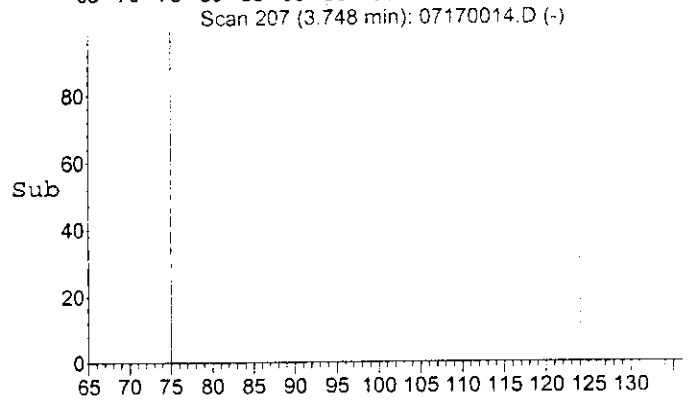
#1
1,4-THIOXANE
Concen: 0.16 ppm
RT: 3.42 min Scan# 134
Delta R.T. 0.02 min
Lab File: 07170014.D
Acq: 17 Jul 2000 17:40

Tgt Ion: 61 Resp: 78665

Ion	Ratio	Lower	Upper
61	100		
104	166.5	129.2	193.8
74	43.4	34.5	51.7



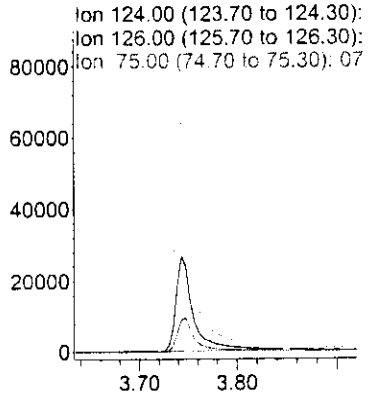




#2
CEES
Concen: 0.53 ppm
RT: 3.75 min Scan# 207
Delta R.T. 0.05 min
Lab File: 07170014.D
Acq: 17 Jul 2000 17:40

Tgt Ion:124 Resp: 329105

Ion	Ratio	Lower	Upper
124	100		
126	36.8	29.1	43.7
75	241.5	188.9	283.3



Quantitation Report

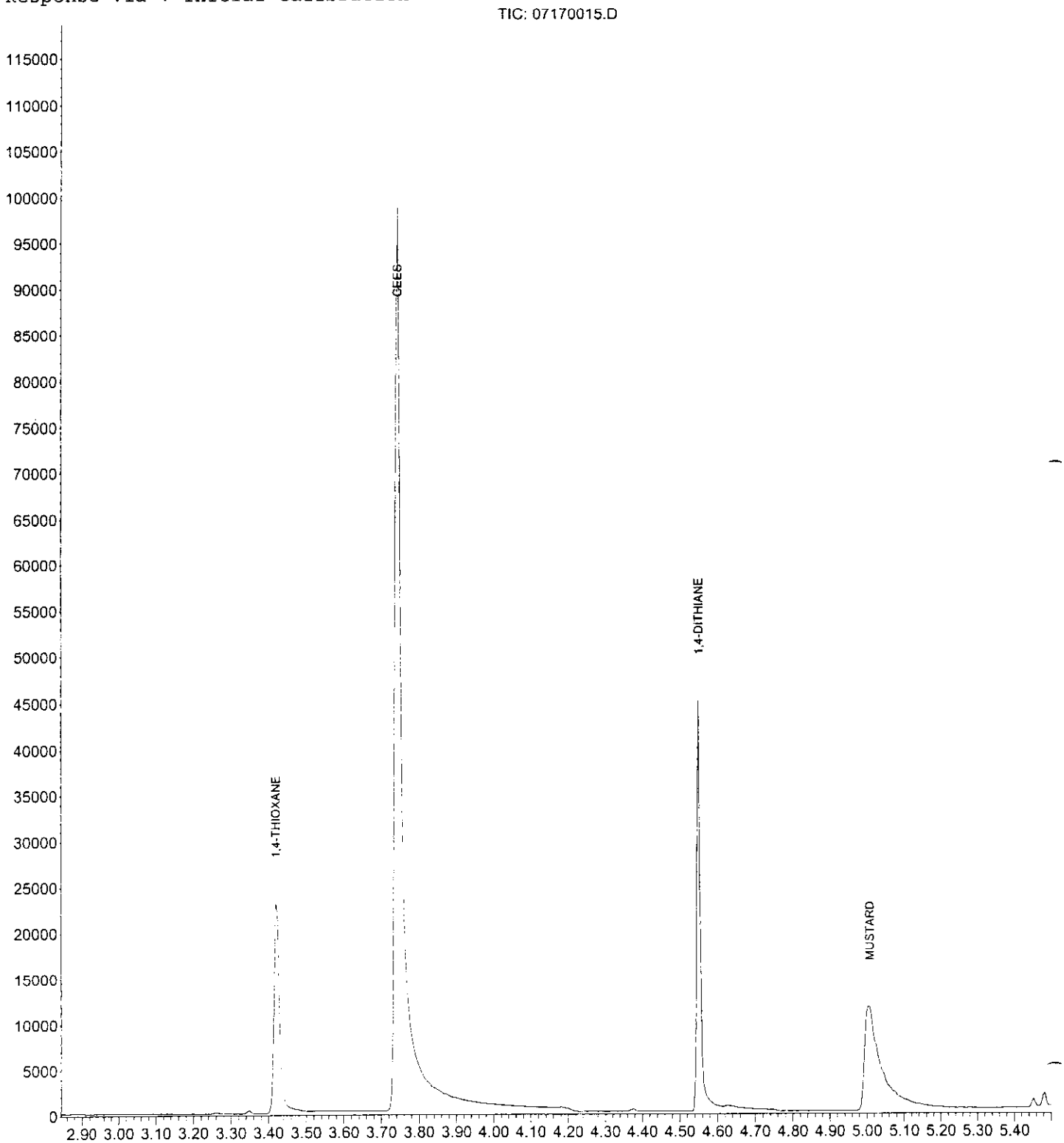
Data File : C:\HPCHEM\1\DATA\17JUL00\07170015.D
Acq On : 17 Jul 2000 17:53
Sample : SOIL P&A #4
Misc :

Vial: 13
Operator: EWC
Inst : GCMSD4
Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:30 2000

Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170015.D
Acq On : 17 Jul 2000 17:53
Sample : SOIL P&A #4
Misc :

Vial: 13
Operator: EWC
Inst : GCMSD4
Multiplr: 1.00
Sample Amount: 0.00

Integration Params: EVENTS.E
Quant Time: Jul 26 15:30 2000

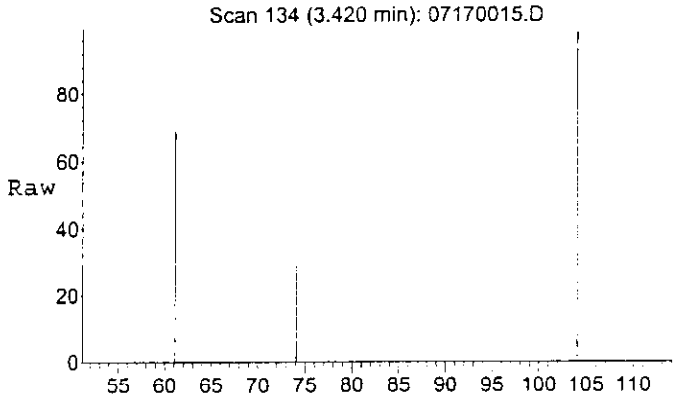
Quant Results File: 4CEES.RES

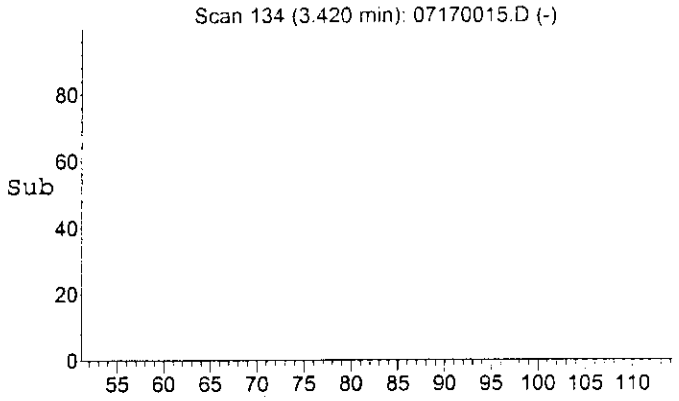
Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)

Target Compounds					Qvalue
1) 1,4-THIOXANE	3.42	61	75033	0.16 ppm	100
2) CEES	3.75	124	332697	0.54 ppm	99
3) 1,4-DITHIANE	4.55	120	188016	0.17 ppm	99
4) MUSTARD	5.01	109	165657	0.14 ppm	99

(#) = qualifier out of range (m) = manual integration

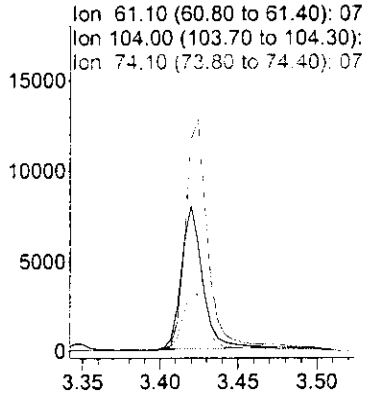


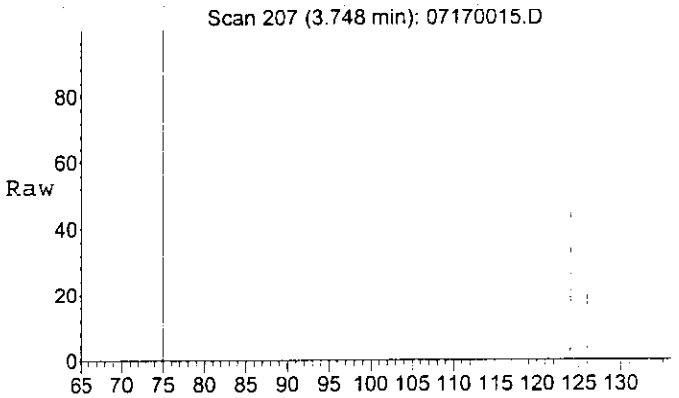


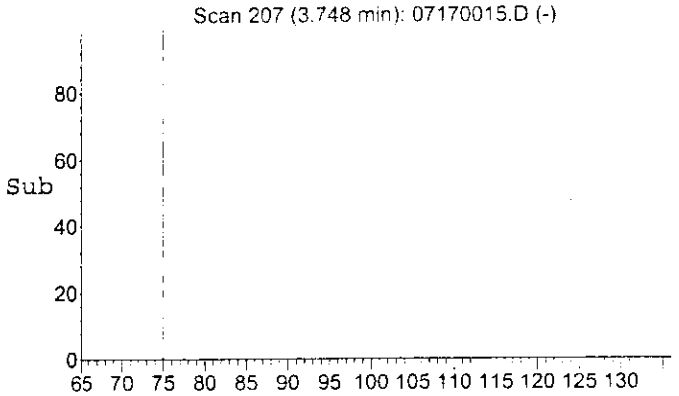
#1
1,4-THIOXANE
Concen: 0.16 ppm
RT: 3.42 min Scan# 134
Delta R.T. 0.02 min
Lab File: 07170015.D
Acq: 17 Jul 2000 17:53

Tgt Ion: 61 Resp: 75033

Ion	Ratio	Lower	Upper
61	100		
104	161.2	129.2	193.8
74	43.0	34.5	51.7



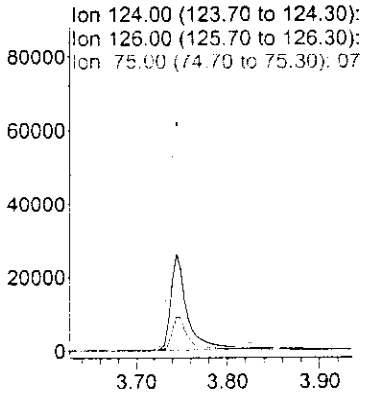


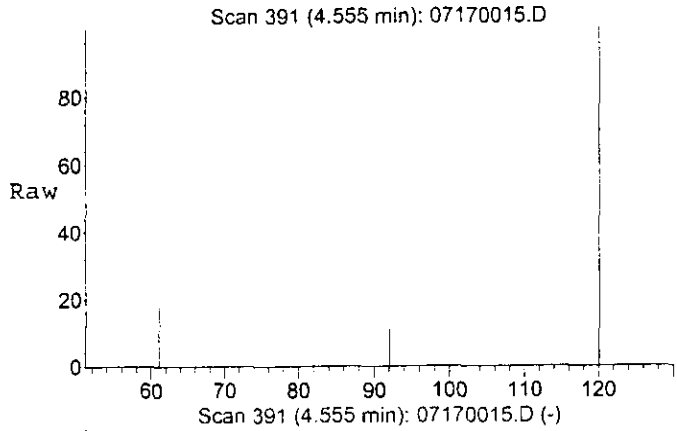


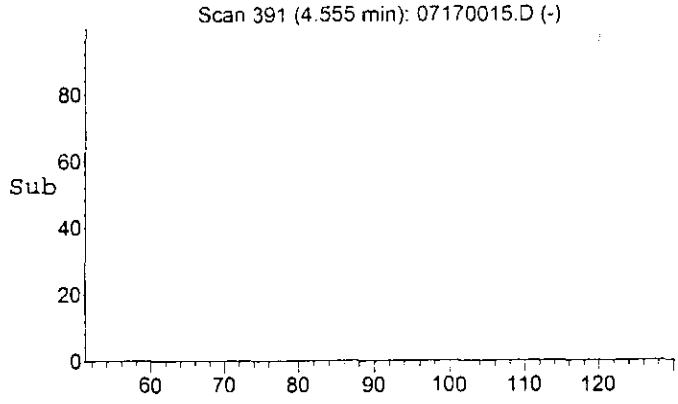
#2
CEES
Concen: 0.54 ppm
RT: 3.75 min Scan# 207
Delta R.T. 0.05 min
Lab File: 07170015.D
Acq: 17 Jul 2000 17:53

Tgt Ion:124 Resp: 332697

Ion	Ratio	Lower	Upper
124	100		
126	36.6	29.1	43.7
75	238.9	188.9	283.3



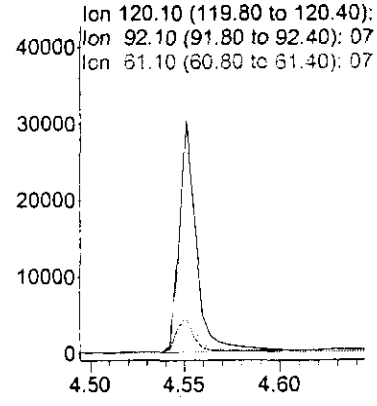


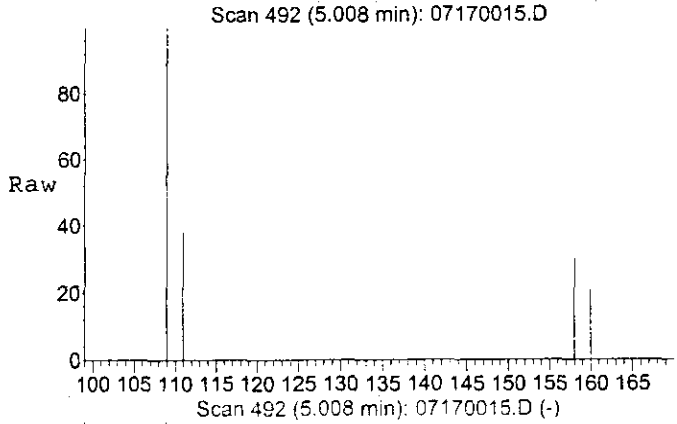


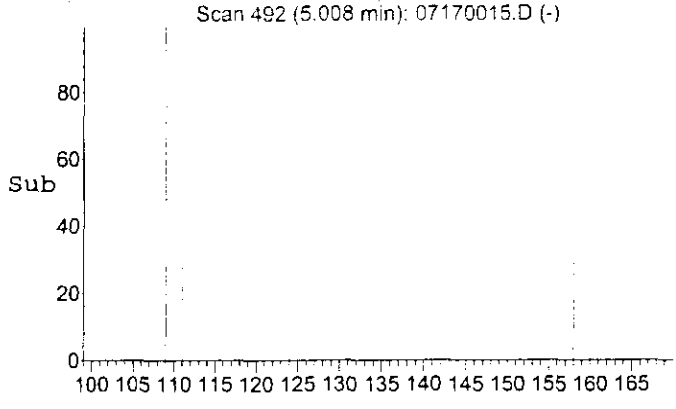
#3
1,4-DITHIANE
Concen: 0.17 ppm
RT: 4.55 min Scan# 391
Delta R.T. 0.05 min
Lab File: 07170015.D
Acq: 17 Jul 2000 17:53

Tgt Ion:120 Resp: 188016

Ion	Ratio	Lower	Upper
120	100		
92	15.0	12.5	18.7
61	39.3	32.0	48.0



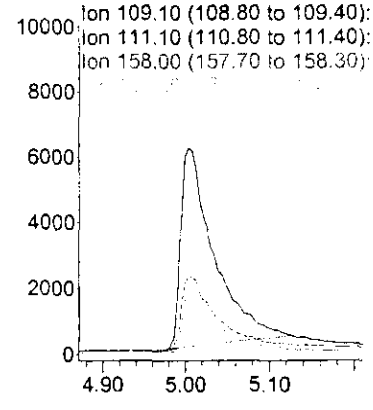


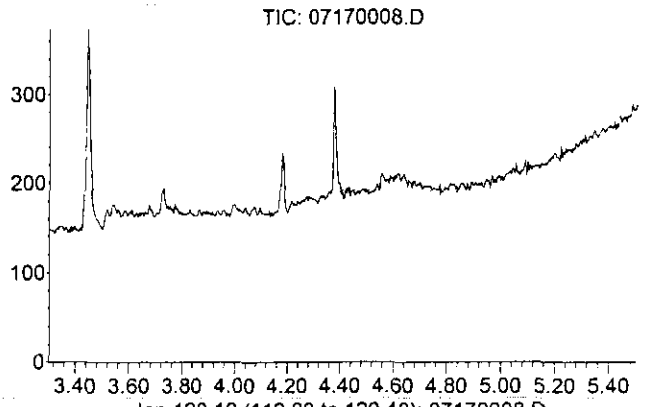


#4
MUSTARD
Concen: 0.14 ppm
RT: 5.01 min Scan# 492
Delta R.T. 0.06 min
Lab File: 07170015.D
Acq: 17 Jul 2000 17:53

Tgt Ion:109 Resp: 165657

Ion	Ratio	Lower	Upper
109	100		
111	36.9	29.3	43.9
158	29.9	23.5	35.3
160	20.4	16.0	24.0



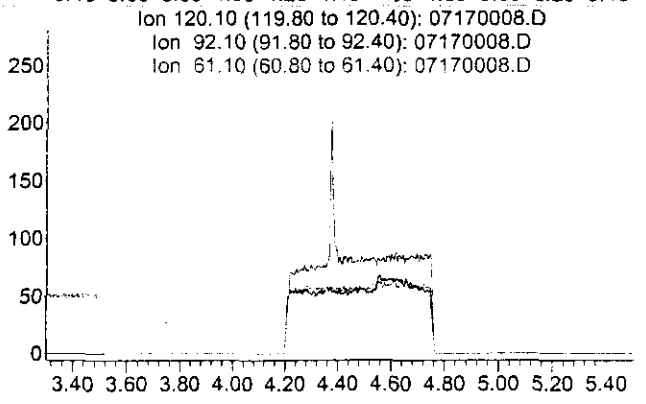


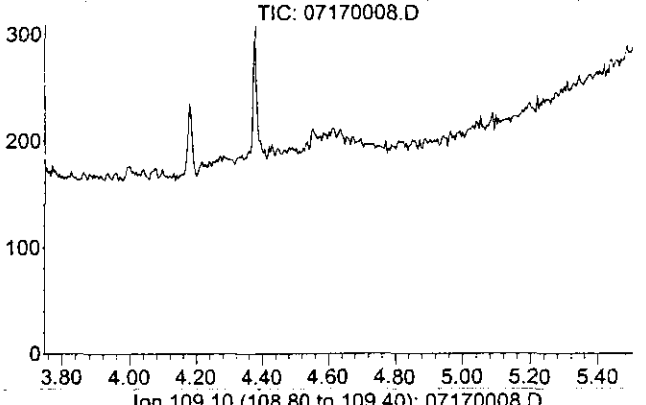
#3
1,4-DITHIANE
Concen: N.D.
Expected RT: 4.50 min

Lab File: 07170008.D
Acq: 17 Jul 2000 16:24

Tgt Ion: 120

Sig	Exp Ratio
120	100
92	15.6
61	40.0



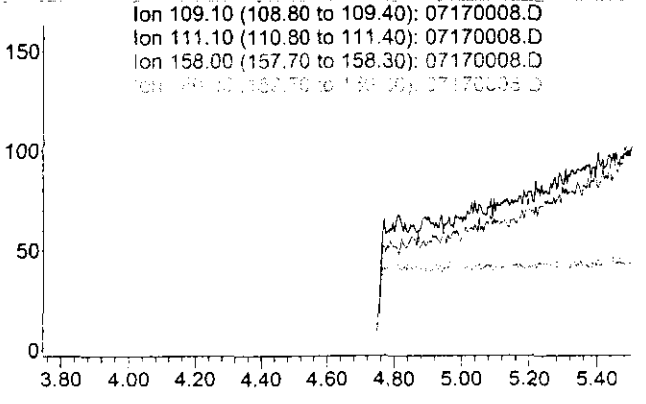


#4
MUSTARD
Concen: N.D.
Expected RT: 4.95 min

Lab File: 07170008.D
Acq: 17 Jul 2000 16:24

Tgt Ion: 109

Sig	Exp Ratio
109	100
111	36.6
158	29.4
160	20.0



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170016.D Vial: 14
Acq On : 17 Jul 2000 18:06 Operator: EWC
Sample : SOIL P&A #5 Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

Integration Params: EVENTS.E
Quant Time: Jul 26 15:31 2000 Quant Results File: 4CEES.RES

Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)

Target Compounds						Qvalue
1) 1,4-THIOXANE	3.42	61	68019	0.14	ppm	96
2) CEES	3.75	124	345385	0.56	ppm	96
3) 1,4-DITHIANE	4.56	120	202509	0.18	ppm	99
4) MUSTARD	5.01	109	176019	0.15	ppm	100

(#) = qualifier out of range (m) = manual integration
07170016.D 4CEES.M Wed Jul 26 15:31:34 2000

Quantitation Report

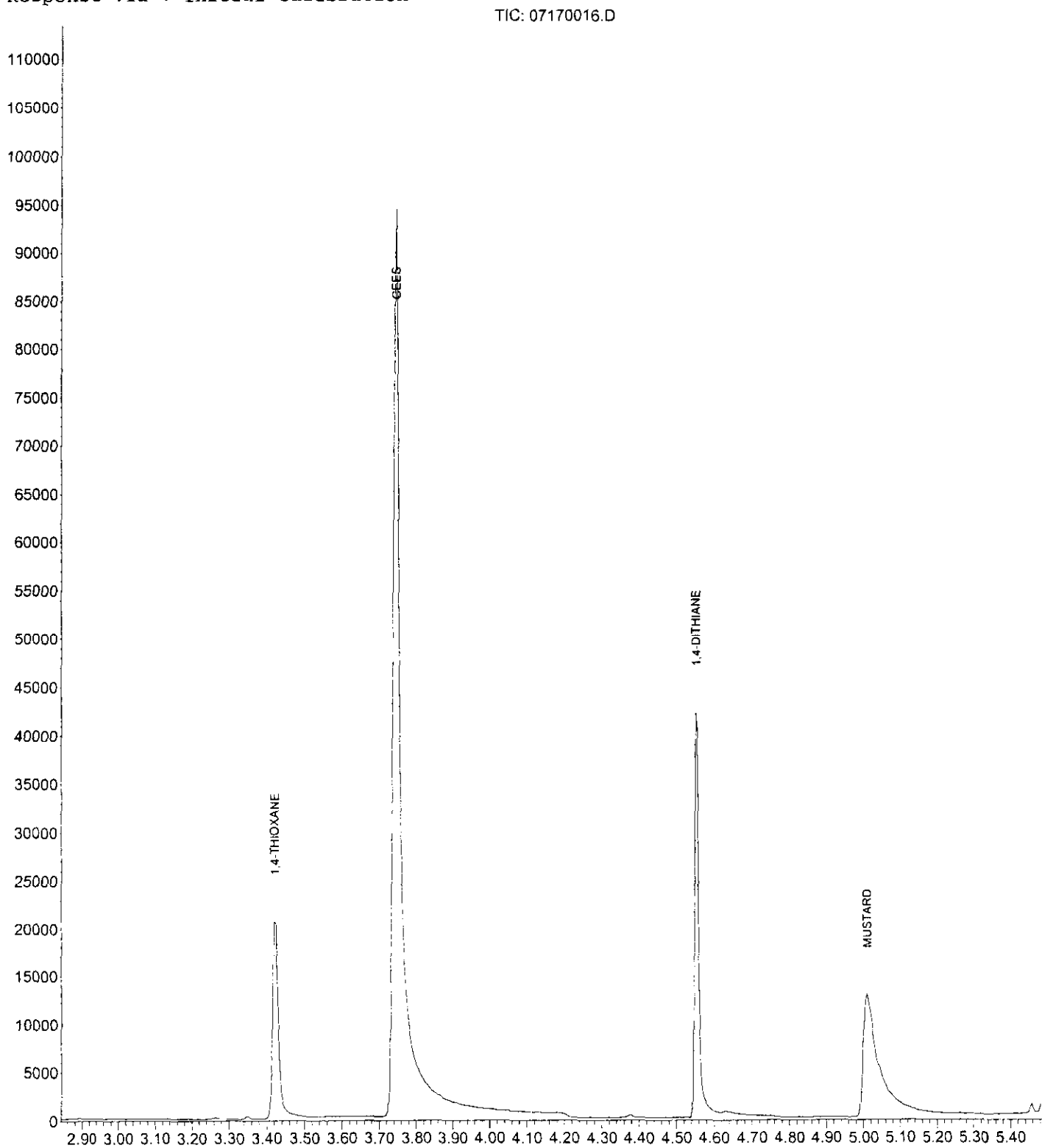
Data File : C:\HPCHEM\1\DATA\17JUL00\07170016.D
Acq On : 17 Jul 2000 18:06
Sample : SOIL P&A #5
Misc :

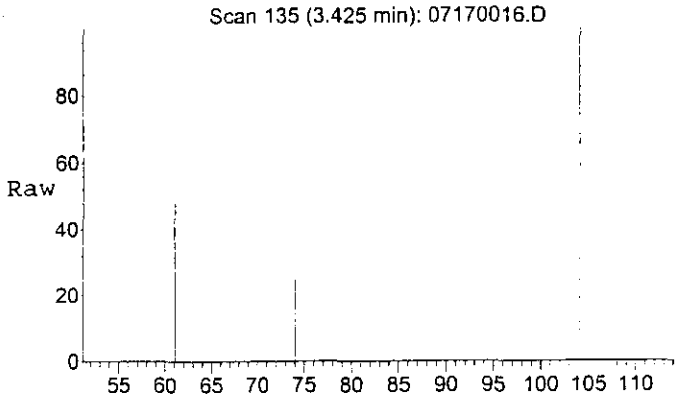
Vial: 14
Operator: EWC
Inst : GCMSD4
Multiplr: 1.00
Sample Amount: 0.00

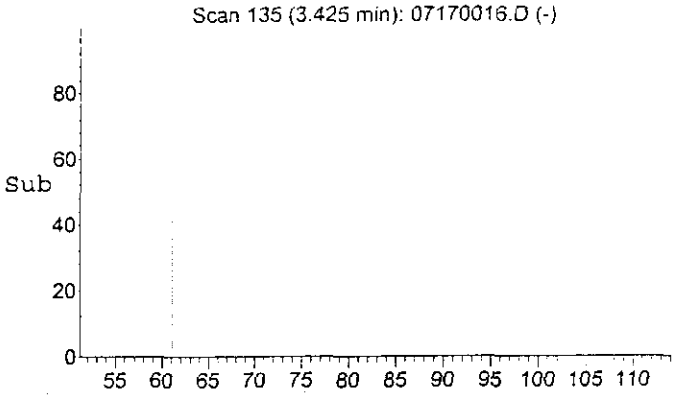
MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:31 2000

Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration



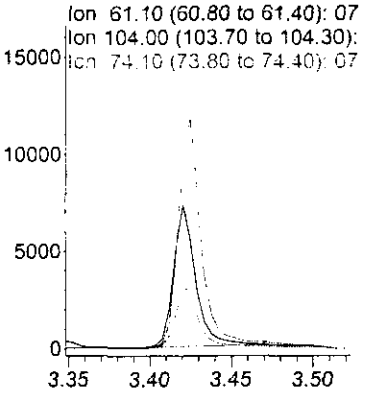


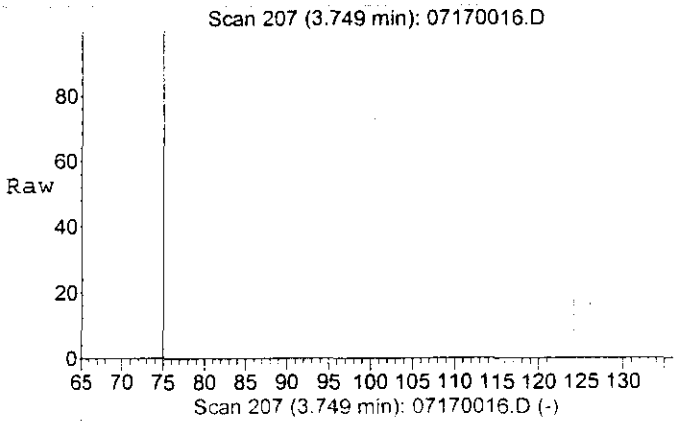


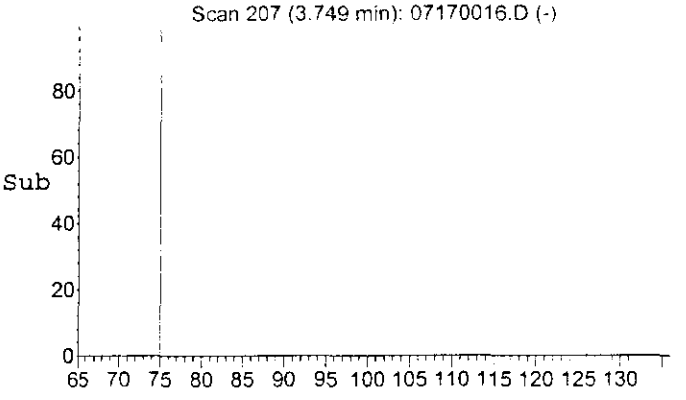
#1
1,4-THIOXANE
Concen: 0.14 ppm
RT: 3.42 min Scan# 135
Delta R.T. 0.02 min
Lab File: 07170016.D
Acq: 17 Jul 2000 18:06

Tgt Ion: 61 Resp: 68019

Ion	Ratio	Lower	Upper
61	100		
104	167.0	129.2	193.8
74	44.0	34.5	51.7



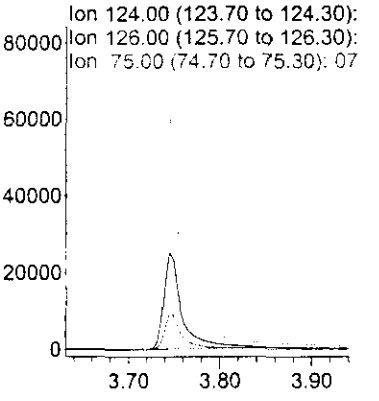


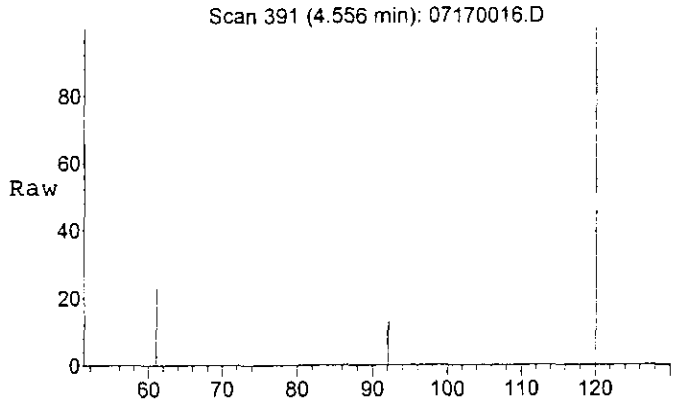


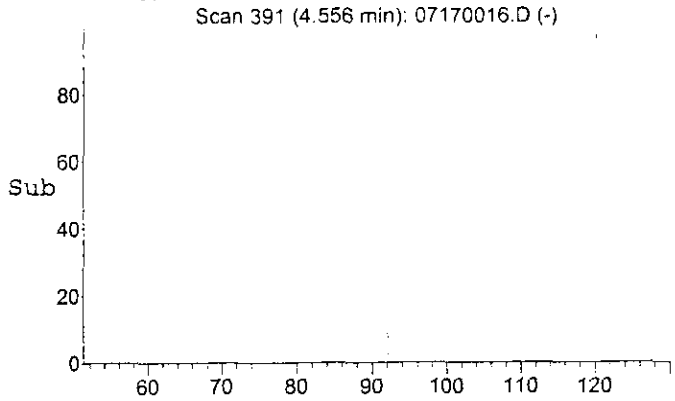
#2
CEES
Concen: 0.56 ppm
RT: 3.75 min Scan# 207
Delta R.T. 0.05 min
Lab File: 07170016.D
Acq: 17 Jul 2000 18:06

Tgt Ion:124 Resp: 345385

Ion	Ratio	Lower	Upper
124	100		
126	35.6	29.1	43.7
75	242.8	188.9	283.3



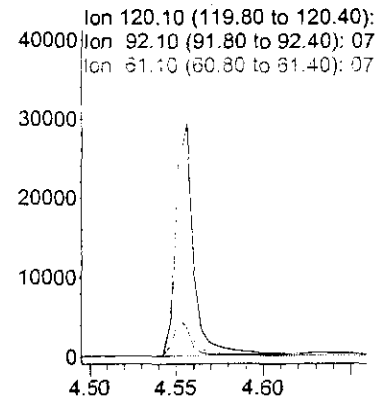


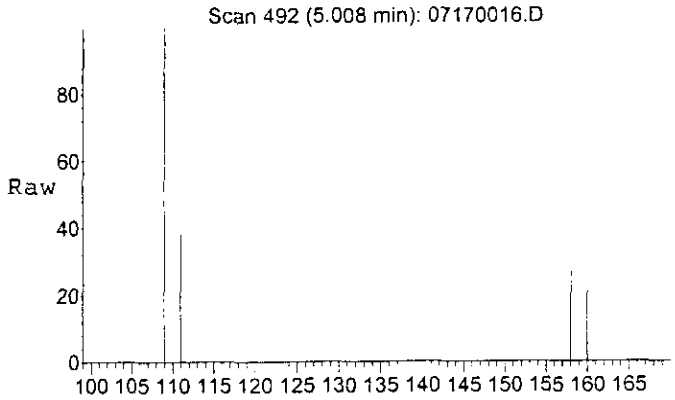


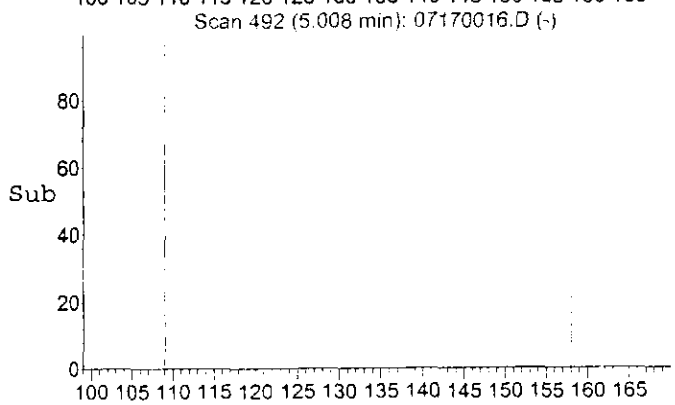
#3
1,4-DITHIANE
Concen: 0.18 ppm
RT: 4.56 min Scan# 391
Delta R.T. 0.06 min
Lab File: 07170016.D
Acq: 17 Jul 2000 18:06

Tgt Ion:120 Resp: 202509

Ion	Ratio	Lower	Upper
120	100		
92	15.1	12.5	18.7
61	39.3	32.0	48.0



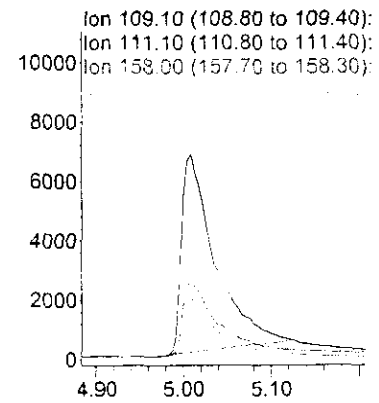




#4
MUSTARD
Concen: 0.15 ppm
RT: 5.01 min Scan# 492
Delta R.T. 0.06 min
Lab File: 07170016.D
Acq: 17 Jul 2000 18:06

Tgt Ion:109 Resp: 176019

Ion	Ratio	Lower	Upper
109	100		
111	36.6	29.3	43.9
158	29.6	23.5	35.3
160	20.4	16.0	24.0



Quantitation Report

Data File : C:\HPCHEM\1\DATA\17JUL00\07170017.D
Acq On : 17 Jul 2000 18:18
Sample : SOIL P&A #6
Misc :

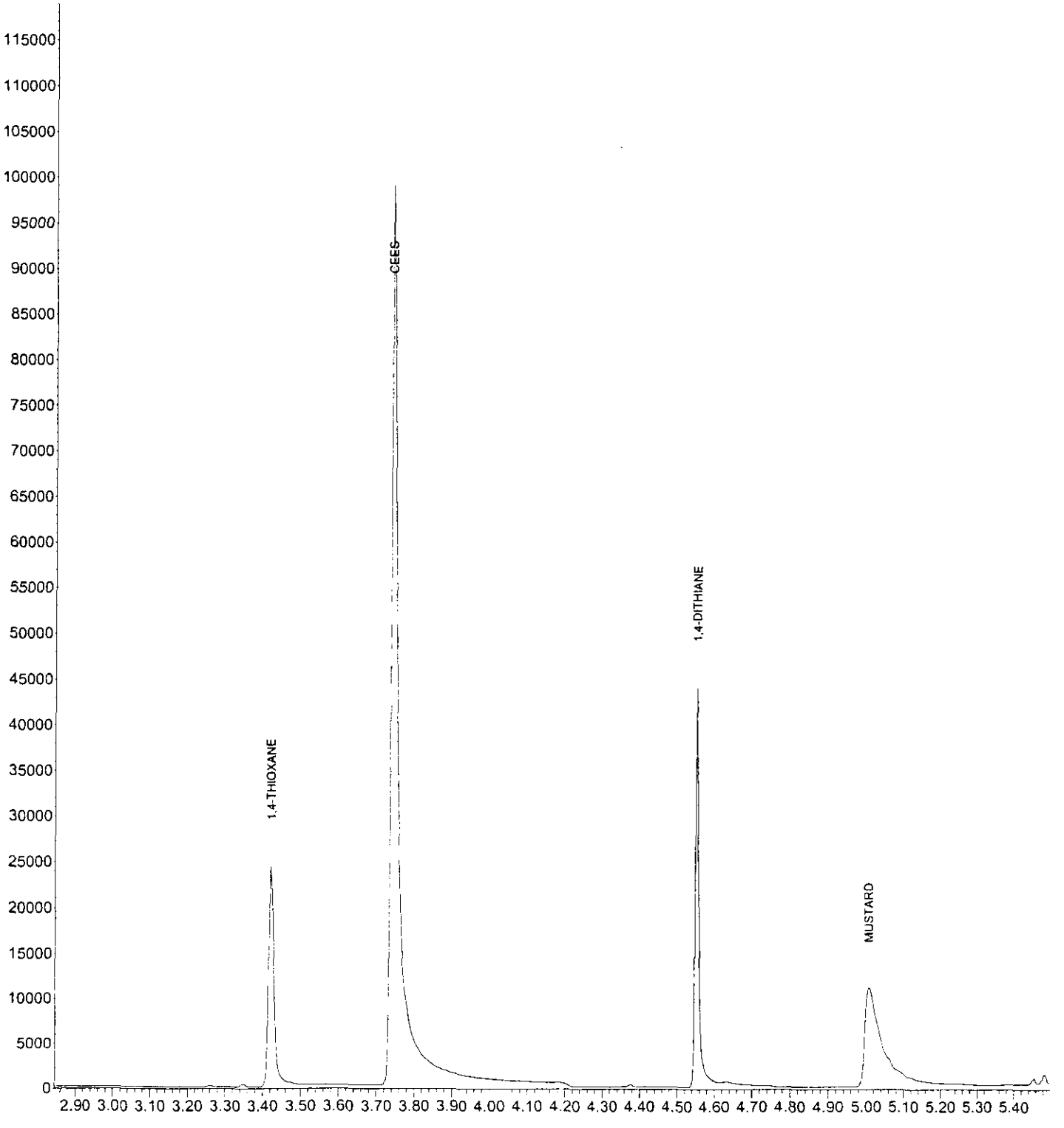
Vial: 15
Operator: EWC
Inst : GCMSD4
Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:34 2000

Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration

TIC: 07170017.D



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170017.D Vial: 15
Acq On : 17 Jul 2000 18:18 Operator: EWC
Sample : SOIL P&A #6 Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

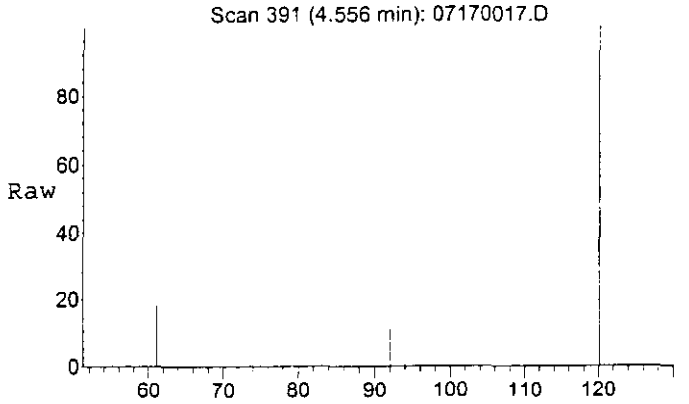
MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:34 2000 Quant Results File: 4CEES.RES

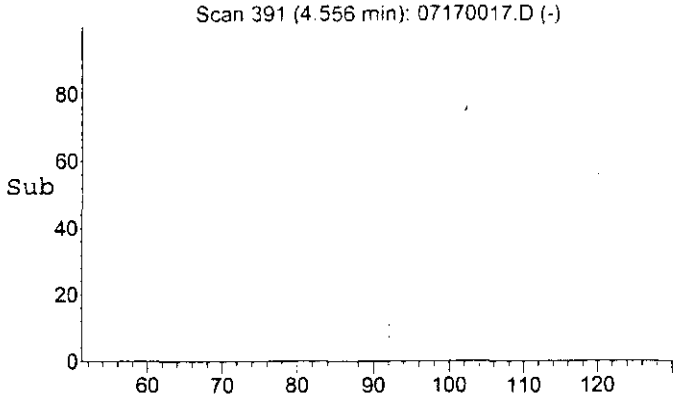
Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)

Target Compounds					Qvalue
1) 1,4-THIOXANE	3.42	61	76215	0.16 ppm	100
2) CEES	3.75	124	329198	0.53 ppm	93
3) 1,4-DITHIANE	4.55	120	185536	0.17 ppm	100
4) MUSTARD	5.01	109	165848	0.14 ppm	99

(#) = qualifier out of range (m) = manual integration

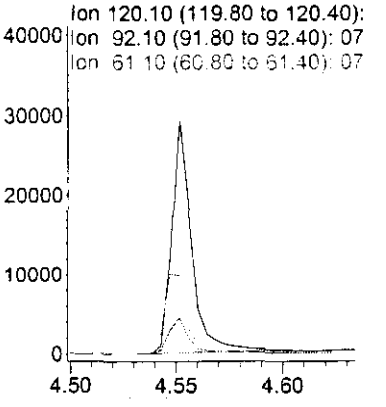


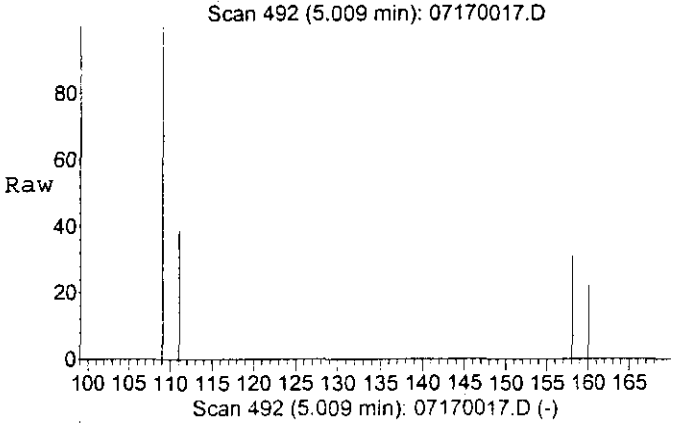


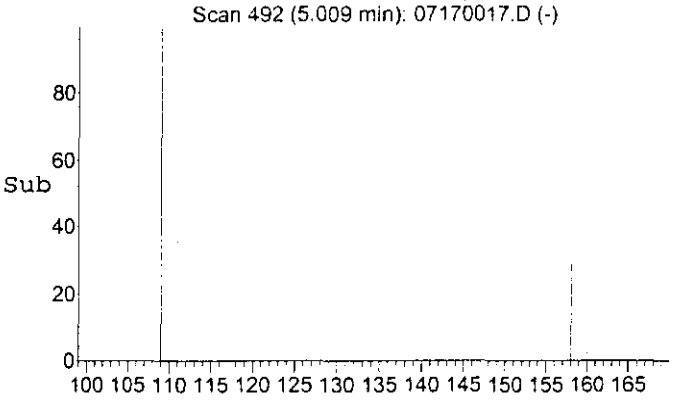
#3
1,4-DITHIANE
Concen: 0.17 ppm
RT: 4.55 min Scan# 391
Delta R.T. 0.05 min
Lab File: 07170017.D
Acq: 17 Jul 2000 18:18

Tgt Ion:120 Resp: 185536

Ion	Ratio	Lower	Upper
120	100		
92	15.8	12.5	18.7
61	39.9	32.0	48.0



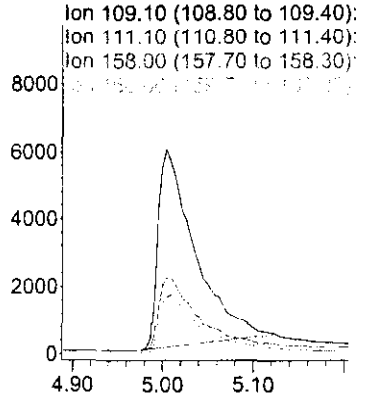


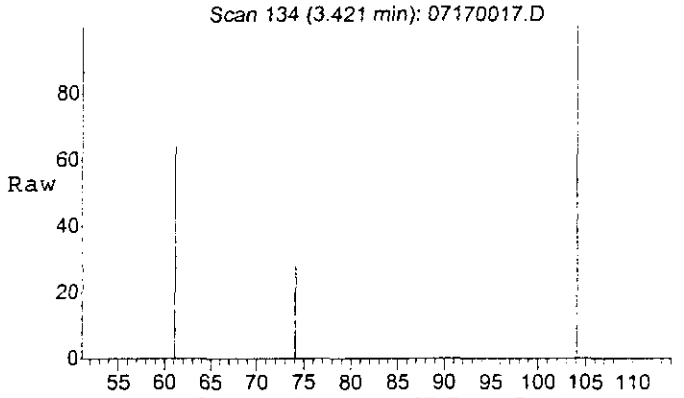


#4
MUSTARD
Concen: 0.14 ppm
RT: 5.01 min Scan# 492
Delta R.T. 0.06 min
Lab File: 07170017.D
Acq: 17 Jul 2000 18:18

Tgt Ion:109 Resp: 165848

Ion	Ratio	Lower	Upper
109	100		
111	36.0	29.3	43.9
158	28.8	23.5	35.3
160	19.9	16.0	24.0

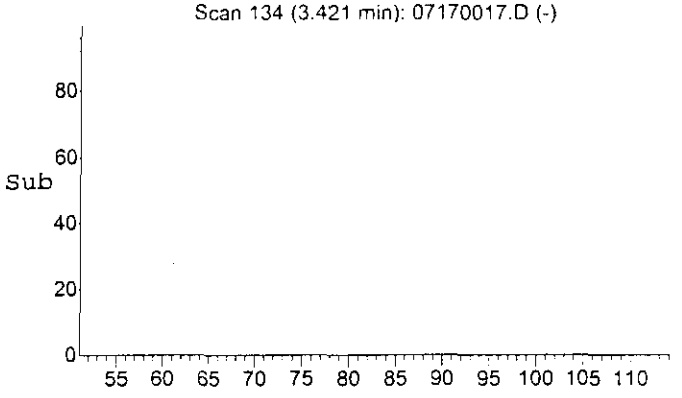


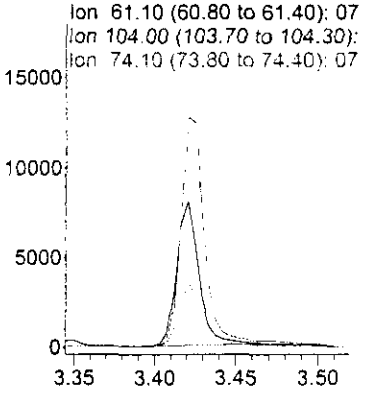


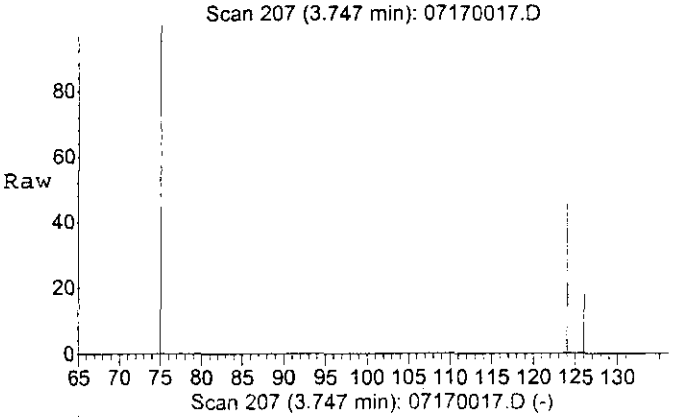
#1
1,4-THIOXANE
Concen: 0.16 ppm
RT: 3.42 min Scan# 134
Delta R.T. 0.02 min
Lab File: 07170017.D
Acq: 17 Jul 2000 18:18

Tgt Ion: 61 Resp: 76215

Ion	Ratio	Lower	Upper
61	100		
104	161.2	129.2	193.8
74	43.2	34.5	51.7



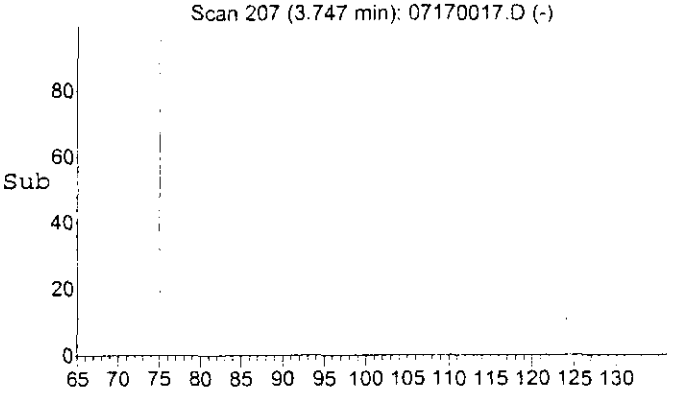


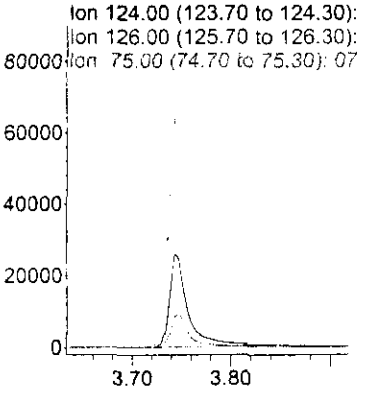


#2
CEES
Concen: 0.53 ppm
RT: 3.75 min Scan# 207
Delta R.T. 0.05 min
Lab File: 07170017.D
Acq: 17 Jul 2000 18:18

Tgt Ion:124 Resp: 329198

Ion	Ratio	Lower	Upper
124	100		
126	36.2	29.1	43.7
75	249.1	188.9	283.3





Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170018.D Vial: 16
Acq On : 17 Jul 2000 18:31 Operator: EWC
Sample : SOIL P&A #7 Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

M Integration Params: EVENTS.E
Quant Time: Jul 26 15:37 2000 Quant Results File: 4CEES.RES

Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)

Target Compounds					Qvalue
1) 1,4-THIOXANE	3.42	61	74660	0.16 ppm	98
2) CEES	3.75	124	323081	0.52 ppm	94
3) 1,4-DITHIANE	4.55	120	191074	0.17 ppm	99
4) MUSTARD	5.01	109	169845	0.15 ppm	100

(#) = qualifier out of range (m) = manual integration
07170018.D 4CEES.M Wed Jul 26 15:38:12 2000

Quantitation Report

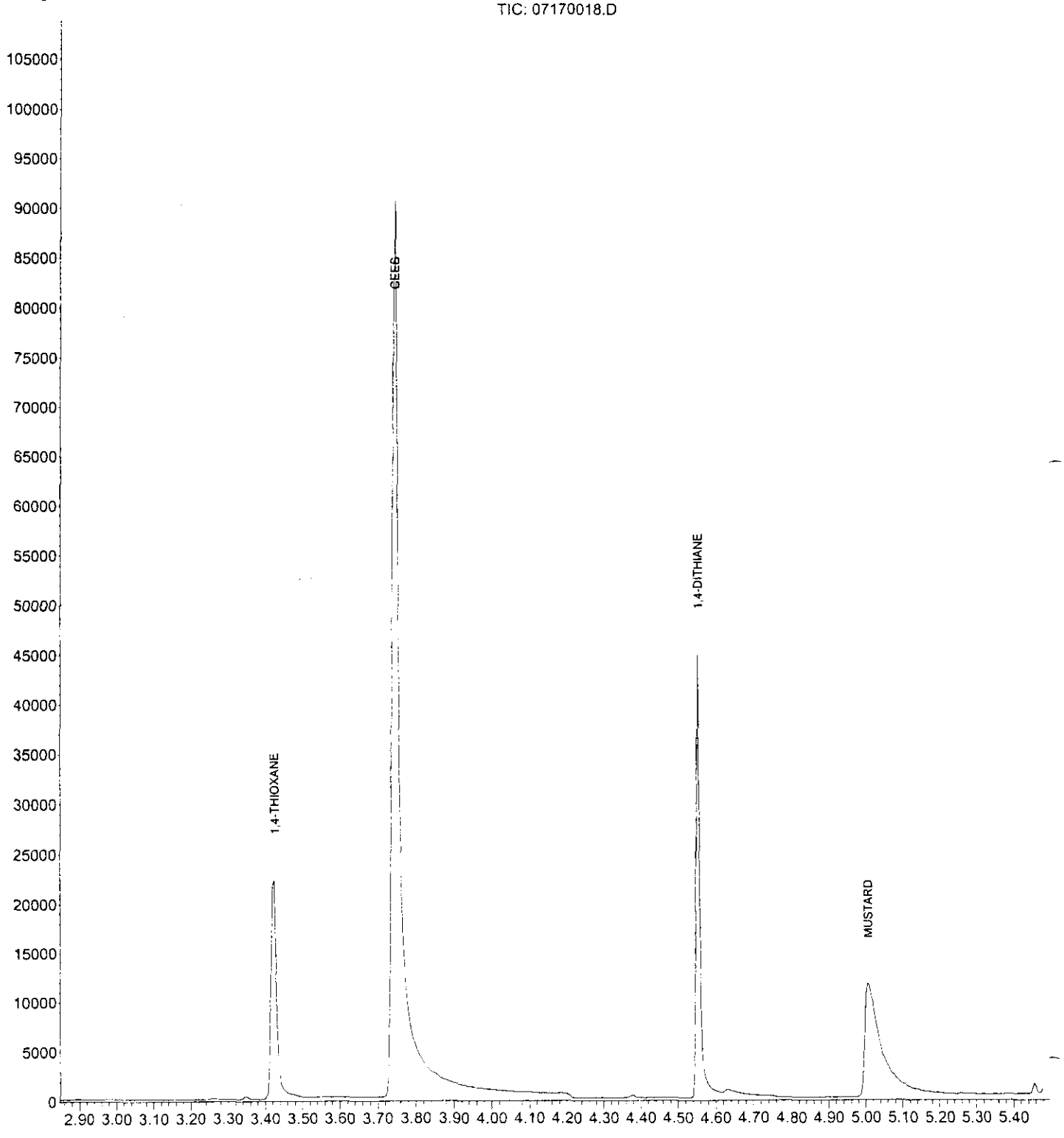
Data File : C:\HPCHEM\1\DATA\17JUL00\07170018.D
Acq On : 17 Jul 2000 18:31
Sample : SOIL P&A #7
Misc :

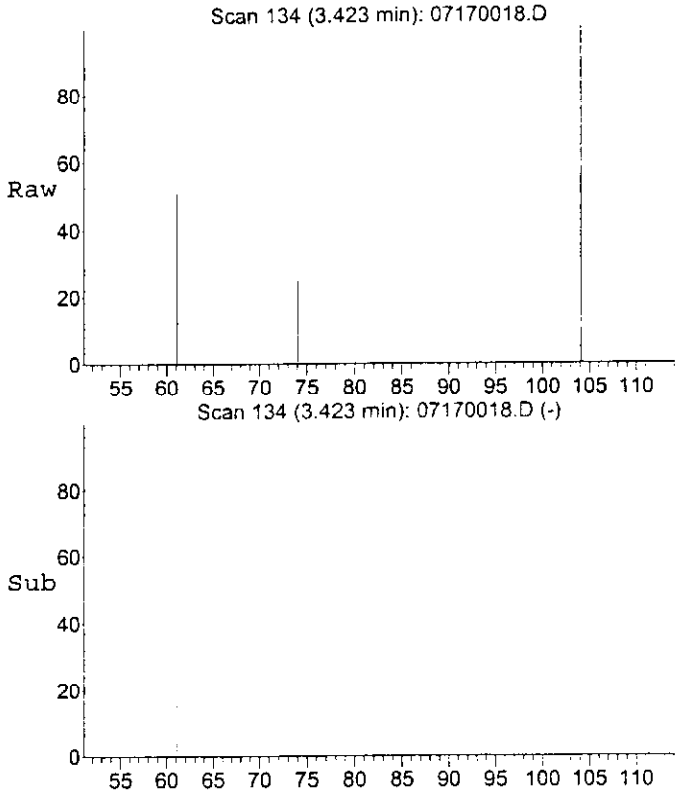
Vial: 16
Operator: EWC
Inst : GCMSD4
Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:37 2000

Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration

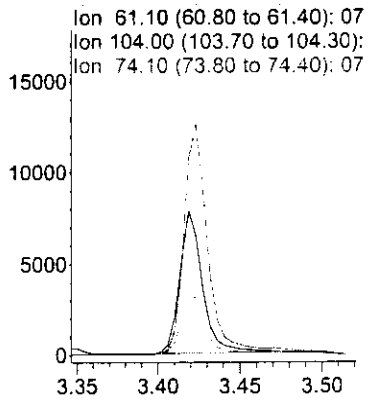


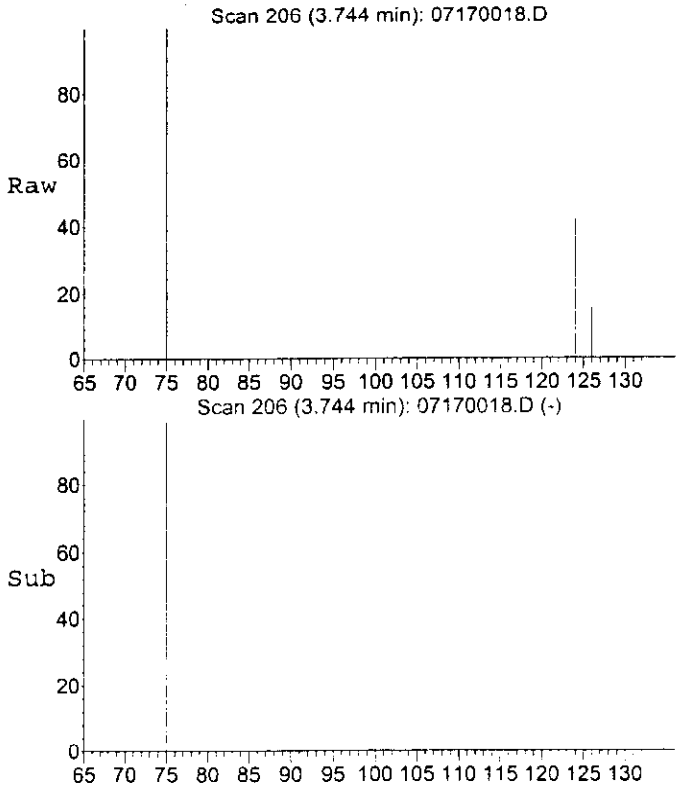


#1
1,4-THIOXANE
Concen: 0.16 ppm
RT: 3.42 min Scan# 134
Delta R.T. 0.02 min
Lab File: 07170018.D
Acq: 17 Jul 2000 18:31

Tgt Ion: 61 Resp: 74660

Ion	Ratio	Lower	Upper
61	100		
104	164.2	129.2	193.8
74	42.9	34.5	51.7

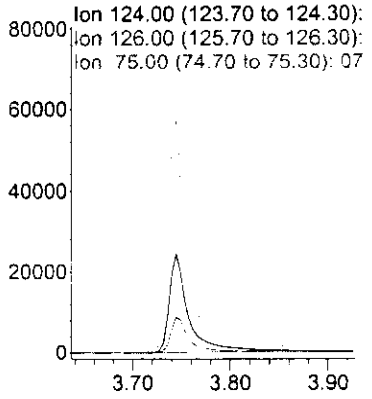




#2
CEES
Concen: 0.52 ppm
RT: 3.75 min Scan# 206
Delta R.T. 0.05 min
Lab File: 07170018.D
Acq: 17 Jul 2000 18:31

Tgt Ion:124 Resp: 323081

Ion	Ratio	Lower	Upper
124	100		
126	36.3	29.1	43.7
75	247.4	188.9	283.3



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170019.D Vial: 3
Acq On : 17 Jul 2000 18:44 Operator: EWC
Sample : 1.25 ppm CHECK STD Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

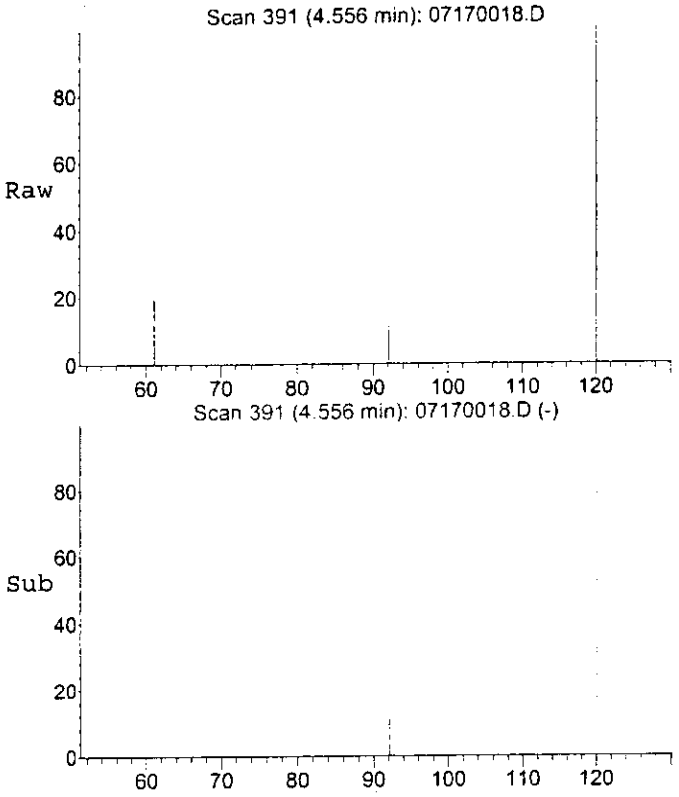
MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:39 2000 Quant Results File: 4CEES.RES

Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)

Target Compounds					Qvalue
1) 1,4-THIOXANE	3.38	61	598582	1.25 ppm	99
2) CEES	3.71	124	760532	1.24 ppm	99
3) 1,4-DITHIANE	4.54	120	1396955	1.26 ppm	100
4) MUSTARD	4.99	109	1418076	1.24 ppm	100

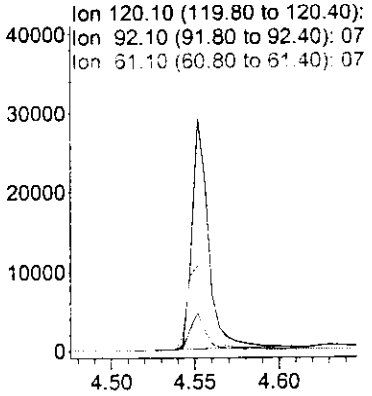
(#) = qualifier out of range (m) = manual integration

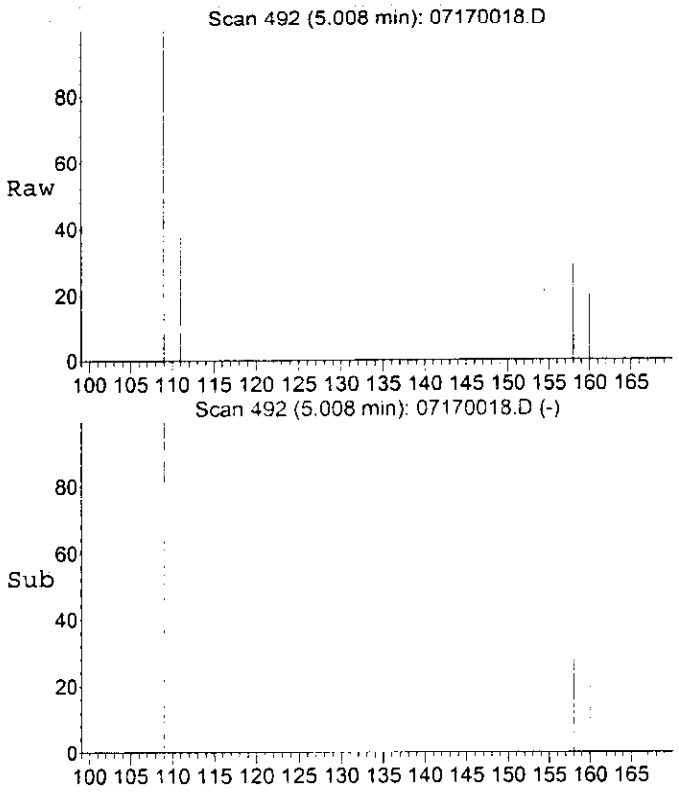


#3
1,4-DITHIANE
Concen: 0.17 ppm
RT: 4.55 min Scan# 391
Delta R.T. 0.05 min
Lab File: 07170018.D
Acq: 17 Jul 2000 18:31

Tgt Ion:120 Resp: 191074

Ion	Ratio	Lower	Upper
120	100		
92	15.3	12.5	18.7
61	40.3	32.0	48.0

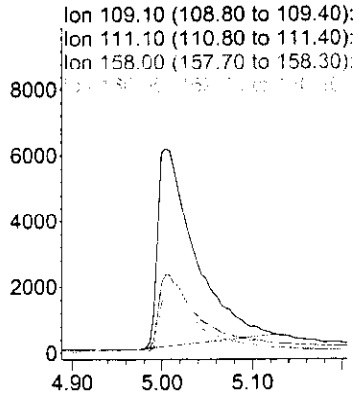


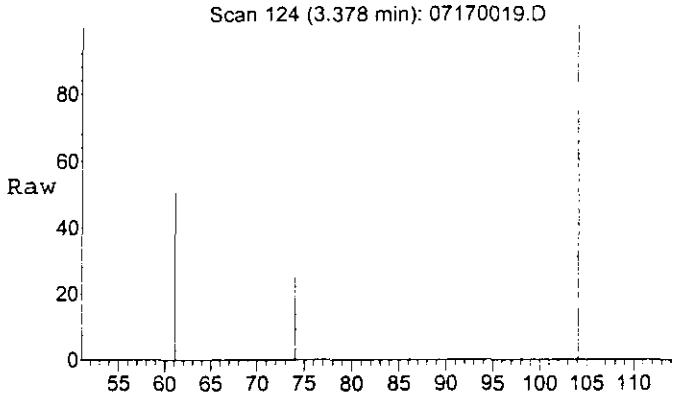


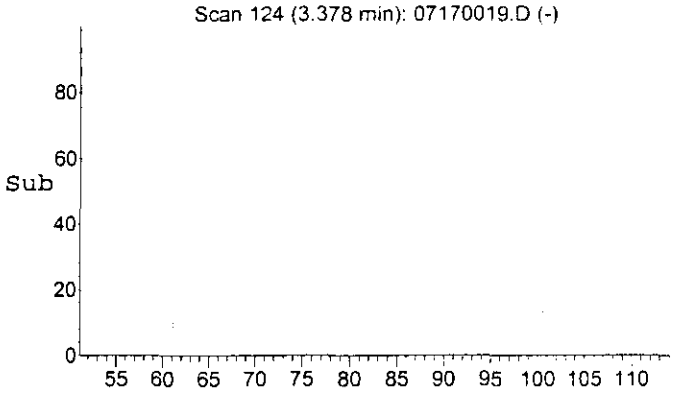
#4
MUSTARD
Concen: 0.15 ppm
RT: 5.01 min Scan# 492
Delta R.T. 0.06 min
Lab File: 07170018.D
Acq: 17 Jul 2000 18:31

Tgt Ion:109 Resp: 169845

Ion	Ratio	Lower	Upper
109	100		
111	36.8	29.3	43.9
158	29.6	23.5	35.3
160	20.1	16.0	24.0



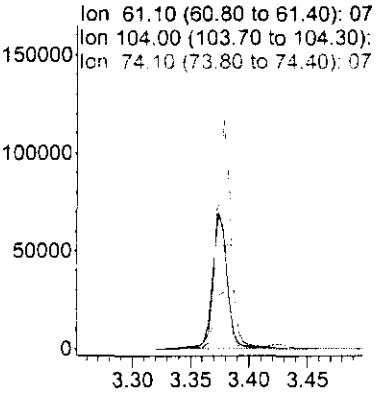


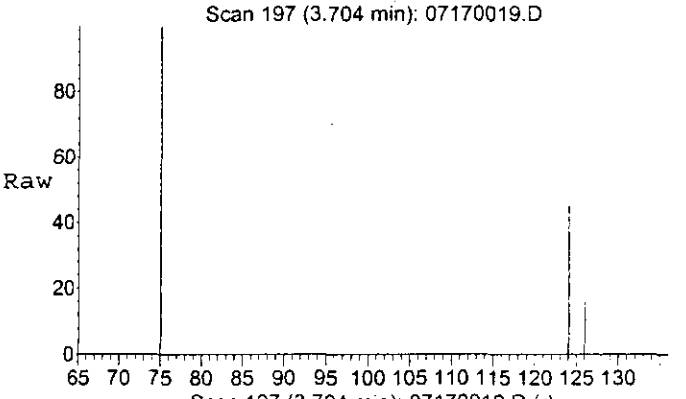


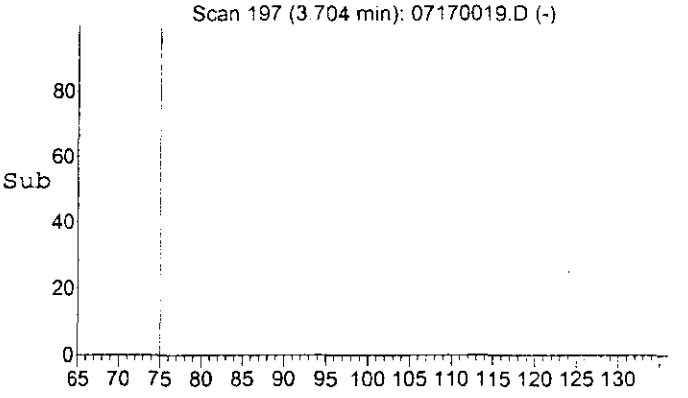
#1
1,4-THIOXANE
Concen: 1.25 ppm
RT: 3.38 min Scan# 124
Delta R.T. -0.02 min
Lab File: 07170019.D
Acq: 17 Jul 2000 18:44

Tgt Ion: 61 Resp: 598582

Ion	Ratio	Lower	Upper
61	100		
104	160.7	129.2	193.8
74	42.2	34.5	51.7



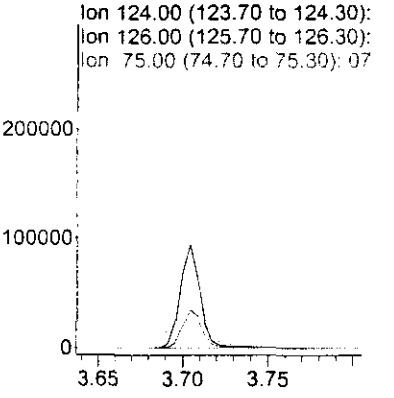




#2
CEES
Concen: 1.24 ppm
RT: 3.71 min Scan# 197
Delta R.T. 0.01 min
Lab File: 07170019.D
Acq: 17 Jul 2000 18:44

Tgt Ion:124 Resp: 760532

Ion	Ratio	Lower	Upper
124	100		
126	37.0	29.1	43.7
75	238.0	188.9	283.3



Quantitation Report

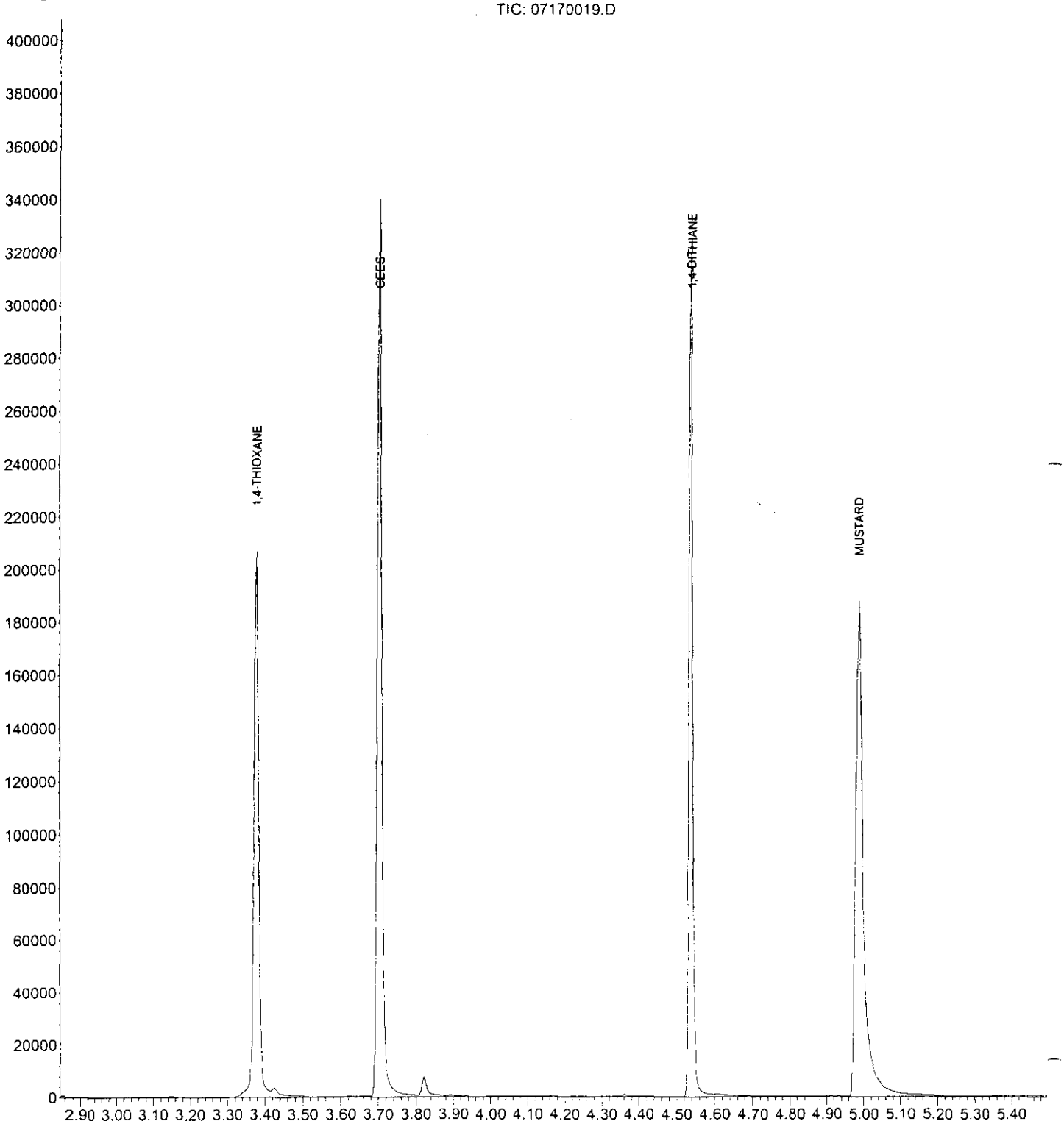
Data File : C:\HPCHEM\1\DATA\17JUL00\07170019.D
Acq On : 17 Jul 2000 18:44
Sample : 1.25 ppm CHECK STD
Misc :

Vial: 3
Operator: EWC
Inst : GCMSD4
Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:39 2000

Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170020.D Vial: 1
Acq On : 17 Jul 2000 18:57 Operator: EWC
Sample : RB Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

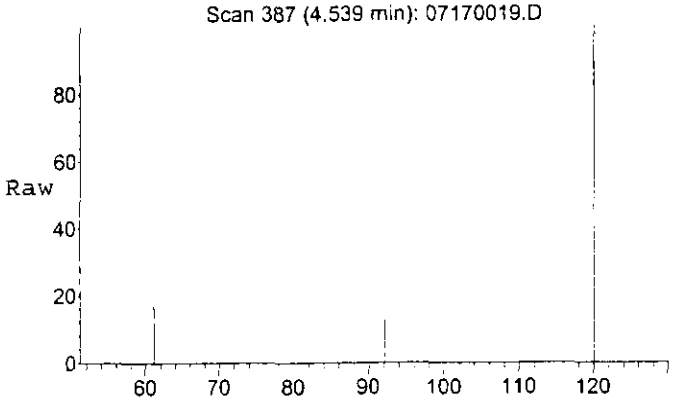
I Integration Params: EVENTS.E
Quant Time: Jul 26 15:39 2000 Quant Results File: 4CEES.RES

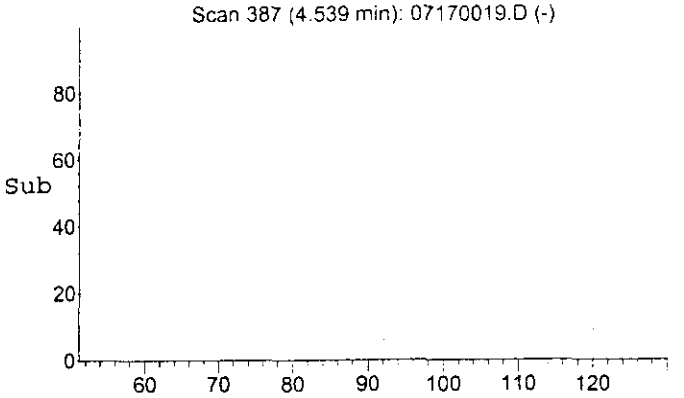
Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)

Target Compounds					Qvalue
1) 1,4-THIOXANE	0.00	61	0	N.D.	
2) CEES	0.00	124	0	N.D.	
3) 1,4-DITHIANE	0.00	120	0	N.D.	
4) MUSTARD	0.00	109	0	N.D.	

(#) = qualifier out of range (m) = manual integration

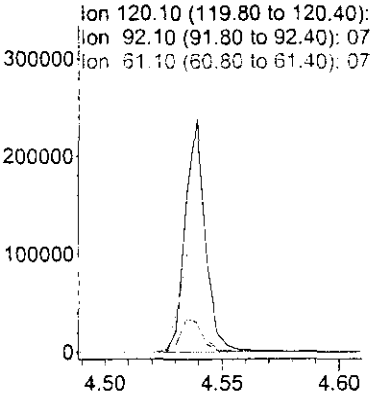


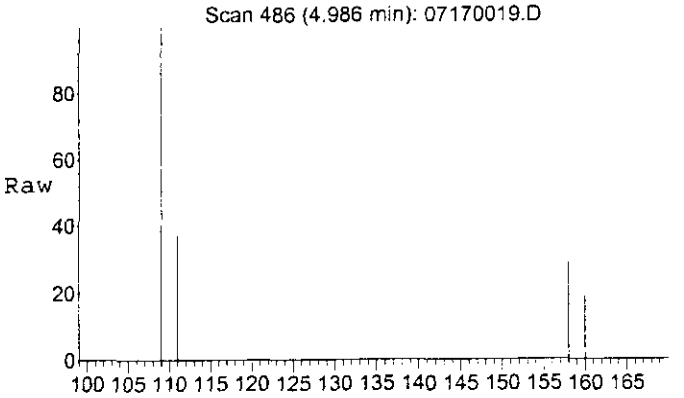


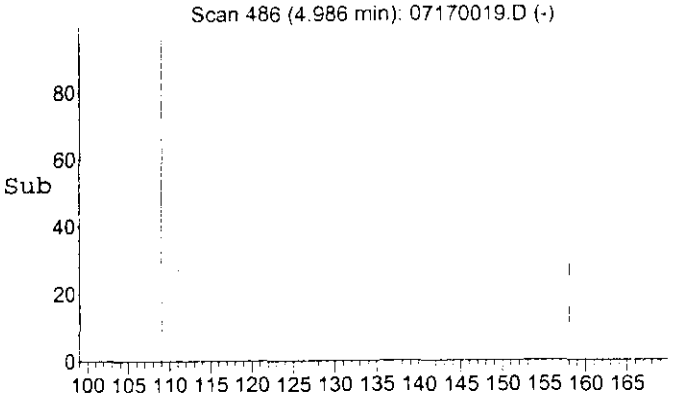
#3
1,4-DITHIANE
Concen: 1.26 ppm
RT: 4.54 min Scan# 387
Delta R.T. 0.04 min
Lab File: 07170019.D
Acq: 17 Jul 2000 18:44

Tgt Ion:120 Resp: 1396955

Ion	Ratio	Lower	Upper
120	100		
92	15.6	12.5	18.7
61	40.4	32.0	48.0



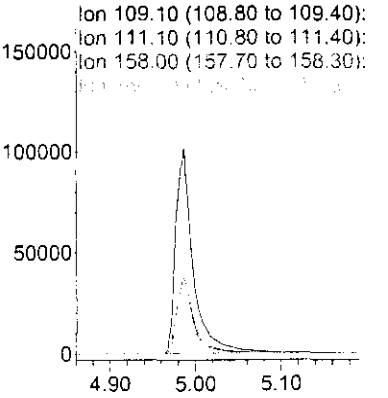


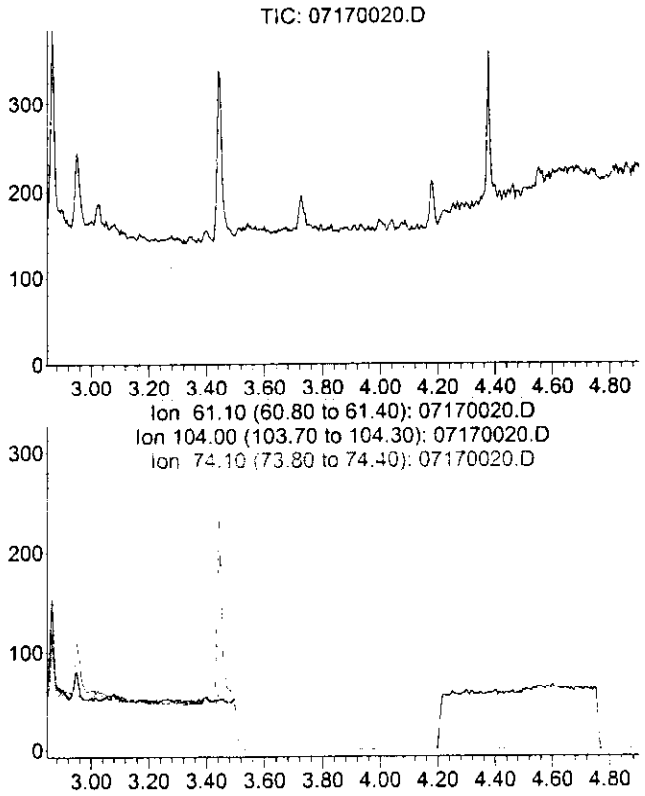


#4
MUSTARD
Concen: 1.24 ppm
RT: 4.99 min Scan# 486
Delta R.T. 0.04 min
Lab File: 07170019.D
Acq: 17 Jul 2000 18:44

Tgt Ion:109 Resp: 1418076

Ion	Ratio	Lower	Upper
109	100		
111	36.7	29.3	43.9
158	29.4	23.5	35.3
160	20.1	16.0	24.0



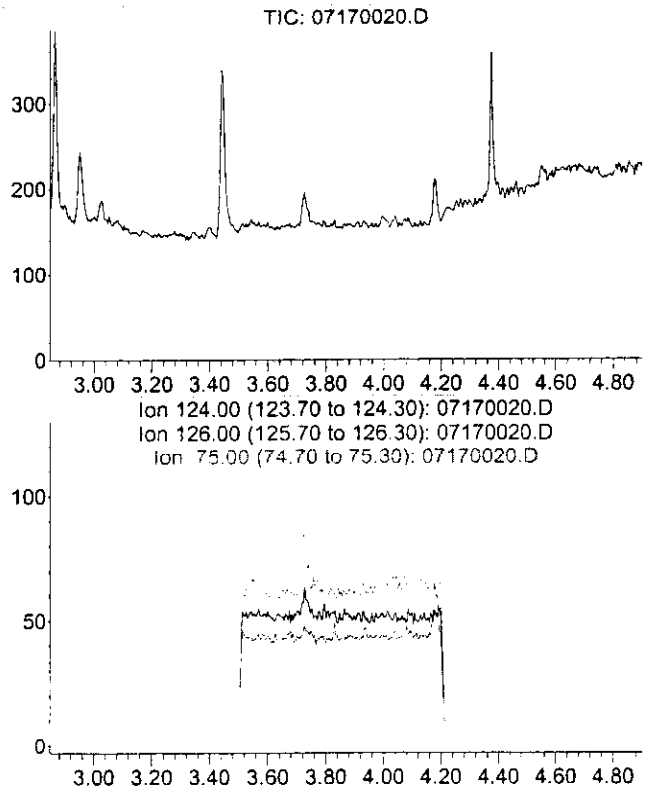


#1
1,4-THIOXANE
Concen: N.D.
Expected RT: 3.40 min

Lab File: 07170020.D
Acq: 17 Jul 2000 18:57

Tgt Ion: 61

Sig	Exp Ratio
61	100
104	161.5
74	43.1



#2
CEES
Concen: N.D.
Expected RT: 3.70 min

Lab File: 07170020.D
Acq: 17 Jul 2000 18:57

Tgt Ion: 124

Sig	Exp Ratio
124	100
126	36.4
75	236.1

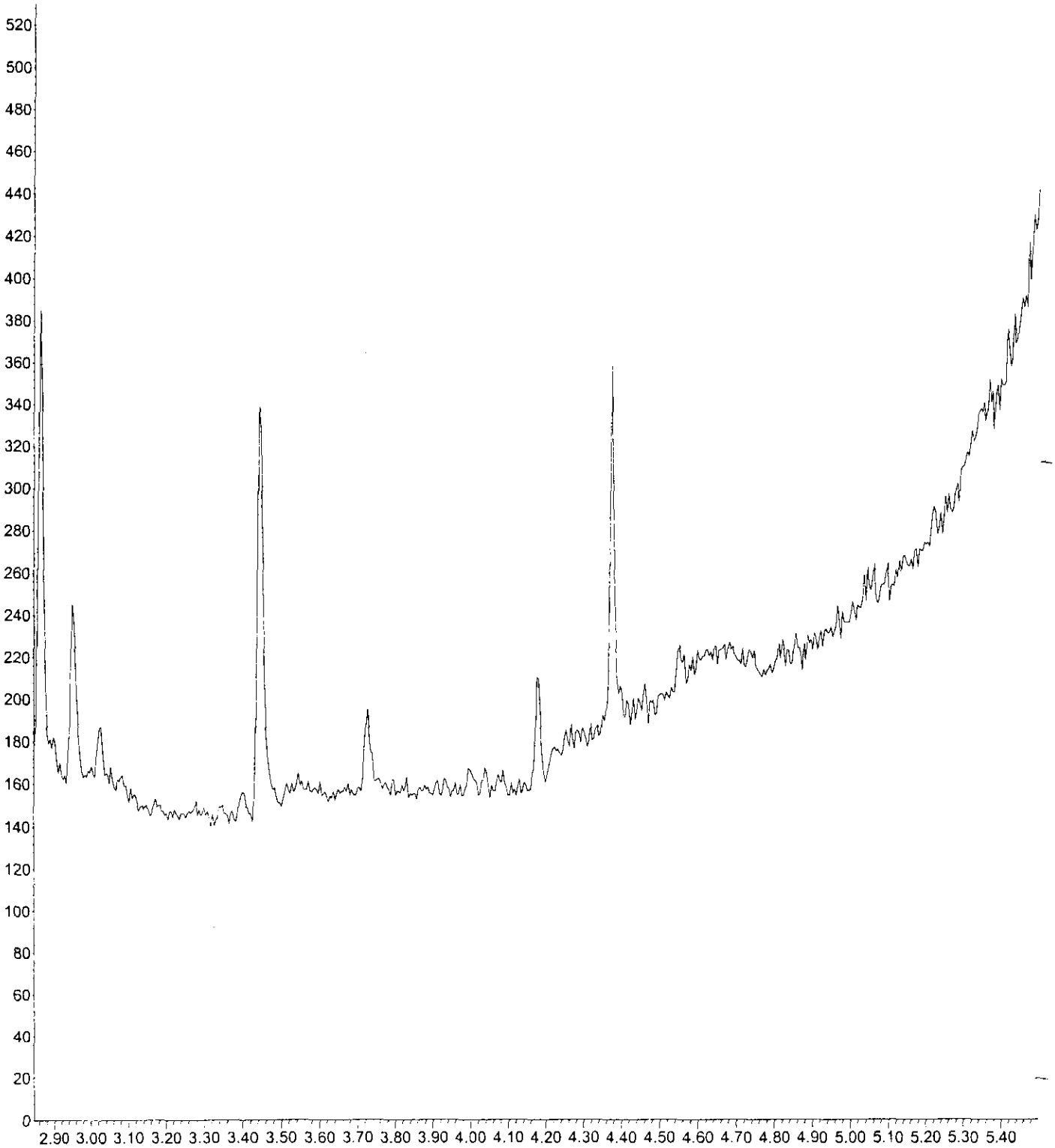
Quantitation Report

Data File : C:\HPCHEM\1\DATA\17JUL00\07170020.D Vial: 1
Acq On : 17 Jul 2000 18:57 Operator: EWC
Sample : RB Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:39 2000 Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration

TIC: 07170020.D



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170021.D Vial: 17
Acq On : 17 Jul 2000 19:09 Operator: EWC
Sample : WATER MATRIX BLANK Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

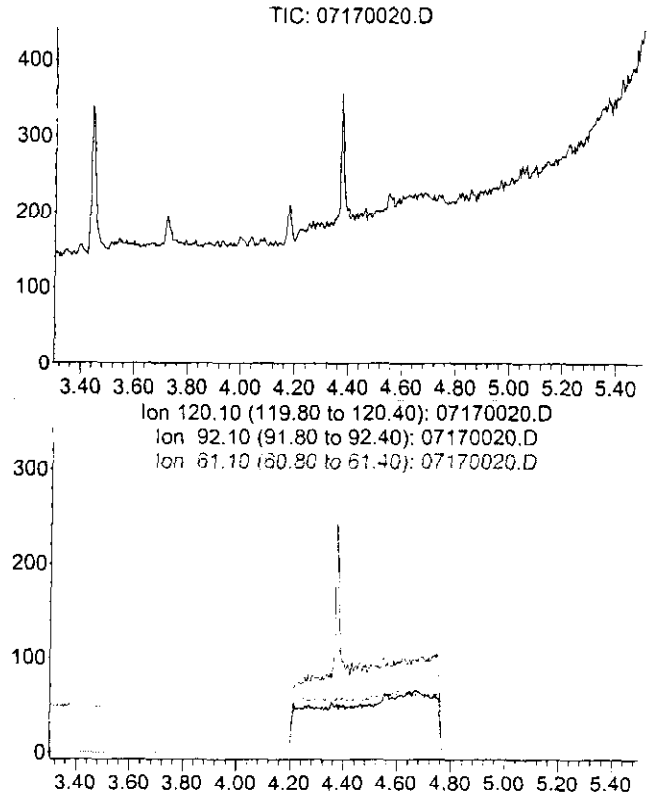
Integration Params: EVENTS.E
Quant Time: Jul 26 15:40 2000 Quant Results File: 4CEES.RES

Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)

Target Compounds					Qvalue
1) 1,4-THIOXANE	0.00	61	0	N.D.	
2) CEES	3.72	124	358210	0.58 ppm	98
3) 1,4-DITHIANE	0.00	120	0	N.D.	
4) MUSTARD	0.00	109	0	N.D.	

(#) = qualifier out of range (m) = manual integration
07170021.D 4CEES.M Wed Jul 26 15:40:38 2000

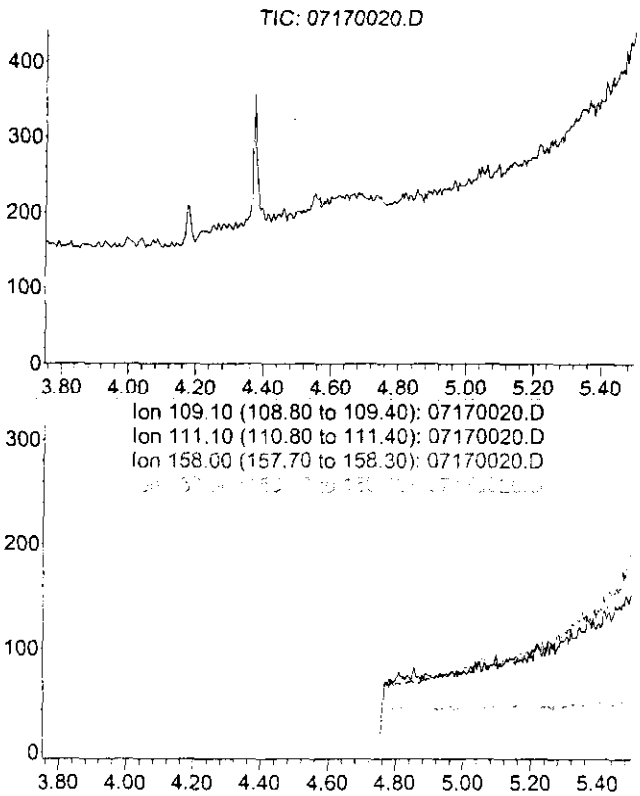


#3
1,4-DITHIANE
Concen: N.D.
Expected RT: 4.50 min

Lab File: 07170020.D
Acq: 17 Jul 2000 18:57

Tgt Ion: 120

Sig	Exp Ratio
120	100
92	15.6
61	40.0

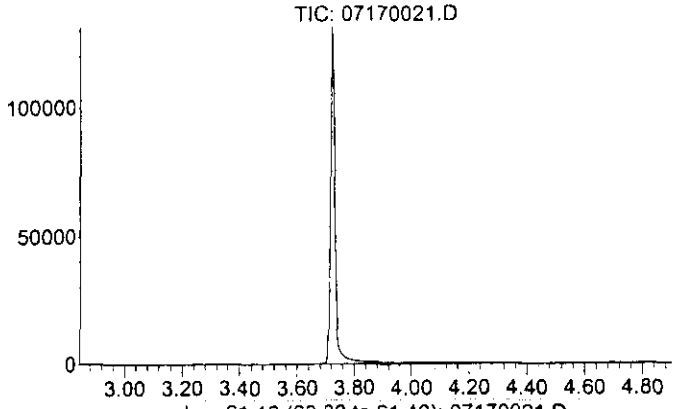


#4
MUSTARD
Concen: N.D.
Expected RT: 4.95 min

Lab File: 07170020.D
Acq: 17 Jul 2000 18:57

Tgt Ion: 109

Sig	Exp Ratio
109	100
111	36.6
158	29.4
160	20.0

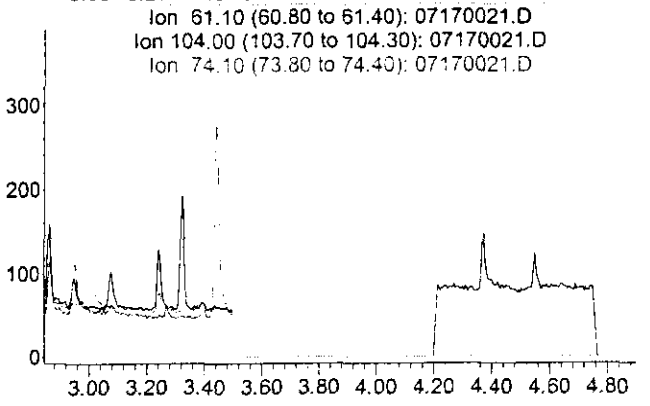


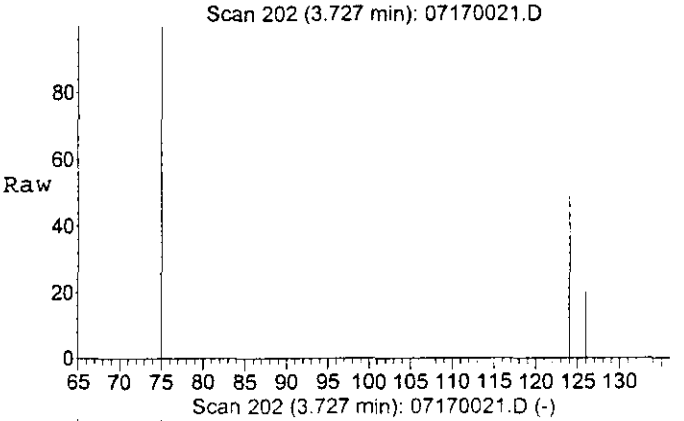
#1
1,4-THIOXANE
Concen: N.D.
Expected RT: 3.40 min

Lab File: 07170021.D
Acq: 17 Jul 2000 19:09

Tgt Ion: 61

Sig	Exp Ratio
61	100
104	161.5
74	43.1

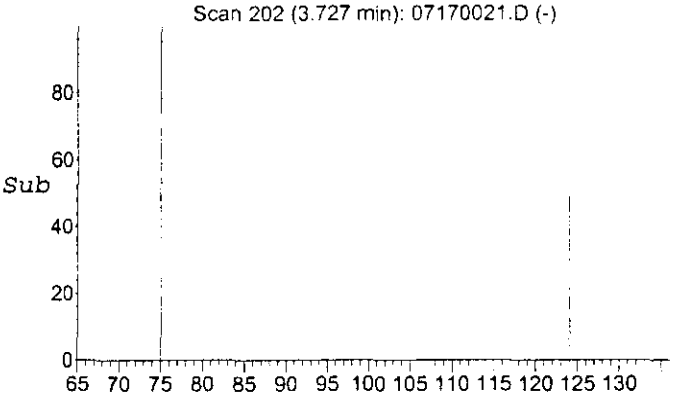


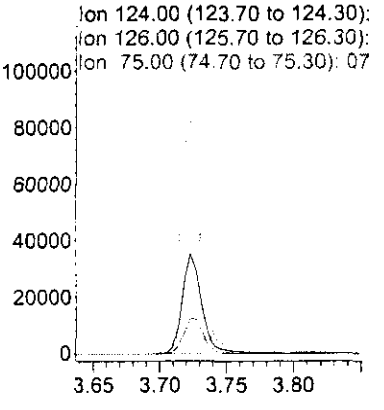


#2
CEES
Concen: 0.58 ppm
RT: 3.72 min Scan# 202
Delta R.T. 0.02 min
Lab File: 07170021.D
Acq: 17 Jul 2000 19:09

Tgt Ion:124 Resp: 358210

Ion	Ratio	Lower	Upper
124	100		
126	36.3	29.1	43.7
75	239.1	188.9	283.3



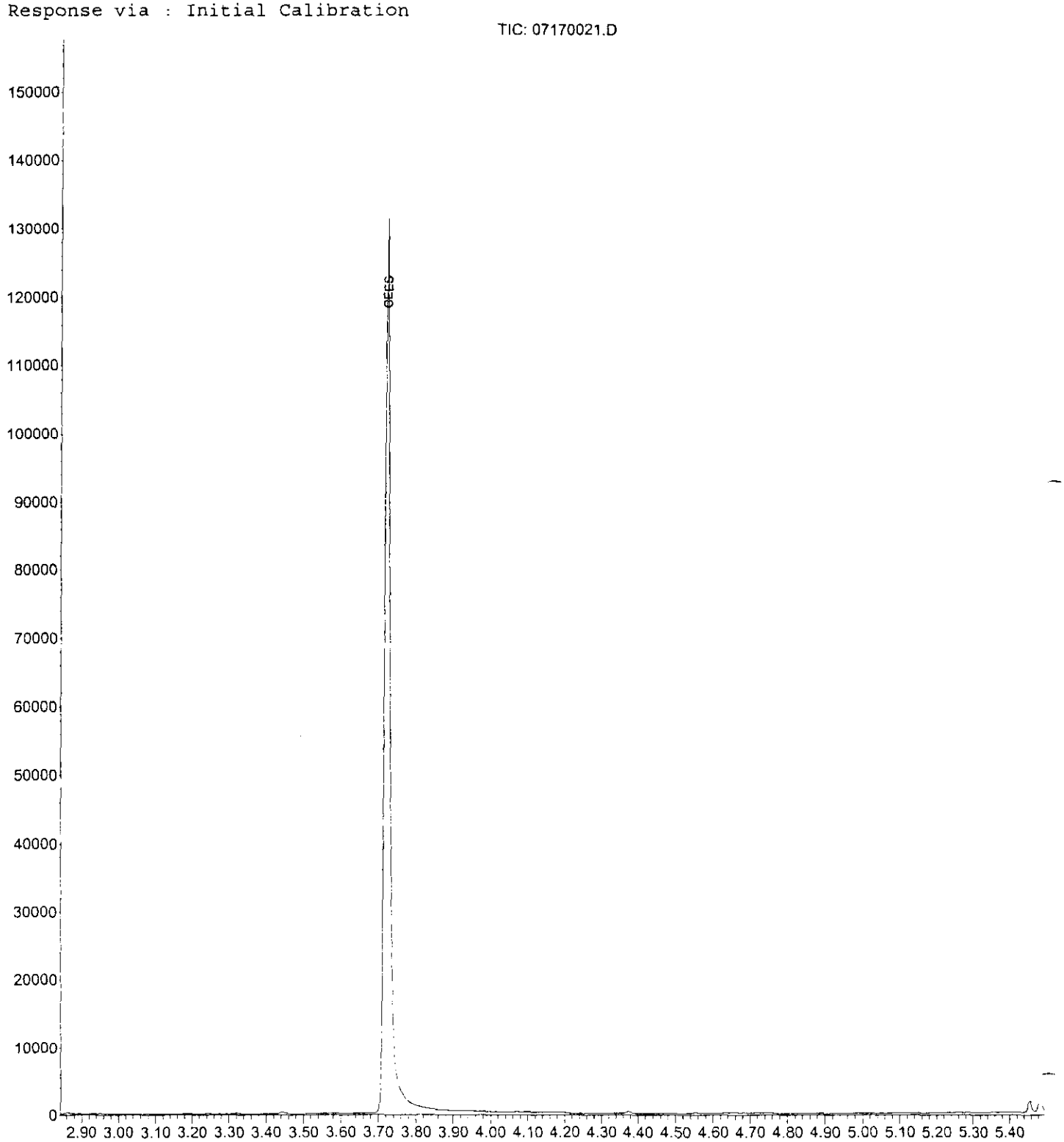


Quantitation Report

Data File : C:\HPCHEM\1\DATA\17JUL00\07170021.D Vial: 17
Acq On : 17 Jul 2000 19:09 Operator: EWC
Sample : WATER MATRIX BLANK Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:40 2000 Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

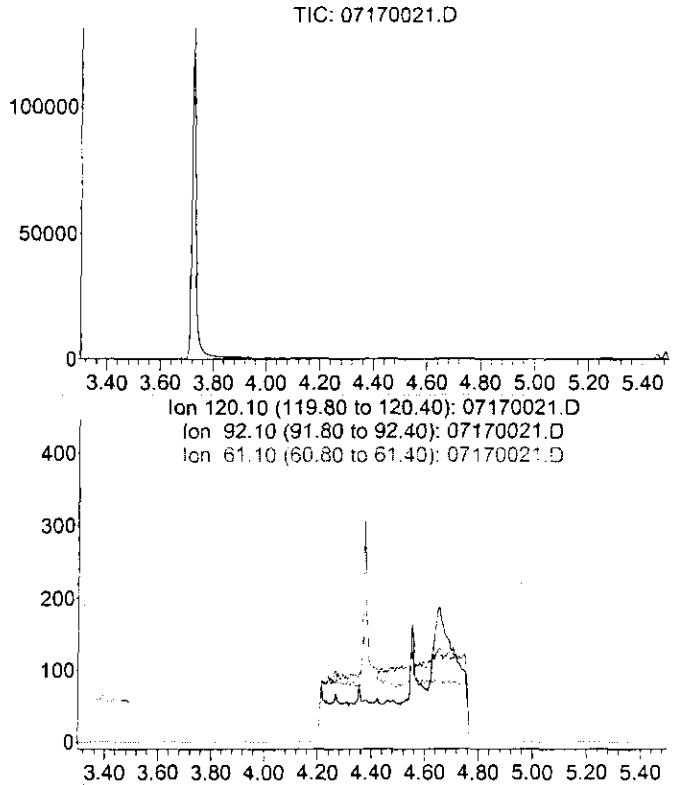
Data File : C:\HPCHEM\1\DATA\17JUL00\07170022.D Vial: 18
Acq On : 17 Jul 2000 19:22 Operator: EWC
Sample : WATER P&A #1 Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

Integration Params: EVENTS.E
Quant Time: Jul 26 15:40 2000 Quant Results File: 4CEES.RES

Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)
Target Compounds					Qvalue
1) 1,4-THIOXANE	3.40	61	97071	0.20 ppm	96
2) CEES	3.73	124	377517	0.61 ppm	98
3) 1,4-DITHIANE	4.55	120	207915	0.19 ppm	99
4) MUSTARD	5.01	109	162898	0.14 ppm	100

(#) = qualifier out of range (m) = manual integration
07170022.D 4CEES.M Wed Jul 26 15:41:07 2000

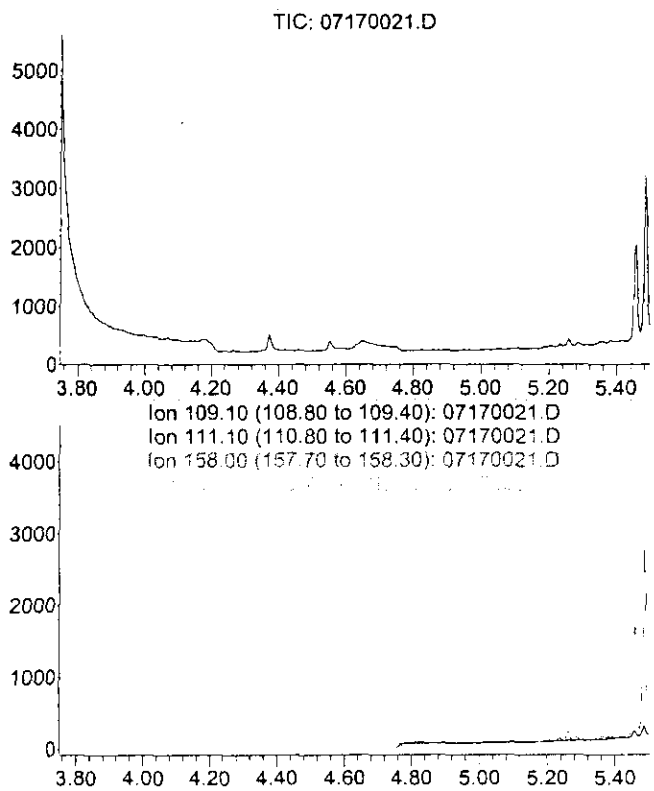


#3
1,4-DITHIANE
Concen: N.D.
Expected RT: 4.50 min

Lab File: 07170021.D
Acq: 17 Jul 2000 19:09

Tgt Ion: 120

Sig	Exp Ratio
120	100
92	15.6
61	40.0

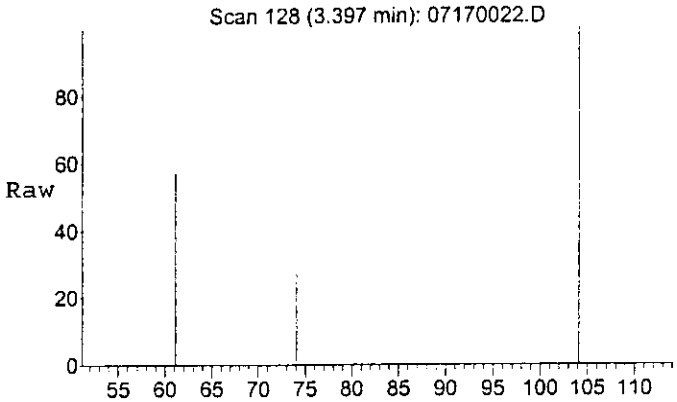


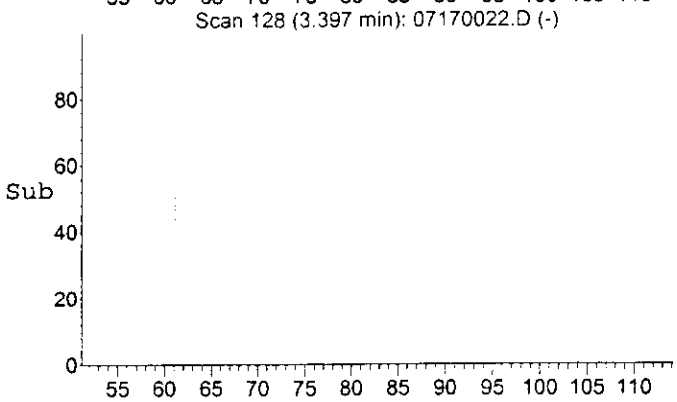
#4
MUSTARD
Concen: N.D.
Expected RT: 4.95 min

Lab File: 07170021.D
Acq: 17 Jul 2000 19:09

Tgt Ion: 109

Sig	Exp Ratio
109	100
111	36.6
158	29.4
160	20.0

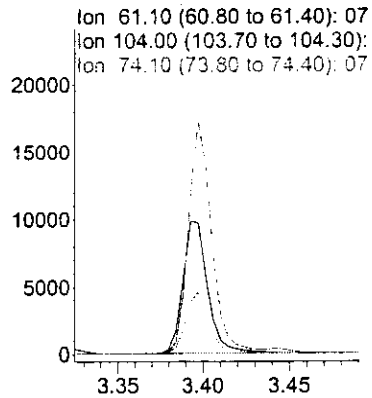


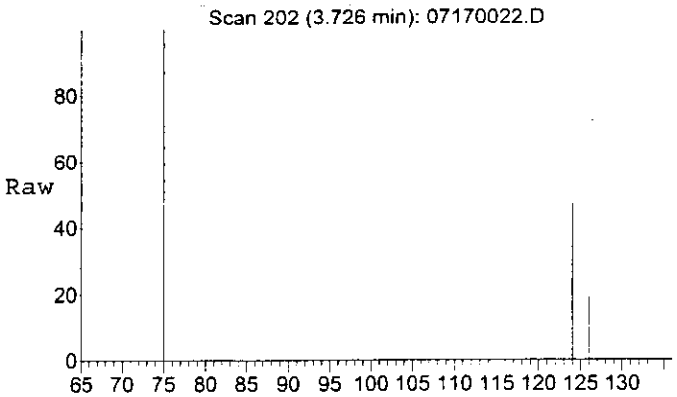


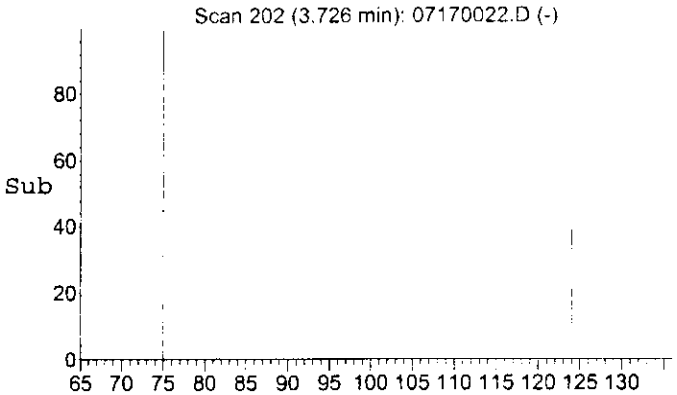
#1
1,4-THIOXANE
Concen: 0.20 ppm
RT: 3.40 min Scan# 128
Delta R.T. -0.00 min
Lab File: 07170022.D
Acq: 17 Jul 2000 19:22

Tgt Ion: 61 Resp: 97071

Ion	Ratio	Lower	Upper
61	100		
104	167.2	129.2	193.8
74	43.9	34.5	51.7



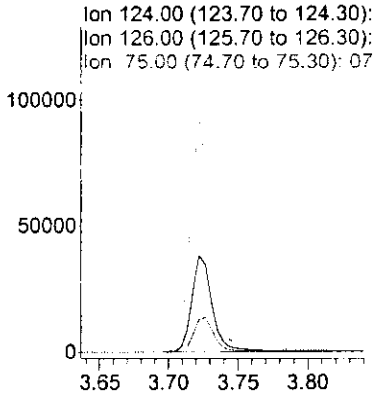




#2
CEES
Concen: 0.61 ppm
RT: 3.73 min Scan# 202
Delta R.T. 0.03 min
Lab File: 07170022.D
Acq: 17 Jul 2000 19:22

Tgt Ion:124 Resp: 377517

Ion	Ratio	Lower	Upper
124	100		
126	36.7	29.1	43.7
75	239.4	188.9	283.3



Quantitation Report

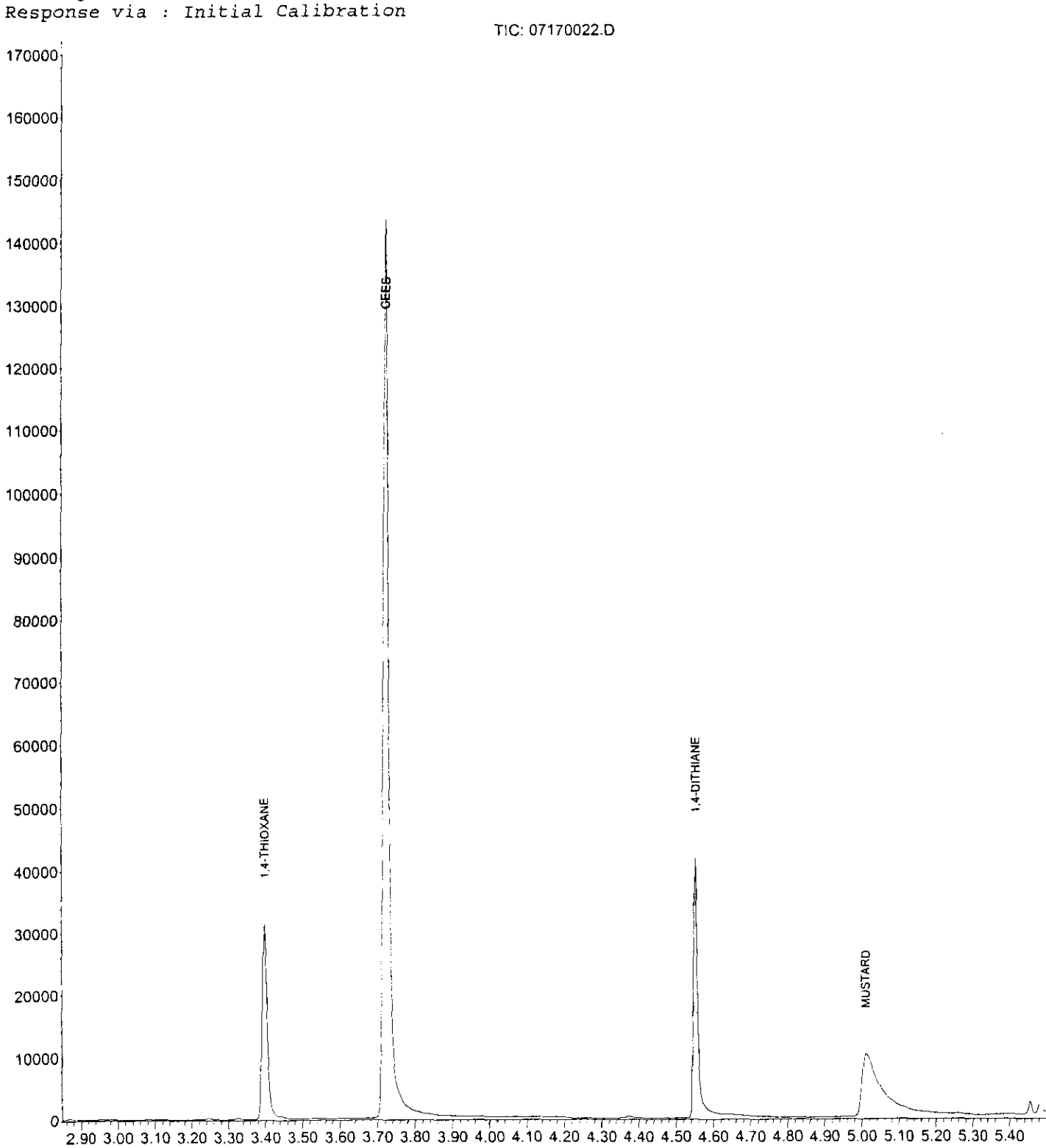
Data File : C:\HPCHEM\1\DATA\17JUL00\07170022.D
Acq On : 17 Jul 2000 19:22
Sample : WATER P&A #1
Misc :

Vial: 18
Operator: EWC
Inst : GCMSD4
Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:40 2000

Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170023.D Vial: 19
Acq On : 17 Jul 2000 19:35 Operator: EWC
Sample : WATER P&A #2 Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

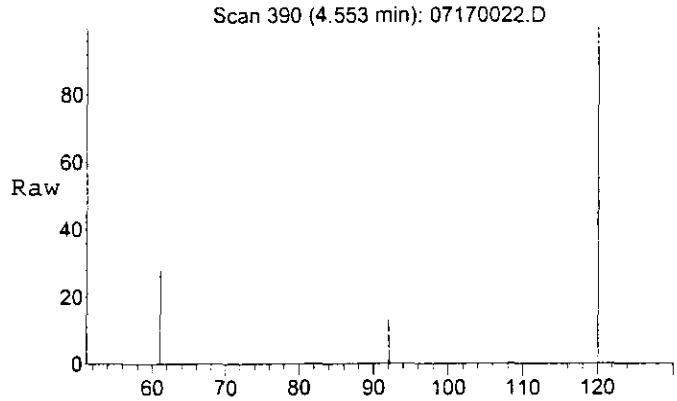
! Integration Params: EVENTS.E
Quant Time: Jul 26 15:41 2000 Quant Results File: 4CEES.RES

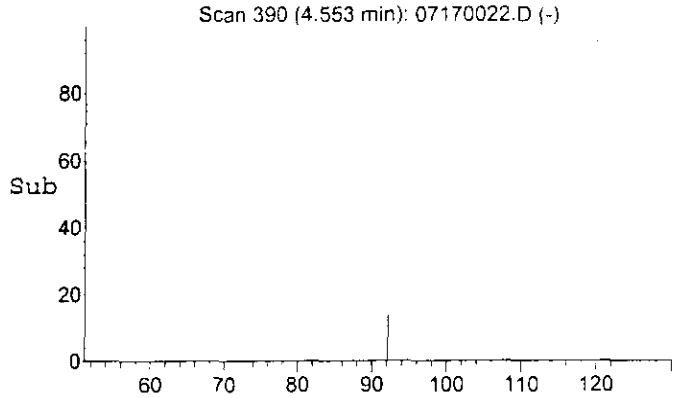
Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)

Target Compounds					Qvalue
1) 1,4-THIOXANE	3.40	61	94538	0.20 ppm	97
2) CEES	3.73	124	380577	0.62 ppm	98
3) 1,4-DITHIANE	4.55	120	203428	0.18 ppm	98
4) MUSTARD	5.01	109	153933	0.13 ppm	99

(#) = qualifier out of range (m) = manual integration

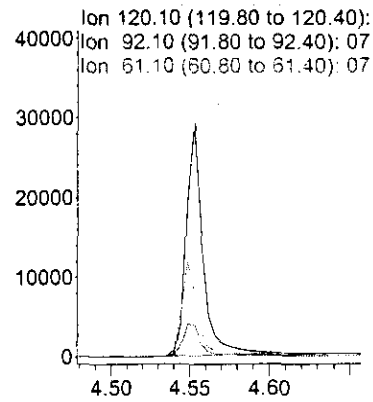


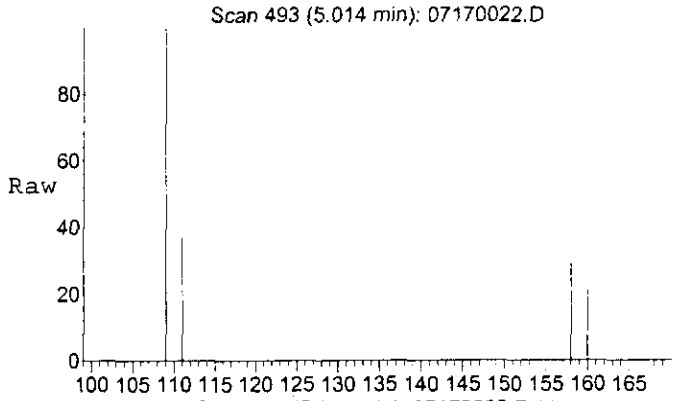


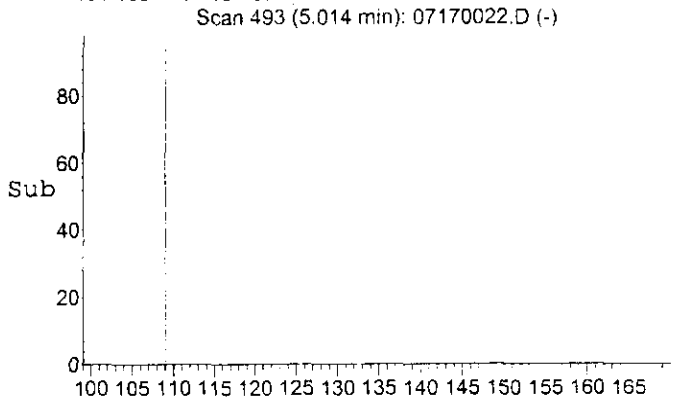
#3
1,4-DITHIANE
Concen: 0.19 ppm
RT: 4.55 min Scan# 390
Delta R.T. 0.05 min
Lab File: 07170022.D
Acq: 17 Jul 2000 19:22

Tgt Ion:120 Resp: 207915

Ion	Ratio	Lower	Upper
120	100		
92	15.5	12.5	18.7
61	40.4	32.0	48.0



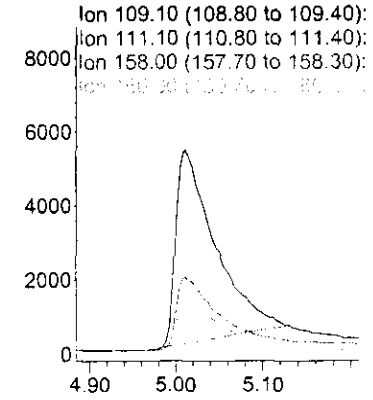


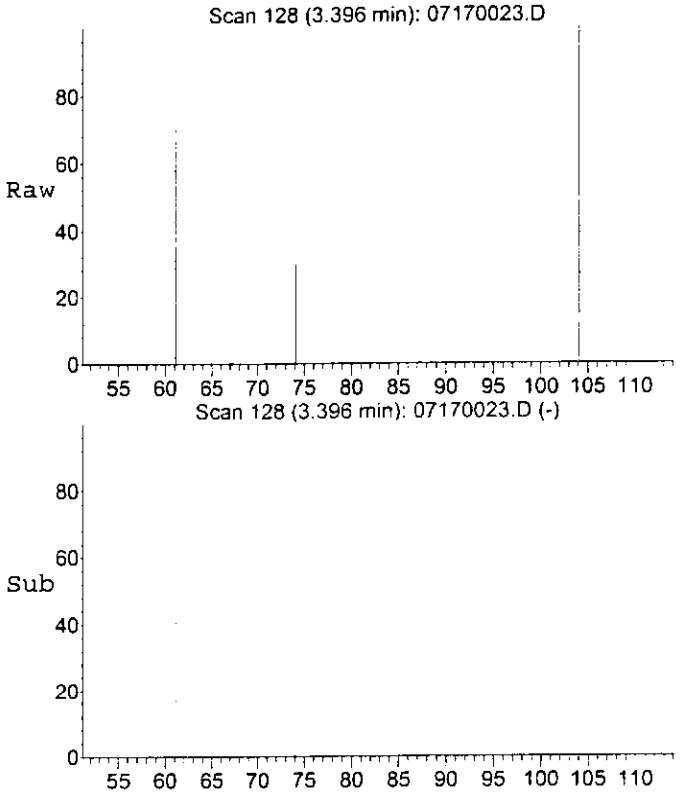


#4
MUSTARD
Concen: 0.14 ppm
RT: 5.01 min Scan# 493
Delta R.T. 0.06 min
Lab File: 07170022.D
Acq: 17 Jul 2000 19:22

Tgt Ion:109 Resp: 162898

Ion	Ratio	Lower	Upper
109	100		
111	36.3	29.3	43.9
158	29.4	23.5	35.3
160	20.3	16.0	24.0

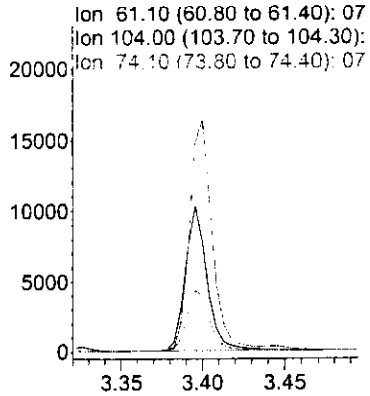


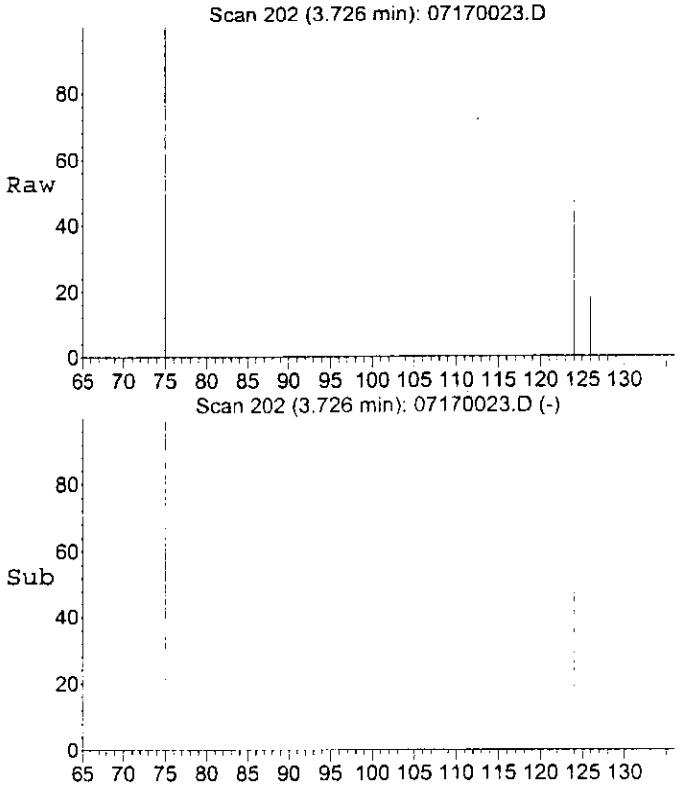


#1
1,4-THIOXANE
Concen: 0.20 ppm
RT: 3.40 min Scan# 128
Delta R.T. -0.00 min
Lab File: 07170023.D
Acq: 17 Jul 2000 19:35

Tgt Ion: 61 Resp: 94538

Ion	Ratio	Lower	Upper
61	100		
104	166.1	129.2	193.8
74	44.0	34.5	51.7

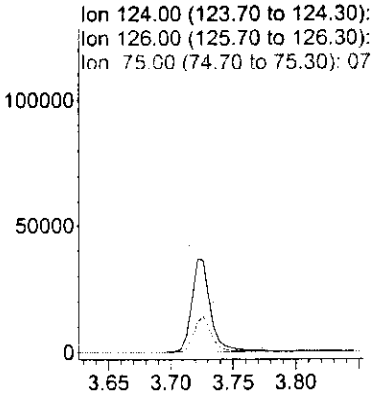




#2
CEES
Concen: 0.62 ppm
RT: 3.73 min Scan# 202
Delta R.T. 0.03 min
Lab File: 07170023.D
Acq: 17 Jul 2000 19:35

Tgt Ion:124 Resp: 380577

Ion	Ratio	Lower	Upper
124	100		
126	36.6	29.1	43.7
75	239.5	188.9	283.3



Quantitation Report

Data File : C:\HPCHEM\1\DATA\17JUL00\07170023.D
Acq On : 17 Jul 2000 19:35
Sample : WATER P&A #2
Misc :

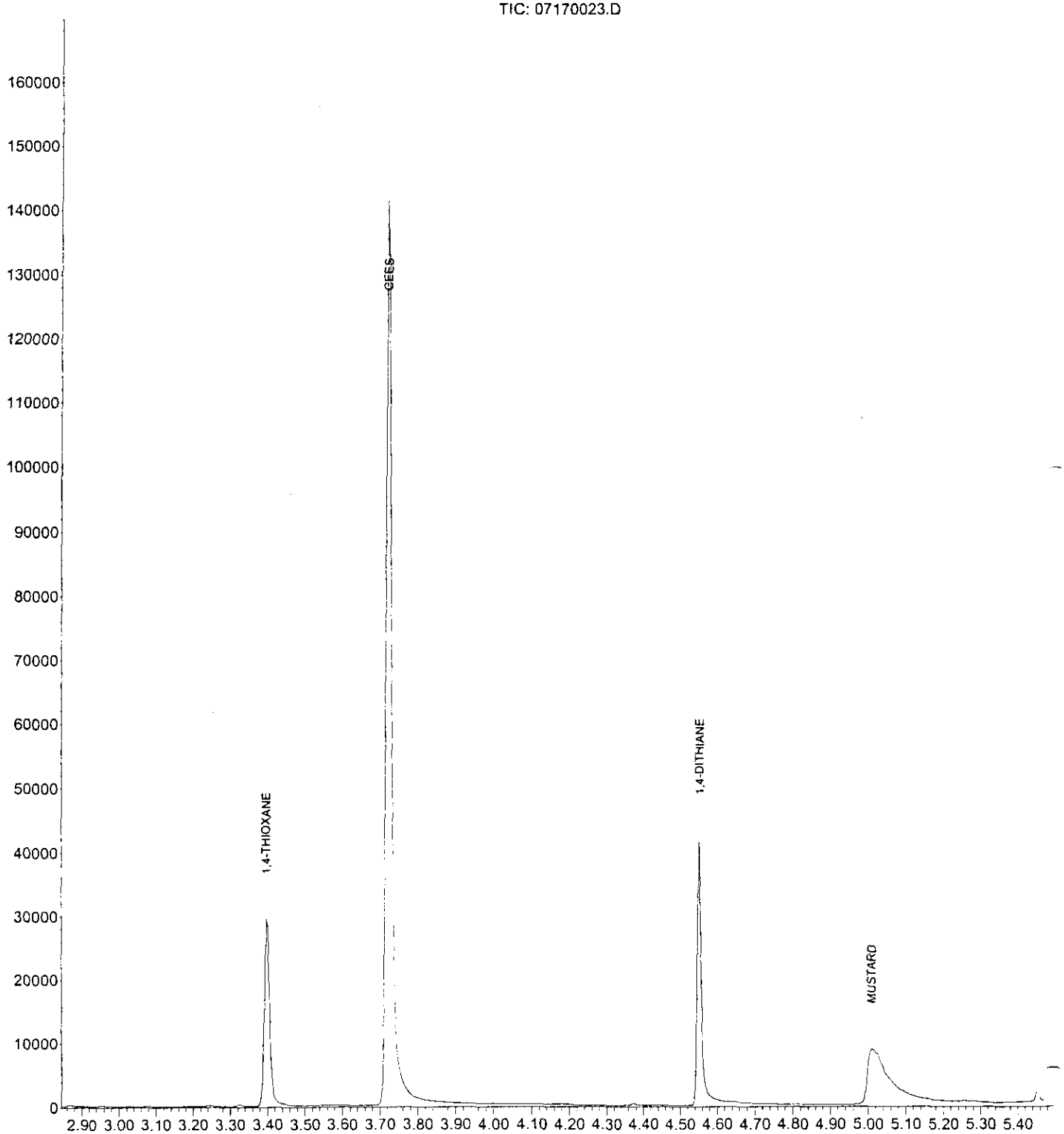
Vial: 19
Operator: EWC
Inst : GCMSD4
Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:41 2000

Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration

TIC: 07170023.D



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170024.D Vial: 20
Acq On : 17 Jul 2000 19:48 Operator: EWC
Sample : WATER P&A #3 Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

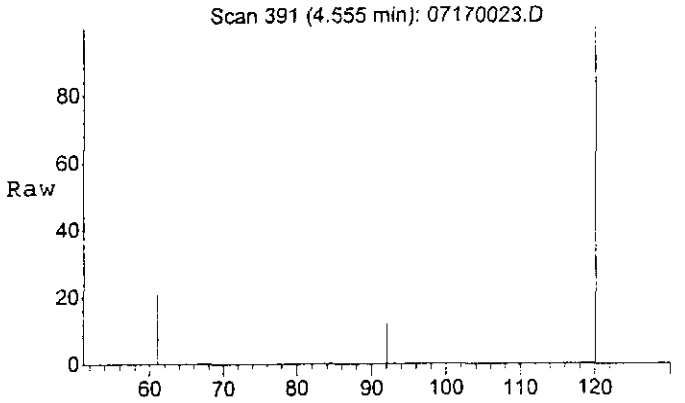
Integration Params: EVENTS.E
Quant Time: Jul 26 15:41 2000 Quant Results File: 4CEES.RES

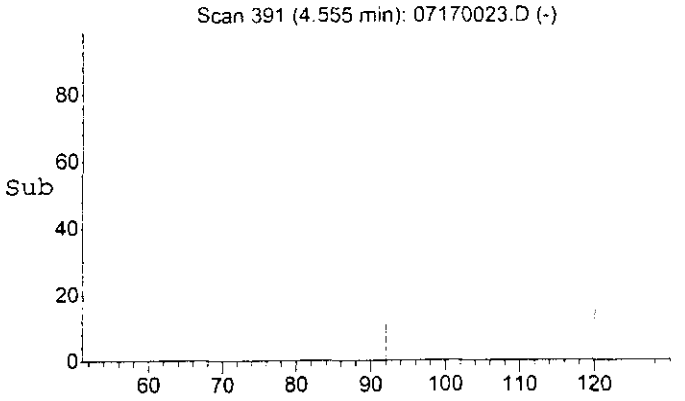
Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)

Target Compounds					Qvalue
1) 1,4-THIOXANE	3.40	61	95048	0.20 ppm	96
2) CEES	3.73	124	388065	0.63 ppm	98
3) 1,4-DITHIANE	4.55	120	204777	0.18 ppm	98
4) MUSTARD	5.02	109	150198	0.13 ppm	99

(#) = qualifier out of range (m) = manual integration

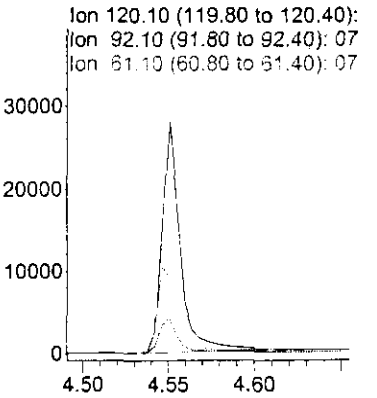


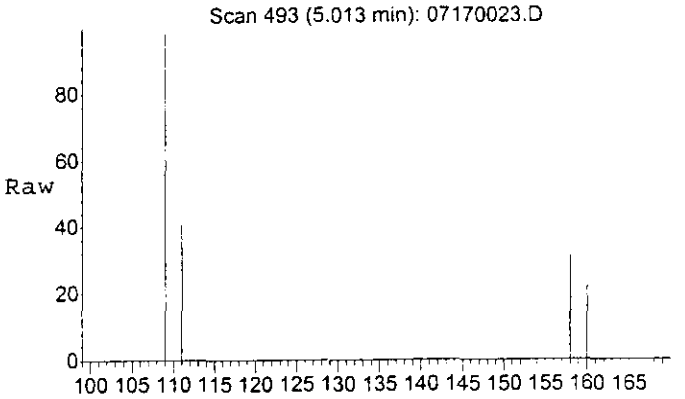


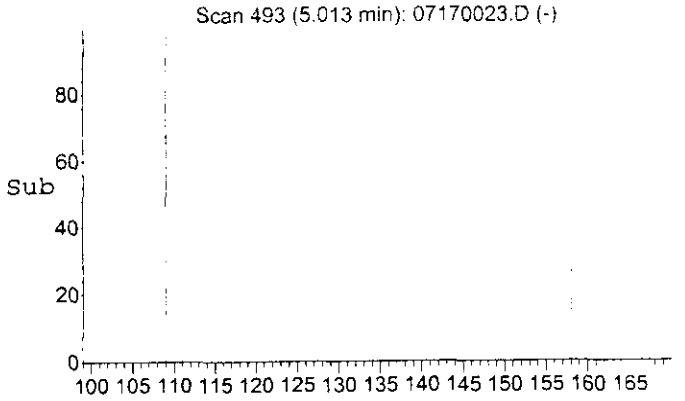
#3
1,4-DITHIANE
Concen: 0.18 ppm
RT: 4.55 min Scan# 391
Delta R.T. 0.05 min
Lab File: 07170023.D
Acq: 17 Jul 2000 19:35

Tgt Ion:120 Resp: 203428

Ion	Ratio	Lower	Upper
120	100		
92	15.1	12.5	18.7
61	38.6	32.0	48.0



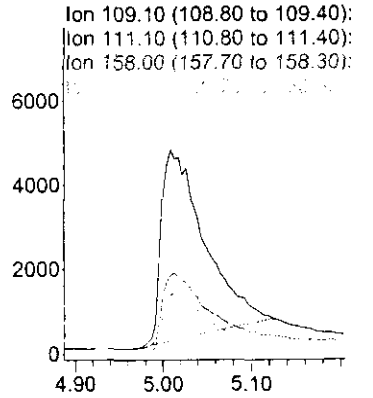


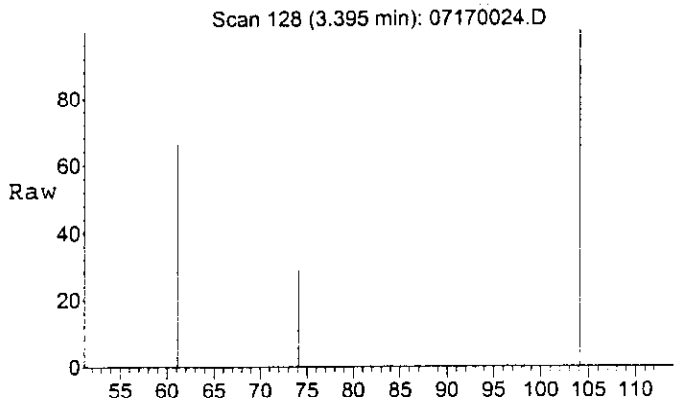


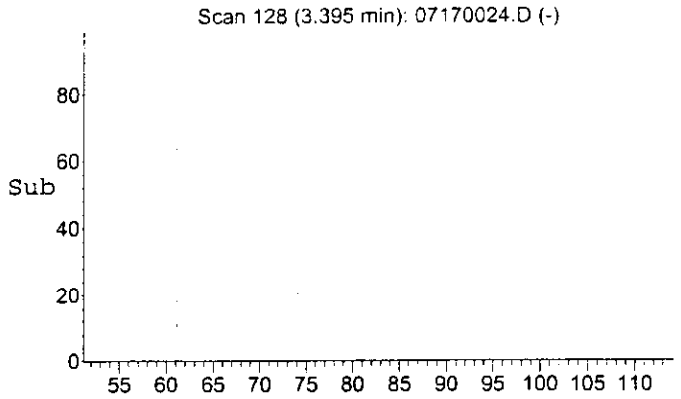
#4
MUSTARD
Concen: 0.13 ppm
RT: 5.01 min Scan# 493
Delta R.T. 0.06 min
Lab File: 07170023.D
Acq: 17 Jul 2000 19:35

Tgt Ion:109 Resp: 153933

Ion	Ratio	Lower	Upper
109	100		
111	36.7	29.3	43.9
158	28.8	23.5	35.3
160	19.8	16.0	24.0



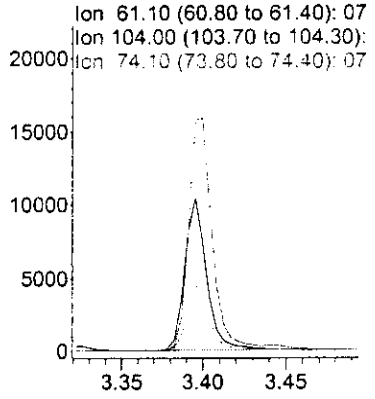


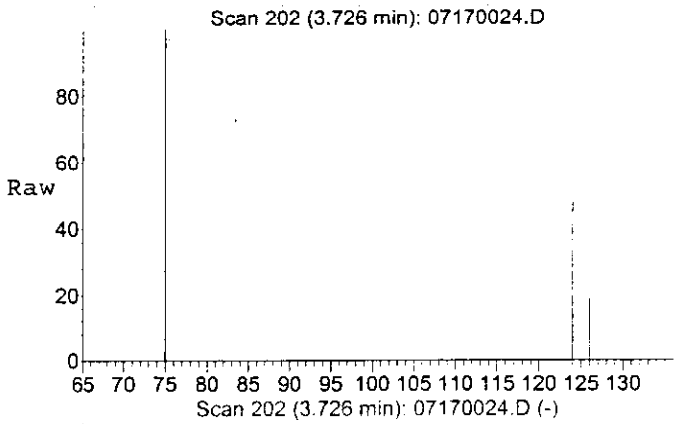


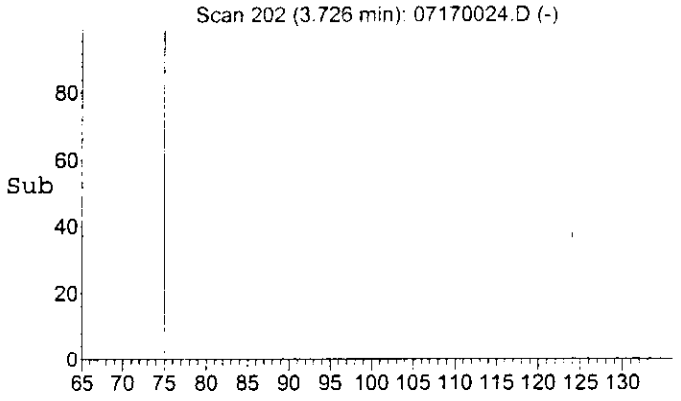
#1
1,4-THIOXANE
Concen: 0.20 ppm
RT: 3.40 min Scan# 128
Delta R.T. -0.00 min
Lab File: 07170024.D
Acq: 17 Jul 2000 19:48

Tgt Ion: 61 Resp: 95048

Ion	Ratio	Lower	Upper
61	100		
104	167.4	129.2	193.8
74	43.6	34.5	51.7



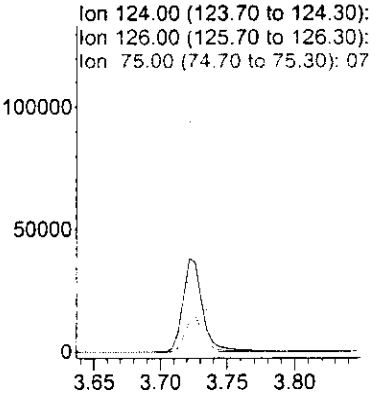




#2
CEES
Concen: 0.63 ppm
RT: 3.73 min Scan# 202
Delta R.T. 0.03 min
Lab File: 07170024.D
Acq: 17 Jul 2000 19:48

Tgt Ion:124 Resp: 388065

Ion	Ratio	Lower	Upper
124	100		
126	36.5	29.1	43.7
75	239.2	188.9	283.3



Quantitation Report

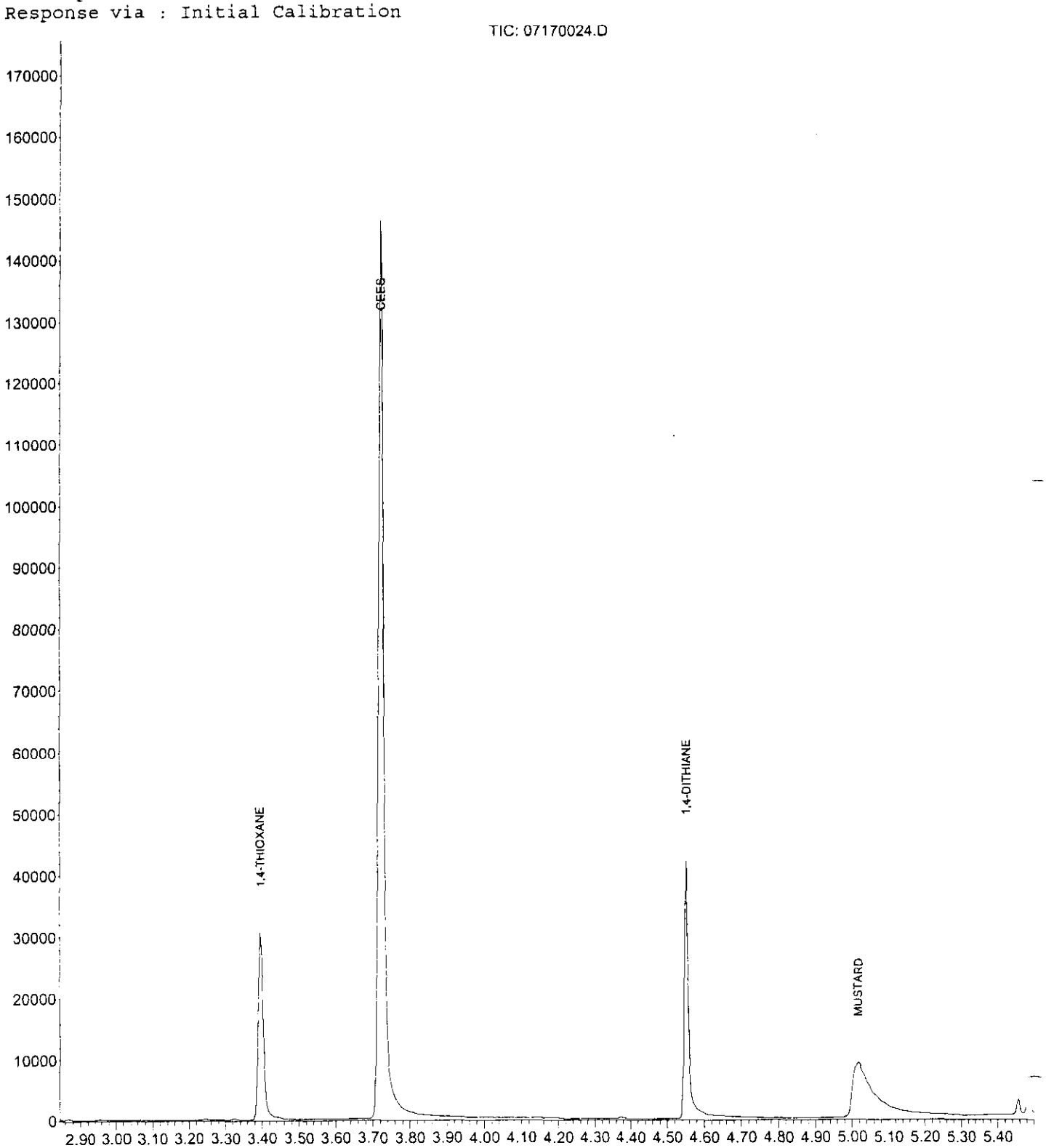
Data File : C:\HPCHEM\1\DATA\17JUL00\07170024.D
Acq On : 17 Jul 2000 19:48
Sample : WATER P&A #3
Misc :

Vial: 20
Operator: EWC
Inst : GCMSD4
Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:41 2000

Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170025.D
Acq On : 17 Jul 2000 20:00
Sample : WATER P&A #4
Misc :

Vial: 21
Operator: EWC
Inst : GCMSD4
Multiplr: 1.00
Sample Amount: 0.00

Integration Params: EVENTS.E
Quant Time: Jul 26 15:42 2000
Quant Results File: 4CEES.RES

Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)

Target Compounds						Qvalue
1) 1,4-THIOXANE	3.40	61	94434	0.20	ppm	97
2) CEES	3.73	124	367309	0.60	ppm	97
3) 1,4-DITHIANE	4.56	120	203926	0.18	ppm	100
4) MUSTARD	5.02	109	152685	0.13	ppm	100

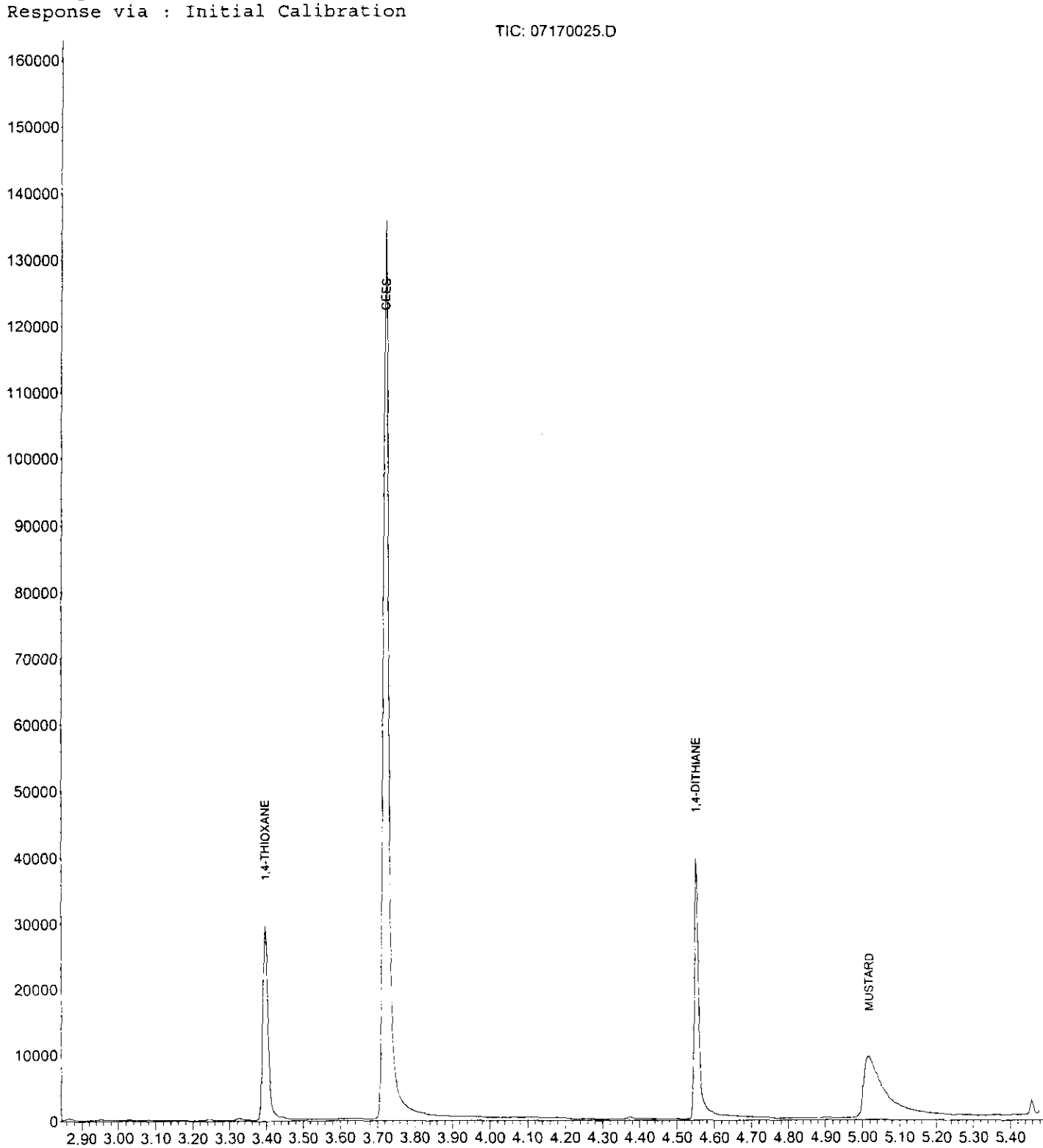
(#) = qualifier out of range (m) = manual integration

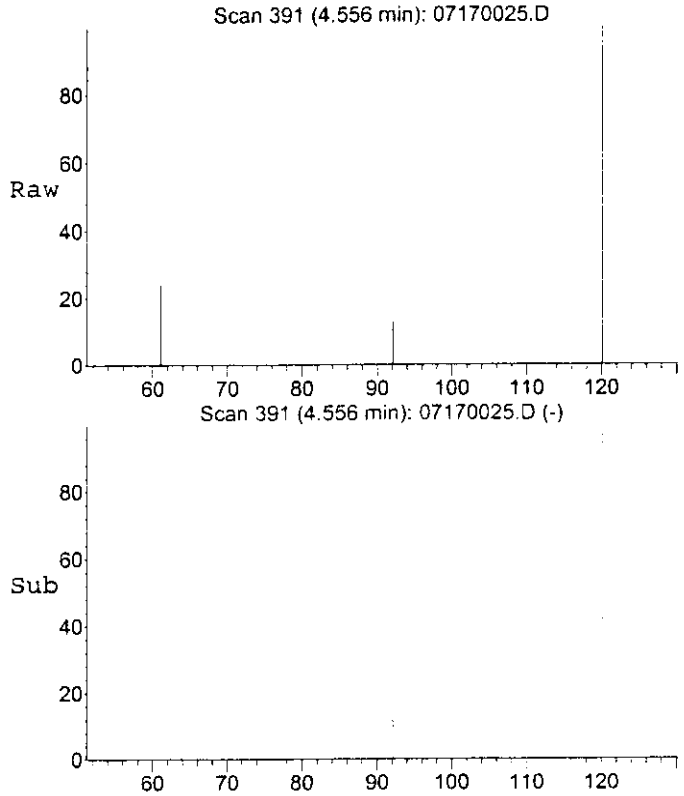
Quantitation Report

Data File : C:\HPCHEM\1\DATA\17JUL00\07170025.D Vial: 21
Acq On : 17 Jul 2000 20:00 Operator: EWC
Sample : WATER P&A #4 Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:42 2000 Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration

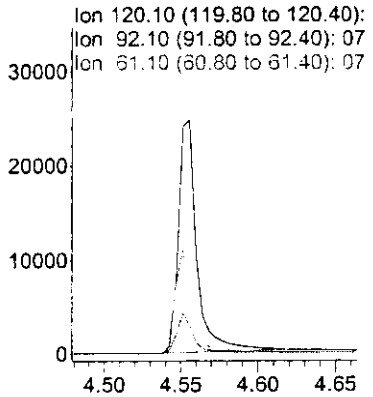


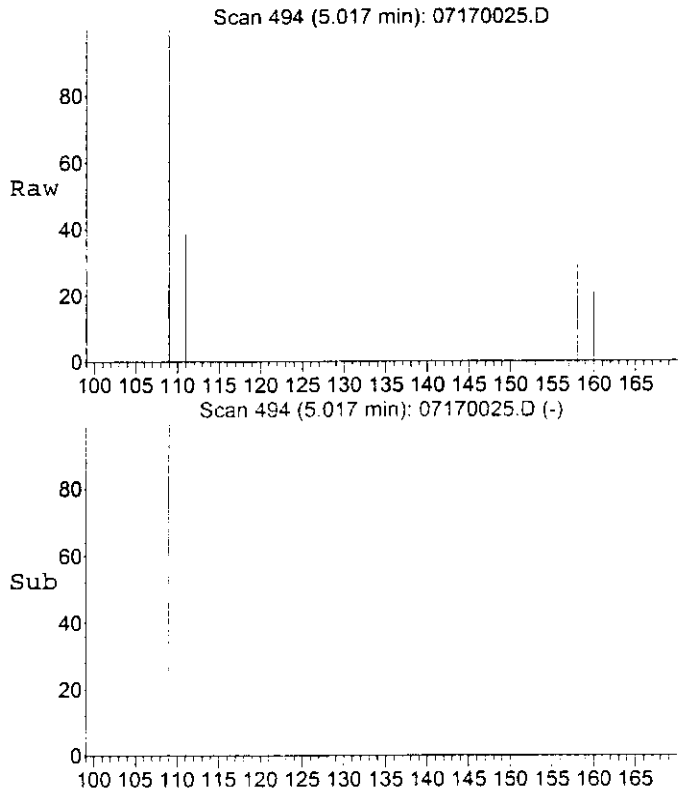


#3
1,4-DITHIANE
Concen: 0.18 ppm
RT: 4.56 min Scan# 391
Delta R.T. 0.06 min
Lab File: 07170025.D
Acq: 17 Jul 2000 20:00

Tgt Ion:120 Resp: 203926

Ion	Ratio	Lower	Upper
120	100		
92	15.1	12.5	18.7
61	40.0	32.0	48.0

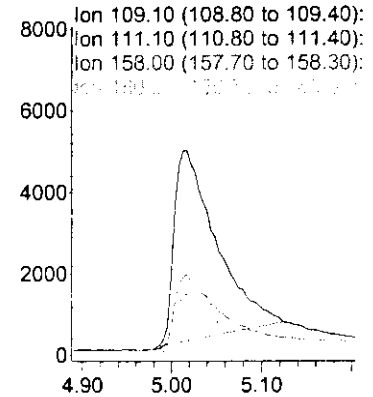


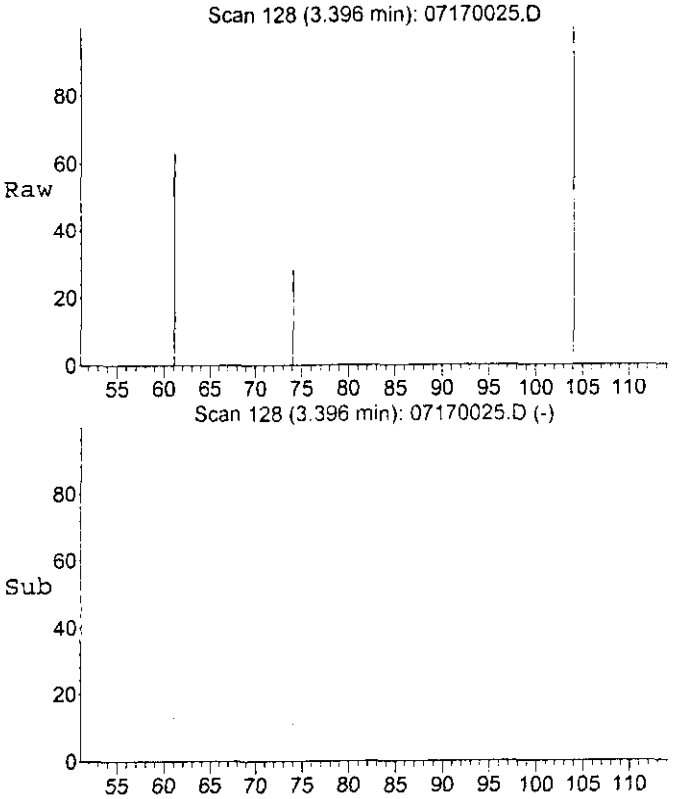


#4
MUSTARD
Concen: 0.13 ppm
RT: 5.02 min Scan# 494
Delta R.T. 0.07 min
Lab File: 07170025.D
Acq: 17 Jul 2000 20:00

Tgt Ion:109 Resp: 152685

Ion	Ratio	Lower	Upper
109	100		
111	36.5	29.3	43.9
158	29.1	23.5	35.3
160	19.9	16.0	24.0

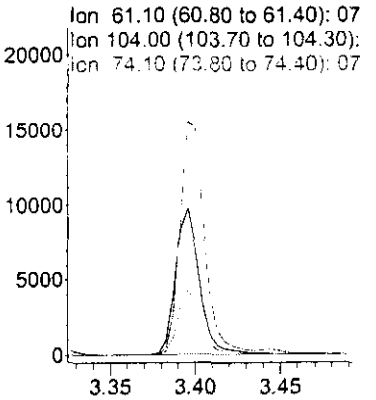


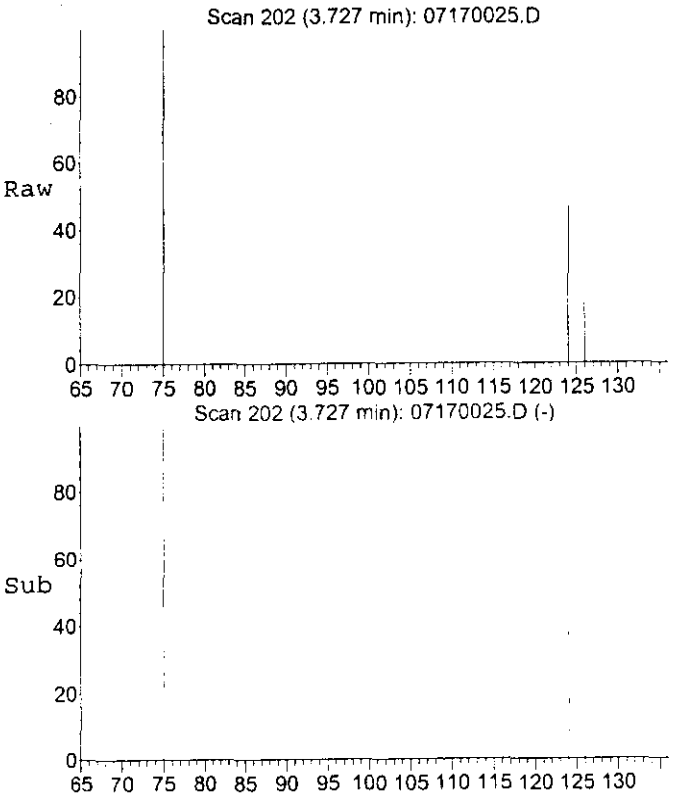


#1
1,4-THIOXANE
Concen: 0.20 ppm
RT: 3.40 min Scan# 128
Delta R.T. -0.00 min
Lab File: 07170025.D
Acq: 17 Jul 2000 20:00

Tgt Ion: 61 Resp: 94434

Ion	Ratio	Lower	Upper
61	100		
104	167.2	129.2	193.8
74	43.2	34.5	51.7

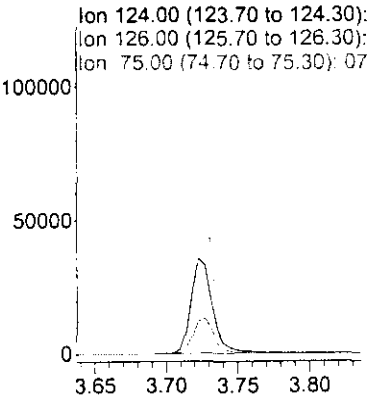




#2
CEES
Concen: 0.60 ppm
RT: 3.73 min Scan# 202
Delta R.T. 0.03 min
Lab File: 07170025.D
Acq: 17 Jul 2000 20:00

Tgt Ion:124 Resp: 367309

Ion	Ratio	Lower	Upper
124	100		
126	36.9	29.1	43.7
75	241.9	188.9	283.3



Quantitation Report

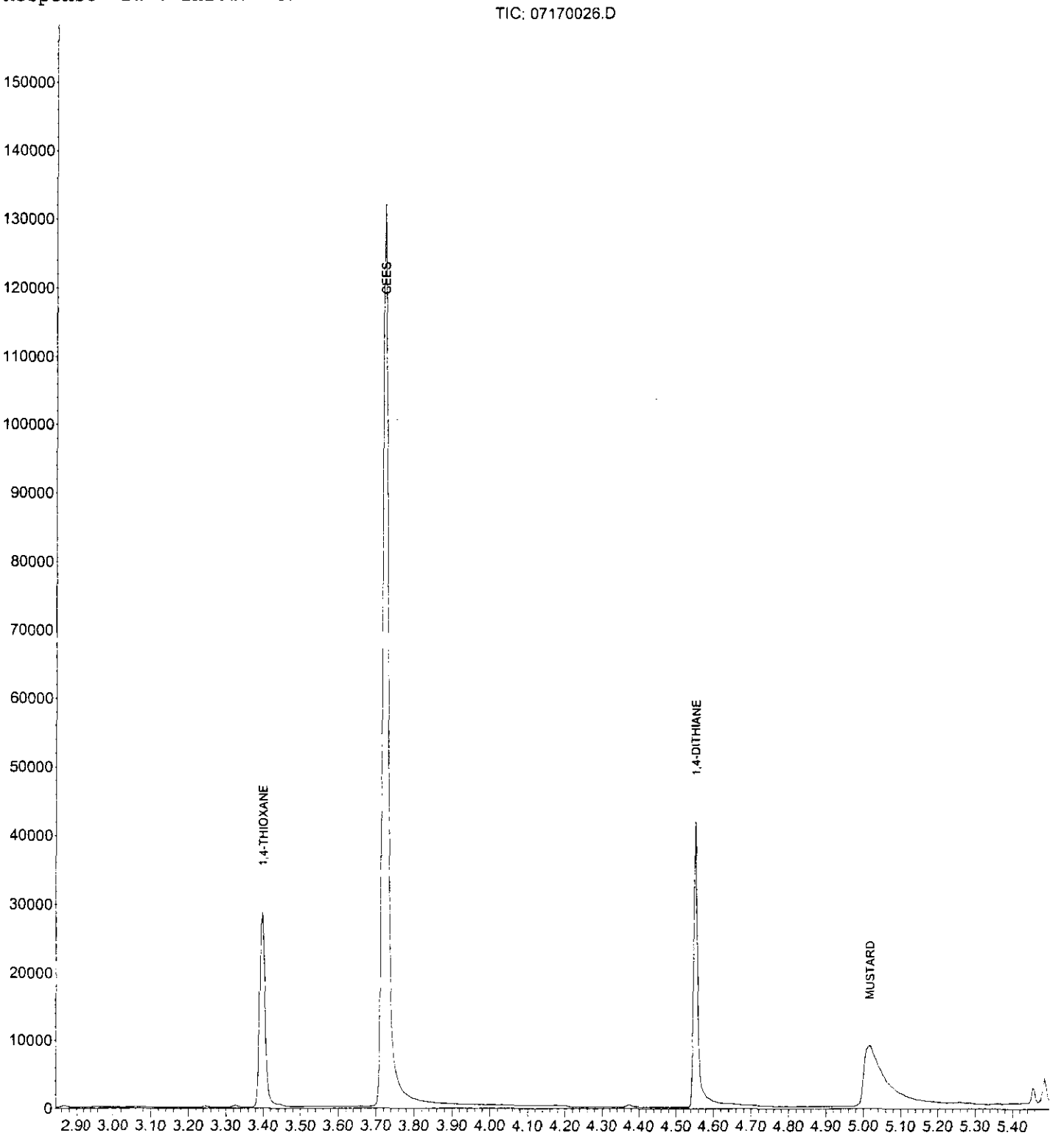
Data File : C:\HPCHEM\1\DATA\17JUL00\07170026.D
Acq On : 17 Jul 2000 20:13
Sample : WATER P&A #5
Misc :

Vial: 22
Operator: EWC
Inst : GCMSD4
Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:42 2000

Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170026.D
Acq On : 17 Jul 2000 20:13
Sample : WATER P&A #5
Misc :

Vial: 22
Operator: EWC
Inst : GCMSD4
Multiplr: 1.00
Sample Amount: 0.00

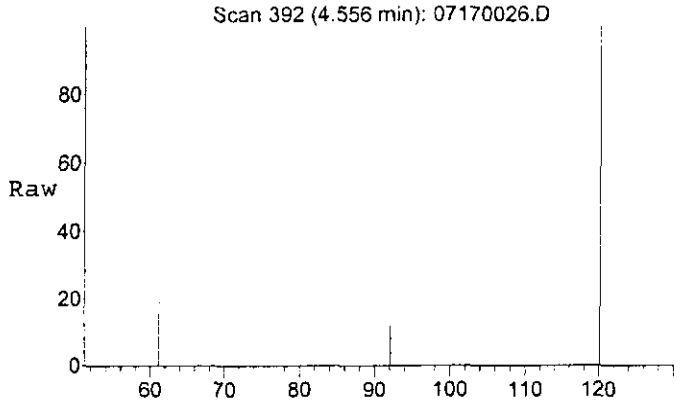
MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:42 2000
Quant Results File: 4CEES.RES

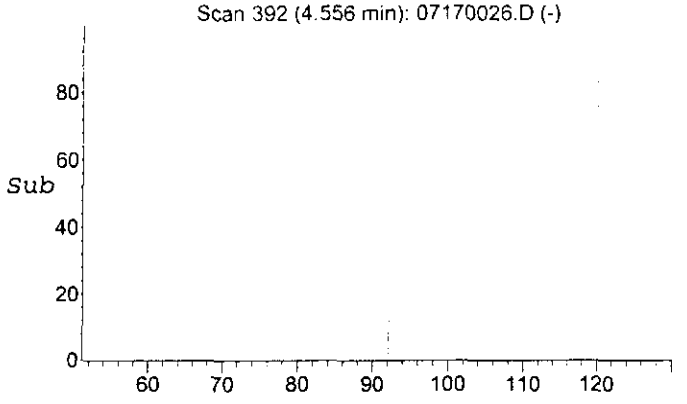
Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)

Target Compounds					Qvalue
1) 1,4-THIOXANE	3.40	61	93907	0.20 ppm	96
2) CEES	3.73	124	365828	0.59 ppm	98
3) 1,4-DITHIANE	4.55	120	201773	0.18 ppm	99
4) MUSTARD	5.02	109	153574	0.13 ppm	99

(#) = qualifier out of range (m) = manual integration

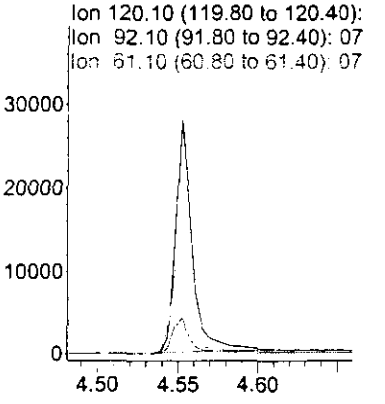


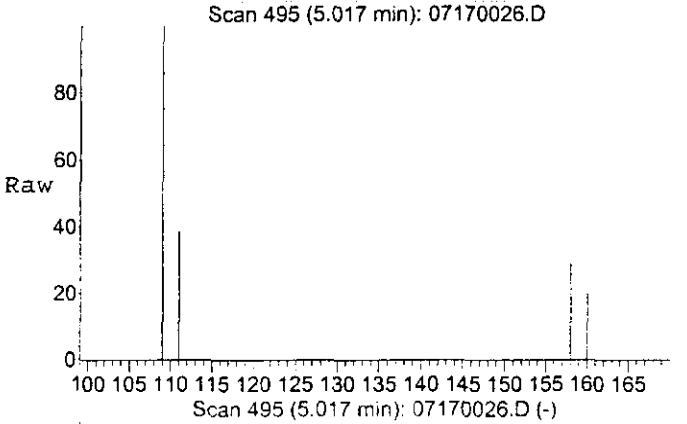


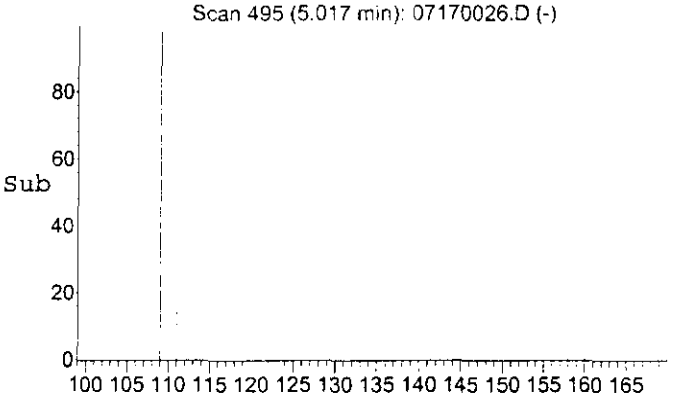
#3
1,4-DITHIANE
Concen: 0.18 ppm
RT: 4.55 min Scan# 392
Delta R.T. 0.05 min
Lab File: 07170026.D
Acq: 17 Jul 2000 20:13

Tgt Ion:120 Resp: 201773

Ion	Ratio	Lower	Upper
120	100		
92	15.1	12.5	18.7
61	39.3	32.0	48.0



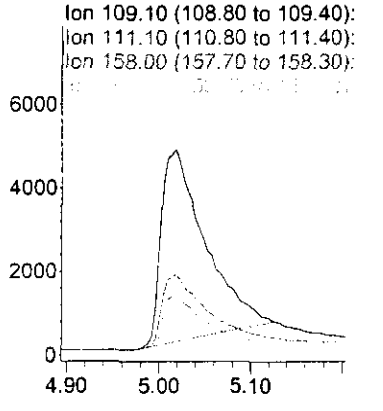


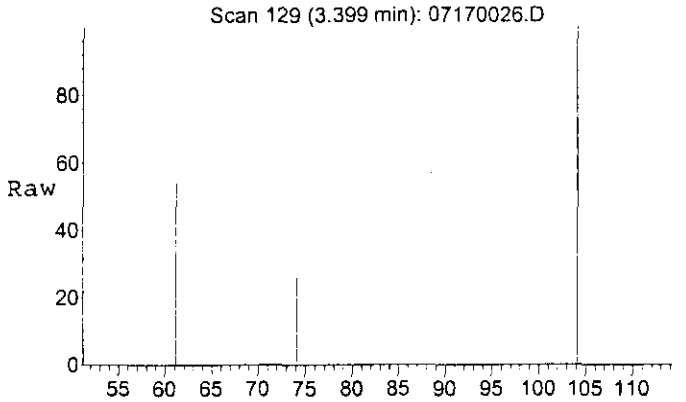


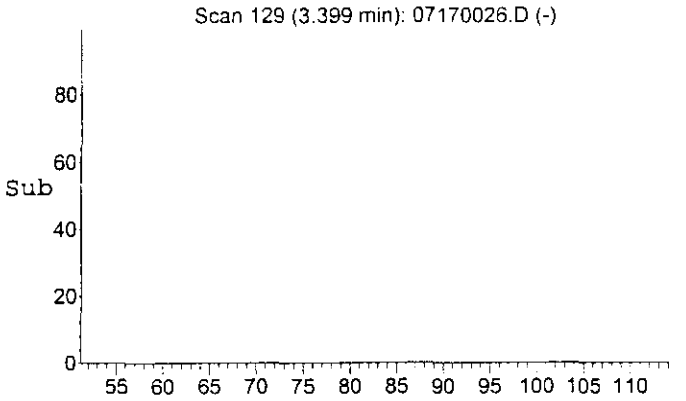
#4
MUSTARD
Concen: 0.13 ppm
RT: 5.02 min Scan# 495
Delta R.T. 0.07 min
Lab File: 07170026.D
Acq: 17 Jul 2000 20:13

Tgt Ion:109 Resp: 153574

Ion	Ratio	Lower	Upper
109	100		
111	36.1	29.3	43.9
158	28.9	23.5	35.3
160	19.6	16.0	24.0



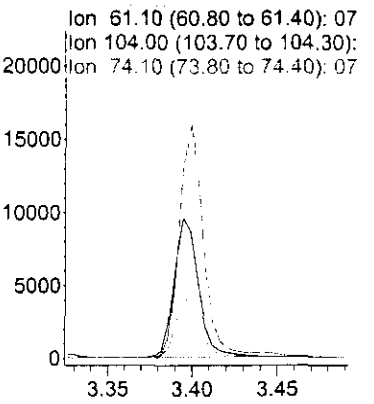


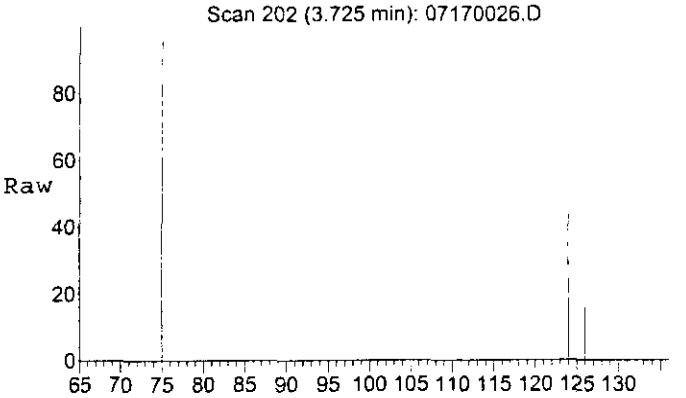


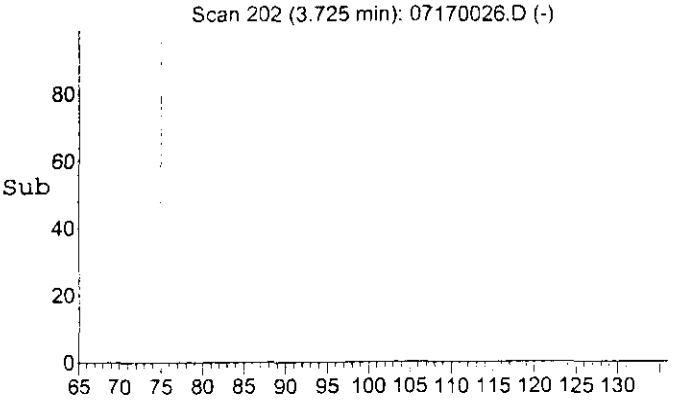
#1
1,4-THIOXANE
Concen: 0.20 ppm
RT: 3.40 min Scan# 129
Delta R.T. -0.00 min
Lab File: 07170026.D
Acq: 17 Jul 2000 20:13

Tgt Ion: 61 Resp: 93907

Ion	Ratio	Lower	Upper
61	100		
104	168.3	129.2	193.8
74	43.4	34.5	51.7



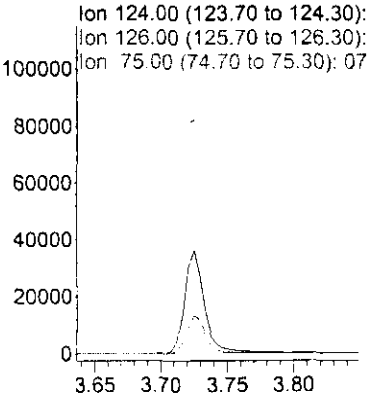




#2
CEES
Concen: 0.59 ppm
RT: 3.73 min Scan# 202
Delta R.T. 0.03 min
Lab File: 07170026.D
Acq: 17 Jul 2000 20:13

Tgt Ion:124 Resp: 365828

Ion	Ratio	Lower	Upper
124	100		
126	36.4	29.1	43.7
75	239.0	188.9	283.3



Quantitation Report

Data File : C:\HPCHEM\1\DATA\17JUL00\07170027.D
Acq On : 17 Jul 2000 20:26
Sample : WATER P&A #6
Misc :

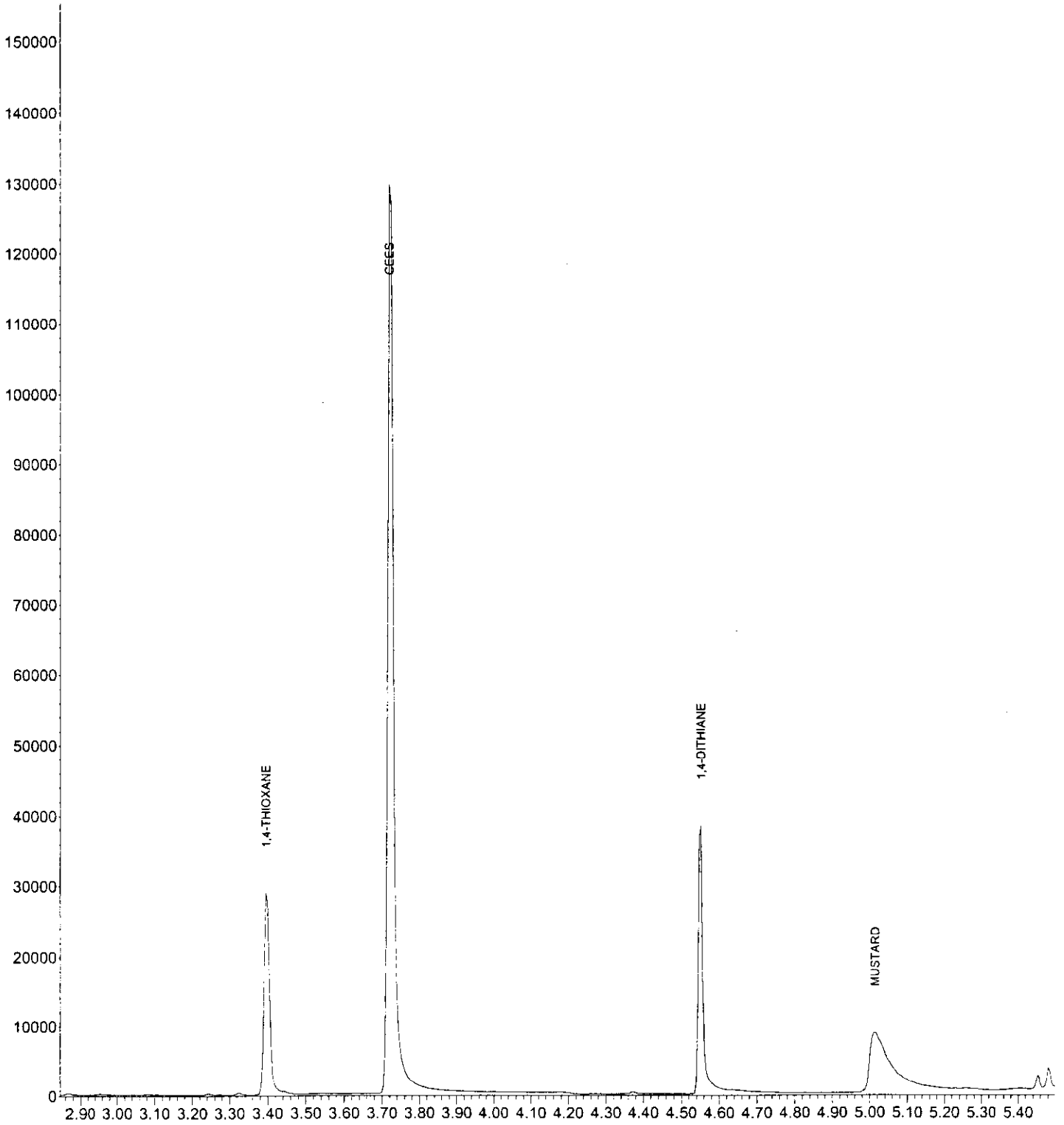
Vial: 23
Operator: EWC
Inst : GCMSD4
Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:43 2000

Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration

TIC: 07170027.D



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170027.D Vial: 23
Acq On : 17 Jul 2000 20:26 Operator: EWC
Sample : WATER P&A #6 Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

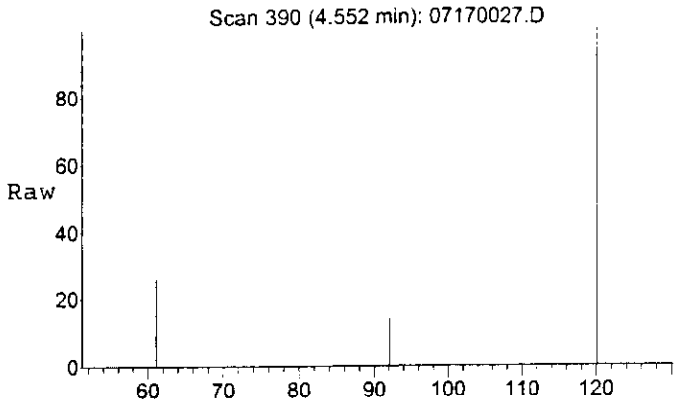
MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:43 2000 Quant Results File: 4CEES.RES

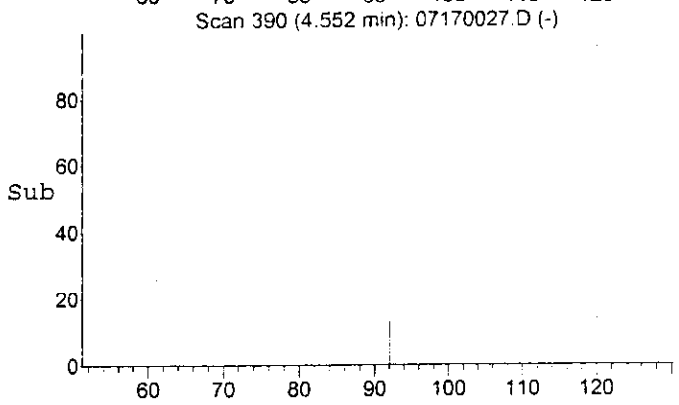
Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)

Target Compounds					Qvalue
1) 1,4-THIOXANE	3.40	61	94451	0.20 ppm	97
2) CEES	3.73	124	365991	0.59 ppm	99
3) 1,4-DITHIANE	4.55	120	202274	0.18 ppm	100
4) MUSTARD	5.01	109	148902	0.13 ppm	100

(#) = qualifier out of range (m) = manual integration

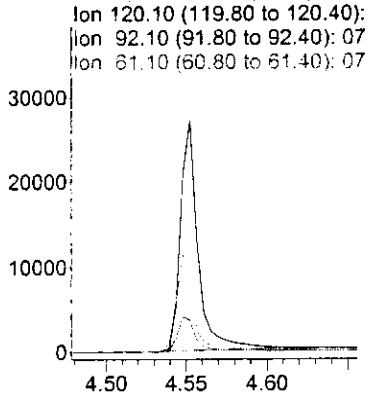


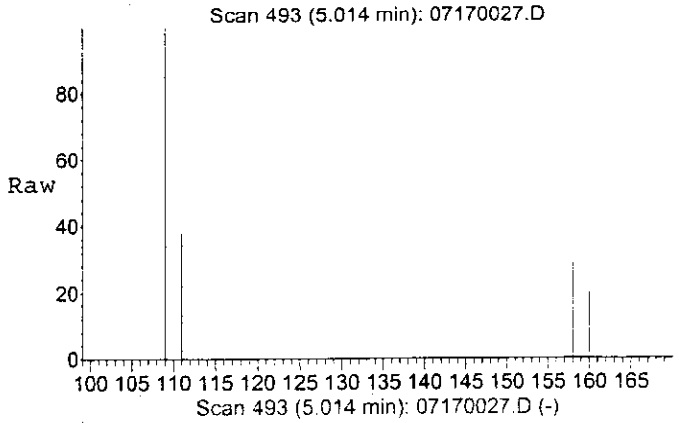


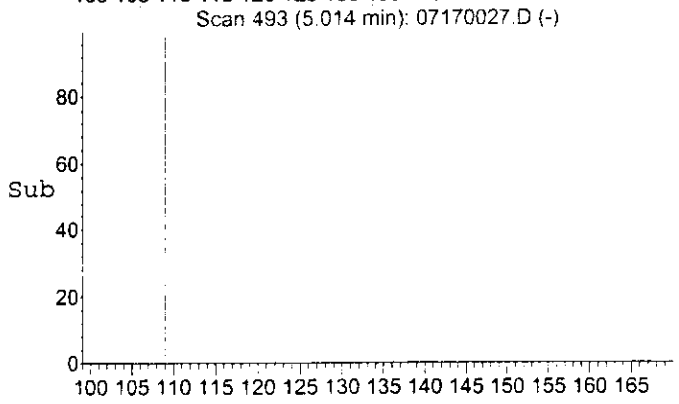
#3
1,4-DITHIANE
Concen: 0.18 ppm
RT: 4.55 min Scan# 390
Delta R.T. 0.05 min
Lab File: 07170027.D
Acq: 17 Jul 2000 20:26

Tgt Ion:120 Resp: 202274

Ion	Ratio	Lower	Upper
120	100		
92	15.3	12.5	18.7
61	39.8	32.0	48.0



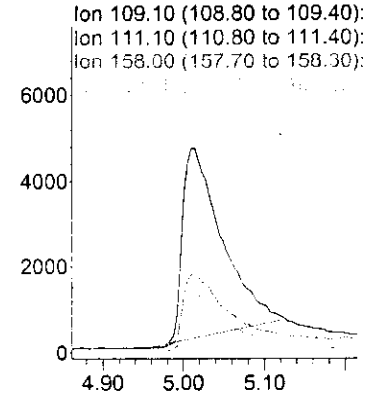


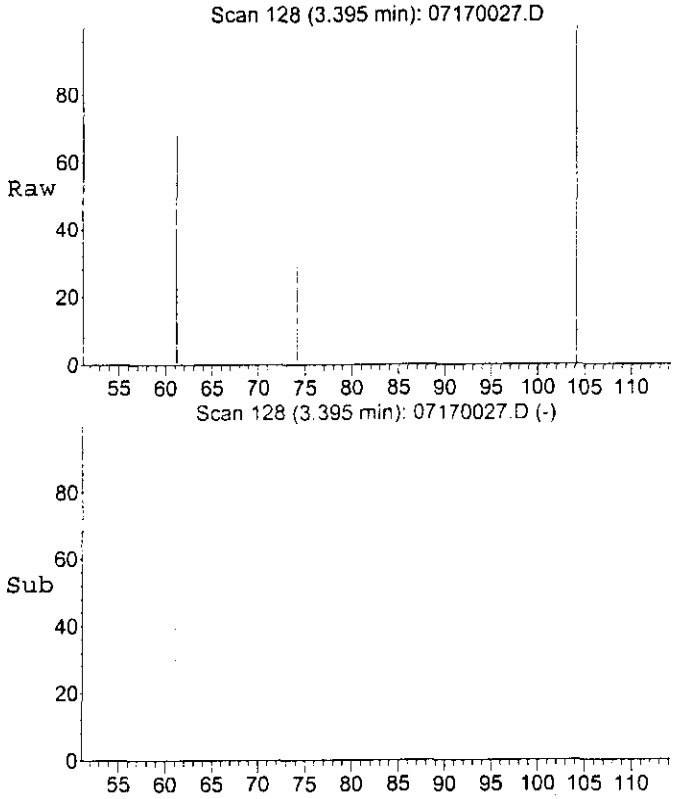


#4
MUSTARD
Concen: 0.13 ppm
RT: 5.01 min Scan# 493
Delta R.T. 0.06 min
Lab File: 07170027.D
Acq: 17 Jul 2000 20:26

Tgt Ion:109 Resp: 148902

Ion	Ratio	Lower	Upper
109	100		
111	36.8	29.3	43.9
158	29.3	23.5	35.3
160	20.2	16.0	24.0

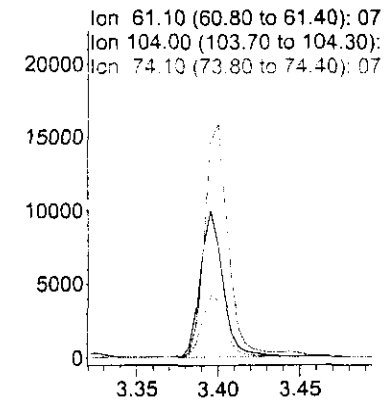


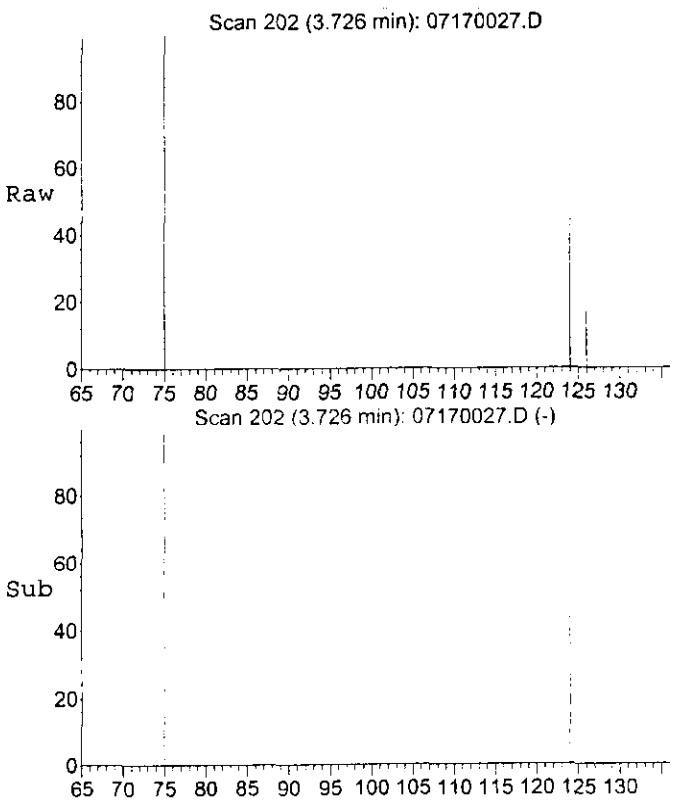


#1
1,4-THIOXANE
Concen: 0.20 ppm
RT: 3.40 min Scan# 128
Delta R.T. -0.00 min
Lab File: 07170027.D
Acq: 17 Jul 2000 20:26

Tgt Ion: 61 Resp: 94451

Ion	Ratio	Lower	Upper
61	100		
104	166.6	129.2	193.8
74	43.7	34.5	51.7

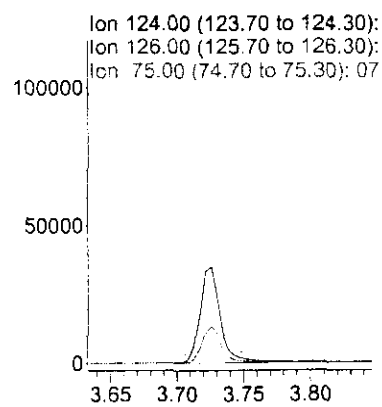




#2
CEES
Concen: 0.59 ppm
RT: 3.73 min Scan# 202
Delta R.T. 0.03 min
Lab File: 07170027.D
Acq: 17 Jul 2000 20:26

Tgt Ion:124 Resp: 365991

Ion	Ratio	Lower	Upper
124	100		
126	36.9	29.1	43.7
75	238.7	188.9	283.3



Quantitation Report

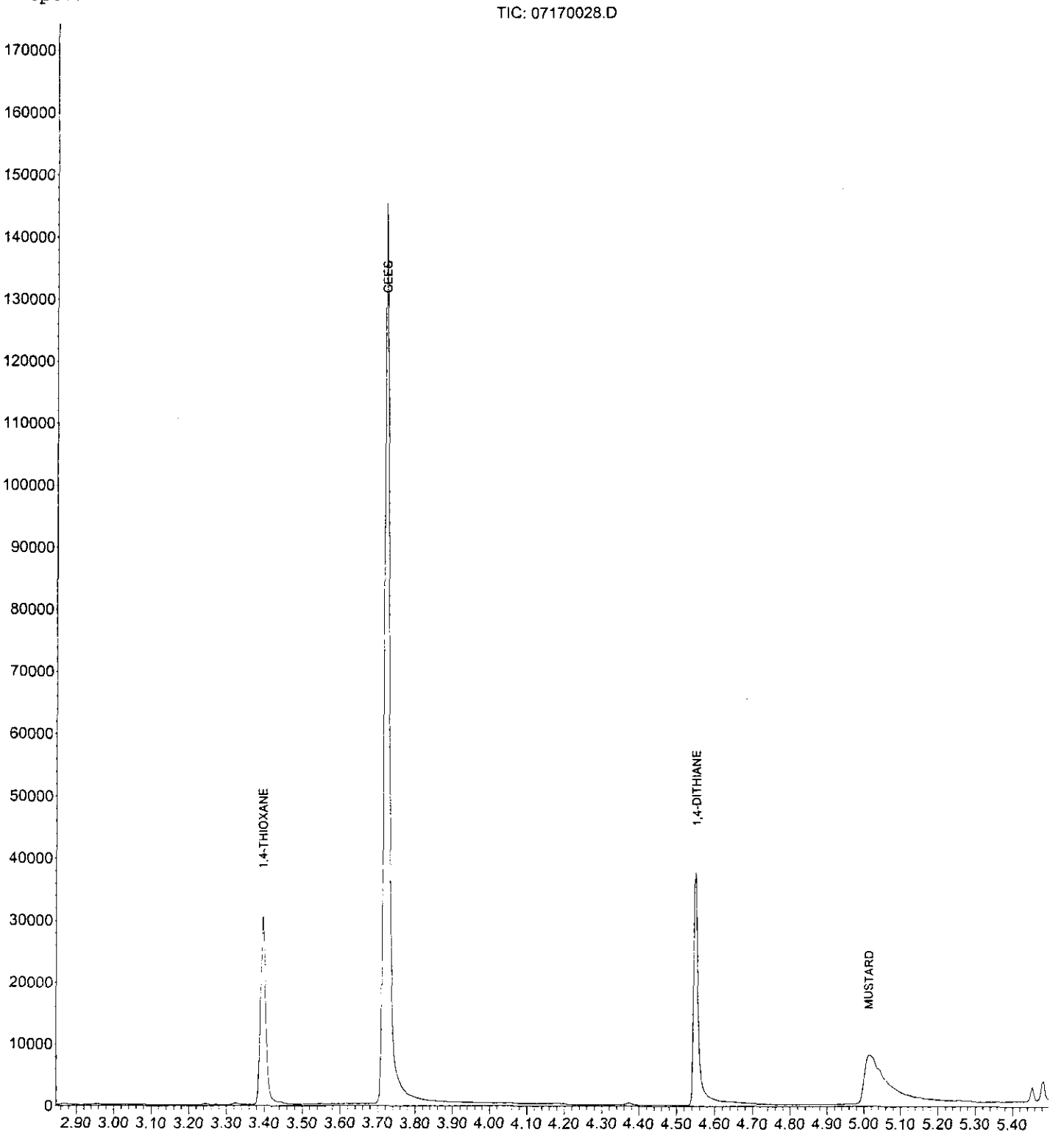
Data File : C:\HPCHEM\1\DATA\17JUL00\07170028.D
Acq On : 17 Jul 2000 20:39
Sample : WATER P&A #7
Misc :

Vial: 24
Operator: EWC
Inst : GCMSD4
Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:43 2000

Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170028.D Vial: 24
Acq On : 17 Jul 2000 20:39 Operator: EWC
Sample : WATER P&A #7 Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

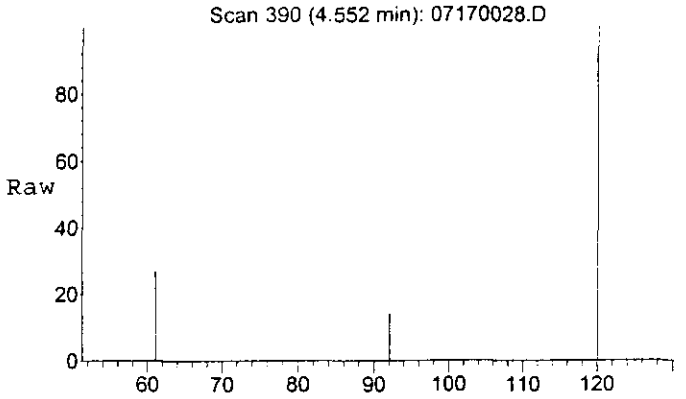
MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:43 2000 Quant Results File: 4CEES.RES

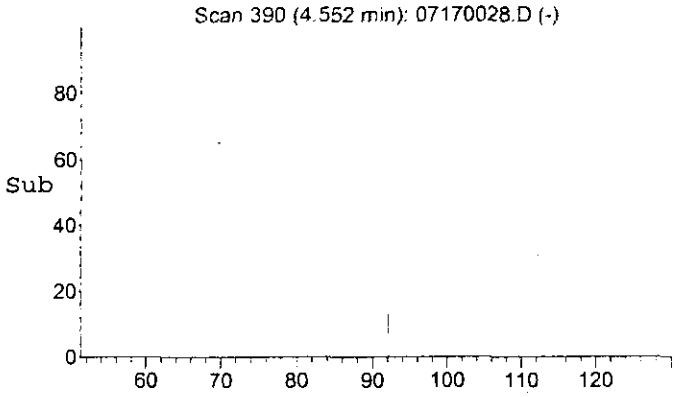
Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)

Target Compounds						Qvalue
1) 1,4-THIOXANE	3.40	61	94927	0.20	ppm	97
2) CEES	3.72	124	373045	0.61	ppm	99
3) 1,4-DITHIANE	4.55	120	202917	0.18	ppm	98
4) MUSTARD	5.02	109	140357	0.12	ppm	100

(#) = qualifier out of range (m) = manual integration

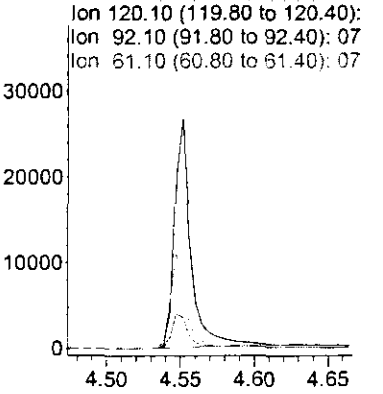


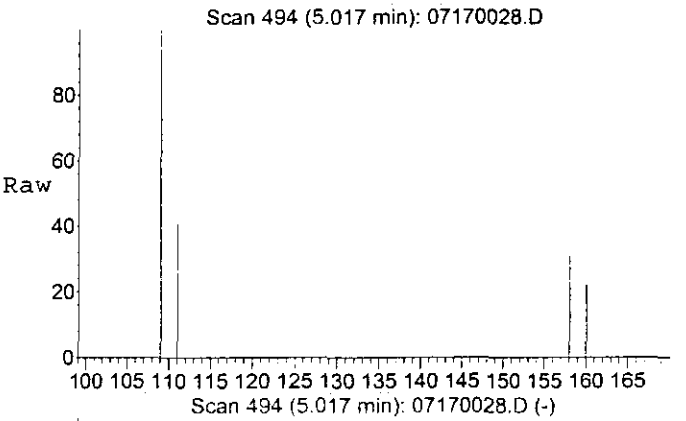


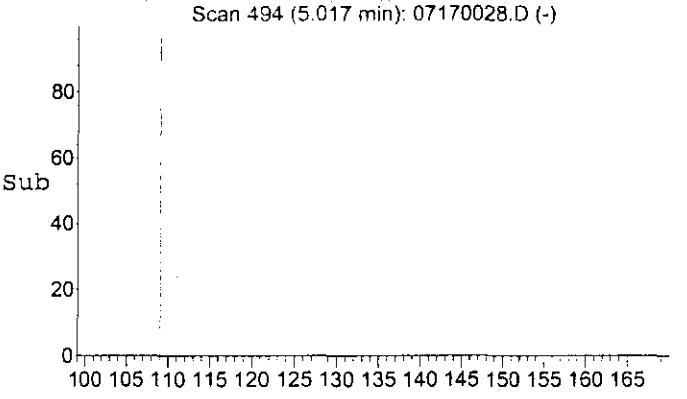
#3
1,4-DITHIANE
Concen: 0.18 ppm
RT: 4.55 min Scan# 390
Delta R.T. 0.05 min
Lab File: 07170028.D
Acq: 17 Jul 2000 20:39

Tgt Ion:120 Resp: 202917

Ion	Ratio	Lower	Upper
120	100		
92	15.0	12.5	18.7
61	38.7	32.0	48.0



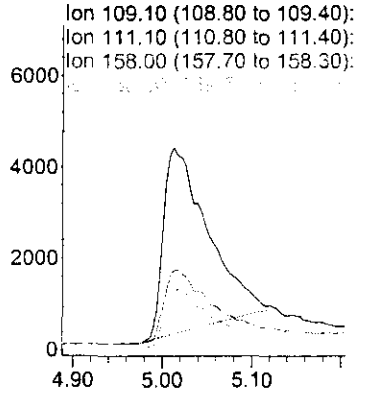


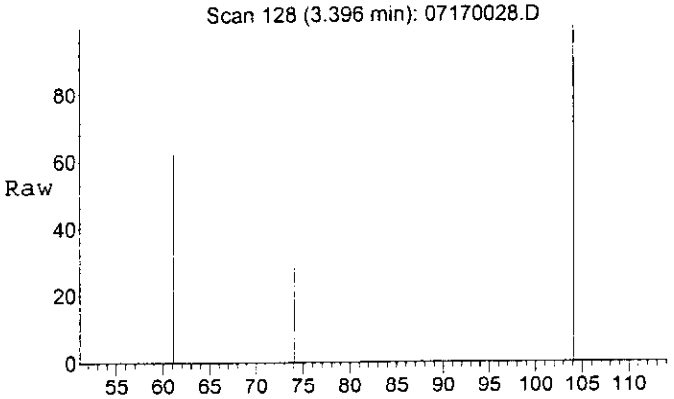


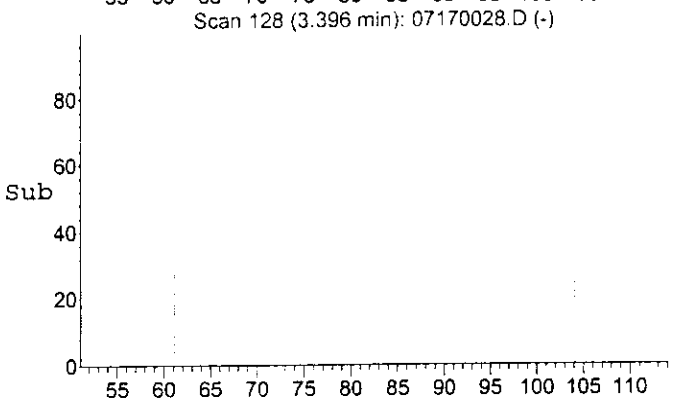
#4
MUSTARD
Concen: 0.12 ppm
RT: 5.02 min Scan# 494
Delta R.T. 0.07 min
Lab File: 07170028.D
Acq: 17 Jul 2000 20:39

Tgt Ion:109 Resp: 140357

Ion	Ratio	Lower	Upper
109	100		
111	36.4	29.3	43.9
158	29.4	23.5	35.3
160	20.0	16.0	24.0



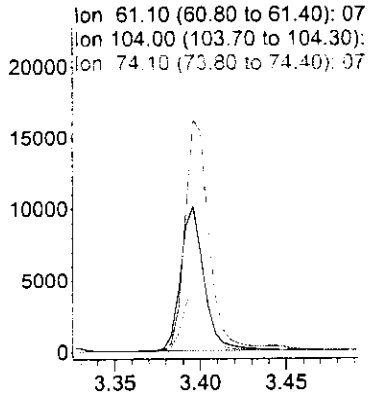


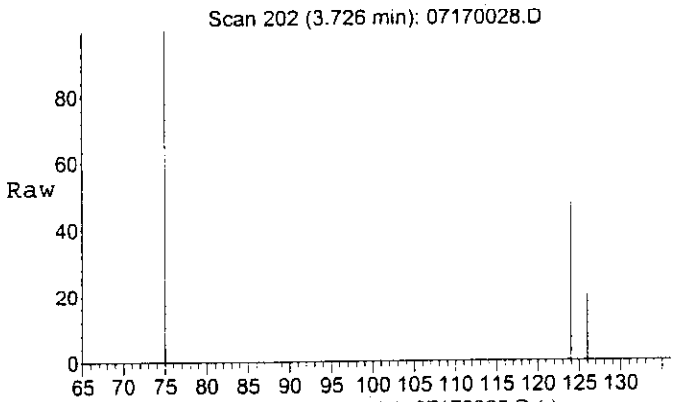


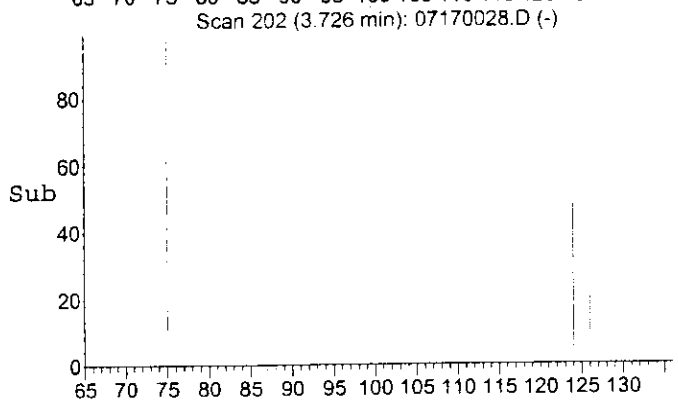
#1
1,4-THIOXANE
Concen: 0.20 ppm
RT: 3.40 min Scan# 128
Delta R.T. -0.00 min
Lab File: 07170028.D
Acq: 17 Jul 2000 20:39

Tgt Ion: 61 Resp: 94927

Ion	Ratio	Lower	Upper
61	100		
104	166.9	129.2	193.8
74	43.6	34.5	51.7



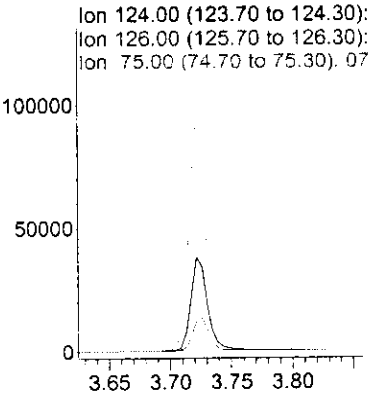




#2
CEES
Concen: 0.61 ppm
RT: 3.72 min Scan# 202
Delta R.T. 0.02 min
Lab File: 07170028.D
Acq: 17 Jul 2000 20:39

Tgt Ion:124 Resp: 373045

Ion	Ratio	Lower	Upper
124	100		
126	36.3	29.1	43.7
75	238.8	188.9	283.3



Quantitation Report

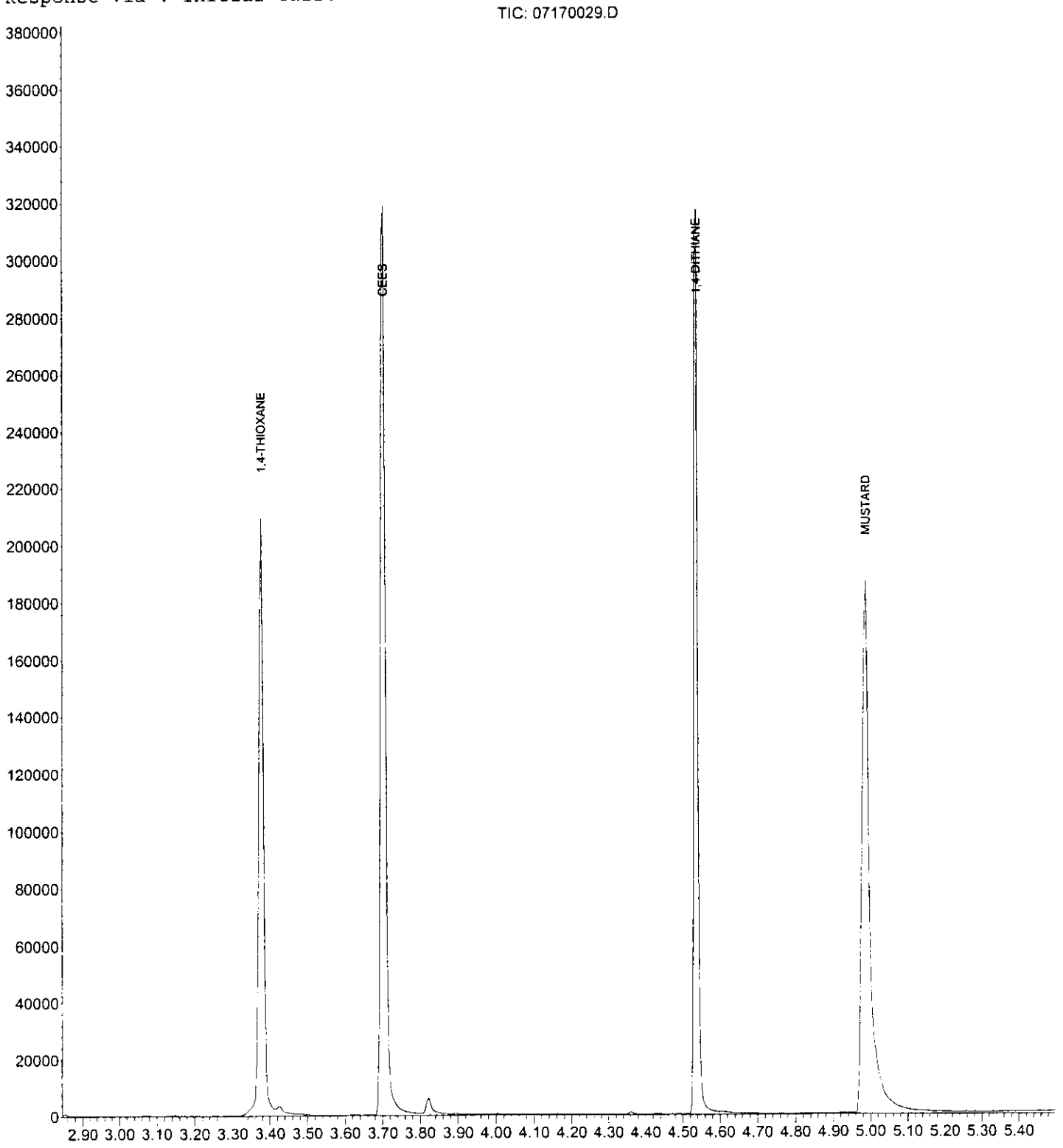
Data File : C:\HPCHEM\1\DATA\17JUL00\07170029.D
Acq On : 17 Jul 2000 20:51
Sample : 1.25 ppm CHECK STD
Misc :

Vial: 3
Operator: EWC
Inst : GCMSD4
Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:44 2000

Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170029.D Vial: 3
Acq On : 17 Jul 2000 20:51 Operator: EWC
Sample : 1.25 ppm CHECK STD Inst : GCMSD4
Misc : Multiplr: 1.00
Sample Amount: 0.00

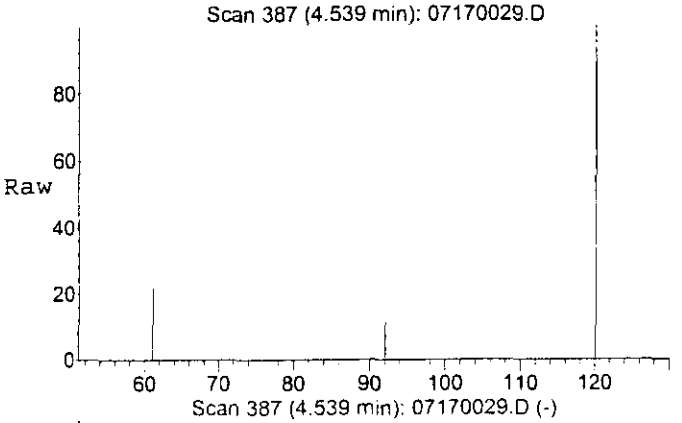
MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:44 2000 Quant Results File: 4CEES.RES

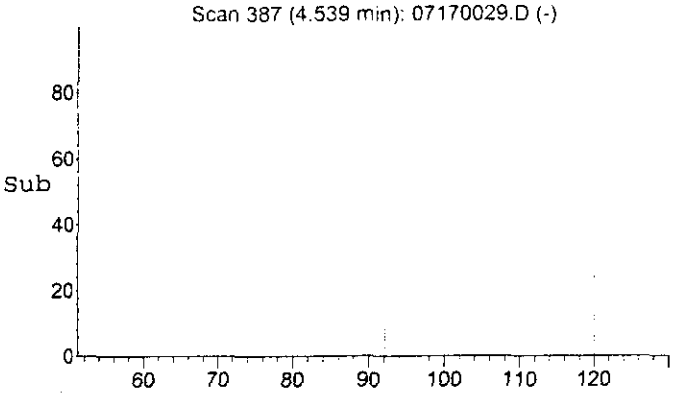
Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)

Target Compounds					Qvalue
1) 1,4-THIOXANE	3.38	61	588939	1.23 ppm	100
2) CEES	3.71	124	756728	1.23 ppm	99
3) 1,4-DITHIANE	4.54	120	1406323	1.27 ppm	99
4) MUSTARD	4.99	109	1413736	1.23 ppm	100

(#) = qualifier out of range (m) = manual integration

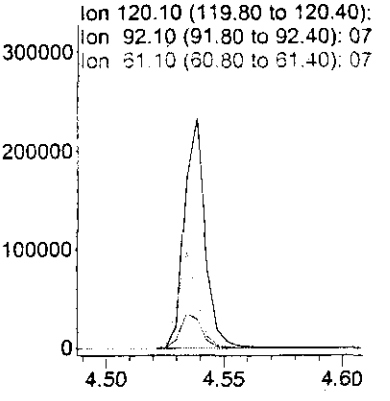


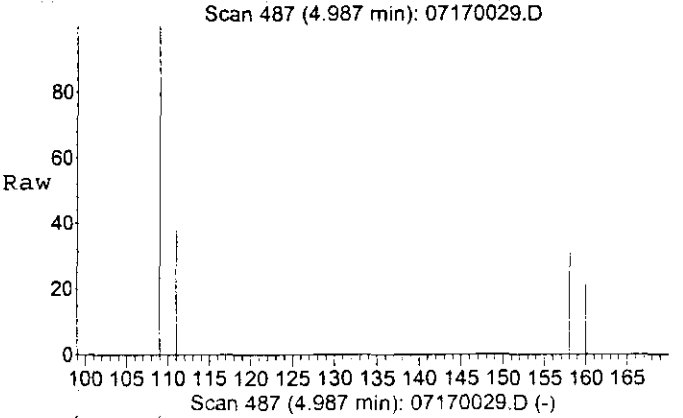


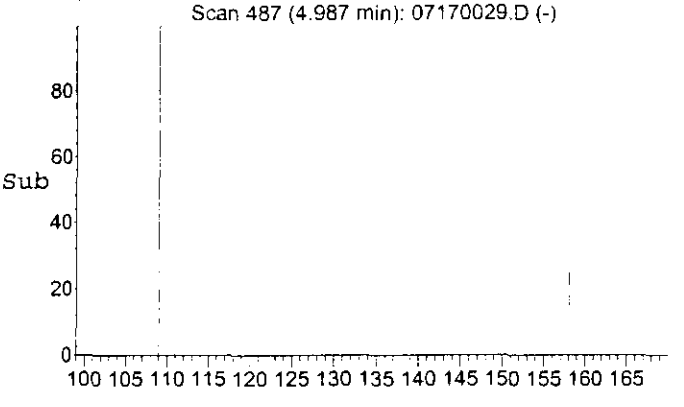
#3
1,4-DITHIANE
Concen: 1.27 ppm
RT: 4.54 min Scan# 387
Delta R.T. 0.04 min
Lab File: 07170029.D
Acq: 17 Jul 2000 20:51

Tgt Ion:120 Resp: 1406323

Ion	Ratio	Lower	Upper
120	100		
92	15.6	12.5	18.7
61	39.4	32.0	48.0



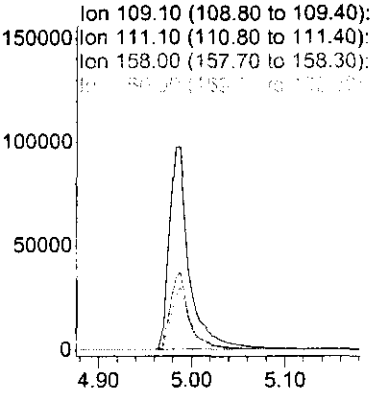


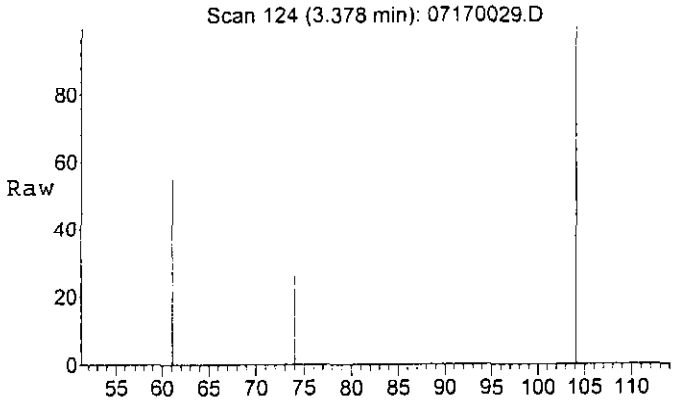


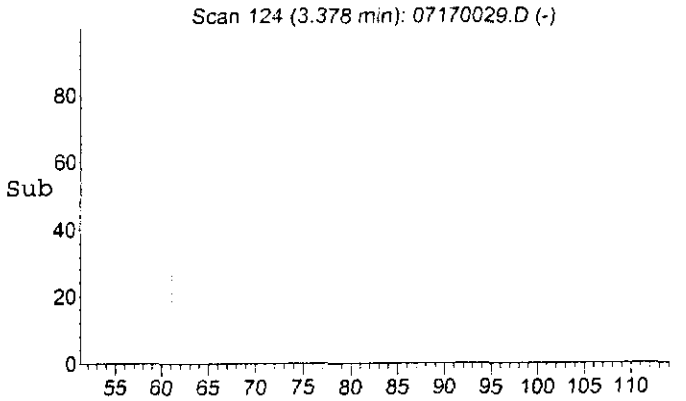
#4
MUSTARD
Concen: 1.23 ppm
RT: 4.99 min Scan# 487
Delta R.T. 0.04 min
Lab File: 07170029.D
Acq: 17 Jul 2000 20:51

Tgt Ion:109 Resp: 1413736

Ion	Ratio	Lower	Upper
109	100		
111	36.7	29.3	43.9
158	29.3	23.5	35.3
160	20.0	16.0	24.0



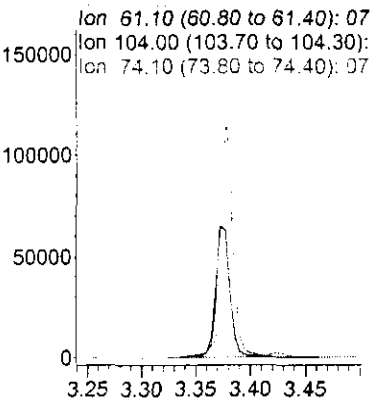


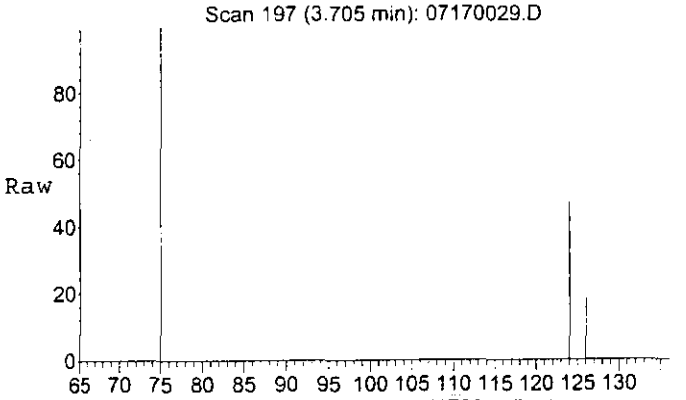


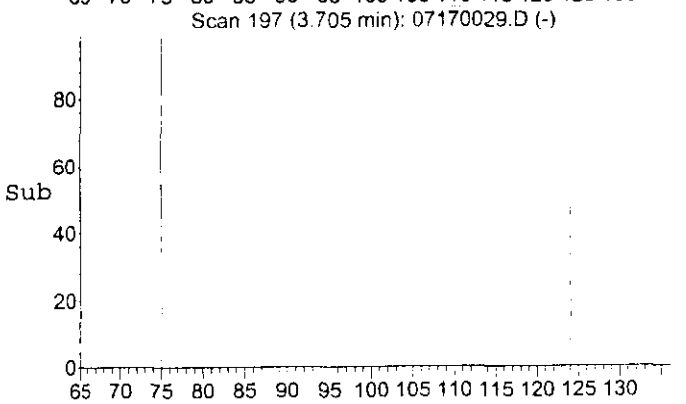
#1
1,4-THIOXANE
Concen: 1.23 ppm
RT: 3.38 min Scan# 124
Delta R.T. -0.02 min
Lab File: 07170029.D
Acq: 17 Jul 2000 20:51

Tgt Ion: 61 Resp: 588939

Ion	Ratio	Lower	Upper
61	100		
104	161.4	129.2	193.8
74	43.0	34.5	51.7



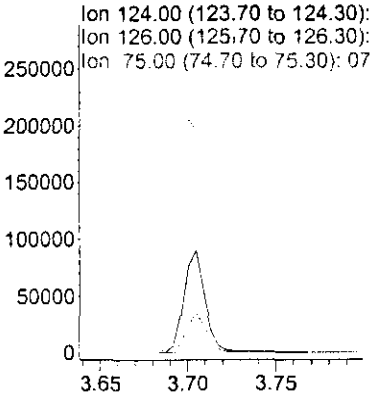




#2
CEES
Concen: 1.23 ppm
RT: 3.71 min Scan# 197
Delta R.T. 0.01 min
Lab File: 07170029.D
Acq: 17 Jul 2000 20:51

Tgt Ion:124 Resp: 756728

Ion	Ratio	Lower	Upper
124	100		
126	37.0	29.1	43.7
75	238.6	188.9	283.3



Quantitation Report

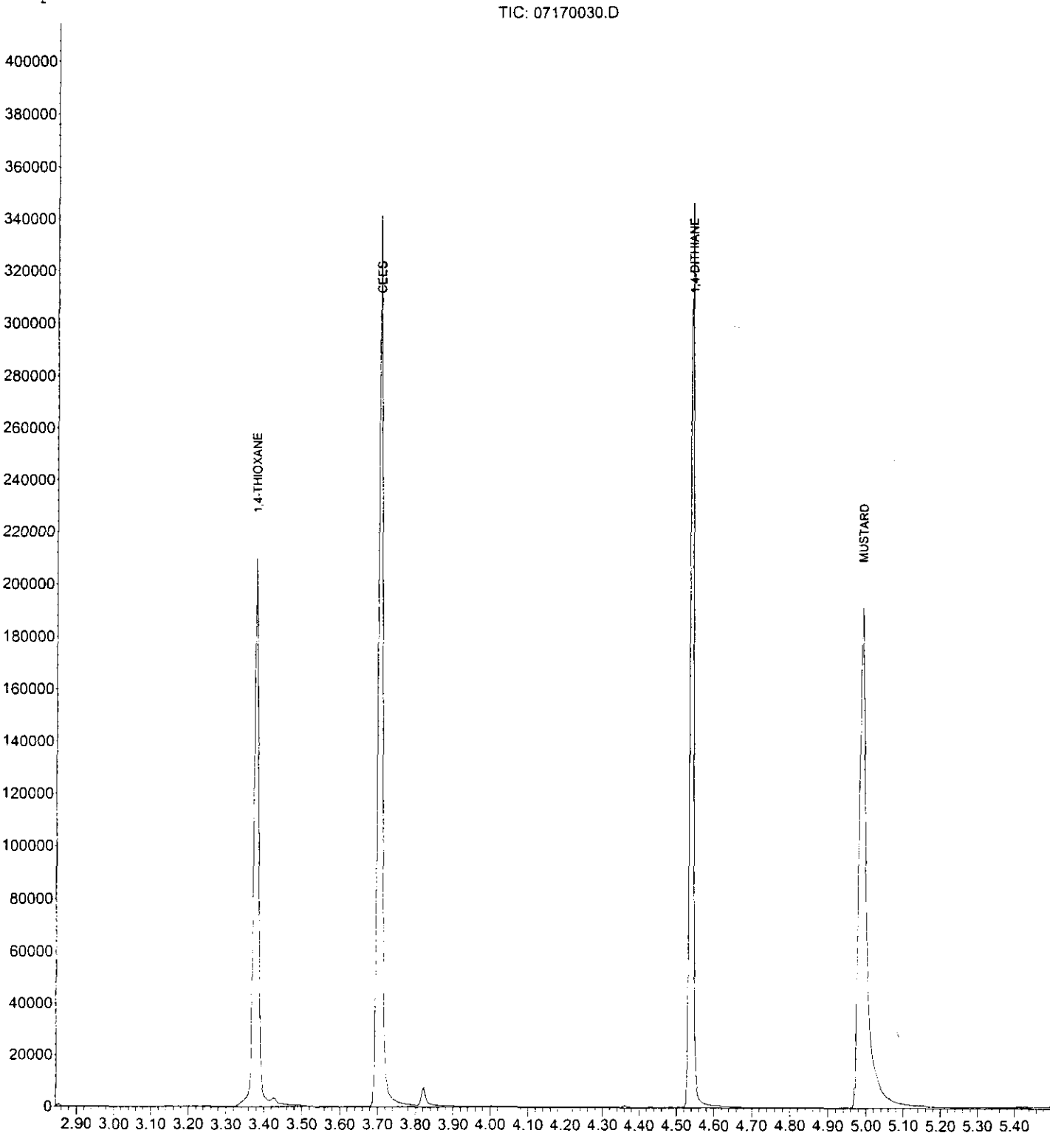
Data File : C:\HPCHEM\1\DATA\17JUL00\07170030.D
Acq On : 17 Jul 2000 21:04
Sample : 1.25 ppm CHECK STD
Misc :

Vial: 3
Operator: EWC
Inst : GCMSD4
Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:44 2000

Quant Results File: 4CEES.RES

Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration



Quantitation Report (Not Reviewed)

Data File : C:\HPCHEM\1\DATA\17JUL00\07170030.D
Acq On : 17 Jul 2000 21:04
Sample : 1.25 ppm CHECK STD
Misc :

Vial: 3
Operator: EWC
Inst : GCMSD4
Multiplr: 1.00
Sample Amount: 0.00

MS Integration Params: EVENTS.E
Quant Time: Jul 26 15:44 2000

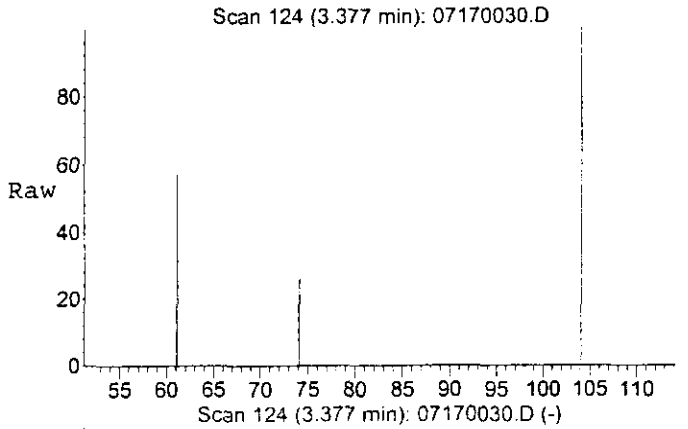
Quant Results File: 4CEES.RES

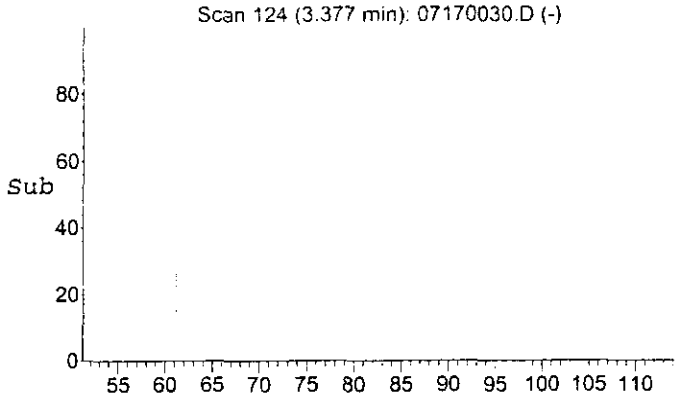
Quant Method : C:\HPCHEM\1\5973\4CEES.M (Chemstation Integrator)
Title :
Last Update : Wed Jul 26 15:02:16 2000
Response via : Initial Calibration
DataAcq Meth : 4CEES

Internal Standards	R.T.	QIon	Response	Conc Units	Dev(Min)

Target Compounds					Qvalue
1) 1,4-THIOXANE	3.38	61	589058	1.23 ppm	99
2) CEES	3.71	124	757535	1.23 ppm	99
3) 1,4-DITHIANE	4.54	120	1399701	1.26 ppm	100
4) MUSTARD	4.99	109	1420499	1.24 ppm	100

(#) = qualifier out of range (m) = manual integration

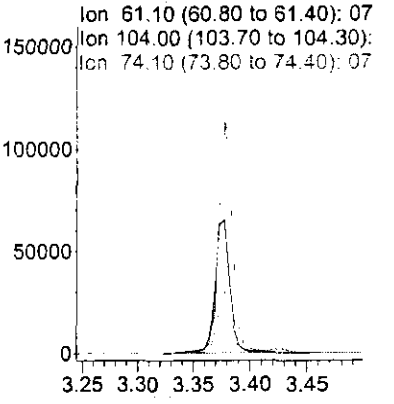


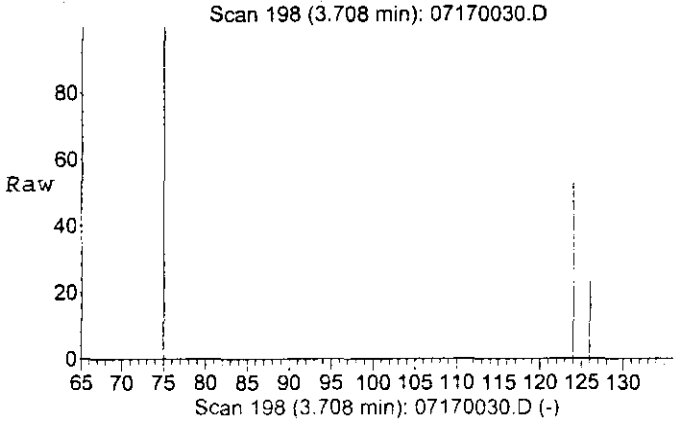


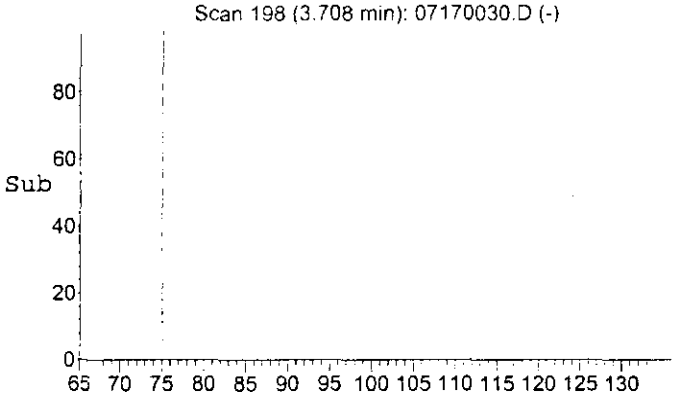
#1
1,4-THIOXANE
Concen: 1.23 ppm
RT: 3.38 min Scan# 124
Delta R.T. -0.02 min
Lab File: 07170030.D
Acq: 17 Jul 2000 21:04

Tgt Ion: 61 Resp: 589058

Ion	Ratio	Lower	Upper
61	100		
104	160.9	129.2	193.8
74	42.2	34.5	51.7



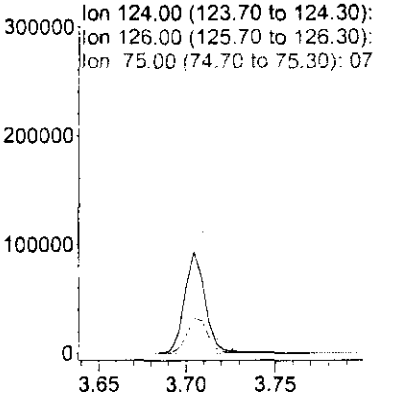


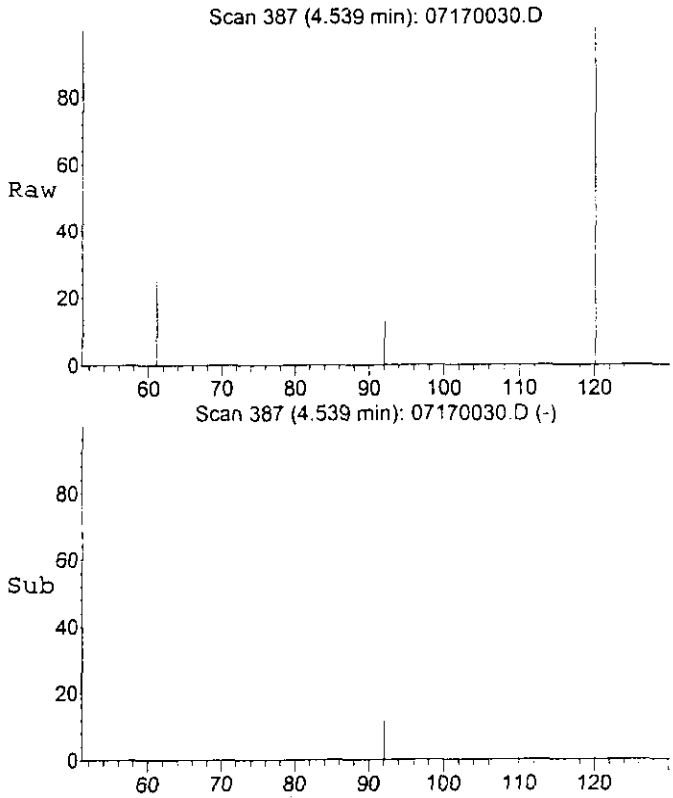


#2
CEES
Concen: 1.23 ppm
RT: 3.71 min Scan# 198
Delta R.T. 0.01 min
Lab File: 07170030.D
Acq: 17 Jul 2000 21:04

Tgt Ion:124 Resp: 757535

Ion	Ratio	Lower	Upper
124	100		
126	36.8	29.1	43.7
75	237.4	188.9	283.3

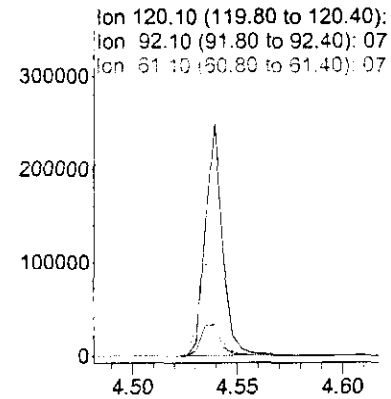


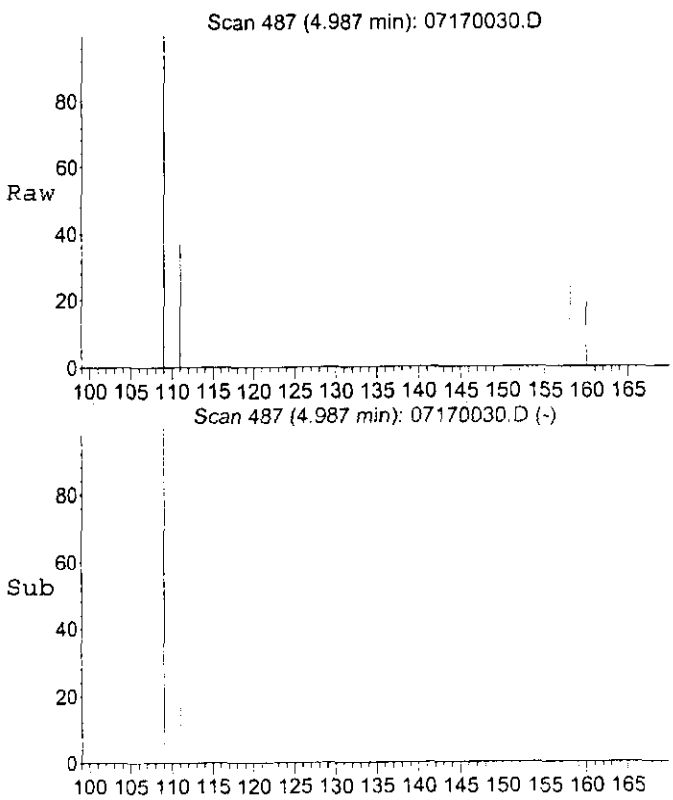


#3
1,4-DITHIANE
Concen: 1.26 ppm
RT: 4.54 min Scan# 387
Delta R.T. 0.04 min
Lab File: 07170030.D
Acq: 17 Jul 2000 21:04

Tgt Ion:120 Resp: 1399701

Ion	Ratio	Lower	Upper
120	100		
92	15.6	12.5	18.7
61	40.0	32.0	48.0

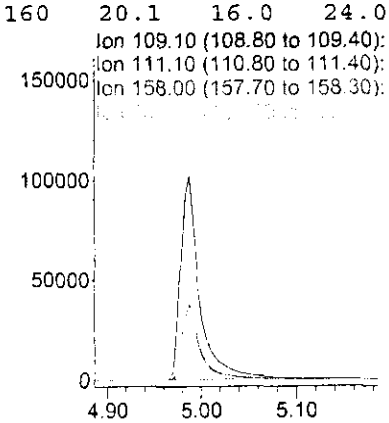


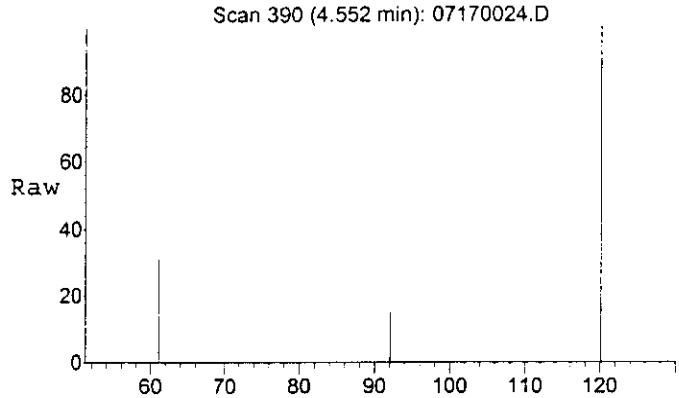


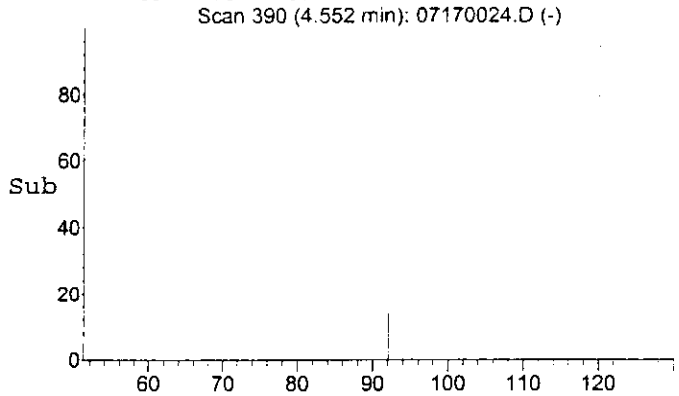
#4
MUSTARD
Concen: 1.24 ppm
RT: 4.99 min Scan# 487
Delta R.T. 0.04 min
Lab File: 07170030.D
Acq: 17 Jul 2000 21:04

Tgt Ion:109 Resp: 1420499

Ion	Ratio	Lower	Upper
109	100		
111	36.6	29.3	43.9
158	29.3	23.5	35.3
160	20.1	16.0	24.0



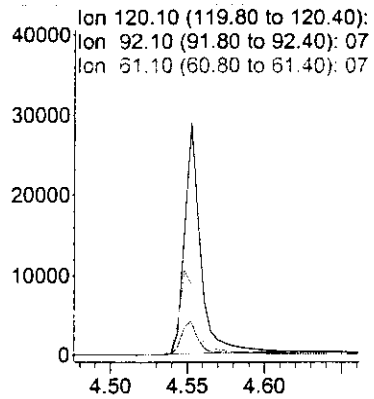


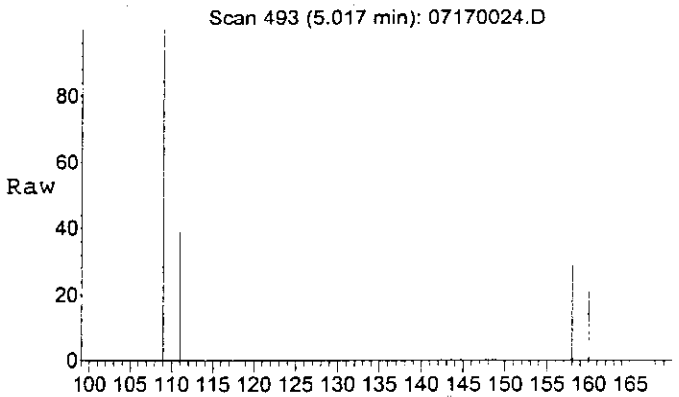


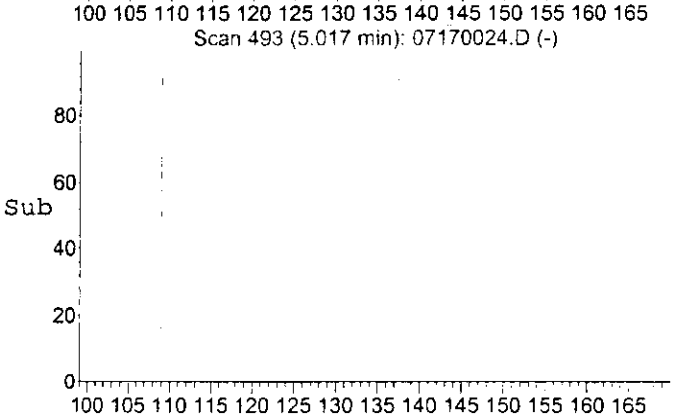
#3
1,4-DITHIANE
Concen: 0.18 ppm
RT: 4.55 min Scan# 390
Delta R.T. 0.05 min
Lab File: 07170024.D
Acq: 17 Jul 2000 19:48

Tgt Ion:120 Resp: 204777

Ion	Ratio	Lower	Upper
120	100		
92	15.4	12.5	18.7
61	38.5	32.0	48.0



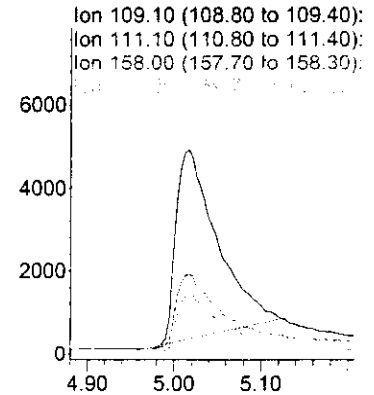




#4
MUSTARD
Concen: 0.13 ppm
RT: 5.02 min Scan# 493
Delta R.T. 0.07 min
Lab File: 07170024.D
Acq: 17 Jul 2000 19:48

Tgt Ion:109 Resp: 150198

Ion	Ratio	Lower	Upper
109	100		
111	36.2	29.3	43.9
158	29.7	23.5	35.3
160	20.3	16.0	24.0



I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

James M. Hausch

SIGNATURE

Environmental Protection Department Manager 8/8/00

TITLE DATE