FERO ENGINEERING
ENVIRONMENTAL ENGINEERING & CONSULTING

May 28, 2002

Mr. Jeffrey Sharp, R.G, C.E.G.
Associate Engineering Geologist
Site Cleanup I Unit
Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, California 90013

Soil Remediation System Installation and Progress Report
Continental Heat Treating, Inc.
10643 South Norwalk Boulevard, Santa Fe Springs, California
(SLIC No. 1057)

Dear Mr. Sharp:

Fero Environmental Engineering, Inc. (Fero) submits this soil remediation system installation and progress report for the referenced site on behalf of Continental Heat Treating, Inc (CHT). Fero submitted a workplan dated May 18, 2001, to Mr. Eric Wu of the Regional Water Quality Control Board – Los Angeles Region (RWQCB) to remediate near surface subgrade Tetrachloroethylene (PCE) and its degradation byproducts identified in the impacted soils around the former dry parts cleaning equipment. Fero proposed to remediate the soils using a Vapor Extraction System (VES). As a consequence of the remediation technique selected, gasoline constituents identified in the soil from a release on an adjacent refinery property would also be remediated. The RWQCB approved the workplan in a letter from your office dated January 24, 2002. This report presents details regarding the installation of the soil remediation system and initial system operations.

I. BACKGROUND

Environmental Support Technologies, Inc. (EST) conducted a subsurface site investigation at the subject site in March 1997 and they prepared a report on the investigation titled, *Site Assessment Report, Continental Heat Treating* (Report), dated May 6 1997. The Report describes previous investigations conducted at the site by EST and it provides near surface soil sampling data collected by Green Environmental. EST and Green identified chlorinated hydrocarbons consisting primarily of Tetrachloroethylene (PCE) and Trichloroethylene (TCE) from grade to just above the water table proximate to a former degreaser location. The PCE and TCE were detected at maximum soil gas concentrations of 1,948 µg/L and 156 µg/L, respectively near the northeast corner of the former degreaser and the concentrations generally decreased with increased radial distance away from that location. EST collected soil gas samples at 15 locations across the site at up to four depths at each location to a maximum depth of 35 feet. Based on the soil gas results, a boring was conducted to

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groundwater approximately five feet to the south of the former degreaser. Groundwater was encountered at approximately 68 feet below grade (fbg). PCE was detected in all of the soil samples collected from 5 to 60 fbg at concentrations ranging from 4.8 to 130 µg/Kg. Fero believes that a sufficient number of soil gas samples and soil matrix samples have been collected at the site to determine the vertical and lateral extent of the organics for remediation purposes.

II. REMEDIATION SYSTEM INSTALLATION AND PROGRESS

In anticipation of conducting vapor extraction at the site, Fero submitted a permit application to the South Coast Air Quality Control Board (SCAQMD) on March 14, 2002. The SCAQMD granted a permit on May 7, 2002.

On January 13, 2004, Fero conducted a test of the 2" well installed by EST to determine whether it would provide sufficient capture efficiency. A 1.74 Hp Siemens blower was connected under a various locations permit with the SCAQMD to the well. The blower discharge was channeled through three carbon canisters before release to the atmosphere. During the test, Fero monitored the vacuum that developed in the probes that remained from the EST investigation. The blower drew a vacuum of 48" water column at the well head indicating that although the formation exhibited a low permeability to air flow, it was amenable to vapor extraction. The highest vacuum achieved at the onsite probes was 2" water column. The discharge concentration of volatile organic compounds (VOC) measured at the blower using a Photoionization Detector (PID) was in excess of 2,000 ppm. Fero subsequently connected the EST well to a 2.5 Hp blower and VOC treatment system located at the rear of the building. The vapor extraction system was started on February 23, 2004. Electrical issues related to the high vacuum required of the blower and a supply load restriction caused the blower to trip out after it heated up. This problem was corrected by March 2, 2004 and the system operated continuously except for carbon change-outs since that date.

Unfortunately, although vacuums developed in all of the probes that remained from the EST investigation after the system was started, Fero was unable to determine the depths of the probes so additional probes were installed on March 1, 2004. Two borings, FP1 & FP2, were conducted to 60 feet below grade (fbg) and five probes were installed in each boring at depths of 5, 15, 30, 45 & 60 fbg. Vacuums were measured in the probes on March 2, 2004 after the system had a chance to equilibrate. Table 1 provides the vacuums measured in the probes. Figure 1 shows the locations of the vacuum extraction well and the soil gas monitoring probes.

Consistent with the SCAQMD permit, Fero retained Hydro-Geo Spectrum to monitor the discharge from the second carbon canister and from the stack to verify compliance with the permit requirements once a week for the first four weeks. In addition to the compliance monitoring, a round of initial soil gas concentrations were collected from the new probes on March 16, 2004. The soil gas concentrations are summarized in Table 2.

-Table 1-
Probe Vacuum
Continental Heat Treating, Inc.
10643 South Norwalk Boulevard, Santa Monica
March 2, 2004

Sample ID	Depth (ft.)	Vacuum (in. H2O)
FP1	5	1.0
	15	1.1
30		0.8
	45	0.6
	60	0.4
FP2	5	2.5
	15	2.5
	30	2.4
	45	1.7
	60	1.4

-Table 2-
Soil Gas Concentrations
Continental Heat Treating, Inc.
10643 South Norwalk Boulevard, Santa Monica
March 16, 2004
(µg/L)

Sample ID	Depth (ft)	PCE	TCE	1,2-DCE	VC	Toluene	HC
FP1	5	2,718	157	107	16	1.5	6,300
	15	2,351	136	ND	29	2.7	7,700
30	1,335	43	16	46	0.8	7,500	
	45	1,517	54	41	57	0.7	8,500
	60	934	43	33	63	0.6	8,000
FP2	5	154	32	12	11	ND	4,000
	15(eq.)	*3.9*	*ND*	*ND*	*ND*	*ND*	*23*
	30	972	80	54	21	3.1	12,000
	45	1,241	48	14	42	0.6	8,500
	60	660	49	22	12	2.2	12,000

ND = not detected at laboratory detection limit.

The permit to operate granted by the SCAQMD, required equipment monitoring with a PID on a daily basis for the first two weeks and then the schedule was to be adjusted depending on the discharge. Fero conducted scheduled vapor sampling at the blower, between the GAC canisters and at the discharge stack

using a PID to confirm compliance with the SCAQMD permit daily for two weeks and is currently on a bi-weekly schedule. The initial total VOCs concentration measured at the wellhead using a PID calibrated for iso-butane was in excess of 1200 ppmv. The blower is currently drawing a vacuum of approximately 46" water column which equates to a flow of approximately 90 scfm. A copy of the monitoring log and a copy of the laboratory report from Hydro Geo-Spectrum for the initial probe monitoring are attached hereto as Exhibit A.

Fero intends to continue to extract at the site until the discharge concentrations drop to acceptable levels or until an asymptotic relationship is established between the concentration and the baseline. When either of these conditions occurs, the system will be tested for closure. This report is being provided as the system installation report and as an initial monitoring report due by July 15, 2004. Subsequent monitoring reports will be generated and provided to the RWQCB as requested in the January 24, 2002 approval letter. Should you have any questions pertaining to this soil remediation progress report, please do not hesitate to contact me at (714) 256-2737.

Respectfully,
Fero Environmental Engineering, Inc.

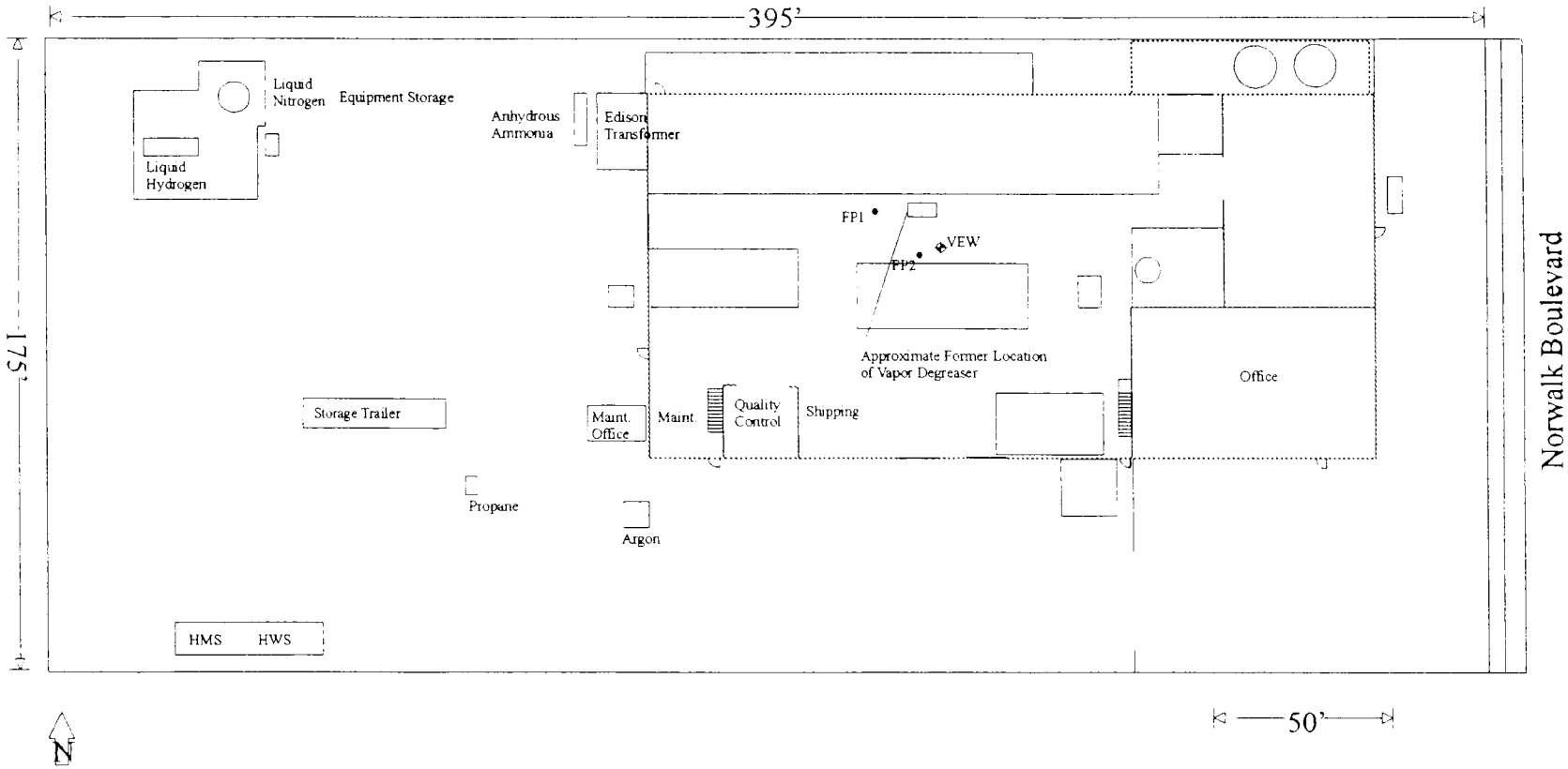
Rick L. Fero, P.E.
President

REGISTERED PROFESSIONAL ENGINEER
RICK L. FERO
No. 43927
Exp. 06/30/05
CIVIL
STATE OF CALIFORNIA

RLF: slf
[381VESInstallRpt]

cc: James Stull
Continental Heat Treating

Bob Schneider
Trilogy



Legend

◆ - Soil Gas Extraction Well

• - Soil Gas Sampling Probes

Base Map Source: Trilogy Regulatory Services

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Well and Probe Locations
Continental Heat Treating, Inc.

10643 South Norwalk Boulevard
Santa Fe Springs, California

[381well&probeloc]

Figure 1

EXHIBIT A

Monitoring Log and Soil Gas Lab Report

SOIL VAPOR EXTRACTION SYSTEM

VAPOR TREATMENT FACILITY MONITORING

Continental Heat Treating

10643 S. Norwalk Blvd., Santa Fe Springs

STACK .20

Date	Time	Header Vac. (in. H2O)	Blower Out VOC (ppmv)	Between 1 & 2 VOC (ppmv)	Between 2 & 3 VOC (ppmv)	Stack Out VOC (ppmv)	Temperature (Degs. F)	Comments
2-23-04	2:40	68	>1200	0	0	0		
2-24-04	1:40	68	>1200	0	0	0	150°	Blower was off (1)
2-25-04	12:30	50	>1200	0	0	0	130°	[illegible]
2-26-04	2:33	50	>1200	0	0	0	125°	BLOWER OFF
2-27-04	12:16	50	>1200	Ø	Ø	Ø	130°	CHGD HEATERS
3-1-04	1:05	50	>1200	0	0	0	140°	" " Cont. OBT
[illegible]	11:10	50	>1200	4	Ø	Ø		
3-3-04	11:10	50	>1200	32	Ø	Ø	154°	
3-5-04	11:45	56	>1200	88	Ø	Ø	150	
3-7-04	9:40	54	>1200	82	45	4	158	
3-[illegible]	8:15	[illegible]	>1200	73	[illegible]	32		OFF
3-17-04	10:40	52	>1200	10	7.9	Ø	142	
3-22-04	9:50	50	>1200	75	42	18	144	
3-25-04	2:[illegible]	[illegible]	>1200	95	82	42	140	OFF
3/26/04	10:00	53	>1200		14.9	Ø		ON
3/29/04	10:00	50	>1200	84	72	4	152	
4-2-04	12:45	50	-	-	-	38	150	OFF
4-8-04	11:00	52	>1200	13	9	Ø	130	ON
4-13-04	10:00	52	>1200	65	50	18	130	
4-16-04	11:30	52	>1200	79	56	37	142	OFF
4-[illegible]	[illegible]	[illegible]	>1200	11	13	[illegible]		[illegible]
[illegible]	[illegible]	[illegible]	>1200	[illegible]	[illegible]	[illegible]	[illegible]	
[illegible]	[illegible]	52	>1200	75	59	[illegible]	154	
5-6-04	1:15	46	>1200	83	69	Ø	150	ON*
5-10-04	11:20	46	129	77	54	28	145	OFF
5-19-04	11:00	46	117	83	72	Ø	140	ON*
5-24-04	1:45	46	126	95	66	32	148	OFF

Comments: (1) Open Bleed to [illegible]

March 20, 2004

John Petersen Rick Fero
431 West Lambert Road Unit 305
Brea, CA 92621

Dear John,

Enclosed please find the report on the vapor sampling and analysis performed at Continental Heat Treating in Santa Fe Springs on March 16-17, 2004.
The report consists of one bound and one unbound copy with the following sections:

- Technical approach with results and discussion.
- Spreadsheet of Results.
- Data quantitation sheets in LARWQCB format.
- QA/QC in LARWQCB format.
- Chromatograms (unbound copy only).

If you have any questions or additional requirements, please do not hesitate to call. It was a pleasure working with you, and I look forward to future projects.

Sincerely,

Raphe Pavlick
Director

Post Office Box 91740, Los Angeles, CA 90009
Phone (310)823-6661 FAX (310)822-6661(or 6668) Email: HydroGeoSpectrum@aol.com

SOIL VAPOR TECHNICAL APPROACH

Pre-installed nested probes to a maximum depth of 60 ft bgs were sampled as follows:
The tubing exiting the surface of the ground is connected to a glass sampling bulb fitted with Teflon stopcocks and a viton rubber sampling port. This bulb is connected in turn to a vacuum gauge, flowmeter, and portable sampling pump. Initially both stopcocks are closed, and the absence of flow and the presence of a slight vacuum is noted. This demonstrates that the sampling train on the far end of the bulb is leak-tight. Then the first stopcock (pump end) is opened; the absence of flow demonstrates that the sampling bulb itself is leaktight. The ground end of the bulb is then opened, and a flow of 150 ml/min is maintained for seven to ten purge volumes. Two VES ports were sampled as above except the flow was increased to 500 ml/min. A vacuum test was performed to ensure this increase of flow rate had no effect on absence of vacuum. The wells were well-sealed, and clearly filled with the soil vapors at equilibrium; to verify this, one sample was taken at a very low purge volume and observed to be identical with the results obtained from the sample taken at a longer purge time. During the sampling a foam containing isobutane or an open container containing a pentane-soaked kimwipe is exposed to the sampling train. Any trace of pentane or isobutane detected in the sample indicates the intrusion of ambient air into the sampling train, invalidating the results of that sample. No such leaks were detected with any of the samples. The stopcocks were then closed (pump end first), and the sample retained in the container. Approximately 25 NG each of deutero-chloroform, deutero-acetone, deuterated-methylene chloride, deuterated-toluene and deutero-benzene were added through the septum into the bulb. The recovery of these isotopically-labeled surrogate compounds demonstrates that the bulbs have remained leak-free up until the actual analysis. A recovery of 90% is desirable; a recovery of less than 75% requires reinjection, resampling, or may *qualify* the sample results. These bulbs were then delivered to the mobile laboratory for analysis by GCMS.

The analyses of the soil vapor samples proceeded as follows. A 1 ml aliquot of soil vapor was withdrawn from each bulb and injected into a Hewlett-Packard model 5890 or 6890 gas chromatograph interfaced to a Hewlett-Packard model 5972 or 5973 mass spectrometer. Chromatography was performed in such a way that the combination of retention times and mass fragmentation allowed for the complete separation of all the target compounds. The mass spec was operated in *full scan* mode between 35 and 350 amu. This allows for the identification of any volatile organic species that may be present in the soil vapor.

The following laboratory QA/QC was performed. An initial five-point calibration was run on December 1, 2003 and February 13, 2004. A laboratory control standard (LCS) from *Absolute Standards* Volatiles Mix was run at the end of the same days and at the end of the sampling days. The daily standard, run on the sampling days, was made from Supelco certified Custom 1 mix. The initial calibration was also run on this standard stock. The surrogate calibration curve was run on Aldrich certified material. All results were within the LAWQCB and HGS requirements.

Two notable additions to the LAWQCB requirements were deemed necessary:

i. Five isotopically-labeled surrogates, D6-Benzene, D2-Methylene Chloride, D8-Toluene, D6-Acetone and D-Chloroform, were added to the collection vessel, a 125-ml glass bulb fitted with Teflon stopcocks and a viton rubber septum, to measure recovery percentages. The benzene, toluene, methylene chloride and chloroform surrogates are used to verify the recovery of the BTEX and chlorinated hydrocarbons respectively; a recovery of at least 90% is desired; less than 75% recover requires reinjection, resampling or may *qualify* the sample results. The deuterated acetone is a measure of the possible presence of water vapor in the sample and general condition of the chromatographic system in terms of hydration; a recovery of 75% indicates acceptability of the complete sampling and analysis procedure; below this level, water vapor presence in the sampling line should be investigated or chromatographic dehydration procedures should be considered.

ii. Isobutane or similar vapor was used to surround the sampling train at the surface to identify possible ambient intrusion into the sampling train or down the outside surface of the sampling tubing connected to the subsurface.

RESULTS AND DISCUSSION

Tetrachloroethylene was observed in all of the probe samples to a maximum concentration of 2817 µg/L. Medium concentrations of trichloroethylene (TCE), 1,2-dichloroethylene (DCE) and vinyl chloride (VC) were observed in some of the samples. Low concentrations of toluene were found in most of the samples to a maximum concentration of 3.1 mcg/L; high concentrations of hydrocarbons were found in all of the probe samples, to a maximum concentration of 12000 mcg/L. Low to medium concentrations of vinyl chloride, 1,2-dichloroethylene and hydrocarbons were found between drums 2 and 3; no volatile organic compounds (VOC's) were found in the stack sample.

Target compounds include all those listed on the initial calibration spreadsheet. Tentatively Identified Compounds (TIC's) were not detected in these samples.

Because of differences in rounding philosophies between the Water Board forms (Quattro-Pro) and the spreadsheet (Excel), there may occasionally be a difference in the decimal point of a value. This is not considered significant and should not be a cause of concern.

All QA/QC requirements of both HydroGeoSpectrum (HGS) and LARWQCB were met.

Soil Vapor
(µg/L)

LOCATION- depth (ft)	Date Sampled	**TCE** µg/L	**PCE** µg/L	**VC** µg/L	**Toluene** µg/L	**1,2-DCE** µg/L	**HC** µg/L
FP1-5	16-Mar-04	157	2718	16	1.5	107	6300
FP1-5	16-Mar-04	117	2817	20	1.1	83	6500
FP1-15	16-Mar-04	136	2351	29	2.7	N	7700
FP1-30	16-Mar-04	43	1335	46	0.8	16	7500
FP1-45	16-Mar-04	54	1517	57	0.7	41	8500
FP1-60	16-Mar-04	43	934	63	0.6	33	8000
FP2-5	16-Mar-04	32	154	11	N	12	4000
FP2-15 EQ	*16-Mar-04*	*N*	*3.9*	*N*	*N*	*N*	*23*
FP2-30	16-Mar-04	80	972	21	3.1	54	12000
FP2-45	16-Mar-04	48	1241	42	0.6	14	8500
FP2-60	16-Mar-04	49	660	12	2.2	22	12000
STACK	17-Mar-04	N	N	N	N	N	N
2C3	17-Mar-04	N	N	1.3	N	20	80

PCE = Tetrachloroethylene
TCE = Trichloroethylene
VC = Vinyl Chloride
DCE = Dichloroethylene
HC = Hydrocarbons

VOC = Volatile Organic Compound

N = < 0.5 µg/L

DATA

SOIL GAS SAMPLE RESULTS

SITE NAME: SFS/FERO LAB NAME: HydroGeoSpectrum (HGS) DATE: 16 MAR 2004

ANALYST: Raphe Pavlick COLLECTOR: Raphe Pavlick INSTRUMENT ID 2415A8201

NORMAL INJECTION VOLUME 1 ml

Sample ID:	FP1	FP1	FP1
	VOE0224-17252	VOE0225-17253	VOE0226-17254
Sampling Depth (ft)	15 P3	15 P15	15 P30
Purge Volume (ml)	450	2250	4500
Vacuum	NO	NO	NO
Sampling Time	1337	1349	1404
Injection Time	1522	1544	1606
Injection Volume	1ml	0.25ml	0.25ml
Dilution Factor	1	4	4

COMPOUND	DETECTOR	RT	AREA	CONC	RT	AREA	CONC	RT	AREA	CONC	RT	AREA	CONC
Vinyl Chloride	MS	1.80	123991	48.8	1.80	18330	28.8	1.81	22277	35.0			
Trichloroethene	MS	7.44	619652	108.3	7.45	194470	136.0	7.42	219395	153.4			
Toluene	MS	10.69	11662	1.4	10.75	5433	2.7	10.67	8176	4.1			
Tetrachloroethene	MS	9.92	5582369	1169.5	9.93	2805785	2351.3	9.89	3232695	2709.1			
Deutero-chloroform	MS	5.21	124278	75%	5.21	47266	114%	5.20	41227	99%			
D6-BENZENE	MS	7.65	355039	93%	7.84	95896	101%	6.73	109384	115%			
D6-ACETONE	MS	3.23	146783	80%	3.23	43478	94%	3.23	48906	106%			
D2-Dichloromethane	MS	3.02	88795	81%	3.02	29593	108%	3.02	26003	95%			
D8-TOLUENE	MS	10.60	268171	88%	10.64	71242	94%	10.58	85627	113%			

Total Number of Peaks by GCMS: 4 + Surrogates 4 + Surrogates 4 + Surrogates

Unidentified peaks and/or other analytical remarks: UNITS: mcg/L

SOIL GAS SAMPLE RESULTS

SITE NAME: SFS/FERO
LAB NAME: HydroGeoSpectrum (HGS)
DATE: 16 MAR 2004
ANALYST: Raphe Pavlick
COLLECTOR: Raphe Pavlick
INSTRUMENT ID 2415A8201
NORMAL INJECTION VOLUME 1 ml

Sample ID:	FP2	FP2	FP2	FP1
	VOE0223-17251	VOE0227-17255	VOE0228-17256	VOE0230-17258
Sampling Depth (ft)	5	30 lofl	60	5 DF10
Purge Volume (ml)	1650	3000	4500	1650
Vacuum	NO	NO	NO	NO
Sampling Time	1354	1354	1356	1410
Injection Time	1458	1652	1714	1630
Injection Volume	1ml	0.5ml	0.5ml	0.1ml
Dilution Factor	1	2	2	10

COMPOUND	DETECTOR	RT	AREA	CONC	RT	AREA	CONC	RT	AREA	CONC	RT	AREA	CONC
Vinyl Chloride	MS	1.69	27981	11.0	1.84	26219	20.6	1.75	14795	11.6			
1,2-Dichloroethene (total)	MS	4.95	52999	12.1	5.01	118654	54.2	5.00	48511	22.1	4.97	46738	106.7
Trichloroethene	MS	7.44	182967	32.0	7.48	228699	80.0	7.49	140331	49.0	7.42	90082	157.5
Toluene	MS				10.73	12276	3.1	10.79	8536	2.1	10.69	1191	1.5
Tetrachloroethene	MS	9.94	737280	154.4	9.94	2320406	972.2	9.98	1575704	660.2	9.90	1297502	2718.3
Deutero-chloroform	MS	5.18	180503	109%	5.24	72884	88%	5.22	64967	78%	5.21	14284	86%
D6-BENZENE	MS	7.66	388930	102%	7.84	195624	103%	7.70	195964	103%	7.82	44257	116%
D6-ACETONE	MS	3.14	217247	118%	3.25	90857	98%	3.18	65651	71%	3.24	18239	99%
D2-Dichloromethane	MS	2.92	136250	124%	3.05	52880	96%	2.94	55583	101%	3.03	9272	84%
D8-TOLUENE	MS	10.61	323525	106%	10.64	169955	112%	10.66	159868	105%	10.57	29014	95%

Total Number of Peaks by GCMS:	4 + Surrogates	5 + Surrogates	5 + Surrogates	5 + Surrogates

Unidentified peaks and/or other analytical remarks: UNITS: mcg/L

SOIL GAS SAMPLE RESULTS

SITE NAME: SFS/FERO LAB NAME: HydroGeoSpectrum (HGS) DATE: 16 MAR 2004

ANALYST: Raphe Pavlick COLLECTOR: Raphe Pavlick INSTRUMENT ID 2415A8201

NORMAL INJECTION VOLUME 1 ml

Sample ID:	FP1	FP1	FP1	FP1
	WOA6585-04222	WOA6587-04224	WOA6588-04225	WOA6589-04226
Sampling Depth (ft)	5	30	45	60
Purge Volume (ml)	1650	3000	3750	4500
Vacuum	NO	NO	NO	NO
Sampling Time	1410	1416 X	1419 A	1358 A
Injection Time	1542	1623	1647	1707
Injection Volume	1ml	1ml	1ml	1ml
Dilution Factor	1	1	1	1

COMPOUND	DETECTOR	RT	AREA	CONC	RT	AREA	CONC	RT	AREA	CONC	RT	AREA	CONC
Vinyl Chloride	MS	4.10	114006	20.4	4.04	255006	45.6	4.19	317906	56.9			
1,2-Dichloroethene (cis)	MS	7.88	830586	83.1	7.88	328635	32.8	7.91	409816	41.0	7.87	325489	32.5
Trichloroethene	MS	8.80	821055	116.9	8.80	302809	43.1	8.81	380034	54.1	8.79	298990	42.5
Toluene	MS	9.61	11729	1.0	10.15	8155	0.7	10.16	7973	0.7	10.14	6083	0.5
Tetrachloroethene	MS	9.96	3905746	2817.6	9.96	1851199	1335.4	9.96	2103252	1517.2	9.94	1294854	934.1
Deutero-chloroform	MS	7.83	122214	83%	7.83	125458	86%	7.87	141780	97%	7.83	129489	88%
D6-BENZENE	MS	8.87	456468	124%	8.88	366939	99%	8.88	450691	122%	8.86	402382	109%
D6-ACETONE	MS	6.92	210099	102%	6.96	157754	76%	6.96	206988	100%	6.93	185682	90%
D2-Dichloromethane	MS	6.33	87979	76%	6.35	140981	122%	6.40	106782	93%	6.33	111681	97%
D8-TOLUENE	MS	9.64	204453	80%	9.63	262830	102%	9.64	278121	108%	9.62	298158	116%

Total Number of Peaks by GCMS:	5 + Surrogates	5 + Surrogates	5 + Surrogates	5 + Surrogates

Unidentified peaks and/or other analytical remarks: UNITS: mcg/L

SOIL GAS SAMPLE RESULTS

SITE NAME: SFS/FERO
LAB NAME: HydroGeoSpectrum (HGS)
DATE: 16 MAR 2004
ANALYST: Raphe Pavlick
COLLECTOR: Raphe Pavlick
INSTRUMENT ID 2415A8201
NORMAL INJECTION VOLUME 1 ml

Sample ID:	FP2	FP2
	WOA6586-04223	WOA6590-04227
Sampling Depth (ft)	15	45
Purge Volume (ml)	2250	3750
Vacuum	NO	NO
Sampling Time	1358 A	1355
Injection Time	1604	1725
Injection Volume	1ml	1ml
Dilution Factor	1	1

COMPOUND	DETECTOR	RT	AREA	CONC	RT	AREA	CONC	RT	AREA	CONC	RT	AREA	CONC
Vinyl Chloride	MS				3.98	232732	41.7						
1,2-Dichloroethene (cis)	MS				7.84	282090	28.2						
Trichloroethene	MS				8.78	335732	47.8						
Toluene	MS				10.14	6988	0.6						
Tetrachloroethene	MS	9.95	5390	3.8	9.94	1720014	1240.8						
Deutero-chloroform	MS	8.05	124718	85%	7.83	182562	125%						
D6-BENZENE	MS	8.45	334483	91%	8.86	340280	92%						
D6-ACETONE	MS	6.93	73236	35%	6.91	203409	98%						
D2-Dichloromethane	MS	6.54	140338	122%	6.30	118847	103%						
D8-TOLUENE	MS	9.56	224148	87%	9.62	277212	108%						

Total Number of Peaks by GCMS: 1 + Surrogates 5 + Surrogates

Unidentified peaks and/or other analytical remarks: UNITS: mcg/L

SOIL GAS SAMPLE RESULTS

SITE NAME: SFS/FERO LAB NAME: HydroGeoSpectrum (HGS) DATE: 17 MAR 2004

ANALYST: Raphe Pavlick COLLECTOR: Raphe Pavlick INSTRUMENT ID 2415A8201

NORMAL INJECTION VOLUME 1 ml

Sample ID:	STACK	2C3
	WOA6600-04234	WOA6601-04235
Sampling Depth (ft)		
Purge Volume (ml)	>1000	>1000
Vacuum	NO	NO
Sampling Time	1311 A	1313
Injection Time	1323	1343
Injection Volume	1ml	1ml
Dilution Factor	1	1

COMPOUND	DETECTOR	RT	AREA	CONC	RT	AREA	CONC	RT	AREA	CONC	RT	AREA	CONC
Vinyl Chloride	MS	NONE DETECTED			4.05	7442	1.3						
1,2-Dichloroethene (cis)	MS				7.90	201510	20.1						
Deutero-chloroform	MS	8.01	109592	75%	8.04	143987	98%						
D6-BENZENE	MS	8.45	354676	96%	8.27	426743	115%						
D6-ACETONE	MS	6.92	160451	78%	6.98	65628	32%						
D2-Dichloromethane	MS	5.88	118704	103%	6.44	124154	108%						
D8-TOLUENE	MS	9.56	196602	77%	9.56	308771	120%						

Total Number of Peaks by GCMS: 0 + Surrogates 2 + Surrogates

Unidentified peaks and/or other analytical remarks: UNITS: mcg/L

QA/QC

INITIAL CALIBRATION BY FULL SCAN MASS SPEC

LAB NAME: HydroGeoSpectrum DATE: 13 February 2004

ANALYST:Raphe Pavlick STD LOT#:ULTRA T065 INSTRUMENT ID:2415A8201-2

Calibration Files
500 =WOA6400.D 50 =WOA6399.D 100 =WOA6401.D
20 =WOA6402.D 5 =WOA6403.D

		Compound	500	50	100	20	5	Avg		%RSD
1)		Vinyl Chloride	5.184	5.759	6.055	5.800	5.108	5.581	E3	7.42
2)		Bromomethane	6.866	8.371	7.508	6.907	5.550	7.041	E2	14.66
3)		Chloroethane	1.698	1.861	1.886	1.911	1.722	1.816	E3	5.41
4)		1,1-Dichloroethene	6.845	8.523	9.356	7.975	7.057	7.951	E3	13.07
6)		Methylene Chloride	6.519	7.762	8.570	7.119	7.371	7.468	E3	10.22
7)		1,2-Dichloroethene (c	1.827	2.103	2.163	2.138	1.763	1.999	E4	9.44
8)		1,1-Dichloroethane	1.676	2.165	2.118	1.756	1.513	1.845	E4	15.40
9)		Chloroform	1.622	2.182	2.093	1.817	1.541	1.851	E4	15.21
10)		1,2-Dichloroethane	1.491	1.688	1.314	1.189	1.199	1.376	E4	15.44
12)		1,1,1-Trichloroethane	1.674	1.667	1.082	1.442	1.215	1.416	E4	18.75
13)		Carbon Tetrachloride	1.152	1.000	0.914	0.949	0.934	0.990	E4	9.72
14)		Benzene	1.744	2.173	2.499	2.424	2.576	2.283	E4	14.77
15)		Trichloroethene	5.135	8.177	8.328	7.275	6.193	7.021	E3	19.31
16)		1,2-Dichloropropane	1.627	2.165	2.000	1.709	1.430	1.786	E4	16.49
17)		Bromodichloromethane	0.860	0.763	0.669	0.740	1.093	0.825	E4	19.93
18)		cis-1,3-Dichloroprope	0.931	0.842	1.125	0.984	0.945	0.965	E4	10.67
19)		trans-1,3-Dichloropro	9.541	5.704	8.204	6.725	7.158	7.467	E3	19.63
20)		1,1,2-Trichloroethane	3.492	3.840	4.439	4.722	3.003	3.899	E3	17.87
21)		Dibromochloromethane	2.554	1.680	2.453	1.993	2.408	2.218	E3	16.62
22)		Bromoform	2.924	3.497	3.642	3.669	2.283	3.203	E3	18.61
24)		Toluene	1.031	1.003	0.878	1.286	1.232	1.086	E4	15.61
25)		Tetrachloroethene	1.464	1.207	1.657	1.354	1.249	1.386	E3	13.06
27)		Chlorobenzene	1.177	1.232	1.194	1.042	1.578	1.245	E4	16.05
28)		Ethylbenzene	1.397	1.542	1.034	1.176	1.534	1.337	E4	16.81
29)		Xylene (total)	2.455	1.922	2.497	3.061	3.009	2.589	E4	18.01
30)		Styrene	1.068	1.082	1.309	1.567	1.619	1.329	E4	19.56
31)		1,1,1,2-Tetrachloroet	4.808	7.648	6.341	5.284	5.117	5.840	E3	19.92
32)		1,1,2,2-Tetrachloroet	3.157	2.390	3.668	3.178	3.064	3.091	E3	14.79
33)		FREON-11	1.893	2.197	2.669	2.664	2.589	2.402	E3	14.37
34)	S	Deutero-chloroform	1.572	1.693	2.085			1.783	E3	15.02
35)		FREON-12	3.305	3.401	3.951	3.692	3.163	3.502	E3	9.05
36)		FREON-113	0.887	1.035	0.689	0.928	0.767	0.861	E4	15.77
39)	s	D6-BENZENE	2.726	3.805	3.600			3.377	E3	16.97
41)	S	D6-ACETONE	2.430	2.332	2.600			2.454	E3	5.52
42)	S	D2-Dichloromethane	1.334	1.450	1.283			1.356	E3	6.30
43)		Freon-22	4.983	5.719	5.306	6.066	5.758	5.567	E3	7.61
44)		Freon-141B	0.540	0.596	1.072	0.968	0.910	0.817	E4	28.83
53)	S	D8-TOLUENE	4.298	4.527	5.755			4.860	E3	16.12

INITIAL LCS

Data File : C:\HPCHEM\1\DATA\WOA6405.D
Acq On : 13 Feb 2004 11:57 am
Sample : LCS 50 ng
Misc : INITIAL 13FEB04
MS Integration Params: rteint.p

Vial: 1
Operator: Raphe HGS
Inst : GC/MS Ins
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\N021304.M (RTE Integrator)
Title : FULL SCAN
Last Update : Wed Feb 18 12:54:43 2004
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150

	Compound	AvgRF	CCRF		%Dev	AccRge
1	Vinyl Chloride	5.581	5.962	E3	-6.8	20
2	Bromomethane	704.062	649.580		7.7	20
3	Chloroethane	1.816	2.007	E3	-10.5	20
4	1,1-Dichloroethene	7.951	8.167	E3	-2.7	15
6	Methylene Chloride	7.468	8.547	E3	-14.4	15
7	1,2-Dichloroethene (cis)	19.991	19.424	E3	2.8	15
8	1,1-Dichloroethane	18.454	20.488	E3	-11.0	15
9	Chloroform	18.511	19.793	E3	-6.9	15
10	1,2-Dichloroethane	13.761	14.226	E3	-3.4	15
12	1,1,1-Trichloroethane	14.161	14.701	E3	-3.8	15
13	Carbon Tetrachloride	9.898	10.956	E3	-10.7	15
14	Benzene	22.832	23.673	E3	-3.7	15
15	Trichloroethene	7.021	6.247	E3	11.0	15
16	1,2-Dichloropropane	17.862	19.821	E3	-11.0	15
17	Bromodichloromethane	8.250	8.170	E3	1.0	15
18	cis-1,3-Dichloropropene	9.654	10.134	E3	-5.0	15
19	trans-1,3-Dichloropropene	7.467	8.474	E3	-13.5	15
20	1,1,2-Trichloroethane	3.899	3.436	E3	11.9	15
21	Dibromochloromethane	2.218	2.075	E3	6.4	15
22	Bromoform	3.203	3.445	E3	-7.6	15
24	Toluene	10.860	10.701	E3	1.5	15
25	Tetrachloroethene	1.386	1.383	E3	0.2	15
27	Chlorobenzene	12.446	13.601	E3	-9.3	15
28	Ethylbenzene	13.367	13.422	E3	-0.4	15
29	Xylene (total)	25.889	22.959	E3	11.3	15
30	Styrene	13.288	13.032	E3	1.9	15
31	1,1,1,2-Tetrachloroethane	5.840	6.696	E3	-14.7	15
32	1,1,2,2-Tetrachloroethane	3.091	2.677	E3	13.4	15
33	FREON-11	2.402	2.201	E3	8.4	20
35	FREON-12	3.502	3.191	E3	8.9	20
36	FREON-113	8.613	9.094	E3	-5.6	20
43	Freon-22	5.567	5.180	E3	7.0	20
44	Freon-141B	8.171	6.851	E3	16.2	20

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\WOA6592A.D
Acq On : 17 Mar 2004 10:10 am
Sample : STANDARD 50NG
Misc : 17MAR04
MS Integration Params: rteint.p

Vial: 1
Operator: Raphe HGS
Inst : GC/MS Ins
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\N021304.M (RTE Integrator)
Title : 10
Last Update : Wed Mar 17 11:42:31 2004
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF		%Dev	AccRge
1	Vinyl Chloride	5.581	5.691	E3	-2.0	20
2	Bromomethane	704.062	813.400		-15.5	20
3	Chloroethane	1.816	1.660	E3	8.6	20
4	1,1-Dichloroethene	7.951	7.359	E3	7.4	15
6	Methylene Chloride	7.468	8.169	E3	-9.4	15
7	1,2-Dichloroethene (cis)	19.991	22.349	E3	-11.8	15
8	1,1-Dichloroethane	18.454	21.016	E3	-13.9	15
9	Chloroform	18.511	19.209	E3	-3.8	15
10	1,2-Dichloroethane	13.761	14.349	E3	-4.3	15
12	1,1,1-Trichloroethane	14.161	13.002	E3	8.2	15
13	Carbon Tetrachloride	9.898	8.596	E3	13.2	15
14	Benzene	22.832	20.950	E3	8.2	15
15	Trichloroethene	7.021	7.026	E3	-0.1	15
16	1,2-Dichloropropane	17.862	19.503	E3	-9.2	15
17	Bromodichloromethane	8.250	7.342	E3	11.0	15
18	cis-1,3-Dichloropropene	9.654	9.417	E3	2.5	15
19	trans-1,3-Dichloropropene	7.467	6.873	E3	8.0	15
20	1,1,2-Trichloroethane	3.899	3.535	E3	9.3	15
21	Dibromochloromethane	2.218	2.393	E3	-7.9	15
24	Toluene	10.860	10.122	E3	6.8	15
25	Tetrachloroethene	1.386	1.468	E3	-5.9	15
27	Chlorobenzene	12.446	12.587	E3	-1.1	15
28	Ethylbenzene	13.367	12.463	E3	6.8	15
29	Xylene (total)	25.889	25.521	E3	1.4	15
30	Styrene	13.288	13.782	E3	-3.7	15
31	1,1,1,2-Tetrachloroethane	5.840	5.107	E3	12.6	15
32	1,1,2,2-Tetrachloroethane	3.091	3.039	E3	1.7	15
33	FREON-11	2.402	2.129	E3	11.4	20
35	FREON-12	3.502	4.011	E3	-14.5	20
36	FREON-113	8.613	6.977	E3	19.0	20
43	Freon-22	5.567	6.571	E3	-18.0	20

Evaluate Daily LCS Report

Data File : C:\HPCHEM\1\DATA\WOA6602.D
Acq On : 17 Mar 2004 2:04 pm
Sample : LCS 50NG
Misc : 17MAR04
MS Integration Params: rteint.p

Vial: 1
Operator: Raphe HGS
Inst : GC/MS Ins
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\N021304.M (RTE Integrator)
Title : 10
Last Update : Thu Mar 18 06:29:05 2004
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF		%Dev	AccRge
1	Vinyl Chloride	5.581	5.049	E3	9.5	25
2	Bromomethane	704.062	744.160		-5.7	25
3	Chloroethane	1.816	1.637	E3	9.9	25
4	1,1-Dichloroethene	7.951	7.523	E3	5.4	20
6	Methylene Chloride	7.468	7.362	E3	1.4	20
7	1,2-Dichloroethene (cis)	19.991	20.802	E3	-4.1	20
8	1,1-Dichloroethane	18.454	19.769	E3	-7.1	20
9	Chloroform	18.511	18.306	E3	1.1	20
10	1,2-Dichloroethane	13.761	14.140	E3	-2.8	20
12	1,1,1 Trichloroethane	14.161	12.369	E3	12.7	20
13	Carbon Tetrachloride	9.898	11.237	E3	-13.5	20
14	Benzene	22.832	21.439	E3	6.1	20
15	Trichloroethene	7.021	5.802	E3	17.4	20
16	1,2-Dichloropropane	17.862	19.769	E3	-10.7	20
17	Bromodichloromethane	8.250	6.733	E3	18.4	20
18	cis 1,3-Dichloropropene	9.654	7.877	E3	18.4	20
19	trans-1,3-Dichloropropene	7.467	6.764	E3	9.4	20
20	1,1,2-Trichloroethane	3.899	4.335	E3	-11.2	20
21	Dibromochloromethane	2.218	2.368	E3	-6.8	20
24	Toluene	10.860	12.252	E3	-12.8	20
25	Tetrachloroethene	1.386	1.420	E3	-2.5	20
27	Chlorobenzene	12.446	13.118	E3	-5.4	20
28	Ethylbenzene	13.367	11.293	E3	15.5	20
29	Xylene (total)	25.889	28.289	E3	-9.3	20
30	Styrene	13.288	14.183	E3	-6.7	20
31	1,1,1,2-Tetrachloroethane	5.840	4.889	E3	16.3	20
32	1,1,2,2-Tetrachloroethane	3.091	3.673	E3	-18.8	20
33	FREON-11	2.402	2.102	E3	12.5	25
35	FREON-12	3.502	2.957	E3	15.6	25
36	FREON-113	8.613	7.901	E3	8.3	25
43	Freon-22	5.567	4.936	E3	11.3	25
44	Freon-141B	8.171	6.550	E3	19.8	25

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\WOA6575.D
Acq On : 16 Mar 2004 11:15 am
Sample : STANDARD 50NG
Misc : 16MAR04
MS Integration Params: rteint.p

Vial: 1
Operator: Raphe HGS
Inst : GC/MS Ins
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\N021304.M (RTE Integrator)
Title : 10
Last Update : Tue Mar 16 11:39:57 2004
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF		%Dev	AccRge
1	Vinyl Chloride	5.581	5.333	E3	4.4	20
2	Bromomethane	704.062	835.260		-18.6	20
3	Chloroethane	1.816	2.102	E3	-15.7	20
4	1,1-Dichloroethene	7.951	8.319	E3	-4.6	15
6	Methylene Chloride	7.468	7.840	E3	-5.0	15
7	1,2-Dichloroethene (cis)	19.991	20.845	E3	-4.3	15
8	1,1-Dichloroethane	18.454	20.059	E3	-8.7	15
9	Chloroform	18.511	19.075	E3	-3.0	15
10	1,2-Dichloroethane	13.761	14.791	E3	-7.5	15
12	1,1,1-Trichloroethane	14.161	12.130	E3	14.3	15
13	Carbon Tetrachloride	9.898	9.478	E3	4.2	15
14	Benzene	22.832	23.325	E3	-2.2	15
15	Trichloroethene	7.021	6.164	E3	12.2	15
16	1,2-Dichloropropane	17.862	20.059	E3	-12.3	15
17	Bromodichloromethane	8.250	8.839	E3	-7.1	15
18	cis-1,3-Dichloropropene	9.654	9.280	E3	3.9	15
19	trans-1,3-Dichloropropene	7.467	6.355	E3	14.9	15
20	1,1,2-Trichloroethane	3.899	4.796	E3	-23.0	15
21	Dibromochloromethane	2.218	2.363	E3	-6.5	15
24	Toluene	10.860	12.090	E3	-11.3	15
25	Tetrachloroethene	1.386	1.250	E3	9.8	15
27	Chlorobenzene	12.446	12.418	E3	0.2	15
28	Ethylbenzene	13.367	12.510	E3	6.4	15
29	Xylene (total)	25.889	23.274	E3	10.1	15
30	Styrene	13.288	13.926	E3	-4.8	15
31	1,1,1,2-Tetrachloroethane	5.840	5.513	E3	5.6	15
32	1,1,2,2-Tetrachloroethane	3.091	3.527	E3	-14.1	15
33	FREON-11	2.402	2.128	E3	11.4	20
35	FREON-12	3.502	3.704	E3	-5.8	20
36	FREON-113	8.613	9.164	E3	-6.4	20
43	Freon-22	5.567	4.508	E3	19.0	20

Evaluate Daily LCS Report

Data File : C:\HPCHEM\1\DATA\WOA6591.D
Acq On : 16 Mar 2004 5:47 pm
Sample : LCS 50NG
Misc : 16MAR04
MS Integration Params: rteint.p

Vial: 1
Operator: Raphe HGS
Inst : GC/MS Ins
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\N021304.M (RTE Integrator)
Title : 10
Last Update : Tue Mar 16 18:12:57 2004
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 25% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF		%Dev	AccRge
1	Vinyl Chloride	5.581	4.945	E3	11.4	25
2	Bromomethane	704.062	786.480		-11.7	25
3	Chloroethane	1.816	1.560	E3	14.1	25
4	1,1-Dichloroethene	7.951	8.549	E3	-7.5	20
6	Methylene Chloride	7.468	8.262	E3	-10.6	20
7	1,2-Dichloroethene (cis)	19.991	22.304	E3	-11.6	20
8	1,1-Dichloroethane	18.454	20.760	E3	-12.5	20
9	Chloroform	18.511	20.712	E3	-11.9	20
10	1,2-Dichloroethane	13.761	14.557	E3	-5.8	20
12	1,1,1-Trichloroethane	14.161	11.755	E3	17.0	20
13	Carbon Tetrachloride	9.898	7.924	E3	19.9	20
14	Benzene	22.832	25.020	E3	-9.6	20
15	Trichloroethene	7.021	6.050	E3	13.8	20
16	1,2-Dichloropropane	17.862	20.477	E3	-14.6	20
17	Bromodichloromethane	8.250	6.790	E3	17.7	20
18	cis-1,3-Dichloropropene	9.654	8.380	E3	13.2	20
19	trans-1,3-Dichloropropene	7.467	6.227	E3	16.6	20
20	1,1,2-Trichloroethane	3.899	3.644	E3	6.5	20
21	Dibromochloromethane	2.218	1.890	E3	14.8	20
24	Toluene	10.860	11.780	E3	-8.5	20
25	Tetrachloroethene	1.386	1.583	E3	-14.2	20
27	Chlorobenzene	12.446	13.117	E3	-5.4	20
28	Ethylbenzene	13.367	13.054	E3	2.3	20
29	Xylene (total)	25.889	22.307	E3	13.8	20
30	Styrene	13.288	13.434	E3	-1.1	20
31	1,1,1,2-Tetrachloroethane	5.840	5.431	E3	7.0	20
32	1,1,2,2-Tetrachloroethane	3.091	3.407	E3	-10.2	20
33	FREON-11	2.402	2.523	E3	-5.0	25
35	FREON-12	3.502	3.184	E3	9.1	25
36	FREON-113	8.613	9.649	E3	-12.0	25
43	Freon-22	5.567	5.391	E3	3.2	25

INITIAL CALIBRATION BY FULL SCAN MASS SPEC

LAB NAME: HydroGeoSpectrum DATE: Dec 1, 2003

ANALYST: Raphe Pavlick STD LOT#:ULTRA T0065 INSTRUMENT ID:2415A8201

Calibration Files
1500 =VOD9647.D 500 =VOD9648.D 100 =VOD9649.D
20 =VOD9650.D 5 =VOD9651.D

		Compound	1500	500	100	20	5	Avg		%RSD	AccRge
1)		Vinyl Chloride		2.363	2.811	2.938	2.050	2.540	E3	16.13	30
2)		Bromomethane	7.096	6.199	7.824	7.726	6.024	6.974	E2	12.01	30
3)		Chloroethane	2.318	2.221	2.447	2.683	2.276	2.389	E3	7.71	30
4)		1,1-Dichloroethene	3.789	3.911	4.126	4.571	3.468	3.973	E3	10.33	20
5)		Acetone	7.081	7.818	8.683	8.011	7.454	7.809	E2	7.74	20
6)		Methylene Chloride	3.632	4.032	4.440	4.859	3.249	4.042	E3	15.76	20
7)		1,2-Dichloroethene (t	0.746	0.893	0.964	1.072	0.702	0.876	E4	17.49	20
8)		1,1-Dichloroethane	6.550	7.507	8.360	9.025	6.190	7.526	E3	15.84	20
9)		Chloroform	6.617	8.207	9.623	8.224	6.580	7.850	E3	16.29	20
10)		1,2-Dichloroethane	4.000	4.967	6.047	5.903	3.980	4.979	E3	19.96	20
11)		2-Butanone	1.985	2.764	3.259	2.781		2.697	E3	19.55	20
12)		1,1,1-Trichloroethane	6.317	7.435	9.167	8.650	6.091	7.532	E3	18.16	20
13)		Carbon Tetrachloride	6.457	7.531	8.829	8.526	5.755	7.420	E3	17.73	20
14)		Benzene	0.848	1.080	1.222	1.206	1.002	1.072	E4	14.45	20
15)		Trichloroethene	4.407	5.865	6.501	6.811	5.004	5.717	E3	17.61	20
16)		1,2-Dichloropropane	3.518	4.681	5.158	4.925	4.114	4.479	E3	14.80	20
17)		Bromodichloromethane	6.077	7.971	8.563	8.272	7.055	7.588	E3	13.39	20
18)		cis-1,3-Dichloroprope	5.409	7.365	8.353	7.768	7.593	7.298	E3	15.31	20
19)		trans-1,3-Dichloropro	4.278	6.215	7.208	5.429	5.430	5.712	E3	18.99	20
20)		1,1,2-Trichloroethane	2.723	3.603	3.665	4.174	3.312	3.495	E3	15.21	20
21)		Dibromochloromethane	5.276	7.541	8.562	8.042	6.306	7.145	E3	18.73	20
22)		Bromoform	6.028	7.689	8.835	7.984	5.856	7.278	E3	17.76	20
23)		4-Methyl-2-Pentanone	0.661	0.914	1.059	0.826	0.794	0.851	E4	17.37	20
24)		Toluene	6.087	8.226	9.214	8.313	7.820	7.932	E3	14.50	20
25)		Tetrachloroethene	3.440	5.024	5.901	4.842	4.659	4.773	E3	18.53	20
26)		2-Hexanone	0.661	0.914	1.050	0.908	0.794	0.865	E4	16.87	20
27)		Chlorobenzene	0.794	1.072	1.272	1.181	0.927	1.049	E4	18.30	20
28)		Ethylbenzene	3.946	5.298	6.369	5.774	4.643	5.206	E3	18.20	20
29)		Xylene (total)	1.361	1.829	2.071	1.785	1.489	1.707	E4	16.60	20
30)		Styrene	0.862	1.101	1.242	1.144	0.900	1.050	E4	15.51	20
31)		1,1,1,2-Tetrachloroet	4.560	6.467	7.574	7.267	6.007	6.375	E3	18.68	20
32)		1,1,2,2-Tetrachloroet	0.683	0.895	1.066	0.835	0.717	0.839	E4	18.29	20
33)		FREON-11	0.947	0.958	1.091	1.101	0.732	0.966	E4	15.45	30
34)	S	Deutero-chloroform		1.747	1.562	1.671		1.660	E3	5.62	25
35)		FREON-12		2.469	4.061	3.557	2.474	3.140	E3	25.46	30
36)		FREON-113	0.834	0.883	1.008	1.090	0.712	0.905	E4	16.33	30
37)	G	LIGHT HYDROCARBONS		7.231	7.276	8.101		7.536	E3	6.50	20
38)	G	HYDROCARBONS		6.079	5.487	5.681		5.749	E3	5.26	20
39)	s	D6-BENZENE		3.988	3.561	3.898		3.816	E3	5.90	25
41)	S	D6-ACETONE		2.000	1.787	1.749		1.846	E3	7.32	25
42)	S	D2-Dichloromethane		1.154	1.087	1.055		1.098	E3	4.61	25
43)		Freon-22	3.606	3.071	3.584	3.993	2.675	3.386	E3	15.21	30
44)		Freon-141B	0.818	0.870	0.932	1.028	0.695	0.869	E4	14.37	30
53)	S	D8-TOLUENE		3.314	2.457	3.344		3.039	E3	16.57	25

Evaluate INITIAL LCS Report

Data File : C:\HPCHEM\1\DATA\VOD9653.D
Acq On : 1 Dec 2003 2:12 pm
Sample : LCS 50NG
Misc : INITIAL 01DEC03
MS Integration Params: rteint.p

Vial: 1
Operator: Raphe HGS
Inst : GC/MS Ins
Multiplr: 1.00

Method : C:\HPCHEM\1\METHODS\120103.M (RTE Integrator)
Title : FULL SCAN
Last Update : Wed Dec 03 09:40:14 2003
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF		%Dev	AccRge
1	Vinyl Chloride	2.540	3.025	E3	-19.1	20
2	Bromomethane	697.366	579.160		17.0	20
3	Chloroethane	2.389	2.603	E3	-9.0	20
4	1,1-Dichloroethene	3.973	4.288	E3	-7.9	15
5	Acetone	780.942	698.720		10.5	15
6	Methylene Chloride	4.042	4.507	E3	-11.5	15
7	1,2-Dichloroethene (total)	8.756	8.942	E3	-2.1	15
8	1,1-Dichloroethane	7.526	8.418	E3	-11.9	15
9	Chloroform	7.850	8.969	E3	-14.3	15
10	1,2-Dichloroethane	4.979	5.476	E3	-10.0	15
11	2-Butanone	2.697	2.908	E3	-7.8	15
12	1,1,1-Trichloroethane	7.532	7.927	E3	-5.2	15
13	Carbon Tetrachloride	7.420	7.790	E3	-5.0	15
14	Benzene	10.717	11.066	E3	-3.3	15
15	Trichloroethene	5.717	6.346	E3	-11.0	15
16	1,2-Dichloropropane	4.479	4.852	E3	-8.3	15
17	Bromodichloromethane	7.588	7.852	E3	-3.5	15
18	cis-1,3-Dichloropropene	7.298	7.683	E3	-5.3	15
19	trans-1,3-Dichloropropene	5.712	5.037	E3	11.8	15
20	1,1,2-Trichloroethane	3.495	3.528	E3	-0.9	15
21	Dibromochloromethane	7.145	7.580	E3	-6.1	15
22	Bromoform	7.278	7.835	E3	-7.7	15
23	4-Methyl-2-Pentanone	8.506	7.753	E3	8.9	15
24	Toluene	7.932	8.615	E3	-8.6	15
25	Tetrachloroethene	4.773	5.076	E3	-6.3	15
26	2-Hexanone	8.653	8.921	E3	-3.1	15
27	Chlorobenzene	10.493	11.386	E3	-8.5	15
28	Ethylbenzene	5.206	5.214	E3	-0.2	15
29	Xylene (total)	17.071	18.136	E3	-6.2	15
30	Styrene	10.497	11.306	E3	-7.7	15
31	1,1,1,2-Tetrachloroethane	6.375	6.824	E3	-7.0	15
32	1,1,2,2-Tetrachloroethane	8.392	8.062	E3	3.9	15
33	FREON-11	9.657	9.588	E3	0.7	20
35	FREON-12	3.140	2.929	E3	6.7	20
36	FREON-113	9.055	9.664	E3	-6.7	20
43	Freon-22	3.386	3.114	E3	8.0	20
44	Freon-141B	8.687	9.033	E3	-4.0	20

Evaluate Continuing Calibration Report

Data File : C:\HPCHEM\1\DATA\VOE0209.D Vial: 1
Acq On : 16 Mar 2004 11:12 am Operator: Raphe HGS
Sample : STANDARD 50NG Inst : GC/MS Ins
Misc : 16MAR04 Multiplr: 1.00
MS Integration Params: rteint.p

Method : C:\HPCHEM\1\METHODS\120103.M (RTE Integrator)
Title : FULL SCAN
Last Update : Tue Mar 16 12:29:36 2004
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

	Compound	AvgRF	CCRF		%Dev	AccRge
1	Vinyl Chloride	2.540	2.222	E3	12.5	20
2	Bromomethane	697.366	735.400		5.5	20
3	Chloroethane	2.389	2.561	E3	7.2	20
4	1,1-Dichloroethene	3.973	3.639	E3	8.4	15
5	Acetone	780.942	736.700		5.7	15
6	Methylene Chloride	4.042	4.064	E3	-0.5	15
7	1,2-Dichloroethene (total)	8.756	9.384	E3	-7.2	15
8	1,1-Dichloroethane	7.526	7.453	E3	1.0	15
9	Chloroform	7.850	8.475	E3	-8.0	15
10	1,2-Dichloroethane	4.979	4.987	E3	-0.2	15
11	2-Butanone	2.697	2.862	E3	-6.1	15
12	1,1,1-Trichloroethane	7.532	7.699	E3	-2.2	15
13	Carbon Tetrachloride	7.420	7.471	E3	-0.7	15
14	Benzene	10.717	11.613	E3	-8.4	15
15	Trichloroethene	5.717	6.256	E3	-9.4	15
16	1,2-Dichloropropane	4.479	4.997	E3	-11.6	15
17	Bromodichloromethane	7.588	8.261	E3	-8.9	15
18	cis-1,3 Dichloropropene	7.298	7.630	E3	-4.5	15
19	trans-1,3 Dichloropropene	5.712	6.368	E3	-11.5	15
20	1,1,2 Trichloroethane	3.495	3.478	E3	0.5	15
21	Dibromochloromethane	7.145	7.289	E3	-2.0	15
22	Bromoform	7.278	8.010	E3	-10.1	15
23	4-Methyl-2-Pentanone	8.506	8.502	E3	0.0	15
24	Toluene	7.932	8.733	E3	-10.1	15
25	Tetrachloroethene	4.773	5.487	E3	-15.0	15
26	2-Hexanone	8.653	8.903	E3	-2.9	15
27	Chlorobenzene	10.493	11.291	E3	-7.6	15
28	Ethylbenzene	5.206	5.286	E3	-1.5	15
29	Xylene (total)	17.071	15.308	E3	10.3	15
30	Styrene	10.497	9.006	E3	14.2	15
31	1,1,1,2-Tetrachloroethane	6.375	7.057	E3	-10.7	15
32	1,1,2,2-Tetrachloroethane	8.392	9.107	E3	-8.5	15
33	FREON-11	9.657	9.426	E3	2.4	20
35	FREON-12	3.140	2.783	E3	11.4	20
36	FREON-113	9.055	9.069	E3	-0.2	20
43	Freon-22	3.386	2.980	E3	12.0	20
44	Freon-141B	8.687	8.297	E3	4.5	20

Evaluate Daily LCS Report

Data File : C:\HPCHEM\1\DATA\VOE0229.D
Acq On : 16 Mar 2004 5:38 pm
Sample : LCS 50NG
Misc : 16MAR04
MS Integration Params: rteint.p

Vial: 1
Operator: Raphe HGS
Inst : GC/MS Ins
Multiplr: 1.00

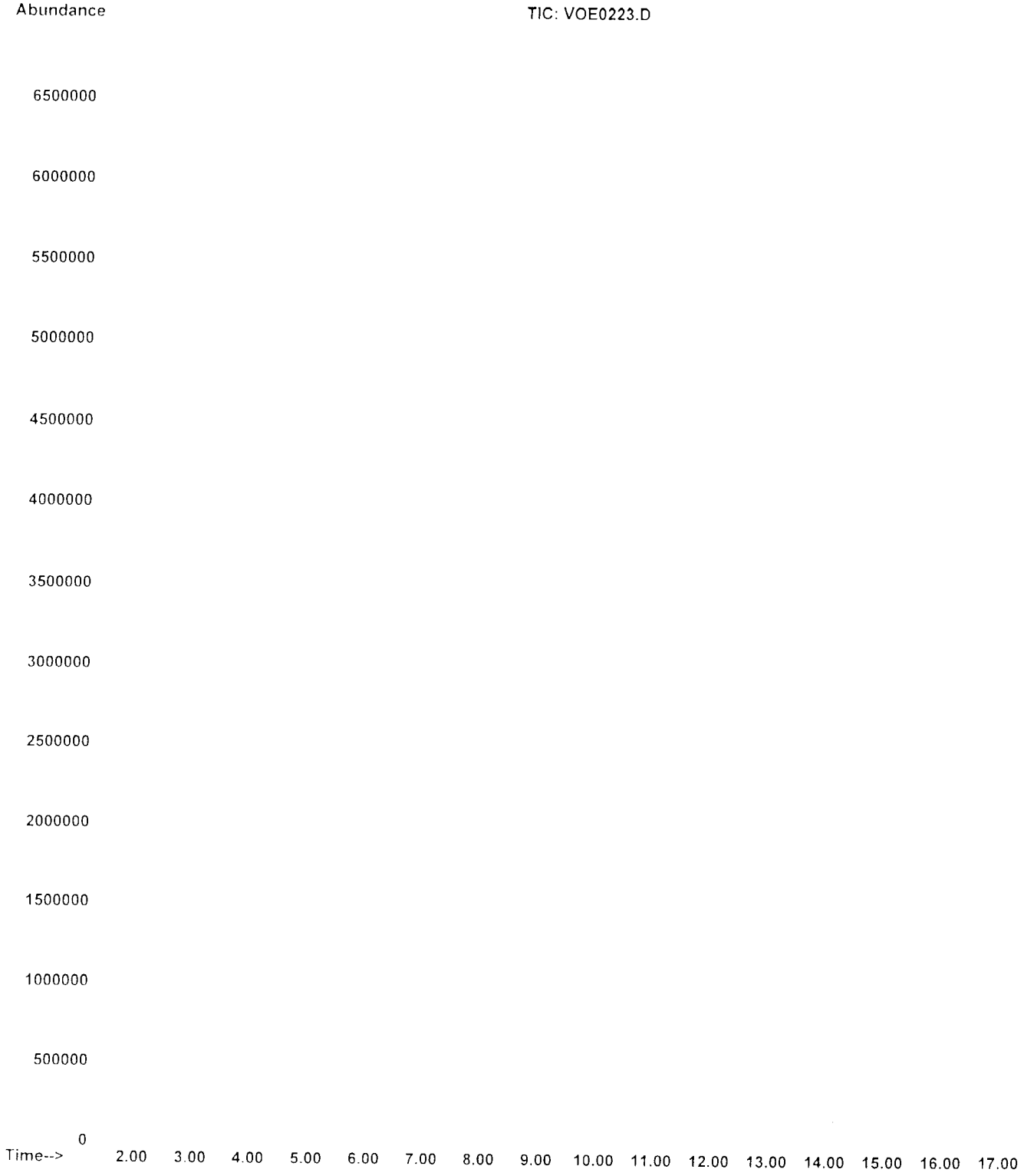
Method : C:\HPCHEM\1\METHODS\120103.M (RTE Integrator)
Title : FULL SCAN
Last Update : Tue Mar 16 18:05:21 2004
Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min
Max. RRF Dev : 15% Max. Rel. Area : 150%

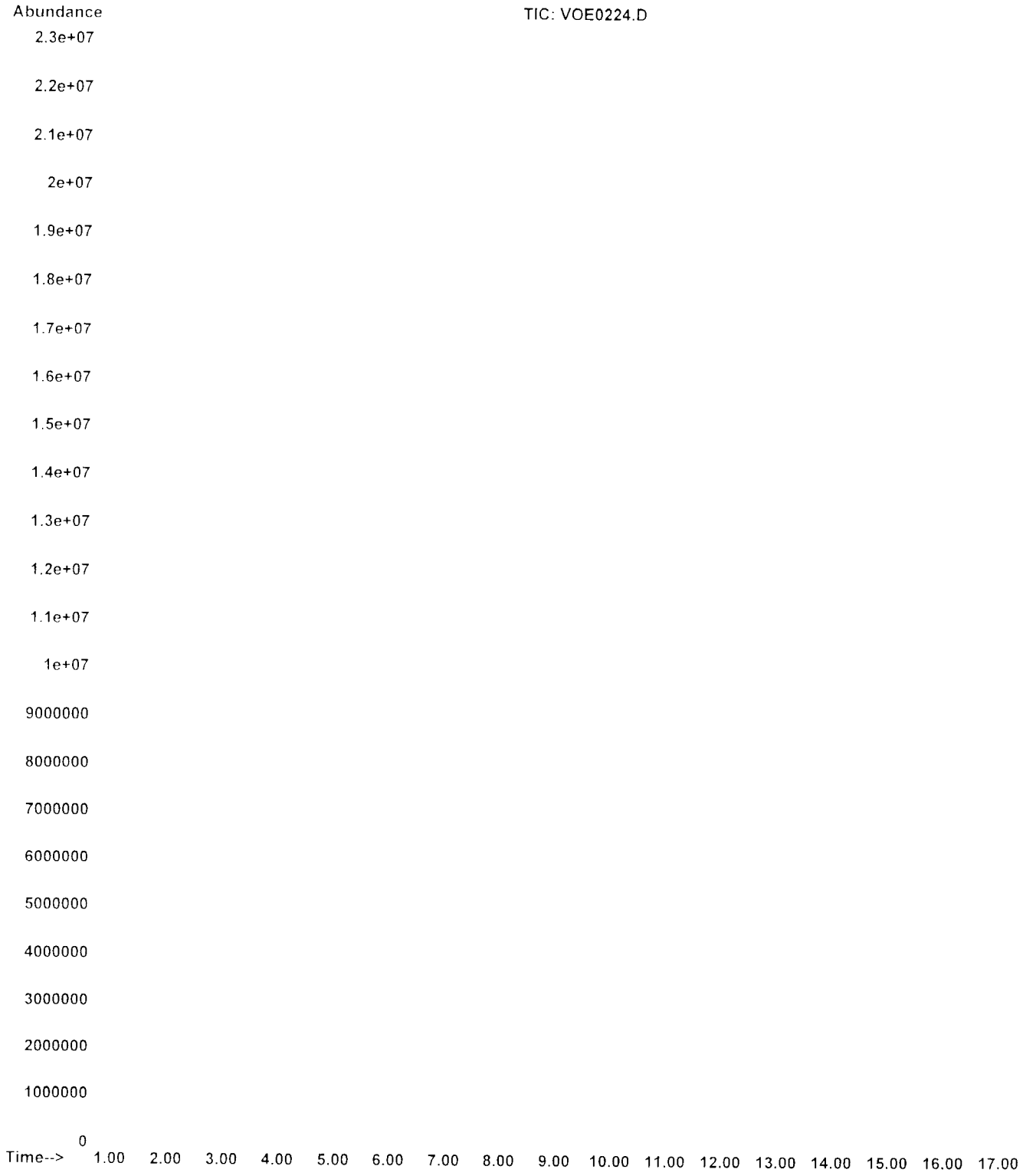
	Compound	AvgRF	CCRF		%Dev	AccRge
1	Vinyl Chloride	2.540	2.191	E3	13.7	25
2	Bromomethane	697.366	788.560		-13.1	25
3	Chloroethane	2.389	2.381	E3	0.3	25
4	1,1 Dichloroethene	3.973	3.466	E3	12.8	20
6	Methylene Chloride	4.042	3.986	E3	1.4	20
7	1,2-Dichloroethene (total)	8.756	7.540	E3	13.9	20
8	1,1-Dichloroethane	7.526	6.775	E3	10.0	20
9	Chloroform	7.850	7.712	E3	1.8	20
10	1,2-Dichloroethane	4.979	4.035	E3	19.0	20
12	1,1,1-Trichloroethane	7.532	6.056	E3	19.6	20
13	Carbon Tetrachloride	7.420	6.080	E3	18.1	20
14	Benzene	10.717	9.775	E3	8.8	20
15	Trichloroethene	5.717	5.383	E3	5.8	20
16	1,2-Dichloropropane	4.479	3.899	E3	12.9	20
17	Bromodichloromethane	7.588	6.399	E3	15.7	20
18	cis-1,3-Dichloropropene	7.298	6.426	E3	11.9	20
19	trans-1,3-Dichloropropene	5.712	5.904	E3	-3.4	20
20	1,1,2-Trichloroethane	3.495	3.098	E3	11.4	20
21	Dibromochloromethane	7.145	6.061	E3	15.2	20
24	Toluene	7.932	6.874	E3	13.3	20
25	Tetrachloroethene	4.773	5.563	E3	-16.6	20
27	Chlorobenzene	10.493	9.252	E3	11.8	20
28	Ethylbenzene	5.206	4.715	E3	9.4	20
29	Xylene (total)	17.071	17.574	E3	-2.9	20
30	Styrene	10.497	10.643	E3	-1.4	20
31	1,1,1,2-Tetrachloroethane	6.375	5.140	E3	19.4	20
32	1,1,2,2-Tetrachloroethane	8.392	7.385	E3	12.0	20
33	FREON-11	9.657	7.798	E3	19.3	25
35	FREON-12	3.140	2.770	E3	11.8	25
36	FREON-113	9.055	6.952	E3	23.2	25
43	Freon-22	3.386	3.944	E3	-16.5	25
44	Freon-141B	8.687	7.145	E3	17.8	25

Chromatograms

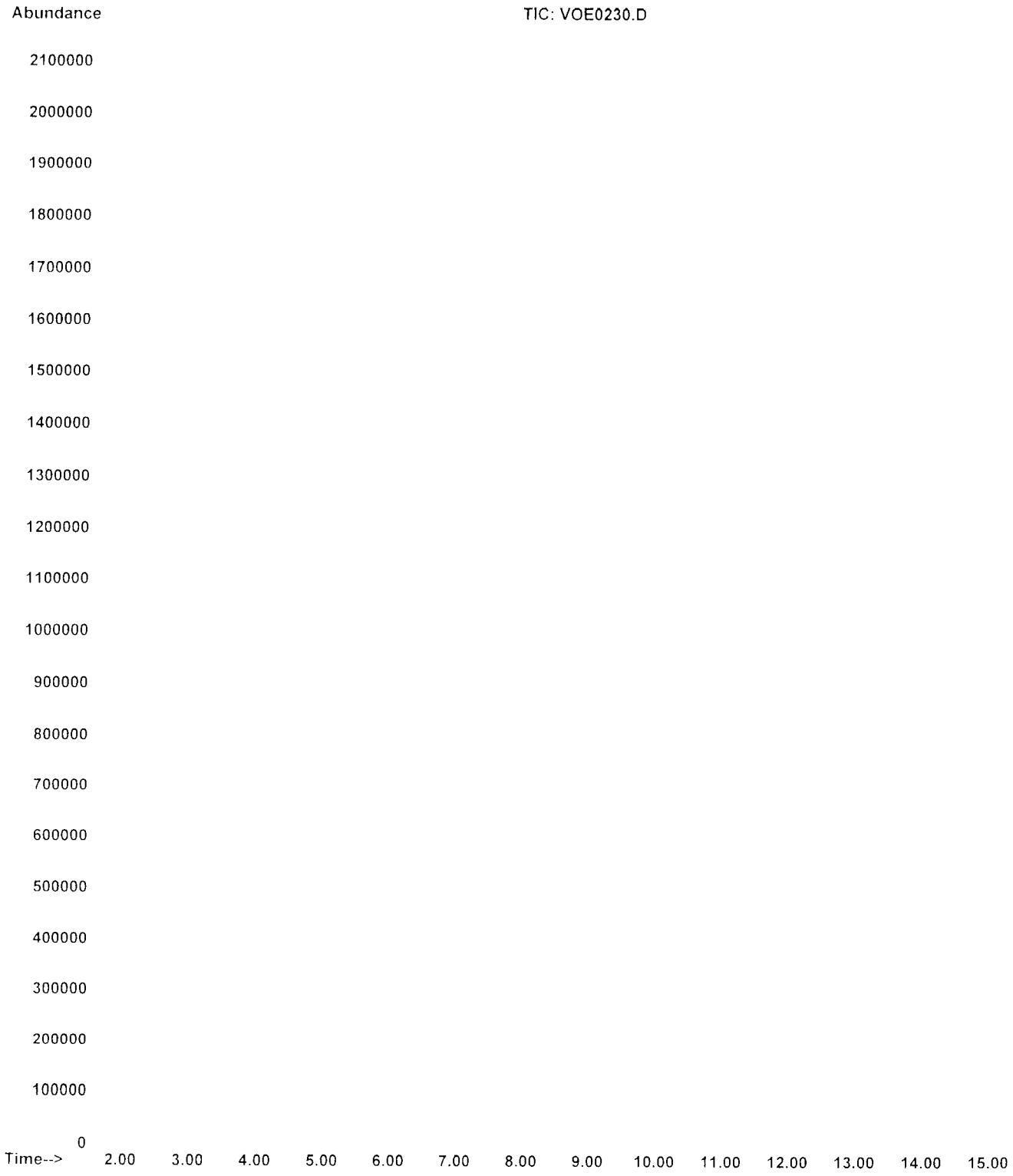
File : C:\HPCHEM\1\DATA\VOE0223.D
Operator : Raphe HGS
Acquired : 16 Mar 2004 2:58 pm using AcqMethod 120103
Instrument : GC/MS Ins
Sample Name: FP2-17251-5
Misc Info : SFS/FERO 16MAR04 1354 F1
Vial Number: 1



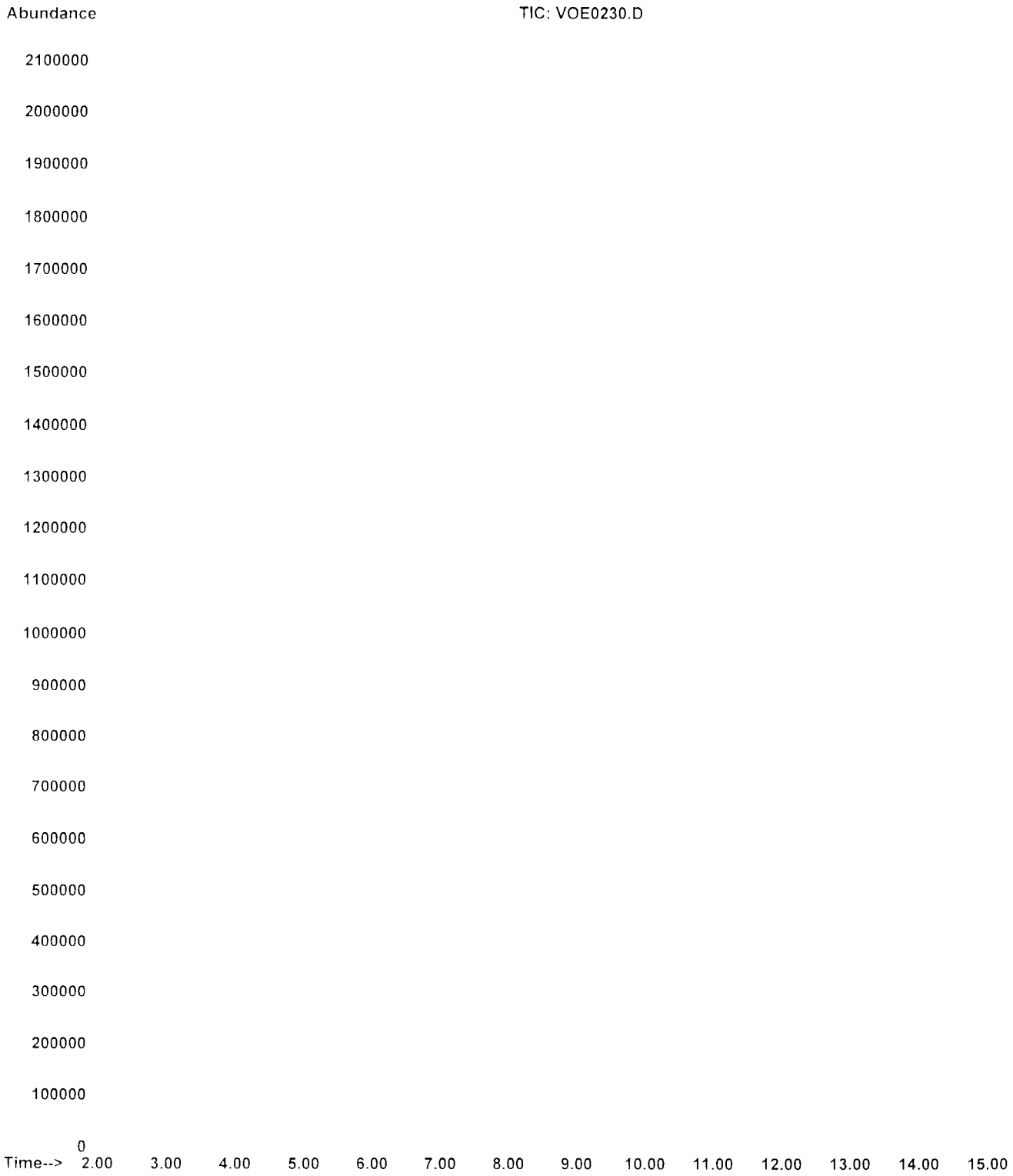
File : C:\HPCHEM\1\DATA\VOE0224.D
Operator : Raphe HGS
Acquired : 16 Mar 2004 3:22 pm using AcqMethod 120103
Instrument : GC/MS Ins
Sample Name: FP1-17252-15 P3
Misc Info : SFS/FERO 16MAR04 1337 H8
Vial Number: 1



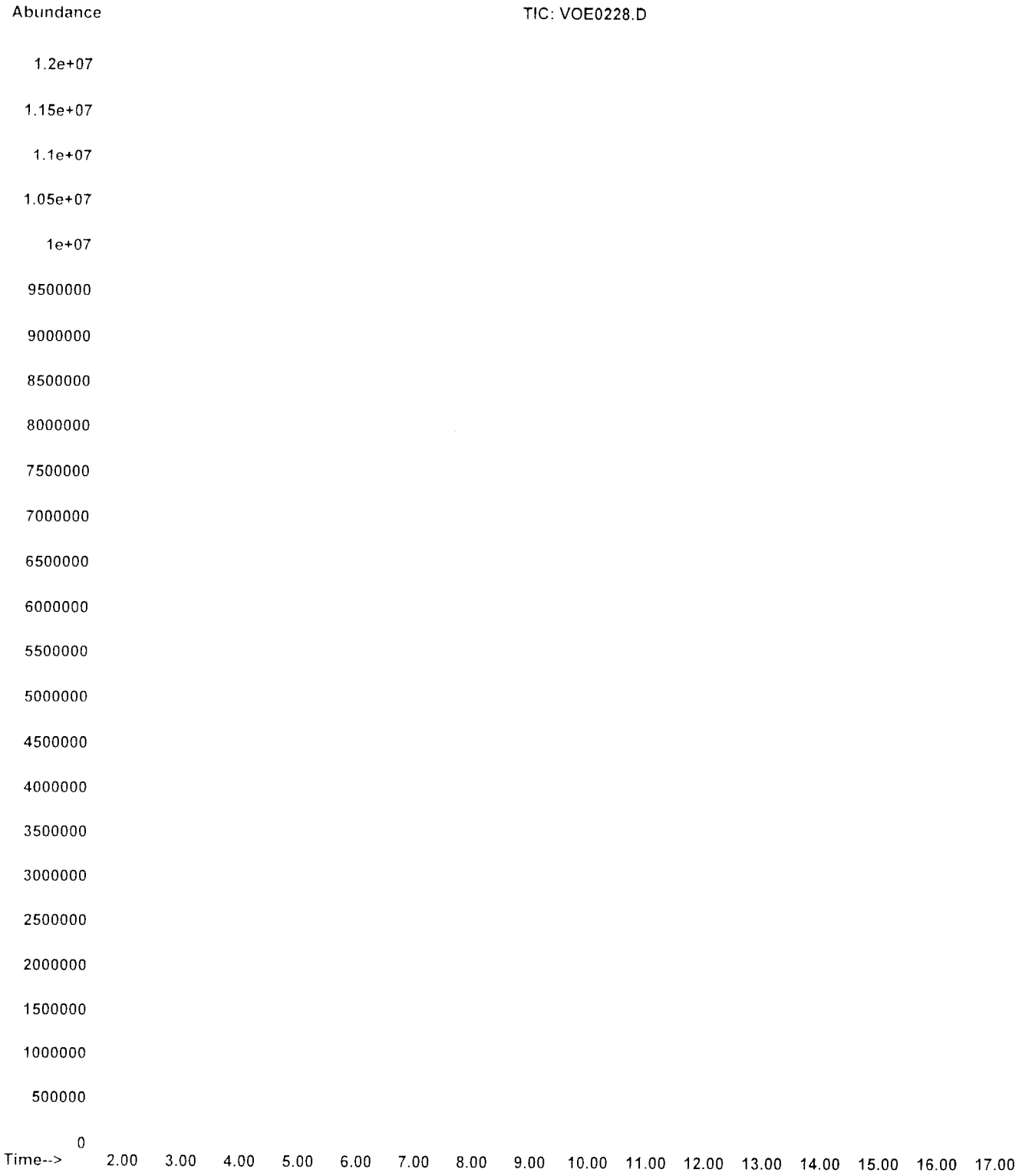
File : C:\HPCHEM\1\DATA\VOE0230.D
Operator : Raphe HGS
Acquired : 16 Mar 2004 4:30 pm using AcqMethod 120103
Instrument : GC/MS Ins
Sample Name: FP1-17258-5 DF5
Misc Info : SFS/FERO 16MAR04 1410 N2
Vial Number: 1



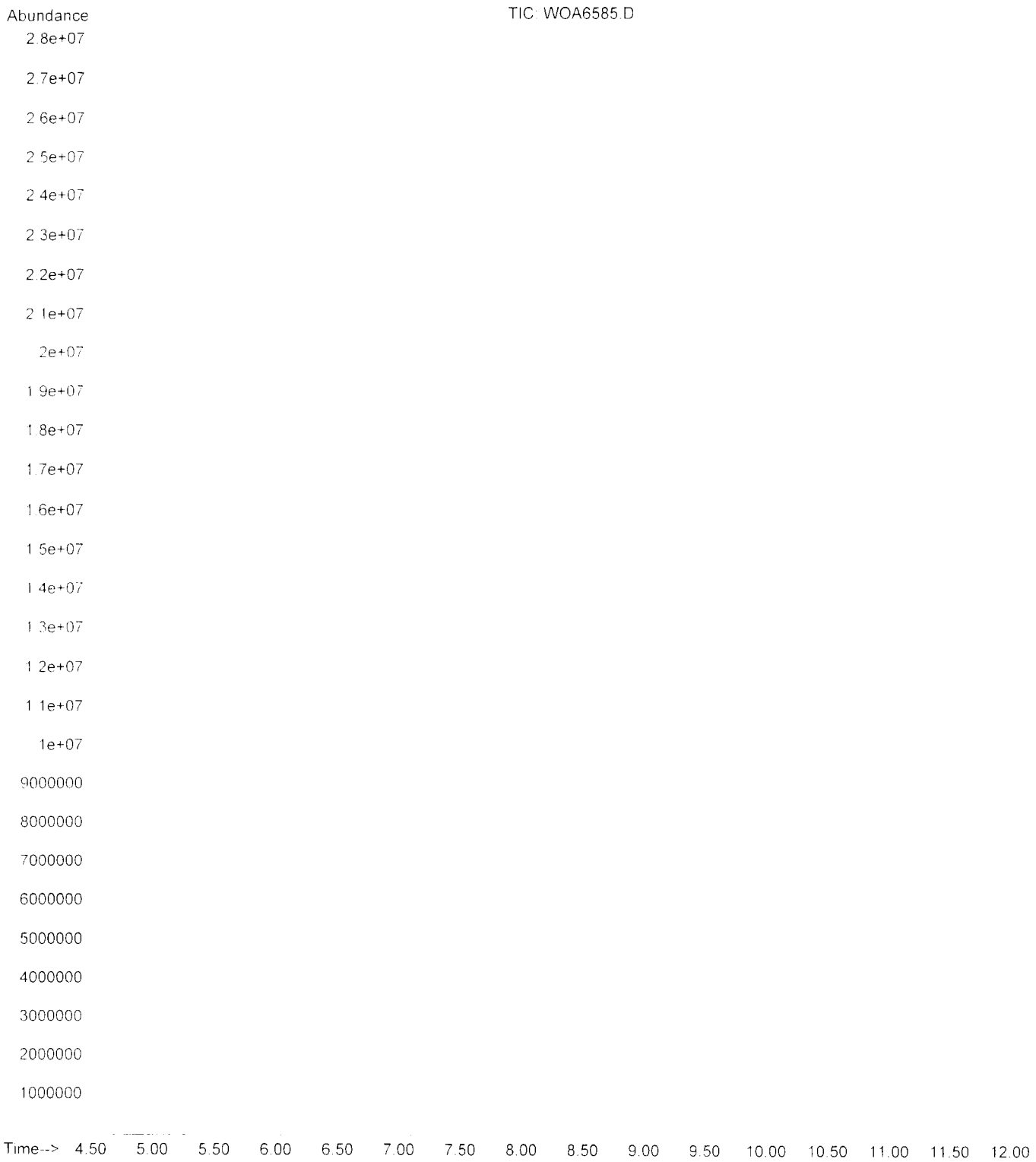
File : C:\HPCHEM\1\DATA\VOE0230.D
Operator : Raphe HGS
Acquired : 16 Mar 2004 4:30 pm using AcqMethod 120103
Instrument : GC/MS Ins
Sample Name: FP1-17258-5 DF10
Misc Info : SFS/FERO 16MAR04 1410 N2
Vial Number: 1



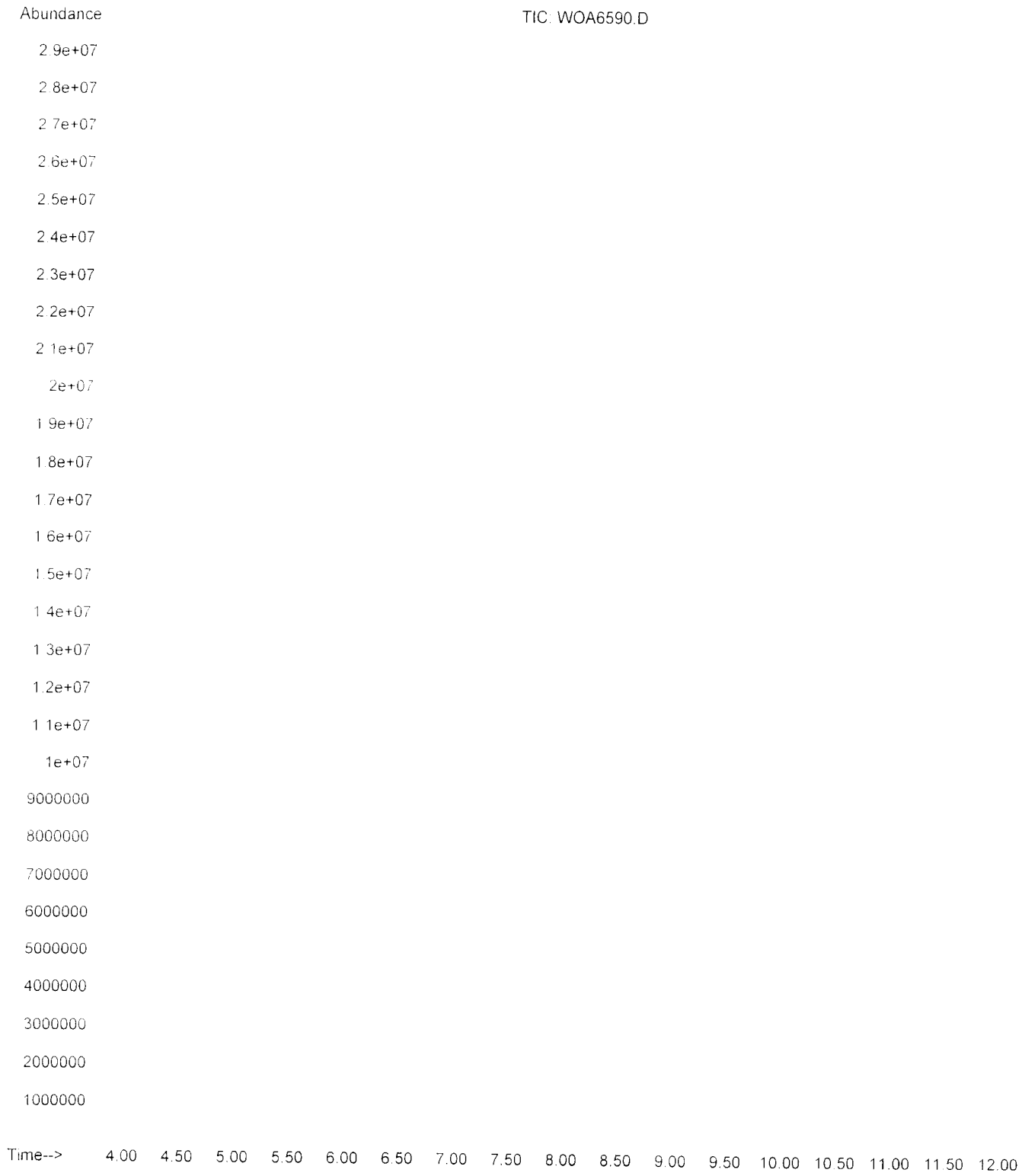
File : C:\HPCHEM\1\DATA\VOE0228.D
Operator : Raphe HGS
Acquired : 16 Mar 2004 5:14 pm using AcqMethod 120103
Instrument : GC/MS Ins
Sample Name: FP2-17256-60
Misc Info : SFS/FERO 16MAR04 1356 X6
Vial Number: 1



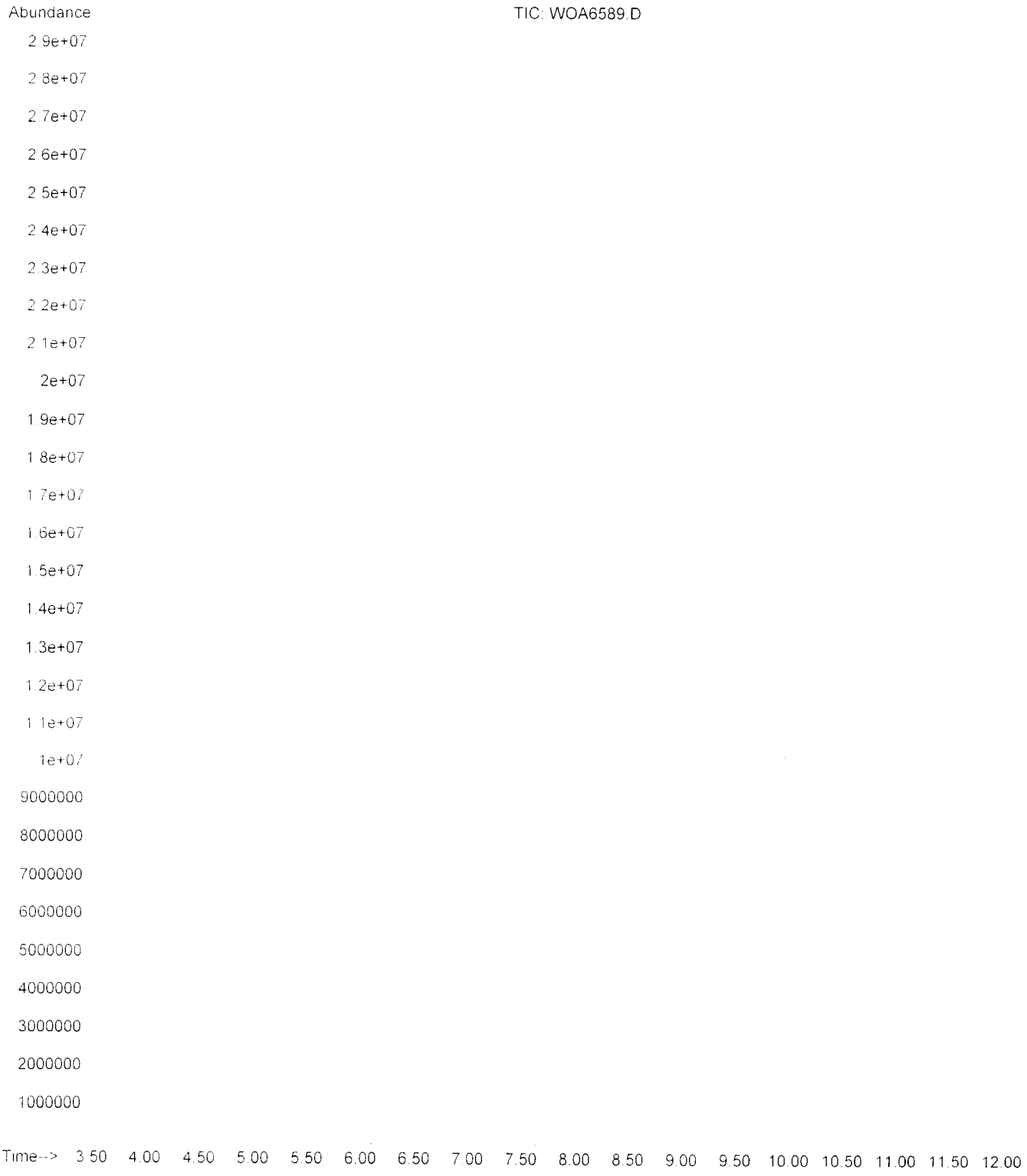
File : C:\HPCHEM\1\DATA\WOA6585.D
Operator : Raphe HGS
Acquired : 16 Mar 2004 3:42 pm using AcqMethod N021304
Instrument : GC/MS Ins
Sample Name: FP1-04222-5
Misc Info : SFS/FERO 16MAR04 1410 N2
Vial Number: 1



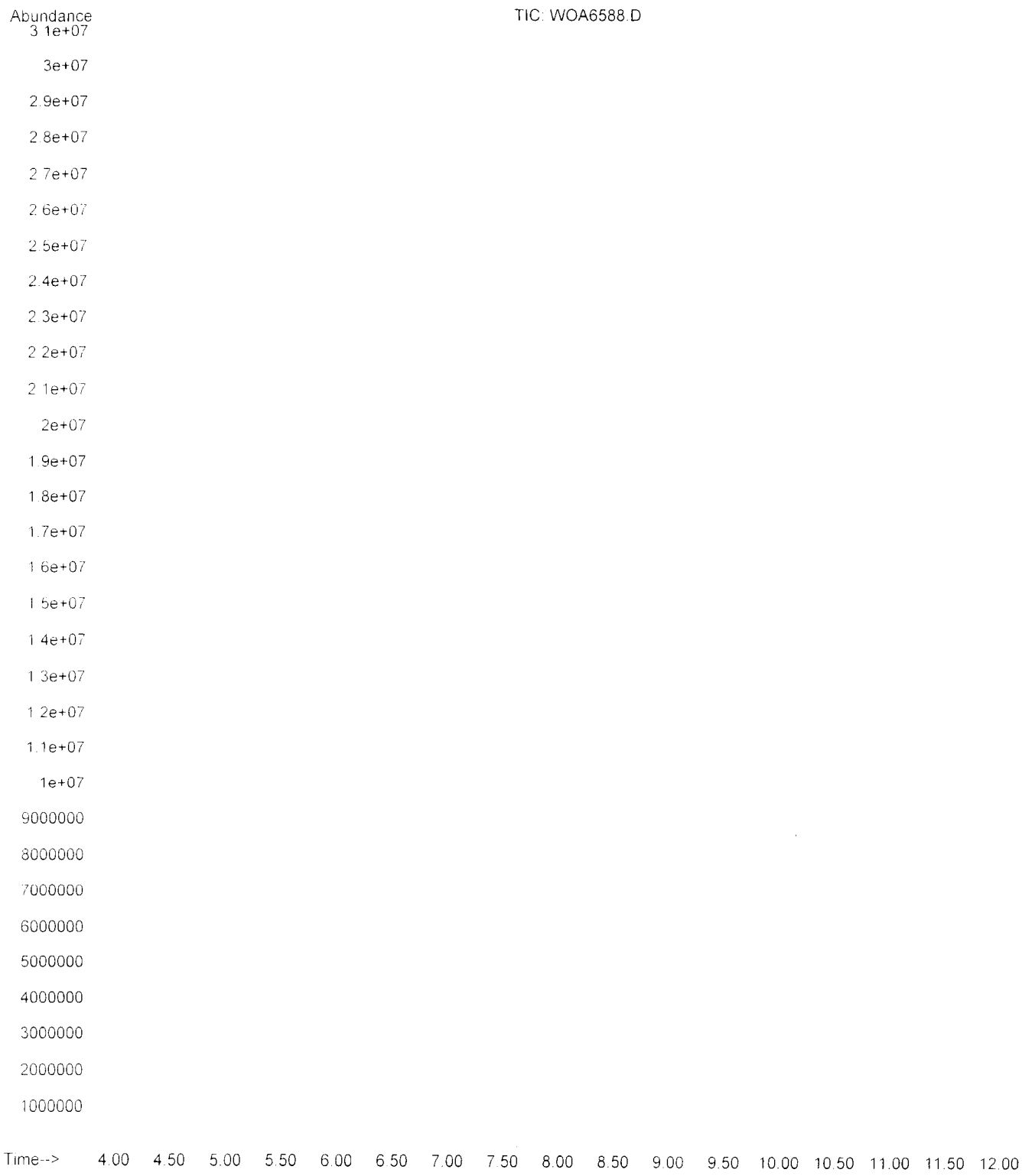
File : C:\HPCHEM\1\DATA\WOA6590.D
Operator : Raphe HGS
Acquired : 16 Mar 2004 5:25 pm using AcqMethod N021304
Instrument : GC/MS Ins
Sample Name: FP2-04227-45
Misc Info : SFS/FERO 16MAR04 1355 S1
Vial Number: 1



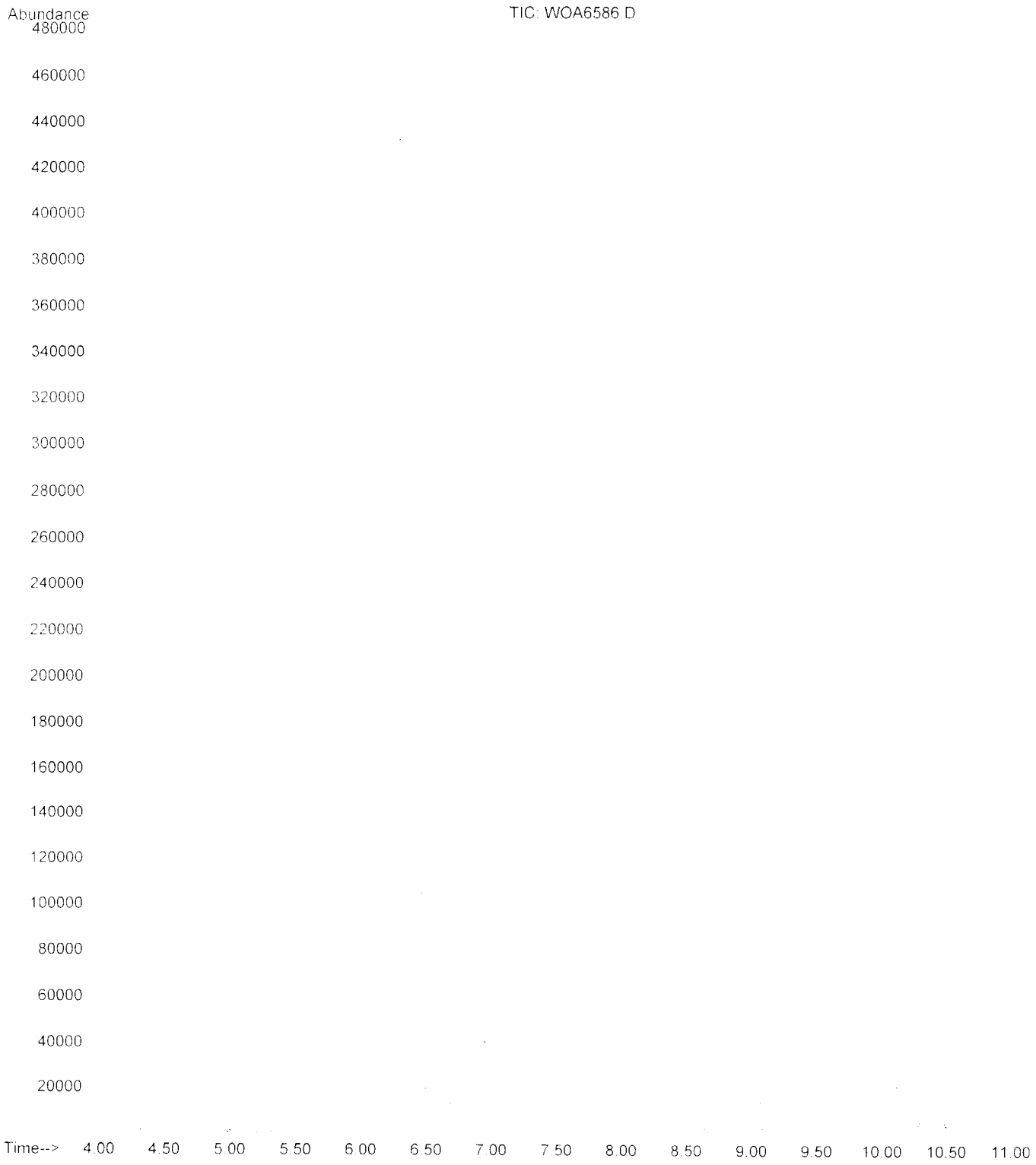
File : C:\HPCHEM\1\DATA\WOA6589.D
Operator : Raphe HGS
Acquired : 16 Mar 2004 5:07 pm using AcqMethod N021304
Instrument : GC/MS Ins
Sample Name: FP1-04226-60
Misc Info : SFS/FERO 16MAR04 1358 A13
Vial Number: 1



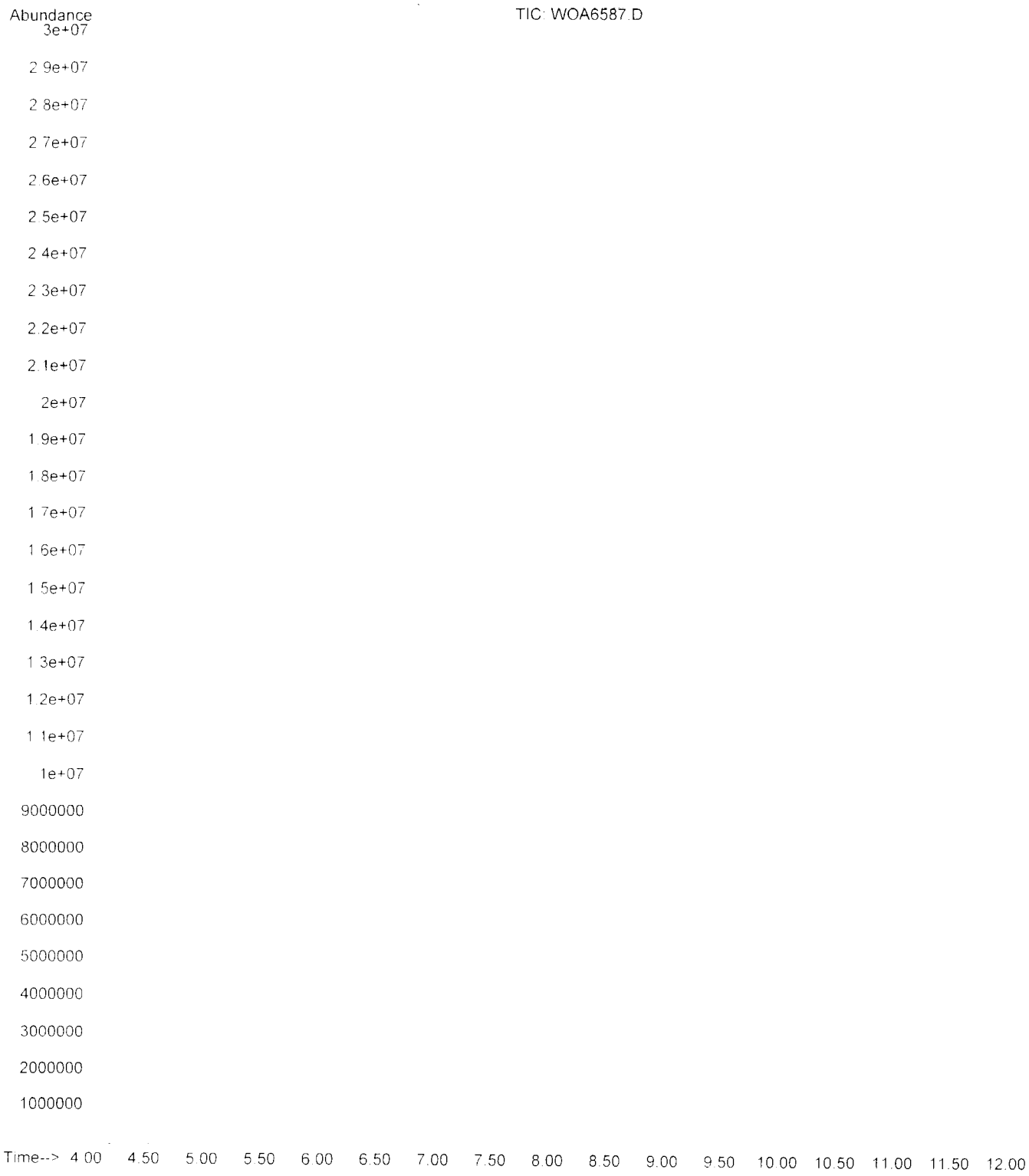
File : C:\HPCHEM\1\DATA\WOA6588.D
Operator : Raphe HGS
Acquired : 16 Mar 2004 4:47 pm using AcqMethod N021304
Instrument : GC/MS Ins
Sample Name: FP1-04225-45
Misc Info : SFS/FERO 16MAR04 1419 A16
Vial Number: 1



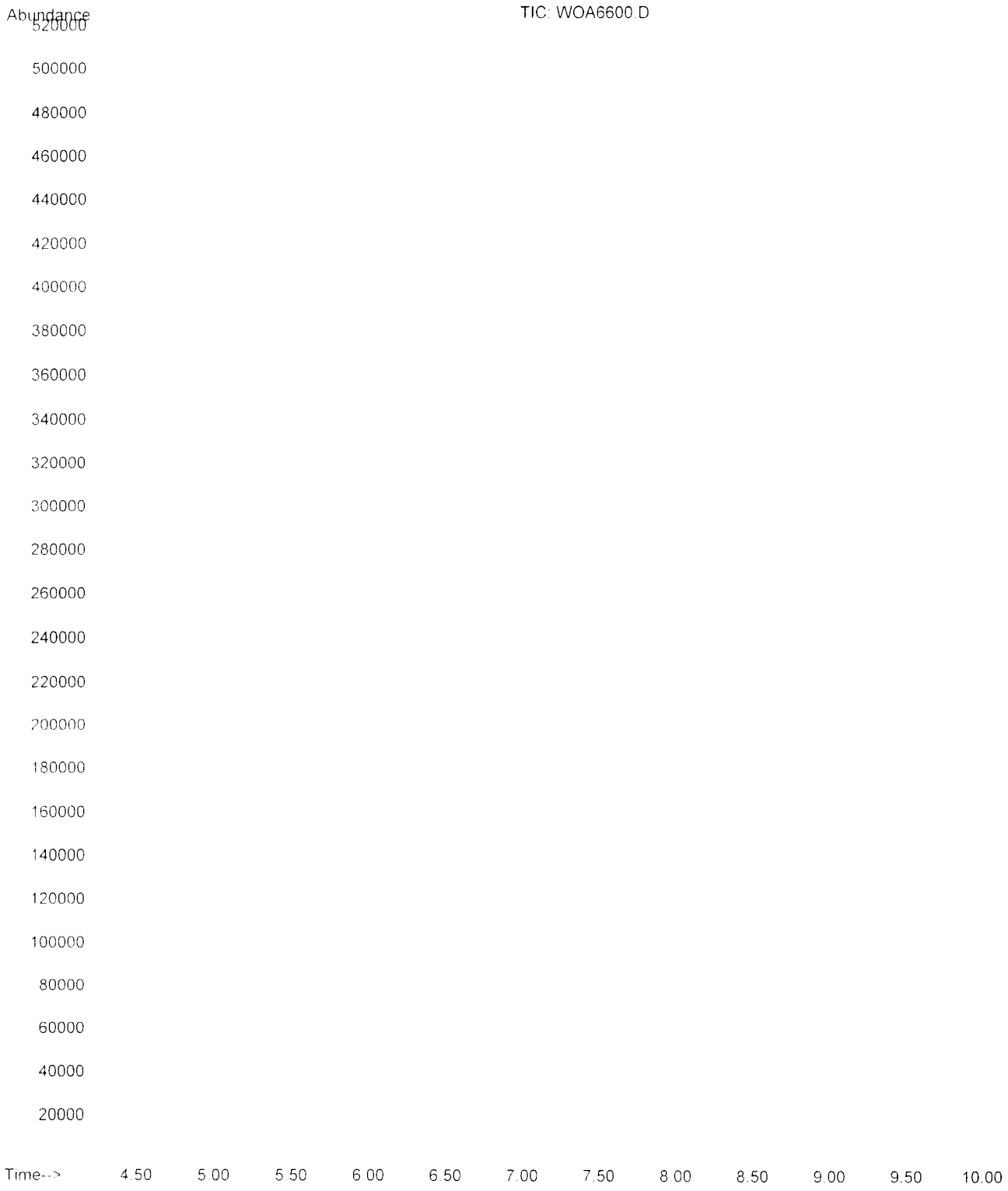
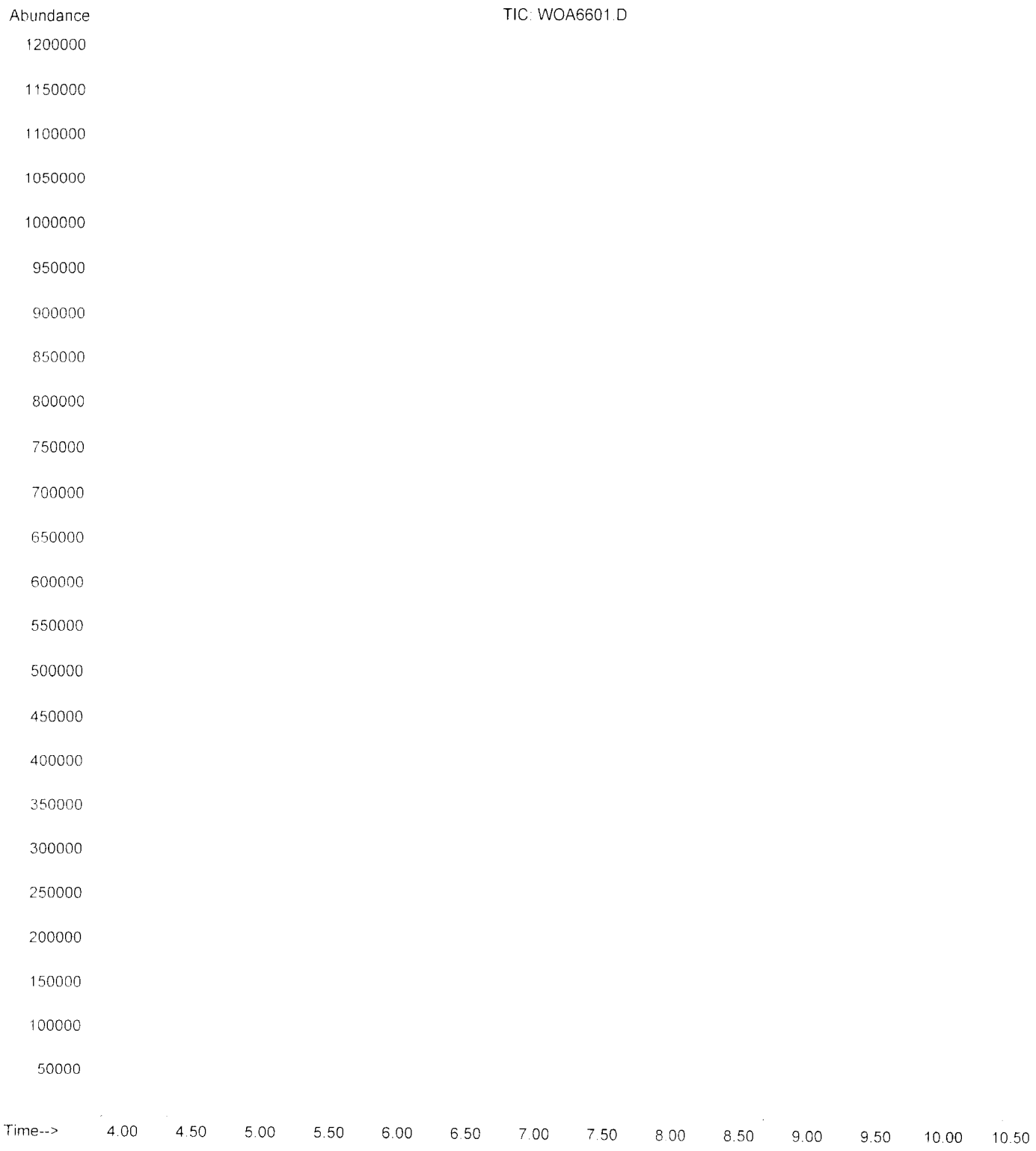
File : C:\HPCHEM\1\DATA\WOA6586.D
Operator : Raphe HGS
Acquired : 16 Mar 2004 4:04 pm using AcqMethod N021304
Instrument : GC/MS Ins
Sample Name: FP2-04223-15
Misc Info : SFS/FERO 16MAR04 1358 A20
Vial Number: 1



File : C:\HPCHEM\1\DATA\WOA6587.D
Operator : Raphe HGS
Acquired : 16 Mar 2004 4:23 pm using AcqMethod N021304
Instrument : GC/MS Ins
Sample Name: FP1-04224-30
Misc Info : SFS/FERO 16MAR04 1416 X19
Vial Number: 1



File : C:\HPCHEM\1\DATA\WOA6600.D
Operator : Raphe HGS
Acquired : 17 Mar 2004 1:23 pm using AcqMethod N021304
Instrument : GC/MS Ins
Sample Name: STACK-04234
Misc Info : Sunset/EBI 17MAR04 1311 A14
Vial Number: 1



File : C:\HPCHEM\1\DATA\WOA6601.D
Operator : Raphe HGS
Acquired : 17 Mar 2004 1:43 pm using AcqMethod N021304
Instrument : GC/MS Ins
Sample Name: 2C3-04235
Misc Info : SFS/FERO 17MAR04 1313 Y8
Vial Number: 1